

SAMPLE OF CO-PO MAPPING

**Department of
Applied Science &
Humanities**

PO

1. Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

2. Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

3. Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

4. Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

5. Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

6. The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

7. Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

9. Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

10. Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

11. Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

12. Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.



Director
R.D. Engineering College
Duhai, Ghaziabad

B. Tech. First Year, Semester- I
(All Branches except Agriculture Engineering and Biotechnology)

| 3- WEEKS STUDENT INDUCTION PROGRAMME | | | | | | | | | | | | | |
|---|-----------------------|--|------|-----------|-----------|----------|-----------|---------------------|----|------------------------|--------------------------------|------------|-----------|
| in the beginning of the session | | | | | | | | | | | | | |
| SN | Subject Code | Subject Name | Type | Category | Period | | | Sessional Component | | Sessional (SW) (TS/PS) | End Semester Examination (ESE) | Total | Credit |
| | | | | | L | T | P | CT | TA | | | | |
| | | | | | CT+TA | TE/PE | SW+ESE | Cr | | | | | |
| 1. | BAS101/ BAS102 | Engineering Physics/ Engineering Chemistry | T | BS | 3 | 1 | 0 | 20 | 10 | 30 | 70 | 100 | 4 |
| 2. | BAS103 | Engineering Mathematics-I | T | BS | 3 | 1 | 0 | 20 | 10 | 30 | 70 | 100 | 4 |
| 3. | BEE101/ BEC101 | Fundamentals of Electrical Engineering/ Fundamentals of Electronics Engineering | T | ES | 2 | 1 | 0 | 20 | 10 | 30 | 70 | 100 | 3 |
| 4. | BCS101/ BME101 | Programming for Problem Solving/ Fundamentals of Mechanical Engineering | T | ES | 2 | 1 | 0 | 20 | 10 | 30 | 70 | 100 | 3 |
| 5. | BAS104/ BAS105 | Environment and Ecology/ Soft Skills | T | BS/ HS | 3 | 0 | 0 | 20 | 10 | 30 | 70 | 100 | 3 |
| 6. | BAS151/ BAS152 | Engineering Physics Lab/ Engineering Chemistry Lab | P | BS | 0 | 0 | 3 | - | 50 | 50 | 50 | 100 | 1 |
| 7. | BEE151/ BEC151 | Basic Electrical Engineering Lab/ Basic Electronics Engineering Lab | P | ES | 0 | 0 | 3 | - | 50 | 50 | 50 | 100 | 1 |
| 8. | BCS151/ BAS155 | Programming for Problem Solving Lab/ English Language Lab | P | ES/ HS | 0 | 0 | 3 | - | 50 | 50 | 50 | 100 | 1 |
| 9. | BCE151 / BWS151 | Engineering Graphics & Design Lab/ Workshop Practice Lab | P | ES | 0 | 1 | 3 | - | 50 | 50 | 50 | 100 | 2 |
| | | | | | 13 | 5 | 12 | | | 350 | 550 | 900 | 22 |

Abbreviation Used:

- BS:** Basic Science Course
- ES:** Engineering Science Course
- HS:** Humanities and Social Science Course
- VA:** Value Added Course


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B. Tech. First Year, Semester- II
(All Branches except Agriculture Engineering and Biotechnology)

| SN | Subject Code | Subject Name | Type | Category | Period | | | Evaluation Scheme | | | | | |
|-----|-------------------|---|------|-----------|--------|---|-----------|---------------------|-----|------------------------|--------------------------------|--------------|--------|
| | | | | | L | T | P | Sessional Component | | Sessional (SW) (TS/PS) | End Semester Examination (ESE) | Total | Credit |
| | | | | | | | | CT | TA | | | | |
| 1. | BAS202/ BAS201 | Engineering Chemistry / Engineering Physics | T | BS | 3 | 1 | 0 | 20 | 10 | 30 | 70 | 100 | 4 |
| 2. | BAS203 | Engineering Mathematics-II | T | BS | 3 | 1 | 0 | 20 | 10 | 30 | 70 | 100 | 4 |
| 3. | BEC201/ BEE201 | Fundamentals of Electronics Engineering / Fundamentals of Electrical Engineering | T | ES | 2 | 1 | 0 | 20 | 10 | 30 | 70 | 100 | 3 |
| 4. | BME201/ BCS201 | Fundamentals of Mechanical Engineering/ Programming for Problem Solving | T | ES | 2 | 1 | 0 | 20 | 10 | 30 | 70 | 100 | 3 |
| 5. | BAS205/ BAS204 | Soft Skills / Environment and Ecology | T | HS/ BS | 3 | 0 | 0 | 20 | 10 | 30 | 70 | 100 | 3 |
| 6. | BAS252/ BAS251 | Engineering Chemistry Lab / Engineering Physics Lab | P | BS | 0 | 0 | 3 | - | 50 | 50 | 50 | 100 | 1 |
| 7. | BEC251/ BEE251 | Basic Electronics Engineering Lab/ Basic Electrical Engineering Lab | P | ES | 0 | 0 | 3 | - | 50 | 50 | 50 | 100 | 1 |
| 8. | BAS255/ BCS251 | English Language Lab / Programming for Problem Solving Lab | P | HS/ ES | 0 | 0 | 3 | - | 50 | 50 | 50 | 100 | 1 |
| 9. | BWS251/ BCE251 | Workshop Practice Lab / Engineering Graphics & Design Lab | P | ES | 0 | 1 | 3 | - | 50 | 50 | 50 | 100 | 2 |
| 10. | BVA251/ BVA252 | Sports and Yoga / NSS | P | VA | 0 | 0 | 3 | | 100 | *100 | | *100 | 0 |
| | | | | | 13 | 5 | 12+ 3* | | | 350+ *100 | 550 | 900+ *100 | 22 |

*Compulsory Qualifying Audit Course

Abbreviation Used:

- BS:** Basic Science Course
- ES:** Engineering Science Course
- HS:** Humanities and Social Science Course
- VA:** Value Added Course

*Summer Internship (4-week) / NPTEL Course (4-week) during summer break
after Semester-II and same will be assessed/evaluated in the Semester-III*


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R.D. ENGINEERING COLLEGE, GHAZIABAD

DEPARTMENT OF APPLIED SCIENCES & HUMANITIES
AVERAGE OF PROGRAM OUTCOMES (2022-2023)

| S.N. | YEAR | SEMESTER | Subjects With Codes | Program Outcomes | | | | | | | | | | | |
|----------------|-------------------------|----------|---------------------|------------------|------|------|------|------|------|------|------|------|------|------|------|
| | | | | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| 1 | B.Tech I year (2022-23) | ODD/EVEN | BAS101/BAS201 | 2.8 | 2 | 1 | 1 | 2.4 | - | 1 | - | 1.6 | 1 | 2 | 1 |
| | | | BAS102/BAS202 | 2.8 | 2.2 | 2.2 | 1.8 | 2 | 1.8 | 1.2 | - | 1 | - | - | 1 |
| | | | BAS103 | 3 | 3 | 2.4 | 2 | 1.2 | 1.25 | 1 | - | - | - | 1.2 | 2 |
| | | | BAS203 | 3 | 3 | 2 | 2 | 3 | 1.6 | 2 | - | 1.6 | - | 1 | 1.6 |
| | | | BEE101/BEE201 | 2.6 | 2.5 | - | 2 | - | 1 | 3 | - | - | - | 1.2 | 2.6 |
| | | | BEC101/BEC201 | 3 | 3 | 2 | 1 | 1 | 1.5 | 1.5 | 1.5 | - | 2 | - | 2 |
| | | | BCS101/BCS201 | 2.6 | 2.4 | 2 | 1.3 | 1 | 2 | - | 1 | 2.4 | 1 | 1 | 3 |
| | | | BME101/BME201 | 3 | 1.8 | 1.8 | 1.2 | - | 1.8 | - | - | - | - | - | 1.6 |
| | | | BAS104/BAS204 | 2 | 1.5 | 1 | 2 | - | 1.8 | 2 | 1.4 | - | - | - | 3 |
| | | | + BAS105/BAS205 | 1.8 | 2 | 1.5 | 1.4 | - | 1.6 | 1.5 | 2 | 2 | 2.3 | 1.4 | 1.6 |
| AVERAGE | | | | 2.66 | 2.34 | 1.77 | 1.57 | 1.77 | 1.59 | 1.65 | 1.48 | 1.72 | 1.58 | 1.30 | 1.94 |

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| R.D. ENGINEERING COLLEGE, GHAZIABAD | | | |
|--|-------------------|-------------|--------------|
| DEPARTMENT OF APPLIED SCIENCES & HUMANITIES | | | |
| ACTION TAKEN ON IDENTIFIED GAP OF PROGRAM OUTCOMES (2022-2023) | | | |
| S.N. | Gap Identified | Relevant PO | Action Taken |
| 1 | NO GAP IDENTIFIED | | |
| | | | |
| | | | |


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R.D. ENGINEERING COLLEGE GHAZIABAD
DEPARTMENT OF APPLIED SCIENCES AND HUMANITIES
COURSE OUTCOME (2022-23)
BAS101/201 : ENGINEERING PHYSICS

| Course Outcome No. | Course Outcomes Statement |
|--------------------|--|
| CO1 | To explain the distribution of energy in black body radiation and to understand the difference in particle and wave nature with explanation of Compton effect and Schrodinger wave equation. |
| CO2 | To understand the concept of displacement current and consistency of Ampere's law and also the properties of electromagnetic waves in different medium with the use of Maxwell's equations. |
| CO3 | To understand the behavior of waves through various examples/applications of interference and diffraction phenomenon and the concept of grating and resolving power. |
| CO4 | To know the functioning of optical fiber and its properties and applications. To understand the concept, properties and applications of Laser. |
| CO5 | To know the properties and applications of superconducting materials and nano materials. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|------------|------------|------------|------------|----------|------------|----------|------------|------------|------------|------------|
| CO | Program Outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 2 | - | 1 | 2 | - | 1 | - | 1 | 1 | 2 | 1 |
| CO2 | 3 | 2 | - | 1 | 3 | - | 1 | - | 2 | 1 | 2 | 1 |
| CO3 | 2 | 2 | - | 1 | 2 | - | 1 | - | 2 | 1 | 2 | 1 |
| CO4 | 3 | 2 | 1 | 1 | 2 | - | 1 | - | 1 | 1 | 2 | 1 |
| CO5 | 3 | 2 | 1 | 1 | 3 | - | 1 | - | 2 | 1 | 2 | 1 |
| Course Average | 2.8 | 2.0 | 1.0 | 1.0 | 2.4 | - | 1.0 | - | 1.6 | 1.0 | 2.0 | 1.0 |

3 – High; 2 – Medium; 1 – Low


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**R.D. ENGINEERING COLLEGE GHAZIABAD
B.TECH I YEAR**

DEPARTMENT OF APPLIED SCIENCES AND HUMANITIES

ENGINEERING CHEMISTRY(BAS102/BAS202)

SESSION :2022-23

| Course Outcome | Statement |
|----------------|--|
| CO1 | Get an understanding of the theoretical principles of chemistry of molecular structure, bonding and properties, Chemistry of advanced materials (liquid crystals, Nanomaterials, Graphite & Fullerene) as well as the Principles of Green Chemistry. |
| CO2 | Apply the fundamental concepts of determination of structure with various spectral techniques and stereochemistry. |
| CO3 | Utilize the theory of construction of electrodes, batteries and fuel cells in redesigning new engineering products and categorize the reasons for corrosion and study methods to control corrosion and develop understanding of Chemistry of Engineering materials (Cement). |
| CO4 | Develop understanding of the sources, impurities and hardness of water, apply the concepts of determination of calorific values and analyze the coal. |
| CO5 | Develop the understanding of Chemical structure of polymers and its effect on their various properties when used as engineering materials. Understanding the applications of specific polymers and Chemistry applicable in industrial process. |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|-----------------------|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|
| BAS102/BAS202 (Engineering Chemistry) | | | | | | | | | | | | |
| Course Outcome | Program Outcomes (PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 2 | 3 | 2 | 2 | 2 | 2 | - | 1 | - | - | 1 |
| CO2 | 3 | 3 | 2 | 2 | 2 | 2 | 1 | - | 1 | - | - | 1 |
| CO3 | 3 | 2 | 2 | 1 | 2 | 1 | 1 | - | 1 | - | - | 1 |
| CO4 | 3 | 2 | 2 | 2 | 2 | 2 | 1 | - | 1 | - | - | 1 |
| CO5 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | - | 1 | - | - | 1 |
| Course Average | 2.8 | 2.2 | 2.2 | 1.8 | 2.0 | 1.8 | 1.2 | - | 1.00 | - | - | 1.0 |

3 – High; 2 – Medium; 1 – Low


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DEPARTMENT OF APPLIED SCIENCES AND HUMANITIES

COURSE OUTCOME (2022-23)

BAS 103 : Engineering Mathematics I

| CO | Course Outcomes Statements |
|-----|--|
| CO1 | Understand the concept of complex matrices, Eigen values, Eigen vectors and apply the concept of rank to evaluate linear simultaneous equations. |
| CO2 | Remember the concept of differentiation to find successive differentiation, Leibnitz Theorem, and create curve tracing, and find partial and total derivatives |
| CO3 | Applying the concept of partial differentiation to evaluate extrema, series expansion, error approximation of functions and Jacobians. |
| CO4 | Remember the concept of Beta and Gamma function; analyze area and volume and Dirichlet's theorem in multiple integral. |
| CO5 | Apply the concept of Vector Calculus to analyze and evaluate directional derivative, line, surface and volume integrals. |

Mapping of Course outcomes with Program outcomes

KAS 103 : Engineering Mathematics I

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 3 | 2 | 2 | 2 | 1 | - | - | - | 2 | 2 |
| CO2 | 3 | 3 | 1 | 1 | 1 | - | 1 | - | - | - | 1 | 2 |
| CO3 | 3 | 3 | 2 | 1 | 1 | 1 | 1 | - | - | - | 1 | 2 |
| CO4 | 3 | 3 | 3 | 3 | 1 | 1 | 1 | - | - | - | 1 | 2 |
| CO5 | 3 | 3 | 3 | 3 | 1 | 1 | 1 | - | - | - | 1 | 2 |
| Average | 3 | 3 | 2.4 | 2.0 | 1.2 | 1.3 | 1.0 | - | - | - | 1.2 | 2.0 |


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DEPARTMENT OF APPLIED SCIENCES AND HUMANITIES

COURSE OUTCOME (2022-23)

BAS 203 : Engineering Mathematics II

| CO | Course Outcomes Statements |
|-----|---|
| CO1 | Remember the concept differentiation to evaluate LDE of nth order with constant coefficient and LDE with variable coefficient of 2nd order. |
| CO2 | Understand and apply the concept of Laplace Transform to evaluate differential equations |
| CO3 | Understand the concept of convergence to analyze the convergence of series and expansion of the function for Fourier series |
| CO4 | Apply the concept of analyticity, Harmonic function and create the image of function applying conformal transformation |
| CO5 | Apply the concept of Cauchy Integral theorem, Cauchy Integral formula, singularity and calculus of residue to evaluate integrals. |

Mapping of Course outcomes with Program outcomes

KAS 203 : Engineering Mathematics II

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 2 | 2 | 3 | 2 | 2 | - | 2 | - | 1 | 2 |
| CO2 | 3 | 3 | 2 | 2 | 3 | 2 | 2 | - | 2 | - | 1 | 2 |
| CO3 | 3 | 3 | 2 | 2 | 3 | 2 | 2 | - | 2 | - | 1 | 2 |
| CO4 | 3 | 3 | 2 | 2 | 3 | 1 | 2 | - | 1 | - | 1 | 1 |
| CO5 | 3 | 3 | 2 | 2 | 3 | 1 | 2 | - | 1 | - | 1 | 1 |
| Average | 3 | 3 | 2 | 2 | 3 | 1.6 | 2 | - | 1.6 | - | 1.2 | 1.6 |

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DEPARTMENT OF APPLIED SCIENCES AND HUMANITIES

COURSE OUTCOME (2022-23)

BEE101 / BEE201: FUNDAMENTALS OF ELECTRICAL ENGINEERING

| CO | Course Outcomes Statements |
|-----|---|
| CO1 | Apply the concepts of KVL/KCL and network theorems in solving DC circuits. |
| CO2 | Analyze the steady state behaviour of single phase and three phase AC electrical circuits. |
| CO3 | Identify the application areas of a single phase two winding transformer as well as an auto transformer and calculate their efficiency. Also identify the connections of a three phase transformer. |
| CO4 | Illustrate the working principles of induction motor, synchronous machine as well as DC machine and employ them in different area of applications. |
| CO5 | Describe the components of low voltage electrical installations and perform elementary calculations for energy consumption. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|---|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| BEE101 / BEE201: FUNDAMENTALS OF ELECTRICAL ENGINEERING | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 2 | 2 | - | - | - | - | 3 | - | - | - | 2 | 2 |
| CO2 | 3 | 2 | - | - | - | - | 3 | - | - | - | 1 | 2 |
| CO3 | 3 | 3 | - | 2 | - | - | 3 | - | - | - | 1 | 2 |
| CO4 | 3 | 3 | - | 2 | - | - | 3 | - | - | - | 1 | 3 |
| CO5 | 2 | | - | - | - | 1 | 3 | - | - | - | 1 | 3 |
| Average | 2.6 | 2.5 | - | 2 | - | 1 | 3 | - | - | - | 1.2 | 2.6 |


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DEPARTMENT OF APPLIED SCIENCES AND HUMANITIES

Course Outcome (2022-23)

BEC101/201: Fundamentals of Electronics Engineering

| CO | Course Outcomes Statement |
|-----|--|
| CO1 | Describe the concept of PN Junction and devices. |
| CO2 | Explain the concept of BJT, FET and MOFET. |
| CO3 | Apply the concept of Operational amplifier to design linear and non-linear applications. |
| CO4 | Perform number systems conversions, binary arithmetic and minimize logic functions. |
| CO5 | Describe the fundamentals of communication technologies. |

Mapping of Course Outcomes with Program Outcomes

BEC101/201: Fundamentals of Electronics Engineering

| CO | Program Outcome (PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 2 | 1 | 1 | - | - | - | - | - | - | 2 |
| CO2 | 3 | 3 | 2 | 1 | 1 | - | - | - | - | - | - | 2 |
| CO3 | 3 | 3 | 2 | 1 | 1 | 1 | 1 | 1 | - | - | - | 2 |
| CO4 | 3 | 3 | 2 | 1 | 1 | - | - | - | - | - | - | 2 |
| CO5 | 3 | 3 | 2 | 1 | 1 | 2 | 2 | 2 | - | 2 | - | 2 |
| Average | 3.0 | 3.0 | 2.0 | 1 | 1.0 | 1.5 | 1.5 | 1.5 | - | 2 | - | 2.0 |


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R.D. ENGINEERING COLLEGE GHAZIABAD
B.TECH I YEAR
DEPARTMENT OF APPLIED SCIENCES AND HUMANITIES
PROGRAMMING FOR PROBLEM SOLVING
SESSION :2022-23

Semester: I &II

Subject Code: BCS 101/201

Subject Name: Programming For Problem Solving

| CO | Course Outcomes Statements |
|-----|--|
| CO1 | To Develop Simple Algorithms for Arithmetic and Logical Problems. |
| CO2 | To Translate ther Algorithm to Programs & Execution(In C Language) |
| CO3 | To Implement Conditional Branching, Iteration and Recursion. |
| CO4 | To Decompose a Problem into Functions and Synthesize a Complete Program Using Divide and Conquer |
| CO5 | To Use Arrays, Pointers and Structures to Develop Algorithms and Programs. |

Mapping of Course outcomes with Program outcomes

BCS 101/201 - Programming For Problem Solving

| CO | Program Outcomes(PO) | | | | | | | | | | | |
|-----------------------|----------------------|------------|------------|------------|------------|------------|----------|----------|-------------|----------|----------|------------|
| | PO-1 | PO-2 | PO-3 | PO-4 | PO-5 | PO-6 | PO-7 | PO-8 | PO-9 | PO-10 | PO-11 | PO-12 |
| CO1 | 2 | 2 | - | - | 1 | - | - | 1 | 3 | 1 | 1 | 3 |
| CO2 | 2 | 2 | - | - | 1 | - | - | 1 | 3 | 1 | 1 | 3 |
| CO3 | 3 | 2 | 2 | 2 | 1 | 2 | - | 1 | 2 | 1 | 2 | 3 |
| CO4 | 3 | 3 | 2 | 1 | 1 | 2 | - | 1 | 2 | 1 | 1 | 3 |
| CO5 | 3 | 3 | 2 | 1 | 1 | 2 | - | 1 | 2 | 1 | 1 | 3 |
| Course Average | 2.6 | 2.4 | 2.0 | 1.3 | 1.0 | 2.0 | - | 1 | 2.40 | 1 | 1 | 3.0 |


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DEPARTMENT OF APPLIED SCIENCES AND HUMANITIES

COURSE OUTCOME (2022-23)

BME101 / BME201: FUNDAMENTALS OF MECHANICAL ENGINEERING

| CO | Course Outcomes Statements |
|-----|--|
| CO1 | Apply the concept of force resolution and stress and strain to solve basic Problems. |
| CO2 | Understand the construction details and working of internal combustion engines, electric vehicle, and hybrid vehicles. |
| CO3 | Explain the construction details and working of refrigerator, heat pump and air conditioner. |
| CO4 | Understand fluid properties, conservation laws and hydraulic machinery used in real life. |
| CO5 | Understand the working principle of different measuring instrument and mechatronics with their advantage and industrial application. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|---|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| BME101 / BME201: FUNDAMENTALS OF MECHANICAL ENGINEERING | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 2 | 2 | 2 | - | 2 | - | - | - | - | - | 2 |
| CO2 | 3 | 1 | 2 | 1 | - | 2 | - | - | - | - | - | 1 |
| CO3 | 3 | 2 | 2 | 1 | - | 1 | - | - | - | - | - | 2 |
| CO4 | 3 | 2 | 1 | 1 | - | 2 | - | - | - | - | - | 2 |
| CO5 | 3 | 2 | 2 | 1 | - | 2 | - | - | - | - | - | 1 |
| Average | 3 | 1.8 | 1.8 | 1.2 | - | 1.8 | - | - | - | - | - | 1.6 |


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DEPARTMENT OF APPLIED SCIENCE AND HUMANITIES
COURSE OUTCOME (2022-23)

BAS 104 / BAS 204: Environment and Ecology

| CO | CO Statement |
|-----|--|
| CO1 | Aims and objectives of environmental education emphasize the relationship between man and the environment and educate young people about the importance of nature and the environment. |
| CO2 | Environmental education aims to impart ecological knowledge and promote environmentally conscious behaviour towards nature. |
| CO3 | It encourages young minds to take responsibility for protecting the natural environment protection through information and knowledge and to develop environmental awareness. |
| CO4 | Incidentally, promoting awareness and a sense of respect for nature leads to a comprehensive understanding of the environment and a reasonable attitude towards protecting it. |
| CO5 | The focus of environmental education is Awareness, Knowledge, Attitude, Skills, Capacity Building and Participation. |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| BAS 104 / BAS 204: Environment and Ecology | | | | | | | | | | | | |
| PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO | | | | | | | | | | | | |
| CO1 | 1 | 2 | - | - | - | 2 | 2 | 1 | - | - | - | 3 |
| CO2 | 2 | 1 | - | - | - | 1 | 2 | 1 | - | - | - | 3 |
| CO3 | 3 | 2 | 1 | - | - | 2 | 2 | 1 | - | - | - | 3 |
| CO4 | 2 | 1 | 1 | 2 | - | 2 | 2 | 2 | - | - | - | 3 |
| CO5 | 2 | - | - | - | - | 2 | 2 | 2 | - | - | - | 3 |
| Average | 2.0 | 1.5 | 1.0 | 2.0 | - | 1.8 | 2.0 | 1.4 | - | - | - | 3.0 |


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DEPARTMENT OF APPLIED SCIENCES AND HUMANITIES

COURSE OUTCOME (2022-23)

BAS 105 : SOFT SKILLS

| CO | Course Outcomes Statements |
|-----|---|
| CO1 | Apply the basic grammar in general conversation and writing. |
| CO2 | Understanding the value of listening and its types along with different speaking styles. |
| CO3 | Understanding different reading styles and concept. Getting acquaintance with official writing skills. |
| CO4 | Practically and theoretically knowing the importance of presentation and interaction skills and its use. |
| CO5 | Knowing what is required to be fit for the industry including mental health, stress Management and leadership skills. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| BAS 105: SOFT SKILLS | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | - | - | - | 2 | 1 | 1 | 1 | 3 | - | 1 | - |
| CO2 | 1 | - | 1 | 2 | - | 1 | 2 | 1 | 2 | - | - | 3 |
| CO3 | 3 | 2 | - | - | - | 1 | 2 | 1 | 3 | 2 | 3 | - |
| CO4 | 1 | - | 2 | 1 | - | 1 | - | 1 | 2 | - | 1 | 3 |
| CO5 | 2 | 2 | 2 | - | 2 | 1 | - | 1 | 3 | - | - | 3 |
| Average | - | 1 | - | - | 2 | 1 | 1 | 1 | 3 | 2 | 1 | - |


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R.D. ENGINEERING COLLEGE GHAZIABAD
B.TECH I YEAR
DEPARTMENT OF APPLIED SCIENCES AND HUMANITIES
PROGRAMMING FOR PROBLEM SOLVING LAB
SESSION :2022-23

| | |
|--|--|
| Semester: I &II | |
| Subject Code: BCS 151/251 | |
| Subject Name: PROGRAMMING FOR PROBLEM SOLVING LAB | |
| CO | Course Outcomes Statements |
| CO1 | Able to implement the algorithms and draw flowcharts for solving Mathematical and Engineering Problems |
| CO2 | Demonstrate an understanding of computer programming language concepts. |
| CO3 | Ability to design and develop Computer programs, analyzes, and interprets the concept of pointers, declarations, initialization, operations on pointers and their usage. |
| CO4 | Able to define data types and use them in simple data processing applications he/she must be able to use the concept of array of structures. |
| CO5 | Develop confidence for self-education and ability for life-long learning needed for Computer language. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|----------|------------|----------|----------|----------|----------|----------|----------|------------|------------|----------|
| BCS 151/251 PROGRAMMING FOR PROBLEM SOLVING LAB | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO-1 | PO-2 | PO-3 | PO-4 | PO-5 | PO-6 | PO-7 | PO-8 | PO-9 | PO-10 | PO-11 | PO-12 |
| CO1 | 3 | 3 | 2 | 1 | 1 | - | - | - | - | - | - | 2 |
| CO2 | 3 | 3 | 2 | 1 | 1 | - | - | - | - | 2 | 2 | 2 |
| CO3 | 3 | 3 | 2 | 1 | 1 | - | - | - | - | - | - | 2 |
| CO4 | 3 | 3 | 3 | 1 | 1 | - | - | - | - | - | - | 2 |
| CO5 | 3 | 3 | 3 | 1 | 1 | - | - | - | - | 3 | 3 | 2 |
| Course Average | 3 | 3 | 2.4 | 1 | 1 | - | - | - | - | 2.5 | 2.5 | 2 |


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DEPARTMENT OF APPLIED SCIENCES AND HUMANITIES
ENGINEERING CHEMISTRY LAB(BAS152/BAS252)
SESSION :2022-23

| Course Outcome | Statement |
|----------------|--|
| CO1 | Get an understanding of the use of different analytical instruments. |
| CO2 | Measure the molecular / system properties such as surface tension, viscosity, conductance of solution, chloride and iron content in the water. |
| CO3 | Measure the hardness and alkalinity of the water. |
| CO4 | Know the fundamental concepts of the preparation of phenol formaldehyde & urea formaldehyde resin, adipic acid and Paracetamol. |
| CO5 | Estimate the rate constant of reaction. |

Mapping of Course Outcomes with Program Outcomes

BAS152P/BAS252P (Engineering Chemistry Lab)

| Course Outcome | Program Outcomes (PO) | | | | | | | | | | | |
|----------------|-----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 2 | 1 | 1 | 2 | 1 | 1 | - | - | - | - | 1 |
| CO2 | 3 | 2 | 1 | 2 | 2 | 1 | 1 | - | - | - | - | 1 |
| CO3 | 3 | 3 | 1 | 2 | 2 | 1 | 1 | - | - | - | - | 1 |
| CO4 | 2 | 2 | 1 | 1 | 2 | 1 | 1 | - | - | - | - | 1 |
| CO5 | 2 | 2 | | | 1 | 1 | 1 | - | - | - | - | - |
| Course Average | 2.6 | 2 | 1 | 1.5 | 1.8 | 1.0 | 1.0 | - | - | - | - | 1 |

3 – High; 2 – Medium; 1 – Low


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COURSE OUTCOME (2022-23)

BEE151 / BEE251: -BASIC ELECTRICAL ENGINEERING LAB

| CO | Course Outcomes Statements |
|-----|--|
| CO1 | Conduct experiments illustrating the application of KVL/KCL to DC electrical circuits. |
| CO2 | Demonstrate the behavior of AC circuits connected to single phase AC supply and measure power in single phase as well as three phase electrical circuits |
| CO3 | Perform experiment illustrating BH curve of magnetic materials. |
| CO4 | Calculate efficiency of a single phase transformer and DC machine. |
| CO5 | Perform experiments on speed measurement and reversal of direction of three phase induction motor and Identify the type of DC and AC machines based on their construction. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| BEE151 / BEE251: -BASIC ELECTRICAL ENGINEERING LAB | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 2 | 2 | 1 | - | - | - | 3 | - | - | - | - | 2 |
| CO2 | 3 | 2 | 2 | - | - | - | 3 | - | - | - | - | 2 |
| CO3 | 3 | 2 | 2 | 2 | - | - | 3 | - | - | - | - | 2 |
| CO4 | 3 | 3 | 2 | 2 | - | - | 3 | - | - | - | - | 3 |
| CO5 | 2 | 2 | 1 | - | - | 1 | 3 | - | - | - | - | 3 |
| Average | 2.6 | 2 | 1.6 | 2 | - | 1 | 3 | - | - | - | - | 2.6 |


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COURSE OUTCOME (2022-23)

BWS151 / BWS251: - WORKSHOP PRACTICE LAB

| CO | Course Outcomes Statements |
|-----|---|
| CO1 | Use various engineering materials, tools, machines and measuring equipments. |
| CO2 | Perform machine operations in lathe and CNC machine. |
| CO3 | Perform manufacturing operations on components in fitting and carpentry shop. |
| CO4 | Perform operations in welding, moulding, casting and gas cutting. |
| CO5 | Fabricate a job by 3D printing manufacturing technique . . . |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| BWS151 / BWS251: - WORKSHOP PRACTICE LAB | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | - | - | - | - | - | 2 | 2 | 2 | 3 | 1 | 1 | 2 |
| CO2 | - | - | - | - | - | 2 | 2 | 2 | 3 | 1 | 1 | 3 |
| CO3 | - | - | - | - | - | 2 | 2 | 2 | 3 | 1 | 1 | 2 |
| CO4 | - | - | - | - | - | 2 | 2 | 2 | 3 | 1 | 1 | 2 |
| CO5 | - | - | - | - | - | 2 | 2 | 2 | 3 | 1 | 1 | 3 |
| Average | - | - | - | - | - | 2 | 2 | 2 | 3 | 1 | 1 | 2.4 |


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SAMPLE OF CO-PO MAPPING

Department of Civil Engineering



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COURSE OUTCOME (2022-23)

CIVIL -2ND YEAR

KOE033 : Energy Science & Engineering

| CO | CO Statement |
|-----|---|
| CO1 | To know about different Energy and its Usage |
| CO2 | To know about Nuclear Energy and its Usage |
| CO3 | To know about Solar Energy and its Usage |
| CO4 | To know about Conventional & non-conventional energy source and its Usage |
| CO5 | To know about Systems and Synthesis and its Usage |

Mapping of Course outcomes with Program outcomes

KOE033 : Energy Science & Engineering

| CO | Program Outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
| CO1 | 2 | 2 | 2 | 2 | 2 | 1 | - | - | - | - | - | 2 |
| CO2 | 3 | 2 | 2 | 2 | 2 | 1 | - | - | - | - | - | 2 |
| CO3 | 2 | 2 | 2 | 2 | 2 | 1 | - | - | - | - | - | 2 |
| CO4 | 2 | 2 | 2 | 2 | 2 | 1 | - | - | - | - | - | 2 |
| CO5 | 2 | 2 | 2 | 2 | 2 | 1 | - | - | - | - | - | 2 |
| Average | 2.2 | 2 | 2 | 2 | 2 | 1 | - | - | - | - | - | 2 |




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COURSE OUTCOME (2022-23)

CIVIL -2ND YEAR

KVE 301: Universal Human Value

| CO | CO Statement |
|-----|---|
| CO1 | Understand the significance of value inputs in a classroom, distinguish between values and skills, understand the need, basic guidelines, content of value education, explore the meaning of happiness and prosperity and do a correct appraisal of the current scenario in the society |
| CO2 | Distinguish between the Self and the Body; understand the meaning of Harmony in the Self the Co-existence of Self and Body. |
| CO3 | Understand the value of harmonious relationship based on trust, respect and other naturally acceptable feelings in human-human relationships and explore their role in ensuring a harmonious society. |
| CO4 | Understand the harmony in nature and existence, and work out their mutually fulfilling participation in the nature. |
| CO5 | Distinguish between ethical and unethical practices, and start working out the strategy to actualize a harmonious environment wherever they work. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KVE 301: Universal Human Value | | | | | | | | | | | | |
| CO | Program Outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | - | - | - | - | 2 | 1 | 1 | 1 | 3 | - | 1 | - |
| CO2 | - | - | - | - | - | 1 | - | 1 | 3 | - | - | - |
| CO3 | - | - | - | - | - | 1 | 1 | 1 | 3 | - | 1 | - |
| CO4 | - | - | - | - | - | 1 | - | 1 | 3 | - | 1 | - |
| CO5 | - | - | - | - | 2 | 1 | - | 1 | 3 | - | - | - |
| Average | - | - | - | - | 2 | 1 | 1 | 1 | 3 | - | 1 | - |




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COURSE OUTCOME (2022-23)

CIVIL -2ND YEAR

KCE301: ENGINEERING MECHANICS

| CO | CO Statement |
|-----|---|
| CO1 | Use scalar and vector analytical techniques for analysing forces in statically determinate structures. |
| CO2 | Apply fundamental concepts of kinematics and kinetics of particles to the analysis of simple, practical problems. |
| CO3 | Apply basic knowledge of mathematics and physics to solve real-world problems. |
| CO4 | Understand basic dynamics concepts – force, momentum, work and energy. |
| CO5 | Understand and be able to apply Newton's laws of motion. |

Mapping of Course outcomes with Program outcomes

KCE301: ENGINEERING MECHANICS

| CO | Program Outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|------|------|------|------|------|------|------|------|-------|-------|-------|
| | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
| CO1 | 3 | 3 | 3 | 2 | 3 | 1 | - | - | - | - | - | 2 |
| CO2 | 2 | 2 | 2 | 3 | 2 | 1 | - | - | - | - | - | 3 |
| CO3 | 3 | 3 | 3 | 2 | 3 | 2 | - | - | - | - | - | 2 |
| CO4 | 2 | 2 | 2 | 3 | 2 | 1 | | | | | | 3 |
| CO5 | 2 | 2 | 2 | 2 | 2 | 1 | | | | | | 2 |
| Average | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 1.2 | - | - | - | - | - | 2.4 |




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COURSE OUTCOME (2022-23)

CIVIL -2ND YEAR

KCE302 :SURVEYING & GEOMATICS

| CO | CO Statement |
|-----|---|
| CO1 | Describe the function of surveying and work with survey instruments, take observations, and prepare plan, profile, and cross-section and perform calculations. |
| CO2 | Calculate, design and layout horizontal and vertical curves. |
| CO3 | Operate a total station and GPS to measure distance, angles, and to calculate differences in elevation. Reduce data for application in a geographic information system. |
| CO4 | Relate and apply principles of photogrammetry for surveying. |
| CO5 | Apply principles of Remote Sensing and Digital Image Processing for Civil Engineering problems. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|------|------|------|------|------|------|------|------|-------|-------|-------|
| KCE302 :SURVEYING & GEOMATICS | | | | | | | | | | | | |
| CO | Program Outcomes(PO) | | | | | | | | | | | |
| | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
| CO1 | 3 | 2 | 3 | 2 | 2 | 1 | - | - | - | - | - | 2 |
| CO2 | 2 | 3 | 2 | 3 | 2 | 1 | - | - | - | - | - | 1 |
| CO3 | 3 | 2 | 3 | 2 | 3 | 1 | - | - | - | - | - | 2 |
| CO4 | 3 | 3 | 3 | 3 | 2 | 2 | | | | | | 2 |
| CO5 | 2 | 3 | 2 | 3 | 2 | 1 | | | | | | 1 |
| Average | 2.6 | 2.6 | 2.6 | 2.6 | 2.2 | 1.2 | - | - | - | - | - | 1.6 |




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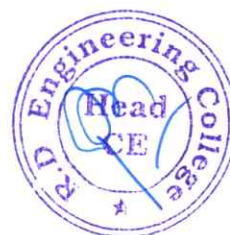
COURSE OUTCOME (2022-23)

CIVIL -2ND YEAR

KCE 303: FLUID MECHANICS

| CO | CO Statement |
|-----|--|
| CO1 | Understand the broad principles of fluid statics, kinematics and dynamics. |
| CO2 | Understand definitions of the basic terms used in fluid mechanics. |
| CO3 | Understand classifications of fluid flow. |
| CO4 | Apply the continuity, momentum and energy principles. |
| CO5 | Apply dimensional analysis. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|------|------|------|------|------|------|------|------|-------|-------|-------|
| KCE 303 :FLUID MECHANICS | | | | | | | | | | | | |
| CO | Program Outcomes(PO) | | | | | | | | | | | |
| | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
| CO1 | 3 | 2 | 3 | 2 | 2 | 1 | - | - | - | - | - | 2 |
| CO2 | 2 | 3 | 2 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| CO3 | 3 | 2 | 3 | 2 | 3 | 2 | - | - | - | - | - | 3 |
| CO4 | 2 | 3 | 2 | 3 | 2 | 1 | | | | | | 2 |
| CO5 | 3 | 2 | 3 | 2 | 2 | 1 | | | | | | 3 |
| Average | 2.6 | 2.4 | 2.6 | 2.4 | 2.2 | 1.2 | - | - | - | - | - | 2.4 |




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COURSE OUTCOME (2022-23)

CIVIL -2ND YEAR

KNC 302: PYTHON PROGRAMMING

| CO | CO Statement |
|-----|---|
| CO1 | To read and write simple Python programs. |
| CO2 | To develop Python programs with conditionals and loops. |
| CO3 | To define Python functions and to use Python data structures – lists, tuples, dictionaries. |
| CO4 | To do input/output with files in Python. |
| CO5 | To do searching, sorting and merging in Python. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|------|------|------|------|------|------|------|------|-------|-------|-------|
| KNC 302: PYTHON PROGRAMMING | | | | | | | | | | | | |
| CO | Program Outcomes(PO) | | | | | | | | | | | |
| | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
| CO1 | 3 | 2 | 2 | 3 | 3 | 2 | - | - | - | - | - | 2 |
| CO2 | 3 | 3 | 3 | 2 | 2 | 1 | - | - | - | - | - | 1 |
| CO3 | 2 | 2 | 2 | 3 | 3 | 2 | - | - | - | - | - | 2 |
| CO4 | 3 | 3 | 3 | 2 | 2 | 1 | | | | | | 1 |
| CO5 | 2 | 2 | 2 | 2 | 3 | 2 | | | | | | 2 |
| Average | 2.6 | 2.4 | 2.4 | 2.4 | 2.6 | 1.6 | - | - | - | - | - | 1.6 |




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COURSE OUTCOME (2022-23)

CIVIL -2ND YEAR

KCE 353: FLUID MECHANICS LAB

| CO | CO Statement |
|-----|--|
| CO1 | Understand the knowledge about the basic terminologies and will able to find out various conditions related to stability of floating bodies. |
| CO2 | Understand the knowledge about the fluid motion and will be able to distinguish between them based on Reynolds no. |
| CO3 | Apply Bernoulli's equation in flow measuring devices together with their calibration |
| CO4 | Understand sources of major and minor losses and in practical conditions, |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|------|------|------|------|------|------|------|------|-------|-------|-------|
| KCE 353 :FLUID MECHANICS LAB | | | | | | | | | | | | |
| CO | Program Outcomes(PO) | | | | | | | | | | | |
| | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
| CO1 | 2 | 2 | 2 | 2 | 2 | 1 | - | - | - | - | - | 1 |
| CO2 | 2 | 3 | 2 | 2 | 2 | 1 | - | - | - | - | - | 1 |
| CO3 | 3 | 2 | 2 | 2 | 3 | 2 | - | - | - | - | - | 1 |
| CO4 | 2 | 3 | 2 | 2 | 2 | 1 | | | | | | 1 |
| Average | 2.25 | 2.5 | 2 | 2 | 2.25 | 1.25 | - | - | - | - | - | 1 |




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COURSE OUTCOME (2022-23)

CIVIL -2ND YEAR

KCE 351: Building Planning & Drawing Lab

| CO | CO Statement |
|-----|---|
| CO1 | Apply the building bye laws and principles of planning for residential and public buildings. |
| CO2 | Prepare detail drawings for residential and public buildings. |
| CO3 | Explain the design and drawing of economical buildings |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|------|------|------|------|------|------|------|------|-------|-------|-------|
| KCE 351: Building Planning & Drawing Lab | | | | | | | | | | | | |
| CO | Program Outcomes(PO) | | | | | | | | | | | |
| | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
| CO1 | 2 | - | - | - | - | 2 | 3 | - | - | - | - | 2 |
| CO2 | 2 | - | - | - | - | 2 | 3 | - | - | - | - | 2 |
| CO3 | 2 | - | - | - | - | 2 | 3 | - | - | - | - | 2 |
| Average | 2 | - | - | - | - | 2 | 3 | - | - | - | - | 2 |




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COURSE OUTCOME (2022-23)

CIVIL -2ND YEAR

KCE 352: Surveying and Geomatics Lab

| CO | CO Statement |
|-----|---|
| CO1 | Apply the principle of surveying for civil Engineering Applications |
| CO2 | Calculation of areas, Drawing plans and contour maps using different measuring equipment at field level |
| CO3 | Write a technical laboratory report |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|------|------|------|------|------|------|------|------|-------|-------|-------|
| KCE 352: Surveying and Geomatics Lab | | | | | | | | | | | | |
| CO | Program Outcomes(PO) | | | | | | | | | | | |
| | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
| CO1 | 2 | - | - | - | - | 2 | 3 | - | - | - | - | 2 |
| CO2 | 2 | - | - | - | - | 2 | 3 | - | - | - | - | 2 |
| CO3 | 2 | - | - | - | - | 2 | 3 | - | - | - | - | 2 |
| Average | 2 | - | - | - | - | 2 | 3 | - | - | - | - | 2 |




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COURSE OUTCOME (2022-23)

CIVIL -2ND YEAR

KAS 403: MATHS - III

| CO | CO Statement |
|-----|---|
| CO1 | The idea of Laplace transform of functions and their application |
| CO2 | The idea of Fourier transform of functions and their applications |
| CO3 | The basic ideas of logic and Group and uses. |
| CO4 | The idea s of sets, relation, function and counting techniques. |
| CO5 | The idea of lattices, Boolean algebra, Tables and Karnaugh maps. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|------|------|------|------|------|------|------|------|-------|-------|-------|
| KAS 403: MATHS - III | | | | | | | | | | | | |
| CO | Program Outcomes(PO) | | | | | | | | | | | |
| | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
| CO1 | 2 | 2 | 2 | - | 2 | - | - | - | - | - | - | 1 |
| CO2 | 3 | 3 | 2 | 2 | - | - | - | - | - | - | - | 1 |
| CO3 | 2 | 2 | 2 | 2 | - | - | - | - | - | - | 1 | 1 |
| CO4 | 2 | 2 | - | 2 | 2 | - | - | - | - | - | 1 | 1 |
| CO5 | 2 | 2 | - | - | 2 | - | 1 | - | - | - | 2 | 1 |
| Average | 2.2 | 2.2 | 2 | 2 | 2 | - | 1 | - | - | - | 1.33 | 1 |




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COURSE OUTCOME (2022-23)

CIVIL -2ND YEAR

KAS 401: Technical Communication

| CO | CO Statement |
|-----|--|
| CO1 | Students will be enabled to understand the nature and objective of Technical Communication relevant for the work place as Engineers. |
| CO2 | Students will utilize the technical writing for the purposes of Technical Communication and its exposure in various dimensions. |
| CO3 | Students would imbibe inputs by presentation skills to enhance confidence in face of diverse audience. |
| CO4 | Technical communication skills will create a vast know-how of the application of learning to promote their technical competence. |
| CO5 | It would enable them to evaluate their efficacy as fluent & efficient communicators By learning the voice-dynamics. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|------|------|------|------|------|------|------|------|-------|-------|-------|
| KAS 401: Technical Communication | | | | | | | | | | | | |
| CO | Program Outcomes(PO) | | | | | | | | | | | |
| | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
| CO1 | 1 | 2 | 3 | 1 | 2 | 1 | 2 | 2 | - | 2 | - | 2 |
| CO2 | 1 | 2 | 3 | 1 | 2 | 2 | 2 | 1 | - | 2 | - | 2 |
| CO3 | 1 | 1 | 2 | 1 | 1 | 2 | 2 | 2 | - | 2 | - | 3 |
| CO4 | 2 | 1 | 3 | 2 | 1 | 1 | 2 | 1 | - | 2 | - | 3 |
| CO5 | 1 | 1 | 2 | 1 | 2 | 1 | 1 | 2 | - | 2 | - | 2 |
| Average | 1.2 | 1.4 | 2.6 | 1.2 | 1.6 | 1.4 | 1.8 | 1.6 | - | 2 | - | 2.4 |


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DEPARTMENT OF CIVIL ENGINEERING

COURSE OUTCOME (2022-23)

CIVIL -2ND YEAR

KCE 401: MATERIALS, TESTING & CONSTRUCTION PRACTICES

| CO | CO Statement |
|-----|--|
| CO1 | Identify various building materials and to understand their basic properties. |
| CO2 | Understand the use of non-conventional civil engineering materials. |
| CO3 | Study suitable type of flooring and roofing in the construction process. |
| CO4 | Characterize the concept of plastering, pointing and various other building services. |
| CO5 | Exemplify the various fire protection, sound and thermal insulation techniques, maintenance and repair of buildings. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|------|------|------|------|------|------|------|------|-------|-------|-------|
| KCE 401: MATERIALS, TESTING & CONSTRUCTION PRACTICES | | | | | | | | | | | | |
| CO | Program Outcomes(PO) | | | | | | | | | | | |
| | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
| CO1 | 3 | 2 | 3 | 2 | 3 | 1 | - | - | - | - | - | 1 |
| CO2 | 2 | 3 | 2 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| CO3 | 3 | 2 | 3 | 3 | 2 | 2 | - | - | - | - | - | 1 |
| CO4 | 2 | 3 | 2 | 2 | 3 | 1 | - | - | - | - | - | 2 |
| CO5 | 3 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| Average | 2.6 | 2.6 | 2.6 | 2.6 | 2.4 | 1.2 | - | - | - | - | - | 1.6 |




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COURSE OUTCOME (2022-23)

CIVIL -2ND YEAR

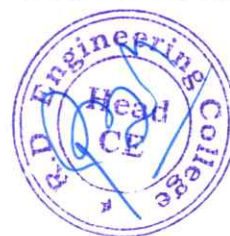
KCE402: INTRODUCTION TO SOLID MECHANICS

| CO | CO Statement |
|-----|---|
| CO1 | Describe the concepts and principles of stresses and strains |
| CO2 | Analyse solid mechanics problems using classical methods and energy methods. |
| CO3 | Analyse structural members subjected to combined stresses. |
| CO4 | Calculate the deflections at any point on a beam subjected to a combination of loads. |
| CO5 | Understand the behaviour of columns, springs and cylinders against loads. |

Mapping of Course outcomes with Program outcomes

KCE402: INTRODUCTION TO SOLID MECHANICS

| CO | Program Outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|------|------|------|------|------|------|------|------|-------|-------|-------|
| | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
| CO1 | 3 | 2 | 2 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| CO2 | 2 | 3 | 3 | 2 | 3 | 2 | - | - | - | - | - | 2 |
| CO3 | 3 | 2 | 2 | 3 | 2 | 1 | - | - | - | - | - | 1 |
| CO4 | 2 | 3 | 3 | 2 | 3 | 2 | - | - | - | - | - | 2 |
| CO5 | 3 | 2 | 2 | 3 | 2 | 1 | - | - | - | - | - | 1 |
| Average | 2.6 | 2.4 | 2.4 | 2.6 | 2.4 | 1.4 | - | - | - | - | - | 2 |




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COURSE OUTCOME (2022-23)

CIVIL -2ND YEAR

KCE 403: HYDRAULIC ENGINEERING & MACHINES

| CO | CO Statement |
|-----|---|
| CO1 | Apply their knowledge of fluid mechanics in addressing problems in open channels. |
| CO2 | Solve problems in uniform, gradually and rapidly varied flows in steady state conditions. |
| CO3 | Have knowledge in hydraulic machineries like pumps and turbines |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|------|------|------|------|------|------|------|------|-------|-------|-------|
| KCE 403: HYDRAULIC ENGINEERING & MACHINES | | | | | | | | | | | | |
| CO | Program Outcomes(PO) | | | | | | | | | | | |
| | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
| CO1 | 2 | 2 | 3 | 2 | 2 | - | - | - | - | - | - | 2 |
| CO2 | 3 | 3 | 2 | 2 | 2 | - | - | - | - | - | - | 3 |
| CO3 | 2 | 2 | 3 | 2 | 2 | - | - | - | - | - | - | 2 |
| CO4 | - | - | - | - | - | - | - | - | - | - | - | 3 |
| CO5 | - | - | - | - | - | - | - | - | - | - | - | 3 |
| Average | 2.33 | 2.33 | 2.66 | 2 | 2 | - | - | - | - | - | - | 2.6 |




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COURSE OUTCOME (2022-23)

CIVIL -2ND YEAR

KNC 401: Computer System Security

| CO | CO Statement |
|-----|--|
| CO1 | To discover software bugs that pose cyber security threats and to explain how to fix the bugs to mitigate such threats |
| CO2 | To discover cyber attack scenarios to web browsers and web servers and to explain how to mitigate such threats |
| CO3 | To discover and explain mobile software bugs posing cyber security threats explain and recreate exploits, and to explain mitigation techniques. |
| CO4 | To articulate the urgent need for cyber security in critical computer systems, networks, and world wide web, and to explain various threat scenarios |
| CO5 | To articulate the well known cyber attack incidents, explain the attack scenarios, and explain mitigation techniques. |

Mapping of Course outcomes with Program outcomes

KNC 401: Computer System Security

| CO | Program Outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|------------|------------|------------|----------|------|------|------|------|-------|-------|------------|
| | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
| CO1 | 2 | 1 | 2 | 1 | 2 | - | - | - | - | - | - | 2 |
| CO2 | 3 | 3 | 3 | 2 | 2 | - | - | - | - | - | - | 1 |
| CO3 | 2 | 1 | 1 | 3 | 1 | - | - | - | - | - | - | 2 |
| CO4 | 2 | 1 | 3 | 3 | 3 | - | - | - | - | - | - | 1 |
| CO5 | 2 | 2 | 3 | 2 | 2 | - | - | - | - | - | - | 2 |
| Average | 2.2 | 1.6 | 2.4 | 2.2 | 2 | - | - | - | - | - | - | 1.6 |




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COURSE OUTCOME (2022-23)

CIVIL -2ND YEAR

KCE 451: Material Testing Lab

| CO | CO Statement |
|-----|--|
| CO1 | Test various properties of cement. |
| CO2 | Test properties of coarse and fine aggregates |
| CO3 | Test water absorption dimension tolerances and compressive strength of bricks. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|------|------|------|------|------|------|------|------|-------|-------|-------|
| KCE 451: Material Testing Lab | | | | | | | | | | | | |
| CO | Program Outcomes(PO) | | | | | | | | | | | |
| | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
| CO1 | 3 | 2 | - | - | - | 2 | 1 | 1 | 1 | - | - | 2 |
| CO2 | 3 | 2 | - | - | - | 3 | 1 | 2 | 1 | - | - | 2 |
| CO3 | 3 | 2 | - | - | - | 3 | 1 | 2 | 1 | - | - | 2 |
| CO4 | - | - | - | - | - | - | - | - | - | - | - | - |
| CO5 | - | - | - | - | - | - | - | - | - | - | - | - |
| Average | 3 | 2 | - | - | - | 2.67 | 1 | 1.67 | 1 | - | - | 2 |




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COURSE OUTCOME (2022-23)

CIVIL -2ND YEAR

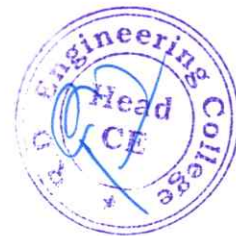
KCE-452: Solid Mechanics Lab

| CO | CO Statement |
|-----|---|
| CO1 | To determine the tension test on Mild Steel |
| CO2 | To determine the Hardness Test (Brinell's and Rockwell) of different metals |
| CO3 | To determine the Impact test (Charpy and IZOD) |

Mapping of Course outcomes with Program outcomes

KCE-452: Solid Mechanics Lab

| CO | Program Outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|------|------|------|------|------|------|------|------|-------|-------|-------|
| | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
| CO1 | 3 | 2 | - | - | - | 2 | 1 | 1 | 1 | - | - | 2 |
| CO2 | 3 | 2 | - | - | - | 3 | 1 | 2 | 1 | - | - | 2 |
| CO3 | 3 | 2 | - | - | - | 3 | 1 | 2 | 1 | - | - | 2 |
| CO4 | - | - | - | - | - | - | - | - | - | - | - | - |
| CO5 | - | - | - | - | - | - | - | - | - | - | - | - |
| Average | 3 | 2 | - | - | - | 2.67 | 1 | 1.67 | 1 | - | - | 2 |




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COURSE OUTCOME (2022-23)

CIVIL -2ND YEAR

KCE-453: Hydraulics & Hydraulic Machine Lab

| CO | CO Statement |
|-----|---|
| CO1 | Determine Manning coefficient & the velocity distribution in an open channel |
| CO2 | Analyse experimentally the study of flow characteristics over a hump & the study of flow characteristics through a horizontal contraction in a rectangular channel. |
| CO3 | Analyse experimentally flow characteristics of a free hydraulic jump & study characteristics of pumps and turbines |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|------|------|------|------|------|------|------|------|-------|-------|-------|
| KCE-453: Hydraulics & Hydraulic Machine Lab | | | | | | | | | | | | |
| CO | Program Outcomes(PO) | | | | | | | | | | | |
| | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
| CO1 | 2 | 2 | - | 2 | - | 1 | - | 1 | 2 | - | - | 2 |
| CO2 | 3 | 3 | - | 2 | - | 1 | - | 1 | 2 | - | - | 2 |
| CO3 | 3 | 3 | - | 2 | - | 2 | - | 1 | 2 | - | - | 1 |
| CO4 | - | - | - | - | - | - | - | - | - | - | - | - |
| CO5 | - | - | - | - | - | - | - | - | - | - | - | - |
| Average | 2.67 | 2.67 | - | 2 | - | 1.33 | - | 1 | 2 | - | - | 1.67 |




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COURSE OUTCOME (2022-23)

CIVIL -3RD YEAR

KCE 501 GEOTECHNICAL ENGINEERING

| CO | CO Statement |
|-----|---|
| CO1 | Classify the soil and determine its Index properties. |
| CO2 | Evaluate permeability and seepage properties of soil. |
| CO3 | Interpret the compaction and consolidation characteristics & effective stress concept of soil. |
| CO4 | Determine the vertical and shear stress under different loading conditions and explain the phenomenon of soil liquefaction. |
| CO5 | Interpret the earth pressure and related slope failures. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|------|------|------|------|------|------|------|------|-------|-------|-------|
| KCE 501 GEOTECHNICAL ENGINEERING | | | | | | | | | | | | |
| CO | Program Outcomes(PO) | | | | | | | | | | | |
| | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
| CO1 | 3 | 2 | 3 | 2 | 3 | - | - | - | - | - | - | 2 |
| CO2 | 2 | 3 | 2 | 3 | 2 | - | - | - | - | - | - | 1 |
| CO3 | 3 | 2 | 3 | 2 | 3 | - | - | - | - | - | - | 2 |
| CO4 | 2 | 3 | 2 | 3 | 2 | - | - | - | - | - | - | 2 |
| CO5 | 3 | 2 | 3 | 3 | 3 | - | - | - | - | - | - | 1 |
| Average | 2.6 | 2.4 | 2.6 | 2.6 | 2.6 | - | - | - | - | - | - | 1.6 |




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COURSE OUTCOME (2022-23)

CIVIL -3RD YEAR

KCE502 STRUCTURAL ANALYSIS

| CO | CO Statement |
|-----|--|
| CO1 | Explain type of structures and method for their analysis. |
| CO2 | Analyze different types of trusses for member forces. |
| CO3 | Compute slope and deflection in determinate structures using different methods. |
| CO4 | Apply the concept of influence lines and moving loads to compute bending moment and shear force at different sections. |
| CO5 | Analyze determinate arches for different loading conditions. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|------|------|------|------|------|------|------|------|-------|-------|-------|
| KCE502 STRUCTURAL ANALYSIS | | | | | | | | | | | | |
| CO | Program Outcomes(PO) | | | | | | | | | | | |
| | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
| CO1 | 3 | 2 | 3 | 2 | 3 | 1 | - | - | - | - | - | 1 |
| CO2 | 2 | 3 | 2 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| CO3 | 3 | 2 | 3 | 2 | 2 | 2 | - | - | - | - | - | 1 |
| CO4 | 2 | 3 | 2 | 3 | 3 | 1 | - | - | - | - | - | 2 |
| CO5 | 3 | 2 | 3 | 2 | 2 | 2 | - | - | - | - | - | 2 |
| Average | 2.6 | 2.4 | 2.6 | 2.4 | 2.4 | 1.4 | - | - | - | - | - | 1.6 |




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COURSE OUTCOME (2022-23)

CIVIL -3RD YEAR

KCE 503 QUANTITY ESTIMATION AND CONSTRUCTION MANAGEMENT

| CO | CO Statement |
|-----|---|
| CO1 | Understand the importance of units of measurement and preliminary estimate for administrative approval of projects. |
| CO2 | Understand the contracts and tender documents in construction projects. |
| CO3 | Analyze and assess the quantity of materials required for civil engineering works as per specifications. |
| CO4 | Evaluate and estimate the cost of expenditure and prepare a detailed rate analysis report. |
| CO5 | Evaluate and estimate the cost of expenditure and prepare a detailed rate analysis report. |

Mapping of Course outcomes with Program outcomes

KCE 503 QUANTITY ESTIMATION AND CONSTRUCTION MANAGEMENT

| CO | Program Outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|------|------|------|------|------|------|------|------|-------|-------|-------|
| | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
| CO1 | 3 | 2 | 3 | 2 | 3 | 1 | - | - | - | - | - | 2 |
| CO2 | 2 | 3 | 2 | 3 | 2 | 2 | - | - | - | - | - | 1 |
| CO3 | 3 | 2 | 3 | 2 | 3 | 1 | - | - | - | - | - | 2 |
| CO4 | 2 | 3 | 2 | 3 | 2 | 2 | | | | | | 1 |
| CO5 | 3 | 2 | 3 | 3 | 3 | 1 | | | | | | 2 |
| Average | 2.6 | 2.4 | 2.6 | 2.6 | 2.6 | 1.4 | - | - | - | - | - | 1.6 |




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COURSE OUTCOME (2022-23)

CIVIL -3RD YEAR

KCE 051 CONCRETE TECHNOLOGY

| CO | CO Statement |
|-----|---|
| CO1 | Understand the properties of constituent material of concrete. |
| CO2 | Apply admixtures to enhance the properties of concrete. |
| CO3 | Evaluate the strength and durability parameters of concrete. |
| CO4 | Design the concrete mix for various strengths using difference methods. |
| CO5 | Use advanced concrete types in construction industry. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|------|------|------|------|------|------|------|------|-------|-------|-------|
| KCE 051 CONCRETE TECHNOLOGY | | | | | | | | | | | | |
| CO | Program Outcomes(PO) | | | | | | | | | | | |
| | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
| CO1 | 3 | 2 | 3 | 2 | 3 | - | - | - | - | - | - | 2 |
| CO2 | 2 | 3 | 2 | 3 | 3 | - | - | - | - | - | - | 1 |
| CO3 | 3 | 2 | 3 | 2 | 2 | - | - | - | - | - | - | 2 |
| CO4 | 2 | 3 | 2 | 3 | 2 | - | - | - | - | - | - | 1 |
| CO5 | 3 | 2 | 3 | 3 | 3 | - | - | - | - | - | - | 2 |
| Average | 2.6 | 2.4 | 2.6 | 2.6 | 2.6 | - | - | - | - | - | - | 1.6 |




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COURSE OUTCOME (2022-23)

CIVIL -3RD YEAR

KCE 057 AIR & NOISE POLLUTION CONTROL

| CO | CO Statement |
|-----|--|
| CO1 | Understand air pollutants and their impacts. |
| CO2 | Explain air pollution chemistry and meteorological aspects of air pollutants. |
| CO3 | Demonstrate methods for controlling particulate air pollutants. |
| CO4 | Demonstrate methods for controlling gaseous air pollutants. |
| CO5 | Design the concrete mix for various strengths using difference methods and Apply methods for controlling noise pollution |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|------|------|------|------|------|------|------|------|-------|-------|-------|
| KCE 057 AIR & NOISE POLLUTION CONTROL | | | | | | | | | | | | |
| CO | Program Outcomes(PO) | | | | | | | | | | | |
| | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
| CO1 | 3 | 3 | 3 | 3 | 2 | | - | - | - | - | - | 2 |
| CO2 | 3 | 3 | 3 | 2 | 2 | | - | - | - | - | - | 1 |
| CO3 | 3 | 3 | 3 | 3 | 3 | | - | - | - | - | - | 2 |
| CO4 | 3 | 3 | 3 | 2 | 2 | | - | - | - | - | - | 2 |
| CO5 | 3 | 3 | 3 | 3 | 3 | | - | - | - | - | - | 1 |
| Average | 3 | 3 | 3 | 2.6 | 2.4 | | - | - | - | - | - | 1.6 |




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CIVIL -3RD YEAR

KNC 501 : Constitution of India, Law & Engineering

| CO | CO Statement |
|-----|--|
| CO1 | Identify and explore the basic features and modalities about Indian constitution |
| CO2 | Differentiate and relate the functioning of Indian parliamentary system at the centre and state level. |
| CO3 | Differentiate and relate the functioning of Indian parliamentary system at the centre and state level. |
| CO4 | Differentiate and relate the functioning of Indian parliamentary system at the centre and state level. |
| CO5 | Interpret and evaluate the role of engineers with different organizations and governance models |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|------|------|------|------|------|------|------|------|-------|-------|-------|
| KNC 501 : Constitution of India, Law & Engineering | | | | | | | | | | | | |
| CO | Program Outcomes(PO) | | | | | | | | | | | |
| | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
| CO1 | 1 | - | - | - | 1 | 2 | - | 1 | 1 | 1 | 1 | 1 |
| CO2 | 1 | - | - | - | 2 | 2 | - | 1 | 1 | 1 | - | 1 |
| CO3 | 1 | - | - | - | 1 | 1 | - | 1 | - | 1 | 1 | 1 |
| CO4 | 1 | - | - | - | 2 | 2 | - | 1 | - | 1 | - | 1 |
| CO5 | 1 | - | - | - | 2 | 2 | - | 1 | 1 | 1 | 2 | 1 |
| Average | 1 | - | - | - | 1.6 | 1.8 | - | 1 | 1 | 1 | 1.33 | 1 |




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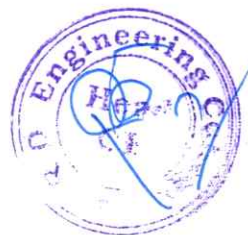
COURSE OUTCOME (2022-23)

CIVIL -3RD YEAR

KCE-551: CAD LAB

| CO | CO Statement |
|-----|---|
| CO1 | Understand computer aided drafting and different coordinate system |
| CO2 | Drawing of Regular shapes using Editor Mode and Exercise on Draw tools and Modify tools |
| CO3 | Drawing of building components like walls, lintels, Doors, and Windows. Using CAD software |
| CO4 | Drawing a plan of Building and dimensioning. Developing a 3-D plan from a given 2-D plan |
| CO5 | Developing sections and elevations for given a) Single storied buildings b) multi storied buildings |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|------|------|------|------|------|------|------|------|-------|-------|-------|
| KCE-551: CAD LAB | | | | | | | | | | | | |
| CO | Program Outcomes(PO) | | | | | | | | | | | |
| | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
| CO1 | 3 | 3 | 2 | 2 | 2 | 1 | 1 | - | - | - | - | 1 |
| CO2 | 3 | 3 | 3 | 2 | 2 | 1 | 1 | - | - | - | - | 2 |
| CO3 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | - | - | - | - | 1 |
| CO4 | 3 | 3 | 3 | 2 | 2 | 1 | 1 | - | - | - | - | 2 |
| CO5 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | - | - | - | - | 1 |
| Average | 2.6 | 2.6 | 2.4 | 2 | 2 | 1 | 1 | - | - | - | - | 1.4 |




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COURSE OUTCOME (2022-23)

CIVIL -3RD YEAR

KCE-552: GEOTECHNICAL ENGINEERING LAB

| CO | CO Statement |
|-----|---|
| CO1 | Determine index properties of soils |
| CO2 | Classify soils |
| CO3 | Determine engineering properties of soils |
| CO4 | Apply the concept of MDD and OMC to control compaction in the field |
| CO5 | Analyze various soil parameters and prepare soil report. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|------|------|------|------|------|------|------|------|-------|-------|-------|
| KCE-552: GEOTECHNICAL ENGINEERING LAB | | | | | | | | | | | | |
| CO | Program Outcomes(PO) | | | | | | | | | | | |
| | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
| CO1 | 3 | 3 | 2 | 2 | 1 | 1 | 1 | - | - | - | - | 2 |
| CO2 | 2 | 3 | 2 | 2 | 2 | 1 | 1 | - | - | - | - | 2 |
| CO3 | 2 | 2 | 3 | 2 | 2 | 1 | 1 | - | - | - | - | 2 |
| CO4 | 3 | 2 | 3 | 2 | 2 | 1 | 1 | - | - | - | - | 2 |
| CO5 | 3 | 2 | 2 | 2 | 2 | 1 | 1 | - | - | - | - | 1 |
| Average | 2.6 | 2.4 | 2.4 | 2 | 1.8 | 1 | 1 | - | - | - | - | 1.8 |



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COURSE OUTCOME (2022-23)

CIVIL -3RD YEAR

KCE-553: QUANTITY ESTIMATION AND MANAGEMENT LAB

| CO | CO Statement |
|-----|--|
| CO1 | Study of DSR, CPWD specifications and NBC. |
| CO2 | Estimation of quantities for any one of the following: Building/ Septic tank/Water supply pipe line/road/bridge. |
| CO3 | Preparation of Bill of Quantities (BOQ) for above project |
| CO4 | Practice on open source project management software / MS Project/Primavera software for same problem. |
| CO5 | Study of any full set of tender documents (Institute shall provide the set from ongoing/ completed tenders). |

Mapping of Course outcomes with Program outcomes

KCE-553: QUANTITY ESTIMATION AND MANAGEMENT LAB

| CO | Program Outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|------|------|------|------|------|------|------|------|-------|-------|-------|
| | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
| CO1 | 3 | 3 | 2 | 2 | 2 | 1 | 1 | - | - | - | - | 3 |
| CO2 | 3 | 2 | 3 | 2 | 2 | 1 | 1 | - | - | - | - | 2 |
| CO3 | 2 | 2 | 3 | 2 | 2 | 1 | 1 | - | - | - | - | 2 |
| CO4 | 3 | 2 | 3 | 2 | 2 | 1 | 1 | - | - | - | - | 2 |
| CO5 | 3 | 3 | 2 | 2 | 2 | 1 | 1 | - | - | - | - | 1 |
| Average | 2.8 | 2.4 | 2.6 | 2 | 2 | 1 | 1 | - | - | - | - | 2 |




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COURSE OUTCOME (2022-23)

CIVIL -3RD YEAR

KCE 601 DESIGN OF CONCRETE STRUCTURE

| CO | CO Statement |
|-----|---|
| CO1 | Analyse and Design RCC beams for flexure by IS methods. |
| CO2 | Analyse and Design RCC beams for shear by IS methods. |
| CO3 | Analyse and Design RCC slabs and staircase by IS methods. |
| CO4 | Design the RCC compression members by IS methods. |
| CO5 | Design various types of footings and cantilever retaining wall. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|------|------|------|------|------|------|------|------|-------|-------|-------|
| KCE 601 DESIGN OF CONCRETE STRUCTURE | | | | | | | | | | | | |
| CO | Program Outcomes(PO) | | | | | | | | | | | |
| | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
| CO1 | 3 | 2 | 3 | 2 | 3 | | - | - | - | - | - | 1 |
| CO2 | 2 | 3 | 2 | 3 | 3 | | - | - | - | - | - | 2 |
| CO3 | 3 | 2 | 3 | 2 | 2 | | - | - | - | - | - | 1 |
| CO4 | 2 | 3 | 2 | 3 | 3 | | - | - | - | - | - | 2 |
| CO5 | 3 | 2 | 2 | 3 | 2 | | - | - | - | - | - | 2 |
| Average | 2.6 | 2.4 | 2.4 | 2.6 | 2.6 | | - | - | - | - | - | 1.6 |




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COURSE OUTCOME (2022-23)

CIVIL -3RD YEAR

KCE 602 TRANSPORTATION ENGINEERING

| CO | CO Statement |
|-----|---|
| CO1 | Understand the history of road development , their alignment & Survey |
| CO2 | Design the various geometric parameters of road. |
| CO3 | Study the traffic characteristics & design of road intersections & signals. |
| CO4 | Examine the properties of highway materials & their implementation in design of pavements |
| CO5 | Learn methods to construct various types of roads. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|------|------|------|------|------|------|------|------|-------|-------|-------|
| KCE 602 TRANSPORTATION ENGINEERING | | | | | | | | | | | | |
| CO | Program Outcomes(PO) | | | | | | | | | | | |
| | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
| CO1 | 3 | 2 | 3 | 2 | 3 | | - | - | - | - | - | 1 |
| CO2 | 2 | 3 | 2 | 3 | 3 | | - | - | - | - | - | 2 |
| CO3 | 3 | 2 | 3 | 2 | 2 | | - | - | - | - | - | 1 |
| CO4 | 2 | 3 | 2 | 3 | 3 | | - | - | - | - | - | 2 |
| CO5 | 3 | 2 | 2 | 3 | 2 | | - | - | - | - | - | 2 |
| Average | 2.6 | 2.4 | 2.4 | 2.6 | 2.6 | | - | - | - | - | - | 1.6 |




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COURSE OUTCOME (2022-23)

CIVIL -3RD YEAR

KCE 603 ENVIRONMENTAL ENGINEERING

| CO | CO Statement |
|-----|--|
| CO1 | Assess water demand and optimal size of water mains. |
| CO2 | Layout the distribution system & assess the capacity of reservoir. |
| CO3 | Investigate physical, chemical & biological parameter of water. |
| CO4 | Design treatment units for water and waste water. |
| CO5 | Apply emerging technologies for treatment of waste water. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|------|------|------|------|------|------|------|------|-------|-------|-------|
| KCE 603 ENVIRONMENTAL ENGINEERING | | | | | | | | | | | | |
| CO | Program Outcomes(PO) | | | | | | | | | | | |
| | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
| CO1 | 3 | 2 | 3 | 2 | 3 | | - | - | - | - | - | 2 |
| CO2 | 2 | 3 | 2 | 3 | 2 | | - | - | - | - | - | 1 |
| CO3 | 3 | 2 | 3 | 2 | 3 | | - | - | - | - | - | 2 |
| CO4 | 2 | 3 | 2 | 3 | 3 | | - | - | - | - | - | 1 |
| CO5 | 3 | 2 | 3 | 3 | 2 | | - | - | - | - | - | 2 |
| Average | 2.6 | 2.4 | 2.6 | 2.6 | 2.6 | | - | - | - | - | - | 1.6 |




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COURSE OUTCOME (2022-23)

CIVIL -3RD YEAR

KCE062 RIVER ENGINEERING

| CO | CO Statement |
|-----|--|
| CO1 | Explain river morphology and its classification. |
| CO2 | Explain hydraulic geometry and behavior of river. |
| CO3 | Explain socio-cultural influences and ethics of stream restorations. |
| CO4 | Analyze flow and sediment transport in rivers and channels. |
| CO5 | Design guide band, embankments and flood protection systems. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|------|------|------|------|------|------|------|------|-------|-------|-------|
| KCE062 RIVER ENGINEERING | | | | | | | | | | | | |
| CO | Program Outcomes(PO) | | | | | | | | | | | |
| | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
| CO1 | 2 | 3 | 2 | 3 | 2 | | - | - | - | - | - | 2 |
| CO2 | 3 | 3 | 2 | 2 | 3 | | - | - | - | - | - | 1 |
| CO3 | 2 | 2 | 3 | 3 | 2 | | - | - | - | - | - | 2 |
| CO4 | 3 | 3 | 3 | 2 | 3 | | - | - | - | - | - | 1 |
| CO5 | 2 | 2 | 2 | 3 | 2 | | - | - | - | - | - | 1 |
| Average | 2.4 | 2.6 | 2.4 | 2.6 | 2.4 | | - | - | - | - | - | 1.4 |




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COURSE OUTCOME (2022-23)

CIVIL -3RD YEAR

KOE 066 GIS & REMOTE SENSING

| CO | CO Statement |
|-----|---|
| CO1 | Understand about the principles of Remote Sensing and its advantages and limitations. |
| CO2 | Retrieve the information content of remotely sensed data. |
| CO3 | Apply problem specific remote sensing data for engineering applications. |
| CO4 | Analyze spatial and attribute data for solving spatial problems. |
| CO5 | Create GIS and cartographic outputs for presentation |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|------|------|------|------|------|------|------|------|-------|-------|-------|
| KOE 066 GIS & REMOTE SENSING | | | | | | | | | | | | |
| CO | Program Outcomes(PO) | | | | | | | | | | | |
| | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
| CO1 | 2 | 2 | 3 | 2 | 2 | | - | - | - | - | - | 1 |
| CO2 | 2 | 3 | 2 | 2 | 2 | | - | - | - | - | - | 1 |
| CO3 | 3 | 2 | 2 | 2 | 2 | | - | - | - | - | - | 1 |
| CO4 | 2 | 3 | 2 | 3 | 3 | | - | - | - | - | - | 1 |
| CO5 | 3 | 2 | 2 | 3 | 2 | | - | - | - | - | - | 2 |
| Average | 2.4 | 2.4 | 2.2 | 2.4 | 2.2 | | - | - | - | - | - | 1.2 |




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COURSE OUTCOME (2022-23)

CIVIL -3RD YEAR

KNC 602 : ITCS

| CO | CO Statement |
|-----|--|
| CO1 | Apply the basic principles of thought process and reasoning to identify the roots and details of some of the contemporary issues faced by our nation |
| CO2 | Illustrate the importance of scripts and languages in India |
| CO3 | Understanding of different religions of India & socio religious reform movement of 19th century |
| CO4 | Application of Yogic-science and wisdom capsules in Sanskrit literature that are important in modern society. |
| CO5 | Understand the importance of Indian Architect, Engineering and Architecture in Ancient India |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|------|------|------|------|------|------|------|------|-------|-------|-------|
| KNC 602 : ITCS | | | | | | | | | | | | |
| CO | Program Outcomes(PO) | | | | | | | | | | | |
| | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
| CO1 | - | - | - | - | - | - | - | 1 | 1 | 1 | 1 | 2 |
| CO2 | - | - | - | - | - | - | - | 1 | 1 | 1 | - | 2 |
| CO3 | - | - | - | - | - | - | - | 1 | - | 1 | 1 | 3 |
| CO4 | - | - | - | - | - | - | - | 1 | - | 1 | - | 2 |
| CO5 | - | - | - | - | - | - | - | 1 | 1 | 1 | 2 | 2 |
| Average | - | - | - | - | - | - | - | 1 | 1 | 1 | 1.33 | 2.2 |




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COURSE OUTCOME (2022-23)

CIVIL -3RD YEAR

KCE-651 Transportation Engineering Lab

| CO | CO Statement |
|-----|--|
| CO1 | To Determine the Crushing Value, Impact Value, Flakiness Index and Elongation Index, Los Angeles Abrasion Value and Stripping Value of Coarse Aggregates |
| CO2 | To determine the penetration Value, Softening Point, Ductility Value of Bitumen |
| CO3 | To determine the Softening Point of Bituminous material |
| CO4 | To determine the Ductility Value of Bituminous material |
| CO5 | To determine the Flash and Fire Point and stripping value of Bituminous material |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|------|------|------|------|------|------|------|------|-------|-------|-------|
| KCE-651 Transportation Engineering Lab | | | | | | | | | | | | |
| CO | Program Outcomes(PO) | | | | | | | | | | | |
| | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
| CO1 | 2 | 3 | 2 | 2 | 2 | 1 | - | - | - | - | - | 1 |
| CO2 | 2 | 3 | 3 | 2 | 2 | 1 | - | - | - | - | - | 2 |
| CO3 | 3 | 2 | 2 | 2 | 2 | 1 | - | - | - | - | - | 1 |
| CO4 | 2 | 3 | 2 | 2 | 2 | 1 | - | - | - | - | - | 1 |
| CO5 | 3 | 2 | 2 | 2 | 2 | 1 | - | - | - | - | - | 2 |
| Average | 2.4 | 2.6 | 2.2 | 2 | 2 | 1 | - | - | - | - | - | 1.4 |




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COURSE OUTCOME (2022-23)

CIVIL -3RD YEAR

KCE-652 Environmental Engineering Lab

| CO | CO Statement |
|-----|---|
| CO1 | Build knowledge about the crystal structure and classification of materials. |
| CO2 | Understand methods of determining mechanical properties and their suitability for applications. |
| CO3 | Classify cast irons and study their applications |
| CO4 | Select suitable heat-treatment process to achieve desired properties of metals and alloys |
| CO5 | Appraise the applications of advanced materials technology in their daily life |

Mapping of Course outcomes with Program outcomes

KCE-652 Environmental Engineering Lab

| CO | Program Outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|------|------|------|------|------|------|------|------|-------|-------|-------|
| | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
| CO1 | 2 | 3 | 2 | 2 | 2 | 1 | 1 | - | - | - | - | 1 |
| CO2 | 3 | 3 | 3 | 2 | 2 | 1 | 1 | - | - | - | - | 2 |
| CO3 | 3 | 2 | 3 | 2 | 2 | 1 | 1 | - | - | - | - | 1 |
| CO4 | 2 | 3 | 2 | 2 | 2 | 1 | 1 | - | - | - | - | 1 |
| CO5 | 3 | 2 | 2 | 2 | 2 | 1 | 1 | - | - | - | - | 2 |
| Average | 2.6 | 2.6 | 2.4 | 2 | 2 | 1 | 1 | - | - | - | - | 1.4 |




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COURSE OUTCOME (2022-23)

CIVIL -3RD YEAR

KCE-653 Structural Detailing Lab

| CO | CO Statement |
|-----|---|
| CO1 | To verify Maxwell's Reciprocal theorem |
| CO2 | Horizontal thrust in a three-hinged arch and to draw influence line diagrams for Horizontal Thrust end Bending moment. |
| CO3 | Classify cast irons and study their applications |
| CO4 | To find horizontal thrust in a two hinged arch and to draw influence line diagrams for horizontal Thrust and bending moment |
| CO5 | Study of SP34/IS13920/IS456:2000 for detailing of structural elements |

Mapping of Course outcomes with Program outcomes

KCE-653 Structural Detailing Lab

| CO | Program Outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|------|------|------|------|------|------|------|------|-------|-------|-------|
| | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
| CO1 | 3 | 3 | 2 | 2 | 2 | 1 | 1 | - | - | - | - | 1 |
| CO2 | 3 | 3 | 3 | 2 | 2 | 1 | 1 | - | - | - | - | 2 |
| CO3 | 3 | 2 | 3 | 2 | 2 | 1 | 1 | - | - | - | - | 1 |
| CO4 | 2 | 3 | 3 | 2 | 2 | 1 | 1 | - | - | - | - | 1 |
| CO5 | 3 | 2 | 2 | 2 | 2 | 1 | 1 | - | - | - | - | 2 |
| Average | 2.8 | 2.6 | 2.6 | 2 | 2 | 1 | 1 | - | - | - | - | 1.4 |




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COURSE OUTCOME (2022-23)

CIVIL -4TH YEAR

KCE 075: DESIGN OF STEEL STRUCTURES

| CO | CO Statement |
|-----|--|
| CO1 | Understand properties of steel and types of loads acting on steel structures. |
| CO2 | Design welded and bolted type of connections for elementary steel structures. |
| CO3 | Design tension members for elementary steel structures. |
| CO4 | Design compression members such as simple columns, braced and latticed columns and column bases. |
| CO5 | Design flexural members such as beams, purlins and girders. |

Mapping of Course outcomes with Program outcomes

KCE 075: DESIGN OF STEEL STRUCTURES

| CO | Program Outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|------|------|------|------|------|------|------|------|-------|-------|-------|
| | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
| CO1 | 3 | 2 | 2 | 2 | 3 | 1 | - | - | - | - | - | 2 |
| CO2 | 3 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 1 |
| CO3 | 2 | 2 | 2 | 2 | 3 | 1 | - | - | - | - | - | 2 |
| CO4 | 3 | 3 | 3 | 3 | 2 | 1 | | | | | | 2 |
| CO5 | 2 | 2 | 2 | 2 | 3 | 1 | | | | | | 1 |
| Average | 2.6 | 2.4 | 2.4 | 2.4 | 2.6 | 1 | - | - | - | - | - | 1.6 |




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COURSE OUTCOME (2022-23)

CIVIL -4TH YEAR

KOE074 - RENEWABLE ENERGY RESOURCES

| CO | CO Statement |
|-----|--|
| CO1 | Conduct experiments illustrating the application of KVL/KCL and network theorems to DC electrical circuits. Perform experiment illustrating BH curve of magnetic materials |
| CO2 | Demonstrate the behaviour of AC circuits connected to single phase AC supply and measure power in single phase as well as three phase electrical circuits. |
| CO3 | Calculate efficiency of a single-phase transformer and DC machine |

Mapping of Course outcomes with Program outcomes

KOE074 - RENEWABLE ENERGY RESOURCES

| CO | Program Outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|------|------|------|------|------|------|------|------|-------|-------|-------|
| | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
| CO1 | 2 | 2 | 3 | 2 | 3 | 1 | - | - | - | - | - | 1 |
| CO2 | 3 | 3 | 2 | 3 | 2 | 2 | - | - | - | - | - | 2 |
| CO3 | 2 | 2 | 3 | 2 | 3 | 1 | - | - | - | - | - | 3 |
| CO4 | - | - | - | - | - | - | - | - | - | - | - | - |
| CO5 | - | - | - | - | - | - | - | - | - | - | - | - |
| Average | 2.33 | 2.33 | 2.66 | 2.33 | 2.66 | 1.33 | - | - | - | - | - | 2 |




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COURSE OUTCOME (2022-23)

CIVIL -4TH YEAR

KCE 070 - Railway, Waterway and Airway Engineering

| CO | CO Statement |
|-----|--|
| CO1 | Explain the importance of railway infrastructure. |
| CO2 | Identify the factors governing design of railway infrastructures. |
| CO3 | Analysis and design the railway track system. |
| CO4 | Understand the concepts of airport engineering and design components of airport. |
| CO5 | Associate with the concepts of water transport system. |

Mapping of Course outcomes with Program outcomes

KCE 070 - Railway, Waterway and Airway Engineering

| CO | Program Outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|------|------|------|------|------|------|------|------|-------|-------|-------|
| | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
| CO1 | 3 | 2 | 3 | 2 | 3 | 2 | - | - | - | - | - | 1 |
| CO2 | 2 | 3 | 2 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| CO3 | 3 | 2 | 3 | 2 | 3 | 2 | - | - | - | - | - | 1 |
| CO4 | 2 | 3 | 2 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| CO5 | 3 | 2 | 3 | 2 | 3 | 2 | - | - | - | - | - | 1 |
| Average | 2.6 | 2.4 | 2.6 | 2.4 | 2.6 | 1.6 | - | - | - | - | - | 1.4 |




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COURSE OUTCOME (2022-23)

CIVIL -4TH YEAR

KHU 702: PROJECT MANAGEMENT & ENTREPRENEURSHIP

| CO | CO Statement |
|-----|--|
| CO1 | Understand the basics concepts of Entrepreneurship. |
| CO2 | Understand the basics concepts of Entrepreneurial Idea and Innovation. |
| CO3 | Understand the basics concepts of Project Management. |
| CO4 | Understand the basics concepts of Project Financing. |
| CO5 | Understand the basics concepts of Social Entrepreneurship. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|------|------|------|------|------|------|------|------|-------|-------|-------|
| KHU 702: PROJECT MANAGEMENT & ENTREPRENEURSHIP | | | | | | | | | | | | |
| CO | Program Outcomes(PO) | | | | | | | | | | | |
| | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
| CO1 | 3 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| CO2 | 3 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| CO3 | 3 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| CO4 | 3 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| CO5 | 3 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| Average | 3 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |




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COURSE OUTCOME (2022-23)

CIVIL -4TH YEAR

KCE 753: PROJECT - I

| CO | CO Statement |
|-----|---|
| CO1 | Work effectively as an individual and member of the team to solve complex engineering problems. |
| CO2 | Apply engineering knowledge to solve real life problems and involve in self-learning process. |
| CO3 | Apply research based knowledge and methods to arrive at valid conclusions and Apply modern tools for analysis and design of complex engineering problems. |
| CO4 | Develop ethical solutions of engineering problems taking into account its impact on society, environment and sustainability. |
| CO5 | Compose and present detailed project report of his/her works and defends effectively. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|------|------|------|------|------|------|------|------|-------|-------|-------|
| KCE 753: PROJECT - I | | | | | | | | | | | | |
| CO | Program Outcomes(PO) | | | | | | | | | | | |
| | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
| CO1 | 3 | 3 | 3 | 3 | 2 | 2 | 2 | - | - | - | 2 | 2 |
| CO2 | 3 | 3 | 3 | 2 | 2 | 2 | 2 | - | - | - | 1 | 2 |
| CO3 | 3 | 3 | 3 | 3 | 3 | 1 | 2 | - | - | - | 1 | 2 |
| CO4 | 3 | 3 | 3 | 2 | 3 | 2 | 2 | - | - | - | 1 | 2 |
| CO5 | 3 | 3 | 3 | 3 | 2 | 2 | 2 | - | - | - | 1 | 2 |
| Average | 3 | 3 | 3 | 2.6 | 2.4 | 1.8 | 2 | - | - | - | 1.2 | 2 |




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COURSE OUTCOME (2022-23)

CIVIL -4TH YEAR

KCE 751: Concrete Lab

| CO | CO Statement |
|-----|---|
| CO1 | Conduct Quality Control tests on concrete making materials. |
| CO2 | Conduct Quality Control tests on fresh & hardened concrete. |
| CO3 | Design and test concrete mix. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|------|------|------|------|------|------|------|------|-------|-------|-------|
| KCE 751: Concrete Lab | | | | | | | | | | | | |
| CO | Program Outcomes(PO) | | | | | | | | | | | |
| | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
| CO1 | 3 | 2 | - | - | - | - | - | - | - | - | - | 2 |
| CO2 | 3 | 2 | - | - | - | - | - | - | - | - | - | 2 |
| CO3 | 3 | 2 | 3 | 2 | - | - | - | - | - | - | - | 2 |
| CO4 | - | - | - | - | - | - | - | - | - | - | - | - |
| CO5 | - | - | - | - | - | - | - | - | - | - | - | - |
| Average | 3 | 2 | 3 | 2 | - | - | - | - | - | - | - | 2 |




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DEPARTMENT OF CIVIL ENGINEERING

COURSE OUTCOME (2022-23)

CIVIL -4TH YEAR

KHU 801 :RURAL DEVELOPMENT: ADMINISTRATION AND PLANNING

| CO | CO Statement |
|-----|--|
| CO1 | Students can understand the definitions, concepts and components of Rural Development. |
| CO2 | Students will know the importance, structure, significance, resources of Indian rural economy. |
| CO3 | Students will have a clear idea about the area development programmes and its impact. |
| CO4 | Students will be able to acquire knowledge about rural entrepreneurship. |
| CO5 | Students will be able to understand about the using of different methods for human resource planning |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|---|----------------------|------|------|------|------|------|------|------|------|-------|-------|-------|
| KHU 801 :RURAL DEVELOPMENT: ADMINISTRATION AND PLANNING | | | | | | | | | | | | |
| CO | Program Outcomes(PO) | | | | | | | | | | | |
| | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
| CO1 | 3 | 2 | 3 | 2 | 3 | 1 | - | - | - | - | - | 1 |
| CO2 | 2 | 3 | 2 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| CO3 | 3 | 2 | 3 | 2 | 3 | 1 | - | - | - | - | - | 1 |
| CO4 | 3 | 3 | 2 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| CO5 | 2 | 2 | 3 | 2 | 3 | 2 | - | - | - | - | - | 1 |
| Average | 2.6 | 2.4 | 2.6 | 2.4 | 2.6 | 1.2 | - | - | - | - | - | 1.4 |




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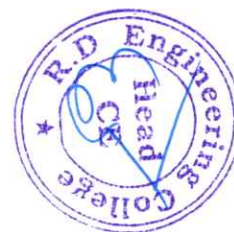
COURSE OUTCOME (2022-23)

CIVIL -4TH YEAR

KOE 085: QUALITY MANAGEMENT

| CO | CO Statement |
|-----|--|
| CO1 | Understand and define quality and its concept and cost involved. |
| CO2 | Learn strategic planning and implementation of quality systems. |
| CO3 | To grasp the nature and importance of various components that constitute TQM |
| CO4 | Choose appropriate statistical techniques for improving processes |
| CO5 | Understand the keys to customer satisfaction. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|------|------|------|------|------|------|------|------|-------|-------|-------|
| KOE 085: QUALITY MANAGEMENT | | | | | | | | | | | | |
| CO | Program Outcomes(PO) | | | | | | | | | | | |
| | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
| CO1 | 3 | 2 | 3 | 3 | 1 | 1 | - | - | - | - | - | 2 |
| CO2 | 3 | 2 | 2 | 2 | 1 | - | - | - | - | - | - | 2 |
| CO3 | 3 | 3 | 2 | 2 | 1 | - | - | - | - | - | - | 1 |
| CO4 | 3 | 2 | 2 | 3 | 1 | - | - | - | - | - | - | 2 |
| CO5 | - | 2 | - | 3 | 1 | 2 | - | - | - | - | - | 2 |
| Average | 3 | 2.2 | 2.25 | 2.6 | 1 | 1.5 | - | - | - | - | - | 1.8 |




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COURSE OUTCOME (2022-23)

CIVIL -4TH YEAR

KOE 094: DIGITAL AND SOCIAL MEDIA MARKETING

| CO | CO Statement |
|-----|---|
| CO1 | Understand the concept of digital marketing and its real-world iterations |
| CO2 | Articulate innovative insights of digital marketing enabling a competitive edge |
| CO3 | Understand how to create and run digital media based campaigns |
| CO4 | Identify and utilise various tools such as social media etc. |
| CO5 | Understand the concept of digital marketing and its real-world iterations |

Mapping of Course outcomes with Program outcomes

KOE 094: DIGITAL AND SOCIAL MEDIA MARKETING

| CO | Program Outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|------|------|------|------|------|------|------|------|-------|-------|-------|
| | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
| CO1 | - | 2 | 3 | 3 | 3 | - | - | - | - | - | - | 2 |
| CO2 | - | 2 | 3 | 3 | 3 | - | - | - | - | - | - | 2 |
| CO3 | - | 3 | 2 | 2 | 2 | - | - | - | - | - | - | 2 |
| CO4 | - | 2 | 2 | 3 | 2 | - | - | - | - | - | - | 2 |
| CO5 | - | - | - | - | - | - | - | - | - | - | - | - |
| Average | - | 2.25 | 2.25 | 1.75 | 2.5 | - | - | - | - | - | - | 2 |




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COURSE OUTCOME (2022-23)

CIVIL -4TH YEAR

KCE 851 Project - II

| CO | CO Statement |
|-----|---|
| CO1 | Work effectively as an individual and member of the team to solve complex engineering problems. |
| CO2 | Apply engineering knowledge to solve real life problems and involve in self-learning process. |
| CO3 | Apply research based knowledge and methods to arrive at valid conclusions and apply modern tools for analysis and design of complex engineering problems. |
| CO4 | Develop ethical solutions of engineering problems taking into account its impact on society, environment and sustainability. |
| CO5 | Compose and present detailed project report of his/her work and defend effectively. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|------|------|------|------|------|------|------|------|-------|-------|-------|
| KCE 851 Project - II | | | | | | | | | | | | |
| CO | Program Outcomes(PO) | | | | | | | | | | | |
| | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 |
| CO1 | 3 | 3 | 3 | 3 | 2 | 2 | 2 | - | 3 | 2 | 1 | 2 |
| CO2 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | - | 2 | 2 | 1 | 2 |
| CO3 | 3 | 3 | 3 | 2 | 2 | 1 | 2 | - | - | - | 1 | 2 |
| CO4 | 3 | 3 | 3 | 3 | 2 | 2 | 1 | - | 2 | 2 | 1 | 2 |
| CO5 | 3 | 3 | 3 | 3 | 2 | 2 | 2 | - | 2 | 2 | 1 | - |
| Average | 3 | 3 | 3 | 2.8 | 2.2 | 1.8 | 1.8 | - | 1.8 | 2 | 1 | 2 |



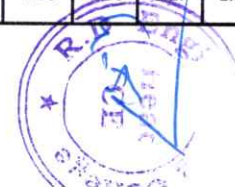

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DEPARTMENT OF CIVIL ENGINEERING
Average of Program Outcomes (2022-2023)

| S.N. | YEAR | SEMESTER | Subjects/Labs With Codes | Program Outcomes | | | | | | | | | | | | |
|---------|----------------------|--------------|---------------------------|------------------|------|------|------|------|------|------|------|------|------|------|------|-----|
| | | | | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | |
| 1 | B.Tech (CE) 2nd Year | III SEMESTER | ES & E (KOE -033) | 2.2 | 2 | 2 | 2 | 2 | 1 | - | - | - | - | - | 2 | |
| | | | HUMAN VALUE (KVE-301) | - | - | - | - | 2 | 1 | 1 | 1 | 3 | - | 1 | - | |
| | | | EM (KCE-301) | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 1.25 | - | - | - | - | - | - | 2.4 |
| | | | S & G (KCE-302) | 2.6 | 2.6 | 2.6 | 2.6 | 2.2 | 1.2 | - | - | - | - | - | - | 1.6 |
| | | | FM (KCE-303) | 2.6 | 2.4 | 2.6 | 2.4 | 2.2 | 1.2 | - | - | - | - | - | - | 2.4 |
| | | IV SEMESTER | MATHS III (KAS - 403) | 2.2 | 2.2 | 2 | 2 | 2 | - | 1 | - | - | - | - | 1.33 | 1 |
| | | | TC (KAS - 401) | 1.2 | 1.4 | 2.6 | 1.2 | 1.6 | 1.4 | 1.8 | 1.6 | - | 2 | - | - | 2.4 |
| | | | MT & CP (KCE - 401) | 2.6 | 2.6 | 2.6 | 2.6 | 2.4 | 1.2 | - | - | - | - | - | - | 1.6 |
| | | | SOLID MECHANICS (KCE-402) | 2.6 | 2.4 | 2.4 | 2.6 | 2.4 | 1.4 | - | - | - | - | - | - | 2 |
| | | | HE & M (KCE - 403) | 2.33 | 2.33 | 2.66 | 2 | 2 | - | - | - | - | - | - | - | 2.6 |
| 2 | B.Tech (CE) 3RD Year | V SEMESTER | GE (KCE-501) | 2.6 | 2.4 | 2.6 | 2.6 | 2.6 | - | - | - | - | - | - | 1.6 | |
| | | | SA (KCE-502) | 2.6 | 2.4 | 2.6 | 2.4 | 2.4 | 1.4 | - | - | - | - | - | - | 1.6 |
| | | | QE & CM (KCE-503) | 2.6 | 2.4 | 2.6 | 2.6 | 2.6 | 1.4 | - | - | - | - | - | - | 1.6 |
| | | | CT (KCE-051) | 2.6 | 2.4 | 2.6 | 2.6 | 2.6 | - | - | - | - | - | - | - | 1.6 |
| | | | A&NP (KCE - 057) | 3 | 3 | 3 | 2.6 | 2.4 | - | - | - | - | - | - | - | - |
| | | VI SEMESTER | DCS (KCE - 601) | 2.6 | 2.4 | 2.4 | 2.6 | 2.6 | - | - | - | - | - | - | - | 1.6 |
| | | | TE (KCE - 602) | 2.6 | 2.4 | 2.4 | 2.6 | 2.6 | - | - | - | - | - | - | - | 1.6 |
| | | | EE (KCE - 603) | 2.6 | 2.4 | 2.6 | 2.6 | 2.6 | - | - | - | - | - | - | - | 1.6 |
| | | | RE (KCE - 062) | 2.4 | 2.6 | 2.4 | 2.6 | 2.4 | - | - | - | - | - | - | - | 1.4 |
| | | | GIS & RS (KOE - 066) | 2.4 | 2.4 | 2.2 | 2.4 | 2.2 | - | - | - | - | - | - | - | 1.2 |
| 3 | B.Tech (CE) 4th Year | VII SEMESTER | PM (KHU-702) | 3 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 | |
| | | | RWAE (KCE - 070) | 2.6 | 2.4 | 2.6 | 2.4 | 2.6 | 1.6 | - | - | - | - | - | - | 1.4 |
| | | | DSS (KCE - 075) | 2.6 | 2.4 | 2.4 | 2.4 | 2.6 | 1 | - | - | - | - | - | - | 1.6 |
| | | | RER (KOE-074) | 2.33 | 2.33 | 2.66 | 2.33 | 2.66 | 1.33 | - | - | - | - | - | - | 2 |
| | | VIII SEM. | RD (KHU-801) | 2.6 | 2.4 | 2.6 | 2.4 | 2.6 | 1.2 | - | - | - | - | - | - | 1.4 |
| | | | QM (KOE-085) | 3 | 2.2 | 2.25 | 2.6 | 1 | 1.5 | - | - | - | - | - | - | 1.8 |
| | | | DSMM (KOE - 094) | - | 2.25 | 2.25 | 1.75 | 2.5 | - | - | - | - | - | - | - | 2 |
| Average | | | | 2.51 | 2.39 | 2.50 | 2.40 | 2.30 | 1.26 | 1.27 | 1.30 | 3.00 | 2.00 | 1.17 | 1.75 | |



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|--|----------------|-------------|--------------|
| DEPARTMENT OF CIVIL ENGINEERING | | | |
| ACTION TAKEN ON IDENTIFIED GAP OF PROGRAM OUTCOMES (2022-2023) | | | |
| S.N. | Gap Identified | Relevant PO | Action Taken |
| 1 | NO GAP | | |
| 2 | | | |
| 3 | | | |




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SAMPLE OF CO-PO MAPPING

Department of
Computer Science &
Engineering
And
Allied Branches



R.D. ENGINEERING COLLEGE, GHAZIABAD

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COURSE OUTCOME (2022-2023)

B. Tech II (Semester III)

KOE 039 : DIGITAL ELECTRONICS

| CO | Course Outcomes |
|-----|---|
| CO1 | Apply concepts of Digital Binary System and implementation of Gates. |
| CO2 | Analyze and design of Combinational logic circuits. |
| CO3 | Analyze and design of Sequential logic circuits with their applications. |
| CO4 | Implement the Design procedure of Synchronous & Asynchronous Sequential Circuits. |
| CO5 | Apply the concept of Digital Logic Families with circuit implementation |

Mapping of Course outcomes with Program outcomes

KOE 039 : DIGITAL ELECTRONICS

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 2 | 3 | - | 1 | 1 | 3 | - | - | - | 1 | - |
| CO2 | 2 | 1 | 2 | - | 2 | 1 | 1 | - | - | - | 1 | - |
| CO3 | 1 | 2 | 1 | - | 3 | 1 | 2 | - | - | - | 1 | - |
| CO4 | 2 | 3 | 1 | - | 2 | 1 | - | - | - | - | 1 | - |
| CO5 | 2 | 2 | 2 | - | 2 | | | | | | | |
| Average | 2 | 2 | 1.8 | - | 2 | 1 | 2 | - | - | - | 1 | - |




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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COURSE OUTCOME (2022-2023)

B. Tech II (Semester III)

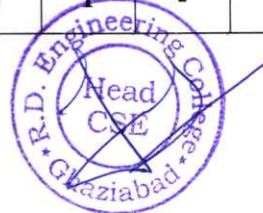
KVE 301: Universal Human Value

| CO | Course Outcomes |
|-----|---|
| CO1 | Understand the significance of value inputs in a classroom, distinguish between values and skills, understand the need, basic guidelines, content of value education, explore the meaning of happiness and prosperity and do a correct appraisal of the current scenario in the society |
| CO2 | Distinguish between the Self and the Body, understand the meaning of Harmony in the Self the Co-existence of Self and Body. |
| CO3 | Understand the value of harmonious relationship based on trust, respect and other naturally acceptable feelings in human-human relationships and explore their role in ensuring a harmonious society. |
| CO4 | Understand the harmony in nature and existence, and work out their mutually fulfilling participation in the nature. |
| CO5 | Distinguish between ethical and unethical practices. |

Mapping of Course outcomes with Program outcomes

KVE 301: Universal Human Value

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 2 | 2 | 1 | - | 2 | 1 | 1 | - | - | - | 1 | - |
| CO2 | 3 | 2 | 2 | - | 2 | - | - | - | - | - | - | - |
| CO3 | 2 | 1 | 3 | - | - | 2 | 1 | - | - | - | 1 | - |
| CO4 | 1 | 3 | - | - | 2 | 3 | - | - | - | - | 1 | - |
| CO5 | 2 | 2 | - | - | 2 | - | - | - | - | - | - | - |
| Average | 2 | 2 | 2 | - | 2 | 2 | 1 | - | - | - | 1 | - |



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COURSE OUTCOME (2022-2023)

B. Tech II(Semester III)

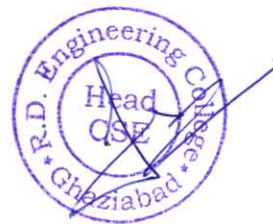
KCS301: Data Structures Using C

| CO | Course Outcomes |
|-----|---|
| CO1 | Understand the complexity of algorithms by Describing various data structures and their representations in memory with their common applications. |
| CO2 | Describe the concept of recursion and implement various data structures like stack, queue, list, tree, and graph using static and dynamic memory allocations. |
| CO3 | Study and Apply various searching and sorting algorithms on different data structures. |
| CO4 | Analyze the algorithmic implementation of non-linear data structures such as searching and sorting by comparing their computational efficiency. |
| CO5 | Evaluate the alternate data structures algorithm with respect to its performance to solve a real-world problem. |

Mapping of Course outcomes with Program outcomes

KCS301: Data Structures Using C

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 |
| CO2 | 3 | 3 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 2 |
| CO3 | 3 | 3 | 2 | 3 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 2 |
| CO4 | 3 | 3 | 2 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 |
| CO5 | 3 | 3 | 3 | 3 | 2 | 2 | 1 | 1 | 2 | 2 | 2 | 3 |
| Average | 3 | 3 | 2.1 | 2.6 | 1.8 | 1.4 | 1 | 1 | 1.2 | 1.2 | 1.2 | 2.1 |



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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COURSE OUTCOME (2022-2023)

B. Tech II(Semester III)

KCS302: Computer Organization and Architecture

| CO | Course Outcomes |
|-----|---|
| CO1 | Understand and describe the basic organization and operation of the components of a digital computer system. |
| CO2 | Illustrate various arithmetic and logical operations on different types of numbers to design an arithmetic and logic unit. |
| CO3 | Analyze the performance issues of the processor and classify the control unit implementation techniques. |
| CO4 | Categorize the hierarchical memory system and examine the virtual memory implementation techniques. |
| CO5 | Compare the different I/O data transfer techniques, and describe the different ways of communication among I/O devices and standard I/O interfaces. |

Mapping of Course outcomes with Program outcomes

KCS302: Computer Organization and Architecture

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 2 | 1 | 2 | 1 | - | - | 1 | - | 1 | 1 |
| CO2 | 3 | 3 | 3 | 1 | 3 | 1 | - | - | 1 | - | 1 | 1 |
| CO3 | 2 | 2 | 2 | 1 | 3 | 1 | - | - | 1 | - | 1 | 1 |
| CO4 | 2 | 2 | 2 | 1 | 1 | 1 | - | - | 1 | - | 1 | 1 |
| CO5 | 2 | 2 | 2 | 1 | 1 | 1 | - | - | 1 | - | 1 | 1 |
| Average | 2.4 | 2.4 | 1.6 | 1 | 2 | 1 | 1 | - | 1 | - | 1 | 1 |



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COURSE OUTCOME (2022-2023)

B. Tech II(Semester III)

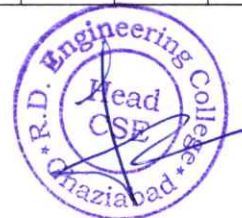
KCS303: Discrete Structures & Theory of Logic

| CO | Course Outcomes |
|-----|---|
| CO1 | Acquire Knowledge of Logical Notations which is used to define and understand the basic fundamental mathematical concepts such as sets, relations, functions. |
| CO2 | Discuss various structures and properties of modern algebra. |
| CO3 | Employ logical abilities such as reasoning to set up mathematical models for real life problems by applying advanced counting and computing techniques. |
| CO4 | Demonstrate various problems in the field of computer science using trees and graphs. |
| CO5 | Design a solution with the help of induction hypotheses, simple induction proofs and recurrences. |

Mapping of Course outcomes with Program outcomes

KCS303: Discrete Structures & Theory of Logic

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 2 | 2 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 |
| CO2 | 3 | 3 | 3 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 |
| CO3 | 3 | 2 | 2 | 3 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 2 |
| CO4 | 3 | 3 | 2 | 2 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 2 |
| CO5 | 3 | 2 | 2 | 2 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 2 |
| Average | 3 | 2.4 | 2.1 | 2.6 | 2.6 | 2 | 1.6 | 1 | 1 | 1 | 1 | 2 |



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COURSE OUTCOME (2022-2023)

B. Tech II (Semester III)

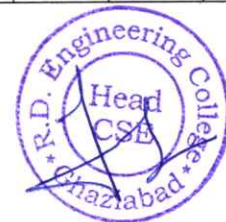
KNC302: Python Programming

| CO | Course Outcomes |
|-----|--|
| CO1 | Students are able to understand and read and write simple Python programs. |
| CO2 | Students are able to understand and develop Python programs with conditionals and loops. |
| CO3 | Students are able to understand and define Python functions and to use Python data structures — lists, tuples, dictionaries. |
| CO4 | Students are able to understand and do input/output with files in Python. |
| CO5 | Students are able to understand and do searching, sorting and merging in Python. |

Mapping of Course outcomes with Program outcomes

KNC302: Python Programming

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|------|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 2 | 3 | 3 | - | 3 | - | 3 | 2 | 2 | - | - | 3 |
| CO2 | 3 | 3 | 3 | 2 | 3 | 2 | 2 | 2 | 3 | - | - | 3 |
| CO3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 2 | 3 | - | - | 3 |
| CO4 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 3 | - | - | 3 |
| CO5 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 3 | - | - | 3 |
| Average | 2.8 | 3 | 2.8 | 2.75 | 3 | 2.7 | 2.4 | 2 | 2.8 | - | - | 3 |




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COURSE OUTCOME (2022-2023)

B. Tech II(Semester III)

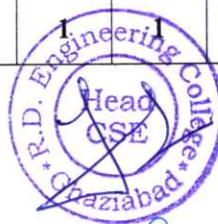
KCS351 : Data Structure Lab

| CO | Course Outcomes |
|------|--|
| CO1. | Implement various Sorting and Searching Algorithms. |
| CO2. | Analyze the recursive implementation of different sorting and searching algorithms. |
| CO3. | Implement various data Structure using static and dynamic memory allocation. |
| CO4. | Demonstrate various operations like traversal, insertion, deletion on tree data structure. |
| CO5. | Design and Implement practical applications based on graphs and shortest paths. |

Mapping of Course outcomes with Program outcomes

KCS351 : Data Structure Lab

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 3 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 |
| CO2 | 3 | 3 | 3 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 |
| CO3 | 3 | 3 | 3 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 |
| CO4 | 3 | 3 | 3 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 |
| CO5 | 3 | 3 | 3 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 |
| Average | 3 | 3 | 3 | 2.8 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 |



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COURSE OUTCOME (2022-2023)

B. Tech II(Semester III)

KCS352 : Computer Organization Lab

| CO | Course Outcomes |
|------|--|
| CO1. | Examine the output of the basic logic gates for different combinations of input. |
| CO2. | Design and simulate the combinational circuits for binary arithmetic (such as adders, subtractors, and multiplier) and code converter |
| CO3. | Design and simulate combinational circuits for encoders/decoders and selection devices multiplexers/de-multiplexers using logic gates |
| CO4. | Design and simulate the basic building block of the sequential circuits (i.e. SR and D Flip Flops) using logic gates. |
| CO5. | Design and simulate the 2-bit Arithmetic Logic Unit using logic gates. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KCS352 : Computer Organization Lab | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 2 | 2 | 1 | 3 | 2 | - | - | 1 | - | 1 | 1 |
| CO2 | 3 | 2 | 3 | 1 | 3 | 2 | - | - | 1 | - | 1 | 1 |
| CO3 | 2 | 2 | 3 | 1 | 3 | 1 | - | - | 1 | - | 1 | 1 |
| CO4 | 2 | 2 | 3 | 1 | 2 | 1 | - | - | 1 | - | 1 | 1 |
| CO5 | 2 | 2 | 3 | 1 | 2 | 1 | - | - | 1 | - | 1 | 1 |
| Average | 2.4 | 2 | 2.8 | 1 | 2.6 | 1.4 | - | - | 1 | - | 1 | 1 |



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COURSE OUTCOME (2022-2023)

B. Tech II(Semester III)

KCS353 : Discrete Structure and Logic Lab

| CO | Course Outcomes |
|------|---|
| CO1. | To Implement various Set operations. |
| CO2. | To Demonstrate various basic Maple commands. |
| CO3. | To Implement various Inductive techniques, Recursive Techniques and expected value problems using Maple script. |
| CO4. | To Design and Implement practical applications based on graphs and shortest paths. |
| CO5. | To Implement various programming problems based on binary search. |

Mapping of Course outcomes with Program outcomes

KCS353 : Discrete Structure and Logic Lab

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 2 | 2 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 |
| CO2 | 3 | 3 | 3 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 |
| CO3 | 3 | 2 | 2 | 3 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 2 |
| CO4 | 3 | 3 | 2 | 2 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 2 |
| CO5 | 3 | 2 | 2 | 2 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 2 |
| Average | 3 | 2.4 | 2.2 | 2.6 | 2.6 | 2 | 1.6 | 1 | 1 | 1 | 1 | 2 |




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COURSE OUTCOME (2022-2023)

B. Tech II(Semester III)

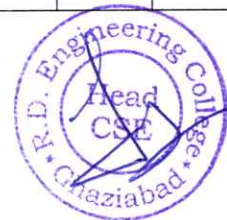
KCS354 : Mini Project or Internship Assessment

| CO | Course Outcomes |
|------|---|
| CO1. | Students acquire 'real' working environment and get acquainted with the organization structure, business operations and administrative functions. |
| CO2. | Students develop hands-on experience in the student's related field so that they can relate and reinforce what has been taught at the institute. |
| CO3. | Students acquire knowledge of cooperation and to develop synergetic collaboration between industry and the institute in promoting a knowledgeable society. |
| CO4. | Students get stage for the future recruitment by the potential employers and get awareness of the social, cultural, global and environmental responsibility as an engineer. |
| CO5. | Students acquire presentation and demonstration skills to effectively communicate the progress of the work to peers and superiors using audio/video, software tools. |

Mapping of Course outcomes with Program outcomes

KCS354 : Mini Project or Internship Assessment

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|------|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 2 | 2 | 2 | 3 | 3 | - | - | 3 | 2 | 2 | 3 |
| CO2 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 2 | 3 |
| CO3 | 3 | 3 | 2 | 2 | 3 | 3 | - | 3 | 2 | 2 | 2 | 3 |
| CO4 | 3 | 3 | 3 | 2 | - | 3 | 3 | - | 3 | 2 | - | 3 |
| CO5 | 3 | 2 | 2 | - | 3 | - | - | 3 | 3 | - | 2 | - |
| Average | 3 | 2.6 | 2.2 | 2.25 | 3 | 3 | 3 | 3 | 2.6 | 2 | 2 | 3 |



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COURSE OUTCOME (2022-2023)

B. Tech II(Semester IV)

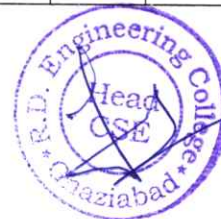
KAS402: MATH IV

| CO | Course Outcomes |
|-----|---|
| CO1 | Remember the concept of partial differential equation and to solve partial differential equations. |
| CO2 | Analyze the concept of partial differential equations to evaluate the problems concerned with partial differential equations. |
| CO3 | Understand the concept of correlation, moments, skewness and kurtosis and curve fitting . |
| CO4 | Remember the concept of probability to evaluate probability distributions. |
| CO5 | Apply the concept of hypothesis testing and statistical quality control to create control charts. |

Mapping of Course outcomes with Program outcomes

KAS402: MATH IV

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 2 | 2 | 2 | - | 2 | - | - | - | - | - | - | 1 |
| CO2 | 3 | 3 | 2 | 2 | - | - | - | - | - | - | - | 1 |
| CO3 | 2 | 2 | 2 | 2 | - | - | - | - | - | - | 1 | 1 |
| CO4 | 2 | 2 | - | 2 | 2 | - | - | - | - | - | 1 | 1 |
| CO5 | 2 | 2 | - | - | 2 | - | 1 | - | - | - | 2 | 1 |
| Average | 2.2 | 2.2 | 2 | 2 | 2 | - | 1 | - | - | - | 1.33 | 1 |




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COURSE OUTCOME (2022-2023)

B. Tech II(Semester IV)

KAS 401 : TECHNICAL COMMUNICATION

| CO | Course Outcomes |
|-----|--|
| CO1 | Students will be enabled to understand the nature and objective of Technical Communication relevant for the work place as Engineers. |
| CO2 | Students will utilize the technical writing for the purposes of Technical Communication and its exposure in various dimensions. |
| CO3 | Students would imbibe inputs by presentation skills to enhance confidence in face of diverse audience. |
| CO4 | Technical communication skills will create a vast know-how of the application of learning to promote their technical competence. |
| CO5 | It would enable them to evaluate their efficacy as fluent & efficient communicators By learning the voice-dynamics. |

Mapping of Course outcomes with Program outcomes

KAS 401 : TECHNICAL COMMUNICATION

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 1 | 2 | 3 | 1 | 2 | 1 | 2 | 2 | - | 2 | - | 2 |
| CO2 | 1 | 2 | 3 | 1 | 2 | 2 | 2 | 1 | - | 2 | - | 2 |
| CO3 | 1 | 1 | 2 | 1 | 1 | 2 | 2 | 2 | - | 2 | - | 3 |
| CO4 | 2 | 1 | 3 | 2 | 1 | 1 | 2 | 1 | - | 2 | - | 3 |
| CO5 | 1 | 1 | 2 | 1 | 2 | 1 | 1 | 2 | - | 2 | - | 2 |
| Average | 1.2 | 1.4 | 2.6 | 1.2 | 1.6 | 1.4 | 1.8 | 1.6 | - | 2 | - | 2.4 |




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COURSE OUTCOME (2022-2023)

B. Tech II (Semester IV)

KCS403: Introduction to Microprocessor

| CO | Course Outcomes |
|-----|---|
| CO1 | Apply a basic concept of digital fundamentals to Microprocessor based personal computer system. |
| CO2 | Analyze a detailed s/w & h/w structure of the Microprocessor. |
| CO3 | Illustrate how the different peripherals (8085/8086) are interfaced with Microprocessor. |
| CO4 | Analyze the properties of Microprocessors(8085/8086) |
| CO5 | Evaluate the data transfer information through serial & parallel ports. |

Mapping of Course outcomes with Program outcomes

KCS403: introduction to Microprocessor

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 2 | 2 | 3 | 2 | 2 | 3 | 2 | 1 | 2 | 1 | 1 | 2 |
| CO2 | 2 | 3 | 2 | 2 | 2 | 3 | 2 | 1 | 2 | 1 | 1 | 2 |
| CO3 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 1 | 2 | 1 | 1 | 3 |
| CO4 | 3 | 2 | 3 | 2 | 3 | 3 | 3 | 1 | 3 | 1 | 1 | 3 |
| CO5 | 2 | 2 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 1 | 1 | 3 |
| Average | 2.4 | 2.4 | 2.8 | 2 | 2.6 | 3 | 2.6 | 1.4 | 2.4 | 1 | 1 | 2.6 |




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COURSE OUTCOME (2022-2023)

B. Tech II (Semester IV)

KCS401: Operating Systems

| CO | Course Outcomes |
|-----|---|
| CO1 | Understand the structure and functions of OS |
| CO2 | Learn about Processes, Threads and Scheduling algorithms. |
| CO3 | Understand the principles of concurrency and Deadlocks |
| CO4 | Learn various memory management scheme |
| CO5 | Study I/O management and File systems. |

Mapping of Course outcomes with Program outcomes

KCS401: Operating Systems

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 3 |
| CO2 | 2 | 1 | 2 | 2 | 3 | - | - | - | 1 | 3 | 2 | 2 |
| CO3 | 3 | 3 | 1 | 3 | 3 | - | - | - | 1 | 3 | 3 | 3 |
| CO4 | 3 | 3 | 1 | 3 | 3 | - | - | - | 1 | 3 | 2 | 2 |
| CO5 | 3 | 2 | 1 | 2 | 3 | 1 | - | - | 1 | 3 | 3 | 3 |
| Average | 2.4 | 2 | 1.2 | 2.2 | 2.6 | 1 | 1 | 1 | 1 | 2.6 | 2.2 | 2.6 |




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COURSE OUTCOME (2022-2023)

B. Tech II (Semester IV)

KNC401: Computer System Security

| CO | Course Outcomes |
|-----|---|
| CO1 | Students acquire knowledge to recognize software bugs that pose cyber security threats and to explain how to fix the bugs to mitigate such threats |
| CO2 | Students acquire knowledge to define cyber attack scenarios to web browsers and web servers and to explain how to mitigate such threats |
| CO3 | Students acquire knowledge to discover and explain mobile software bugs posing cybersecurity threats, explain and recreate exploits, and to explain mitigation techniques. |
| CO4 | Students acquire knowledge to articulate the urgent need for cyber security in critical computer systems, networks, and world wide web, and to explain various threat scenarios |
| CO5 | Students acquire knowledge to the well known cyber attack incidents, explain the attack scenarios, and apply mitigation techniques. |

Mapping of Course outcomes with Program outcomes

KNC 401: Computer System Security

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 2 | 3 | 2 | 3 | 2 | 3 | - | 2 | - | - | - | 3 |
| CO2 | 2 | 3 | 2 | 2 | 3 | - | - | 2 | - | - | - | 3 |
| CO3 | 3 | 3 | 2 | 2 | 2 | - | - | 2 | - | - | - | 3 |
| CO4 | 2 | 2 | 2 | 2 | 3 | - | - | 2 | - | - | - | 3 |
| CO5 | 2 | 2 | 2 | 2 | - | - | - | 2 | - | - | - | 3 |
| Average | 2.2 | 2.6 | 2 | 2.2 | 2.5 | 3 | - | 2 | - | - | - | 3 |



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COURSE OUTCOME (2022-2023)

B. Tech II (Semester IV)

KCS402: Theory of Automata and Formal Languages

| CO | Course Outcomes |
|-----|--|
| CO1 | able to understand and construct finite state machines |
| CO2 | able to prove the equivalence of languages described by finite state machines and regular expressions. |
| CO3 | able to construct pushdown automata and the equivalent context free grammars |
| CO4 | able to prove the equivalence of languages described by pushdown automata and context free grammars. |
| CO5 | able to construct Turing machines and Post machines. |

Mapping of Course outcomes with Program outcomes

KCS402: Theory of Automata and Formal Languages

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 3 | 2 | 3 | - | - | - | - | 2 | - | 3 |
| CO2 | 3 | 3 | 3 | 2 | 3 | - | - | - | - | 2 | - | 3 |
| CO3 | 3 | 3 | 3 | 2 | 3 | - | - | - | - | 2 | - | 3 |
| CO4 | 3 | 3 | 3 | 2 | 3 | - | - | - | - | 2 | - | 3 |
| CO5 | 3 | 3 | 3 | 2 | 3 | - | - | - | - | 2 | - | 3 |
| Average | 3 | 3 | 3 | 2 | 3 | - | - | - | - | 2 | - | 3 |




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COURSE OUTCOME (2022-2023)

B. Tech II(Semester IV)

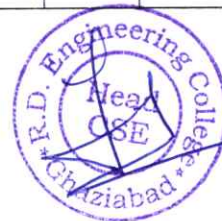
KCS451 : Operating System Lab

| CO | Course Outcomes |
|------|--|
| CO1. | Students are familiarized with the operating system modules by implementing various process scheduling and memory management algorithms. |
| CO2. | Students simulate various CPU Scheduling Algorithms (FCFS, SJF, RR, Priority, Multilevel queue) and compare their performance. |
| CO3. | Students simulate banker's algorithms for deadlock avoidance, prevention. |
| CO4. | Students implement various page replacement algorithms for FIFO, LRU, and optimal page replacement and do a comparative study. |
| CO5. | Students implement and evaluate different disk scheduling algorithms (FCFS, SSTF, SCAN). |

Mapping of Course outcomes with Program outcomes

KCS451 : Operating System Lab

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 3 | 3 | 2 | 2 | 3 | - | - | - | 2 | 3 |
| CO2 | 3 | 3 | 3 | 2 | 2 | 2 | 3 | - | - | - | 2 | 3 |
| CO3 | 3 | 3 | 3 | 3 | 2 | 2 | 3 | - | - | - | 2 | 3 |
| CO4 | 3 | 3 | 3 | 3 | 2 | 2 | 3 | - | - | - | 2 | 3 |
| CO5 | 3 | 3 | 3 | 2 | 2 | 2 | 3 | - | - | - | 2 | 3 |
| Average | 3 | 3 | 3 | 2.6 | 2 | 2 | 3 | - | - | - | 2 | 3 |




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COURSE OUTCOME (2022-2023)

B. Tech II(Semester IV)

KCS452 : Microprocessor Lab

| CO | Course Outcomes |
|------|---|
| CO1. | Students will be able to understand and 8085 Microprocessor based system. |
| CO2. | Students will be able to execute the string (ascending/descending) using 8085 Microprocessor kit. |
| CO3. | Students will be able to implement the conversion of different data types (BCD to binary, Hex to ASCII, and vice versa). |
| CO4. | Students will be able to apply the use of 8085, 8255, 8253 and 8080 in different applications (square wave/triangular/saw-tooth generation) |
| CO5. | Students will be able to develop serial communication between two 8085 through RS-232 C port using 8251. |

Mapping of Course outcomes with Program outcomes

KCS452 : Microprocessor Lab

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 2 | 3 | 2 | 2 | - | - | - | - | 2 | | 2 | 2 |
| CO2 | 2 | 2 | 3 | 2 | 2 | - | - | - | 2 | 2 | 2 | 2 |
| CO3 | 2 | 2 | 3 | 2 | 2 | - | - | - | 2 | 2 | 2 | 2 |
| CO4 | 2 | 2 | 2 | 2 | 2 | - | 2 | - | 2 | 2 | 2 | 2 |
| CO5 | 2 | 2 | 2 | 2 | 2 | 2 | | 2 | 3 | 2 | 2 | 2 |
| Average | 2 | 2.2 | 2.4 | 2 | 2 | 2 | 2 | 2 | 2.2 | 2 | 2 | 2 |



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COURSE OUTCOME (2022-2023)

B. Tech II(Semester IV)

KCS453 : Python Programming Lab

| CO | Course Outcomes |
|------|---|
| CO1. | Students are able to describe the numbers, math functions, strings, list,tuples and dictionaries in python |
| CO2. | Students acquire the skills to apply different decision making statementsand functions in python |
| CO3. | Students are able to interpret object oriented programming in python |
| CO4. | Students develop skill to understand and summarize different file handlingoperations |
| CO5. | Students demonstrate the ability to design GUI applications in python andevaluate different database operations |

Mapping of Course outcomes with Program outcomes

KCS453 : Python Programming Lab

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 2 | 2 | 3 | 3 | 2 | 3 | - | - | - | 3 | 3 |
| CO2 | 3 | 2 | 3 | 3 | 2 | 3 | 1 | - | - | - | 3 | 3 |
| CO3 | 3 | 2 | 3 | 2 | 3 | 3 | 3 | - | - | - | 3 | 2 |
| CO4 | 3 | 2 | 3 | 2 | 1 | 2 | 1 | - | - | - | 2 | 3 |
| CO5 | 3 | 2 | 3 | - | 3 | 3 | 2 | - | - | - | 2 | 3 |
| Average | 3 | 2 | 2.8 | 2.5 | 2.4 | 2.6 | 2 | - | - | - | 2.6 | 2.8 |




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COURSE OUTCOME (2022-2023)

B. Tech III (Semester V)

KCS501 : Database Management System

| CO | Course Outcomes |
|-----|--|
| CO1 | Apply knowledge of database for real life applications. |
| CO2 | Apply query processing techniques to automate the real time problems of databases. |
| CO3 | Identify and solve the redundancy problem in database tables using normalization. |
| CO4 | Understand the concepts of transactions, their processing so they will familiar with broad range of database management issues including data integrity, security. |
| CO5 | Design, develop and implement a small database project using database tools. |

Mapping of Course outcomes with Program outcomes

KCS501 : Database Management System

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 3 | 3 | 2 | 1 | 1 | 2 | 2 | 2 | 3 | 2 |
| CO2 | 3 | 3 | 3 | 3 | 2 | 1 | 1 | 1 | 2 | 2 | 3 | 2 |
| CO3 | 3 | 3 | 3 | 3 | 2 | 1 | 1 | 1 | 2 | 2 | 2 | 2 |
| CO4 | 3 | 2 | 3 | 3 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 2 |
| CO5 | 2 | 2 | 3 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Average | 2.8 | 2.6 | 3 | 3 | 2 | 1.4 | 1.4 | 1.4 | 2 | 2 | 2.4 | 2 |




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COURSE OUTCOME (2022-2023)

B. Tech III (Semester V)

KCS503 : Design and Analysis of Algorithm

| CO | Course Outcomes |
|-----|---|
| CO1 | Understand the designing new algorithms, prove them correct, and analyze their asymptotic and absolute runtime and memory demands. |
| CO2 | Apply the algorithm to solve the problem and prove that the algorithm solves the problem correctly. |
| CO3 | Analyze the mathematical criterion for deciding whether an algorithm is efficient, and know by evaluating many practically important problems that do not admit any |
| CO4 | Apply and design the classical sorting, searching, optimization and graph algorithms. |
| CO5 | Examine and formulate the basic techniques for designing algorithms and applying the techniques of recursion, divide-and-conquer, dynamic programming and greedy. |

Mapping of Course outcomes with Program outcomes

KCS503 : Design and Analysis of Algorithm

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 3 | 3 | 2 | 1 | 1 | - | - | - | 1 | 3 |
| CO2 | 3 | 3 | 3 | 3 | 2 | 1 | 1 | - | - | - | 1 | 3 |
| CO3 | 3 | 3 | 2 | 2 | 3 | 1 | 1 | - | - | - | 1 | 2 |
| CO4 | 3 | 3 | 3 | 3 | 3 | 1 | 1 | - | - | - | 1 | 2 |
| CO5 | 3 | 3 | 3 | 3 | 3 | 1 | 1 | - | - | - | 1 | 3 |
| Average | 3 | 3 | 2.8 | 2.8 | 2.6 | 1 | 1 | - | - | - | 1 | 2.6 |




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COURSE OUTCOME (2022-2023)

B. Tech III (Semester V)

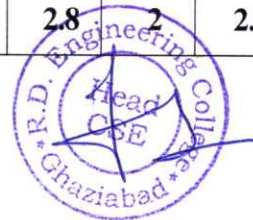
KCS502 : Compiler Design

| CO | Course Outcomes |
|-----|---|
| CO1 | Acquire knowledge of different phases and passes of the compiler and also able to use the compiler tools like LEX,YACC, etc. Students will also be able to design different types of compiler tools to meet the requirements of the realistic constraints of compilers. |
| CO2 | Understand the parser and its types i.e. Top-Down and Bottom-up parsers and construction of LL, SLR, CLR, and LALR parsing table. |
| CO3 | Implement the compiler using syntax-directed translation method and get knowledge about the synthesized and inherited attributes. |
| CO4 | Acquire knowledge about runtime data structure like symbol table organization and different techniques used in that. |
| CO5 | Understand the target machine's runtime environment, its instruction set for code generation and techniques used for code optimization. |

Mapping of Course outcomes with Program outcomes

KCS502 : Compiler Design

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 3 | 3 | 2 | - | 2 | 3 | - | 2 | 2 | 2 |
| CO2 | 3 | 3 | 3 | 3 | 3 | - | - | 3 | - | 3 | 2 | 2 |
| CO3 | 3 | 3 | 3 | 3 | 3 | - | 2 | 2 | 2 | 3 | 2 | 3 |
| CO4 | 3 | 3 | 3 | 3 | 3 | - | 2 | 3 | 2 | 3 | 2 | 3 |
| CO5 | 3 | 3 | 3 | 3 | 3 | - | 2 | 3 | 2 | 3 | 3 | 2 |
| Average | 3 | 3 | 3 | 3 | 2.8 | - | 2 | 2.8 | 2 | 2.8 | 2.2 | 2.4 |




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COURSE OUTCOME (2022-2023)

B. Tech III (Semester VI)

KCS 054: Object Oriented Programming

| CO | Course Outcomes |
|-----|--|
| CO1 | Students are able to Understand the application development and analyze the insights of object oriented programming to implement application |
| CO2 | Students are able to understand, analyze and apply the role of overall modeling concepts (i.e. System, structural) |
| CO3 | Students are able to understand, analyze and apply oops concepts (i.e. abstraction, inheritance) |
| CO4 | Students are able to learn concepts of C++ for understanding the implementation of object oriented concepts |
| CO5 | Students are able to understand the object oriented approach to implement real world problem. |

Mapping of Course outcomes with Program outcomes

KCS 054: Object Oriented Programming

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 2 | 3 | 3 | 2 | 2 | 2 | - | - | - | 2 | 2 |
| CO2 | 3 | 2 | 3 | 3 | 2 | 2 | 2 | - | - | - | 2 | 2 |
| CO3 | 3 | 2 | 3 | 3 | 2 | 2 | 2 | - | - | - | 2 | 2 |
| CO4 | 3 | 2 | 3 | 3 | 2 | 2 | 2 | - | - | - | 2 | 2 |
| CO5 | 3 | 2 | 3 | 3 | 2 | 2 | 2 | - | - | - | 2 | 2 |
| Average | 3 | 2 | 3 | 3 | 2 | 2 | 2 | - | - | - | 2 | 2 |




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COURSE OUTCOME (2022-2023)

B. Tech IV (Semester VII)

KCS 056: Application of Soft Computing

| CO | Course Outcomes |
|-----|---|
| CO1 | Students are able to identify and describe soft computing techniques and their roles in building intelligent machines and understand the concepts of neural networks to achieve human like decision making. |
| CO2 | Students are able to apply neural networks to pattern classification and regression problems. |
| CO3 | Students understand and learn fuzzy logic concepts and reasoning to handle uncertainty. |
| CO4 | Students are able to apply the fuzzy logic concepts to solve engineering problems related to uncertainty. |
| CO5 | Students are able recognize the feasibility of applying a soft computing methodology for a particular problem and learn to apply genetic algorithms to combinatorial optimization problems. |

Mapping of Course outcomes with Program outcomes

KCS 056: Application of Soft Computing

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 2 | 1 | 2 | 2 | - | - | - | - | - | - | 2 |
| CO2 | 3 | 3 | 2 | 3 | 3 | 2 | - | - | - | - | - | 2 |
| CO3 | 3 | 2 | 2 | 2 | 2 | - | - | - | - | - | - | 2 |
| CO4 | 3 | 3 | 3 | 3 | 3 | 3 | - | 2 | - | - | - | 2 |
| CO5 | 3 | 3 | 3 | 3 | 3 | 2 | - | 2 | - | - | - | 2 |
| Average | 3 | 3 | 2 | 3 | 3 | 2 | - | 2 | - | - | - | 2 |




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COURSE OUTCOME (2022-2023)

B. Tech III (Semester V)

KNC 501: Constitution of India

| CO | Course Outcomes |
|-----|--|
| CO1 | Identify and explore the basic features and modalities about Indian constitution. |
| CO2 | Differentiate and relate the functioning of Indian parliamentary system at the center and state level. |
| CO3 | Differentiate different aspects of Indian Legal System and its related bodies. |
| CO4 | Discover and apply different laws and regulations related to engineering practices. |
| CO5 | Correlate role of engineers with different organizations and governance models |

Mapping of Course outcomes with Program outcomes

KNC 501 : Constitution of India

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | - | - | - | - | - | - | - | - | - | - | - | - |
| CO2 | - | - | - | 2 | 2 | - | 3 | 3 | - | - | 2 | 3 |
| CO3 | - | - | - | 2 | 2 | - | 3 | 3 | - | - | 2 | 3 |
| CO4 | - | - | - | 2 | 2 | - | 3 | 3 | - | - | 2 | 3 |
| CO5 | - | - | - | 2 | 2 | - | 3 | 3 | - | - | 2 | 3 |
| Average | - | - | - | 2 | 2 | - | 3 | 3 | - | - | 2 | 3 |




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COURSE OUTCOME (2022-2023)

B. Tech III (Semester V)

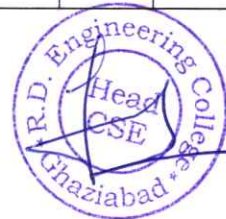
KCS551 : DBMS Lab

| CO | Course Outcomes |
|-----|---|
| CO1 | Students can explain the features of relational database and SQL. |
| CO2 | Students can design ER Model for a database for a given real time application. |
| CO3 | Students can create and populate an RDBMS for a given problem domain with constraints and keys using SQL. |
| CO4 | Students can apply data manipulation language to query, update and manage the database. |
| CO5 | Students will understand the concepts of database security and integrity. |

Mapping of Course outcomes with Program outcomes

KCS551 : DBMS Lab

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 3 | 3 | 2 | - | 2 | 3 | - | 2 | 2 | 2 |
| CO2 | 3 | 3 | 3 | 3 | 3 | - | - | 3 | - | 3 | 2 | 2 |
| CO3 | 3 | 3 | 3 | 3 | 3 | - | 2 | 3 | 2 | 3 | 2 | 3 |
| CO4 | 3 | 3 | 3 | 3 | 3 | - | 2 | 3 | 2 | 3 | 2 | 3 |
| CO5 | 3 | 3 | 3 | 3 | 3 | - | 2 | 3 | 2 | 3 | 3 | 3 |
| Average | 3 | 3 | 3 | 3 | 2.8 | - | 2 | 3 | 2 | 2.8 | 2.2 | 2.6 |




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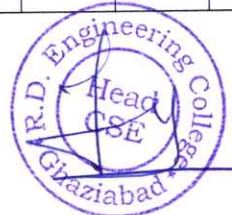
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COURSE OUTCOME (2022-2023)

B. Tech III (Semester V)

KCS553 : DAA Lab

| CO | Course Outcomes | | | | | | | | | | | |
|---|---|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| CO1 | Students are able to analyze the performance of various algorithms in best case, average case and worst case. Students are able to implement various sorting, searching and graph traversal algorithms. | | | | | | | | | | | |
| CO2 | Students develop better understanding of advanced data structures like tree, heaps and b trees. | | | | | | | | | | | |
| CO3 | Students acquire skill to identify the problem given and design the algorithm using various algorithm design techniques. | | | | | | | | | | | |
| CO4 | Students develop better understanding of optimization techniques like dynamic programming, backtracking and branch and bound and their classical problems. | | | | | | | | | | | |
| CO5 | Students understand the importance of different algorithmic paradigms by comparing the performance of different algorithms for same problem in team. | | | | | | | | | | | |
| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
| KCS553 : DAA Lab | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 3 | 3 | 3 | - | 3 | 2 | 3 | 3 | 3 | 3 |
| CO2 | 3 | 3 | 3 | 3 | 3 | - | 3 | 2 | 3 | 3 | 3 | 3 |
| CO3 | 3 | 3 | 3 | 3 | 3 | - | 3 | 2 | 3 | 3 | 3 | 3 |
| CO4 | 3 | 3 | 3 | 3 | 3 | 2 | 3 | 2 | 3 | 3 | 2 | 2 |
| CO5 | 3 | 3 | 3 | 3 | 3 | 2 | 3 | 2 | 3 | 3 | 3 | 3 |
| Average | 3 | 3 | 3 | 3 | 3 | 2 | 3 | 2 | 3 | 3 | 2.8 | 2.8 |




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COURSE OUTCOME (2022-2023)

B. Tech III (Semester VI)

KCS552 : Compiler Design Lab

| CO | Course Outcomes |
|-----|--|
| CO1 | Students are able to gain knowledge about language processing Tools like LEX and YACC. |
| CO2 | Students are able to check whether regular expressions belong to grammars or not. |
| CO3 | Students are able to understand the concepts like grammars, languages, operators and they are also able to check whether grammar is ambiguous or not and its removal using left recursion. |
| CO4 | Students are able to understand various parsing techniques like shift reduce, LR parsing. |
| CO5 | Students are able to understand code optimization algorithms. |

Mapping of Course outcomes with Program outcomes

KCS552 : Compiler Design Lab

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 3 | 3 | 2 | - | - | 3 | 3 | 2 | - | 2 |
| CO2 | 3 | 3 | 3 | 3 | 3 | - | - | 3 | 3 | 3 | - | 2 |
| CO3 | 2 | 3 | 3 | 3 | 3 | - | - | 3 | 3 | 3 | - | 3 |
| CO4 | 3 | 3 | 3 | 3 | 3 | - | - | 3 | 3 | 3 | - | 3 |
| CO5 | 3 | 3 | 3 | 3 | 3 | - | - | 3 | 3 | 3 | - | 3 |
| Average | 2.8 | 3 | 3 | 3 | 2.8 | - | - | 3 | 3 | 2.8 | - | 2.6 |



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COURSE OUTCOME (2022-2023)

B. Tech III (Semester V)

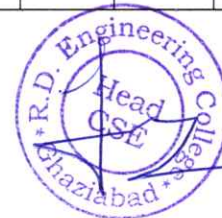
KCS554 : Mini Project or Internal Assessment

| CO | Course Outcomes |
|-----|---|
| CO1 | Students acquire 'real' working environment and get acquainted with the organization structure, business operations and administrative functions. |
| CO2 | Students develop hands-on experience in the student's related field so that they can relate and reinforce what has been taught at the institute. |
| CO3 | Students acquire knowledge of cooperation and to develop synergetic collaboration between industry and the institute in promoting a knowledgeable society. |
| CO4 | Students get stage for the future recruitment by the potential employers and get awareness of the social, cultural, global and environmental responsibility as an engineer. |
| CO5 | Students acquire presentation and demonstration skills to effectively communicate the progress of the work to peers and superiors using audio/video, software tools. |

Mapping of Course outcomes with Program outcomes

KCS554 : Mini Project or Internal Assessment

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|------|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 2 | 2 | 2 | 3 | 3 | - | - | 3 | 2 | 2 | 3 |
| CO2 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 2 | 3 |
| CO3 | 3 | 3 | 2 | 2 | 3 | 3 | - | 3 | 2 | 2 | 2 | 3 |
| CO4 | 3 | 3 | 3 | 2 | - | 3 | 3 | - | 3 | 2 | - | 3 |
| CO5 | 3 | 2 | 2 | - | 3 | - | - | 3 | 3 | - | 2 | - |
| Average | 3 | 2.6 | 2.2 | 2.25 | 3 | 3 | 3 | 3 | 2.6 | 2 | 3 | 3 |




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COURSE OUTCOME (2022-2023)

B. Tech III (Semester VI)

KCS 602 : Web Technology

| CO | Course Outcomes |
|-----|--|
| CO1 | Apply the knowledge of the internet and related internet concepts that are vital in understanding web application development |
| CO2 | Understand, analyze, and apply the role of markup languages like HTML, DHTML, and XML in the workings of the web and its applications. |
| CO3 | Use web application development software tools i.e. XML, Apache Tomcat etc. and identifies the environments currently available on the market to design web sites. |
| CO4 | Understand, analyze, and build dynamic web pages using client-side programming JavaScript and develop the web application using servlet and JSP. |
| CO5 | Understand the impact of web designing by database connectivity with JDBC |

Mapping of Course outcomes with Program outcomes

KCS 602 : Web Technology

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 1 | 3 | 3 | 2 | 1 | - | 2 | 2 | 1 | 3 |
| CO2 | 2 | 3 | 2 | 1 | 3 | 1 | - | - | 3 | 2 | 3 | 2 |
| CO3 | 2 | 3 | 2 | 2 | 3 | 2 | 1 | - | 2 | 2 | 3 | 2 |
| CO4 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | - | 2 | 2 | 3 | 2 |
| CO5 | 3 | 3 | 2 | 3 | 3 | 1 | - | - | 2 | 1 | 1 | 3 |
| Average | 2.6 | 3 | 2 | 2.4 | 3 | 1.6 | 1.3 | - | 2.2 | 1.8 | 2.2 | 2.4 |




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COURSE OUTCOME (2022-2023)

B. Tech III (Semester VI)

KCS 603: Computer Network

| CO | Course Outcomes |
|-----|---|
| CO1 | Understand the practical meaning and importance of 'Computer Networks'. Familiar with how transmission of data takes place, network topologies signal coding, Ethernet, ISDN and switching technologies. |
| CO2 | Able to grasp the significance of error control and error correction protocols, flow control, MAC protocols and sliding window protocols among data communication networks. They also exhibit the understanding of how computers communicate with each other and the methods employed to assure that the communication is reliable. |
| CO3 | Apply the concepts of IP and other protocols in network layer for smooth functioning and maintenance of computer network. Also reveals confidence to work independently to setup and maintain computer and networking systems. |
| CO4 | Learn how the information is processed and managed at process to process delivery. They can also demonstrate attitudes that are beneficial to maintaining the security of a computer/network system and assisting people to use that system or network through cryptography and firewalls. |
| CO5 | Manage to skilled with the working and practical knowledge of E-mail, FTP, Telnet, POP, DNS etc. on public and private networks. |

Mapping of Course outcomes with Program outcomes

KCS 603: Computer Network

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 3 | 1 | 3 | 1 | 1 | 1 | 1 | 3 | - | 2 |
| CO2 | 3 | 3 | 3 | 3 | 3 | 1 | - | - | - | 3 | - | 2 |
| CO3 | 2 | 3 | 3 | 2 | 3 | - | - | - | 2 | 2 | - | 3 |
| CO4 | 2 | 3 | 2 | 2 | 2 | 1 | - | - | - | 3 | - | 2 |
| CO5 | 3 | 2 | 2 | 1 | 3 | 2 | - | - | - | 3 | - | 2 |
| Average | 2.6 | 2.8 | 2.6 | 1.8 | 2.8 | 1.3 | 1 | 1 | 1.5 | 2.8 | - | 2.2 |





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COURSE OUTCOME (2022-2023)

B. Tech III (Semester VI)

KCS 601: Software Engineering

| CO | Course Outcomes |
|-----|--|
| CO1 | Explain various software characteristics and analyze different software Development Models. |
| CO2 | Demonstrate the contents of a SRS and apply basic software quality Assurance practices to ensure that design, development meet or exceed applicable standards. |
| CO3 | Compare and contrast various methods for software design |
| CO4 | Formulate testing strategy for software systems, employ techniques such as unit testing, Test driven development and functional testing. |
| CO5 | Manage software development process independently as well as in teams and make use of Various software management tools for development, maintenance and analysis. |

Mapping of Course outcomes with Program outcomes

KCS 601: Software Engineering

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 3 | 1 | - | - | - | - | - | - | - | - |
| CO2 | 2 | 2 | 3 | 3 | 3 | - | - | - | - | - | - | - |
| CO3 | 2 | 2 | 3 | 3 | 3 | - | - | - | 2 | 2 | 2 | 2 |
| CO4 | 2 | 2 | 2 | 2 | 2 | - | - | 1 | 3 | 2 | 1 | 1 |
| CO5 | 2 | 2 | 3 | 1 | 2 | - | - | - | 2 | 2 | 2 | 1 |
| Average | 2 | 2 | 3 | 2 | 2 | - | - | 1 | 2 | 2 | 2 | 1 |



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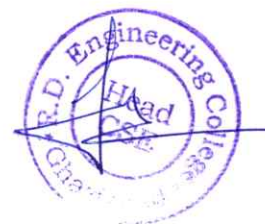
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COURSE OUTCOME (2022-2023)

B. Tech III (Semester VI)

KCS 061: Big Data

| CO | Course Outcomes | | | | | | | | | | | |
|---|---|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| CO1 | Demonstrate knowledge of Big Data Analytics concepts and its applications in business | | | | | | | | | | | |
| CO2 | Demonstrate functions and components of MAP & REDUCE Framework and HDFS. | | | | | | | | | | | |
| CO3 | Discuss Data Management concepts in No SQL environment | | | | | | | | | | | |
| CO4 | Explain process of developing Map Reduce based distributed processing applications | | | | | | | | | | | |
| CO5 | Explain process of developing applications using HBASE, Hive, Pig etc. | | | | | | | | | | | |
| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
| KCS 061: Big Data | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 2 | - | 2 | - | 3 | 3 | 3 | 3 | 2 | 2 | 3 | 3 |
| CO2 | 3 | - | 3 | - | 3 | 3 | 3 | 3 | 3 | 2 | 3 | 2 |
| CO3 | 3 | - | 3 | - | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| CO4 | 3 | - | 1 | - | 1 | 2 | 3 | 3 | 3 | - | - | - |
| CO5 | 3 | - | 3 | - | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Average | 3 | - | 3 | - | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |




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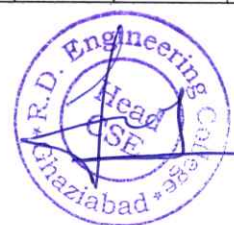
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COURSE OUTCOME (2022-2023)

B. Tech III (Semester VI)

KOE 068: Software Project Management

| CO | Course Outcomes | | | | | | | | | | | |
|---|--|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| CO1 | Identify the project objectives and their planning, along with analyze various cost/effort estimation Models. | | | | | | | | | | | |
| CO2 | Organize & schedule project activities to compute critical path for risk analysis. | | | | | | | | | | | |
| CO3 | Monitor and control the Project Activities. | | | | | | | | | | | |
| CO4 | Formulate testing objectives and test plan to ensure good software quality management with the norms of SEI-CMM. | | | | | | | | | | | |
| CO5 | Configure changes and manage risks using project management advanced tools. | | | | | | | | | | | |
| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
| KOE 068: Software Project Management | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 2 | 2 | 3 | 3 | 3 | 3 | 2 | 2 | 3 | 3 | - | 2 |
| CO2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 | 2 | - | 3 |
| CO3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | - | 3 |
| CO4 | 3 | 1 | 1 | 2 | 3 | 3 | 3 | - | 3 | - | 2 | 2 |
| CO5 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | - | 3 |
| Average | 2.8 | 2.4 | 2.6 | 2.8 | 3 | 3 | 2.8 | 2.5 | 3 | 2.75 | 2 | 2.6 |




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COURSE OUTCOME (2022-2023)

B. Tech III (Semester V)

KCS 652: Web Technology Lab

| CO | Course Outcomes |
|-----|---|
| CO1 | Student gets familiar with HTML and CSS web technologies for development and design of web pages. |
| CO2 | Students are able to make console based applications for solving real life problems using syntactical and implementation knowledge of JAVA. |
| CO3 | Students are able to design GUI based applications for solving real life problems applying knowledge of event handling using JAVA Swing component. |
| CO4 | Students are able to make interactive GUI based applications for solving problems applying knowledge of Multithreading, File I/O and Exception Handling using JAVA Swing component. |
| CO5 | Students are able to design web based applications for solving problems applying knowledge of advance JAVA concepts such as Servlets, JDBC, JSP and other web based technologies i.e. php |

Mapping of Course outcomes with Program outcomes

KCS 652: Web Technology Lab

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 3 | 3 | 3 | - | 2 | - | 3 | 2 | 3 | 3 |
| CO2 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | - | 3 | - | 3 | 3 |
| CO3 | 3 | 3 | 3 | 3 | 3 | - | 2 | - | 3 | - | 3 | 3 |
| CO4 | 3 | 3 | 3 | 3 | 3 | - | 2 | - | 3 | - | 3 | 3 |
| CO5 | 3 | 3 | 3 | 3 | 3 | - | 2 | - | 3 | - | 3 | 3 |
| Average | 3 | 3 | 3 | 3 | 3 | - | 2 | - | 3 | 2 | 3 | 3 |



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COURSE OUTCOME (2022-2023)

B. Tech III (Semester VI)

KCS 653: Computer Network Lab

| CO | Course Outcomes |
|-----|--|
| CO1 | Students are able to understand and simulate various network topologies using CISCO packet tracer. |
| CO2 | Students are able to create network in CISCO Packet Tracer using Routers connected with other network access equipment (like switches and buses) subsequently connected with end devices. Use commands to establish connectivity among them. |
| CO3 | Students are able to understand and implement network layer protocols (like DHCP, RIP, OSPF) using CISCO packet tracer. |
| CO4 | Students are able to resolve IP address to host name and host name to IP address using JAVA/C. |
| CO5 | Students are able to implement a TCP based Client-Server System for one sided communication in JAVA/C. |

Mapping of Course outcomes with Program outcomes

KCS 653: Computer Network Lab

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | - | 2 | - | - | 2 |
| CO2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | - | 2 | - | - | 2 |
| CO3 | 3 | 3 | 3 | 3 | 2 | 3 | 2 | - | 3 | - | - | 2 |
| CO4 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | - | 3 | - | - | 2 |
| CO5 | 3 | 3 | 2 | 2 | 2 | 3 | 2 | - | 3 | - | - | 2 |
| Average | 2.6 | 2.6 | 2.4 | 2.4 | 2.2 | 2.6 | 2 | - | 2.6 | - | - | 2 |




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COURSE OUTCOME (2022-2023)

B. Tech III (Semester VI)

KCS 651: Software Engineering Lab

| CO | Course Outcomes |
|-----|--|
| CO1 | Identify ambiguities, inconsistencies and incompleteness from a requirements specification and state functional and non-functional requirement. |
| CO2 | Identify different actors and use cases from a given problem statement and draw use case diagram to associate use cases with different types of relationship |
| CO3 | Draw a class diagram after identifying classes and association among them |
| CO4 | Graphically represent various UML diagrams, and associations among them and identify the logical sequence of activities undergoing in a system, and represent them pictorially |
| CO5 | Able to use modern engineering tools for specification, design, implementation and testing |

Mapping of Course outcomes with Program outcomes

KCS 651: Software Engineering Lab

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 3 | 1 | - | - | - | - | - | - | - | - |
| CO2 | 2 | 2 | 3 | 3 | 3 | - | - | - | - | - | - | - |
| CO3 | 2 | 2 | 3 | 3 | 3 | - | - | - | 2 | 2 | 2 | 2 |
| CO4 | 2 | 2 | 2 | 2 | 2 | - | - | 1 | 3 | 2 | 1 | 1 |
| CO5 | 2 | 2 | 3 | 1 | 2 | - | - | | 2 | 2 | 2 | 1 |
| Average | 2 | 2 | 3 | 2 | 2 | - | - | 1 | 2 | 2 | 2 | 1 |



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COURSE OUTCOME (2022-2023)

B. Tech IV (Semester VII)

KHU 701: Rural Development

| CO | Course Outcomes |
|-----|--|
| CO1 | Students are able to understand the definitions, concepts and components of Rural Development. |
| CO2 | Students will be able to know the importance, structure, significance, resources of Indian rural economy & also able to identify & inspect the importance of present policies & programs of Government of India to design & formulate sustainable developmental solutions of prevailing problems in Rural Areas. |
| CO3 | Students will have a clear idea about the area development programs and its impact. |
| CO4 | Students will be able to acquire knowledge & Skills about rural entrepreneurship so that they will be able to opt entrepreneurship as major career option. |
| CO5 | Students will be able to acquire knowledge & Skills about rural entrepreneurship so that they will be able to opt entrepreneurship as major career option. |

Mapping of Course outcomes with Program outcomes

KHU 701: Rural Development

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | - | - | 2 | - | 2 | 2 | 2 | - | 2 | - | - | 2 |
| CO2 | - | - | 2 | - | 2 | 2 | 2 | - | 2 | - | - | 2 |
| CO3 | - | - | 2 | - | 2 | 2 | 2 | - | 2 | - | - | 2 |
| CO4 | - | - | 2 | - | 2 | 2 | 2 | - | 2 | - | - | 2 |
| CO5 | - | - | 2 | - | 2 | 2 | 2 | - | 2 | - | - | 2 |
| Average | - | - | 2 | - | 2 | 2 | 2 | - | 2 | - | - | 2 |



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COURSE OUTCOME (2022-2023)

B. Tech IV (Semester VII)

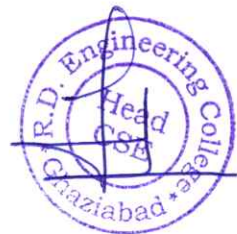
KCS 071: Artificial Intelligence

| CO | Course Outcomes |
|-----|--|
| CO1 | Understand the concept of artificial intelligence, intelligent agents, Computer vision, Natural Language Processing, Uniformed and Informed search strategies, Search. |
| CO2 | Apply basic principles of AI in solutions that require problem solving, inference, perception, knowledge representation, and learning. |
| CO3 | Explain the concepts of supervised, unsupervised and reinforcement learning. |
| CO4 | Evaluate Probabilistic reasoning for uncertainty, parameter estimation methods and various classification techniques of pattern reorganization. |
| CO5 | Analyze various searching for solutions, machine learning techniques and classification techniques. |

Mapping of Course outcomes with Program outcomes

KCS 071: Artificial Intelligence

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 3 | 3 | 2 | 3 | 2 | 2 | 2 | 2 | 2 | 3 |
| CO2 | 3 | 3 | 3 | 3 | 3 | 3 | 1 | - | 2 | 2 | 1 | 3 |
| CO3 | 3 | 3 | 2 | 3 | 3 | 3 | 2 | - | 2 | 2 | 1 | 3 |
| CO4 | 3 | 3 | 2 | 3 | 3 | 3 | 2 | 1 | 2 | 2 | 2 | 3 |
| CO5 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 1 | 2 | 2 | 2 | 3 |
| Average | 3 | 3 | 2.6 | 3 | 2.8 | 3 | 1.8 | 1.3 | 2 | 2 | 1.6 | 3 |



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COURSE OUTCOME (2022-2023)

B. Tech IV (Semester VII)

KOE 073: Machine Learning

| CO | Course Outcomes | | | | | | | | | | | |
|---|---|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| CO1 | To understand the need for Machine Learning for various problem solving. | | | | | | | | | | | |
| CO2 | To study the various, semi-supervised and unsupervised learning algorithms in machine learning. | | | | | | | | | | | |
| CO3 | To understand latest trends in machine learning. | | | | | | | | | | | |
| CO4 | To design appropriate machine learning algorithms for problem solving. | | | | | | | | | | | |
| CO5 | To understand the need for machine learning for various problem solving. | | | | | | | | | | | |
| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
| KOE 073: Machine Learning | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 3 | 2 | 2 | - | 2 | - | - | - | 1 | 2 |
| CO2 | 3 | 3 | 3 | 2 | 2 | - | 2 | - | - | - | 1 | 2 |
| CO3 | 3 | 3 | 3 | 2 | 2 | - | 2 | - | - | - | 1 | 2 |
| CO4 | 3 | 3 | 3 | 2 | 2 | - | 2 | - | - | - | 1 | 2 |
| CO5 | 3 | 3 | 3 | 2 | 2 | - | 2 | - | - | - | 1 | 2 |
| Average | 3 | 3 | 3 | 2 | 2 | - | 2 | - | - | - | 1 | 2 |




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COURSE OUTCOME (2022-2023)

B. Tech IV (Semester VII)

KCS 713: Cloud Computing

| CO | Course Outcomes |
|-----|--|
| CO1 | Students are able to understand and define Cloud Computing, different Cloud service and deployment models. |
| CO2 | Students are able to understand the Cloud applications with their architecture, vulnerabilities and resource management. |
| CO3 | Students are able to describe importance of virtualization along with their technologies. |
| CO4 | Students are able to analyze the components of open stack & Google Cloud platform and understand Mobile Cloud Computing. |
| CO5 | Students are able to understand the design & develop backup strategies for cloud database on features. |

Mapping of Course outcomes with Program outcomes

KCS 713: Cloud Computing

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 2 | 3 | - | 3 | 2 | - | - | - | 3 | 2 | 2 |
| CO2 | 3 | 2 | 3 | - | 3 | 2 | - | - | - | 3 | 2 | 2 |
| CO3 | 3 | 2 | 3 | - | 3 | 2 | - | - | - | 3 | 2 | 2 |
| CO4 | 3 | 2 | 3 | - | 3 | 2 | - | - | - | 3 | 2 | 2 |
| CO5 | 3 | 2 | 3 | - | 3 | 2 | - | - | - | 3 | 2 | 2 |
| Average | 3 | 2 | 3 | - | 3 | 2 | - | - | - | 3 | 2 | 2 |



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COURSE OUTCOME (2022-2023)

B. Tech IV (Semester VII)

KCS 751A: Departmental Elective Lab

| CO | Course Outcomes |
|-----|---|
| CO1 | Students are able to perform Resource allocation and deadlock detection and avoidance techniques in the distributed system. |
| CO2 | Students are able to understand remote procedure call for various applications. |
| CO3 | Students are able to understand IPC mechanism in distributed system. |
| CO4 | Students are able to Design and build application programs on distributed systems. |
| CO5 | Students are able to design and build newer distributed file systems for any OS |

Mapping of Course outcomes with Program outcomes

KCS 751A: Departmental Elective Lab

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | - | 3 | 3 | 3 | - | - | - | - | 2 | 2 |
| CO2 | 3 | 3 | - | 3 | 3 | 3 | - | - | - | - | 2 | 2 |
| CO3 | 3 | 3 | - | 3 | 3 | 3 | - | - | - | - | 2 | 2 |
| CO4 | 3 | 3 | - | 3 | 3 | 3 | - | - | - | - | 2 | 2 |
| CO5 | 3 | 3 | - | 3 | 3 | 3 | - | - | - | - | 2 | 2 |
| Average | 3 | 3 | - | 3 | 3 | 3 | - | - | - | - | 2 | 2 |




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COURSE OUTCOME (2022-2023)

B. Tech IV (Semester VII)

KCS 752: Mini Project or Internship Assessment

| CO | Course Outcomes |
|-----|---|
| CO1 | Students acquire 'real' working environment and get acquainted with the organization structure, business operations and administrative functions. |
| CO2 | Students develop hands-on experience in the student's related field so that they can relate and reinforce what has been taught at the institute. |
| CO3 | Students acquire knowledge of cooperation and to develop synergetic collaboration between industry and the institute in promoting a knowledgeable society. |
| CO4 | Students get stage for the future recruitment by the potential employers and get awareness of the social, cultural, global and environmental responsibility as an engineer. |
| CO5 | Students acquire presentation and demonstration skills to effectively communicate the progress of the work to peers and superiors using audio/video, software tools. |

Mapping of Course outcomes with Program outcomes

KCS 752: Mini Project or Internship Assessment

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|------|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | - | 3 | 3 | 2 | - | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| CO2 | - | - | 2 | - | - | 3 | 3 | 3 | 3 | 3 | 3 | 2 |
| CO3 | - | 2 | - | - | 3 | 2 | 3 | 3 | 2 | 3 | 2 | 3 |
| CO4 | - | - | 3 | - | - | 3 | 3 | 3 | 3 | 3 | 2 | 2 |
| CO5 | 2 | 2 | 2 | 2 | 3 | - | 2 | 2 | 2 | - | 3 | 2 |
| Average | 2 | 2.3 | 2.25 | 2 | 3 | 2.7 | 2.8 | 2.8 | 2.6 | 3 | 2.6 | 2.4 |

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COURSE OUTCOME (2022-2023)

B. Tech IV (Semester VII)

KCS 753: Project I

| CO | Course Outcomes |
|-----|--|
| CO1 | The students are able to work effectively in teams to accomplish a common goal. |
| CO2 | The students are able to develop the ability to communicate effectively with a wide range of audience. |
| CO3 | The students acquire the knowledge to undertake technical, research tasks and ethical response responsibilities to develop a software or hardware product. |
| CO4 | The students apply the knowledge for developing a business plan for an entrepreneurial venture and its implementation. |
| CO5 | The students develop the ability of self-learning and apply it in life-long learning. |

Mapping of Course outcomes with Program outcomes

KCS 753: Project I

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | - | - | 3 | 3 | 3 | 2 | - | - | 3 | 3 | 3 | 3 |
| CO2 | - | - | - | - | - | - | - | - | 3 | 3 | 2 | 3 |
| CO3 | 3 | 3 | 3 | 3 | 3 | 2 | - | 3 | 3 | 3 | 3 | 3 |
| CO4 | 3 | 3 | 3 | 3 | 3 | - | 2 | 3 | 2 | 3 | 3 | 2 |
| CO5 | 3 | 3 | 3 | 2 | 3 | - | 2 | - | 3 | - | 2 | 3 |
| Average | 3 | 3 | 3 | 2.7 | 3 | 2 | 2 | 3 | 2.8 | 3 | 2.6 | 2.8 |



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COURSE OUTCOME (2022-2023)

B. Tech IV (Semester VIII)

KHU 802: Project Management & Entrepreneurship

| CO | Course Outcomes |
|-----|---|
| CO1 | Students will be able to understand the need, concept, program & various schemes related to entrepreneurship. |
| CO2 | Students will be able to develop Innovative Idea with sustainable Business Opportunities. |
| CO3 | Students will be able to understand the concept of Project management and related issues during the implementation of selected project. |
| CO4 | Students will be able to understand and implement the methods & Techniques of Project Financing. |
| CO5 | Students will be motivated & empowered to apply the the concept of Social Entrepreneurship for upliftment of the backward areas. |

Mapping of Course outcomes with Program outcomes

KHU 802: Project Management & Entrepreneurship

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | -- | - | 2 | - | 2 | 2 | 2 | - | 2 | - | - | 2 |
| CO2 | -- | - | 2 | - | 2 | 2 | 2 | - | 2 | - | - | 2 |
| CO3 | - | - | 2 | - | 2 | 2 | 2 | - | 2 | - | - | 2 |
| CO4 | - | - | 2 | - | 2 | 2 | 2 | - | 2 | - | - | 2 |
| CO5 | - | - | 2 | - | 2 | 2 | 2 | - | 2 | - | - | 2 |
| Average | - | - | 2 | - | 2 | 2 | 2 | - | 2 | - | - | 2 |




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COURSE OUTCOME (2022-2023)

B. Tech IV (Semester VIII)

KOE 085: Quality Management

| CO | Course Outcomes |
|-----|--|
| CO1 | Develop in-depth knowledge on various quality tools & techniques of Quality Management. |
| CO2 | Develop an understanding on Quality Management philosophies and frameworks. |
| CO3 | Apply the learnt tools and techniques for controlling, improving and measuring quality in manufacturing & service industry. |
| CO4 | Understand and analyse proven methodologies to enhance management processes such as six sigma, benchmarking, quality circles etc. |
| CO5 | Choose a framework to evaluate the performance excellence of an Organisation, and determine the set of performance indicators that will align people with objective of organisation. |

Mapping of Course outcomes with Program outcomes

KOE 085: Quality Management

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 2 | - | - | 2 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 3 |
| CO2 | 3 | - | - | 2 | 3 | 2 | 3 | 2 | 2 | 2 | 2 | 3 |
| CO3 | 2 | - | - | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| CO4 | 3 | - | - | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| CO5 | 2 | - | - | 2 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Average | 2.4 | - | - | 2.4 | 2.6 | 2 | 2.2 | 2 | 2 | 2 | 2 | 2.4 |



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COURSE OUTCOME (2022-2023)

B. Tech IV (Semester VIII)

KOE 093 : Data Mining and Warehousing

| CO | Course Outcomes | | | | | | | | | | | |
|---|--|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| CO1 | Understand the functionality of the various data mining and data warehousing component | | | | | | | | | | | |
| CO2 | Appreciate the strengths and limitations of various data mining and data warehousing models | | | | | | | | | | | |
| CO3 | Explain the analyzing techniques of various data | | | | | | | | | | | |
| CO4 | Describe different methodologies used in data mining and data ware housing. | | | | | | | | | | | |
| CO5 | Compare different approaches of data ware housing and data mining with various technologies. | | | | | | | | | | | |
| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
| KOE 093 : Data Mining and Warehousing | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 2 | - | 2 | 3 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| CO2 | 3 | 2 | 2 | 2 | 3 | 2 | - | - | 3 | - | - | - |
| CO3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 | 3 | 2 | 2 | - | 3 |
| CO4 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | - | 2 | - | - | - |
| CO5 | - | 2 | 3 | 2 | 3 | 2 | 2 | 3 | 2 | - | 2 | 3 |
| Average | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 3 | 2 | 2 | 2 | 3 |




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COURSE OUTCOME (2022-2023)

B. Tech IV (Semester VIII)

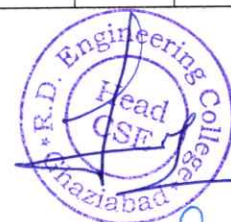
KCS 851: Project II

| CO | Course Outcomes |
|-----|--|
| CO1 | The students are able to work effectively in teams to accomplish a common goal. |
| CO2 | The students are able to develop the ability to communicate effectively with a wide range of audience. |
| CO3 | The students acquire the knowledge to undertake technical, research tasks and ethical response responsibilities to develop a software or hardware product. |
| CO4 | The students apply the knowledge for developing a business plan for an entrepreneurial venture and its implementation. |
| CO5 | The students develop the ability of self-learning and apply it in life- long learning. |

Mapping of Course outcomes with Program outcomes

KCS 851 : Project II

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | - | - | 3 | 3 | 3 | 2 | - | - | 3 | 3 | 3 | 3 |
| CO2 | - | - | - | - | - | - | - | - | 3 | 3 | 2 | 3 |
| CO3 | 3 | 3 | 3 | 3 | 3 | 2 | - | 3 | 3 | 3 | 3 | 3 |
| CO4 | 3 | 3 | 3 | 3 | 3 | - | 2 | 3 | 2 | 3 | 3 | 2 |
| CO5 | 3 | 3 | 3 | 2 | 3 | - | 2 | - | 3 | - | 2 | 3 |
| Average | 3 | 3 | 3 | 2.7 | 3 | 2 | 2 | 3 | 2.8 | 3 | 2.6 | 2.8 |



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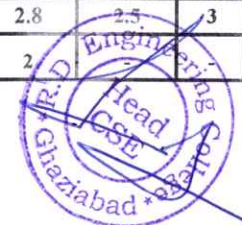


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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING AVERAGE OF PROGRAM OUTCOMES (2022-2023)

| S.N. | YEAR | SEMESTER | Subjects With Codes | Program Outcomes | | | | | | | | | | | | | | |
|-----------------|-----------------------|--------------|--------------------------|-----------------------|------------|---------------|------|-----|-----|------|-----|-----|------|------|------|---|-----|-----|
| | | | | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | | | |
| 1 | B.Tech (CSE) 2nd Year | III SEMESTER | DE (KOE 039) | 2 | 2 | 1.8 | - | 2 | 1 | 2 | - | - | - | 1 | - | | | |
| | | | UHV (KVE 301) | 2 | 2 | 2 | - | 2 | 2 | 1 | - | - | - | 1 | - | | | |
| | | | DSC (KCS 301) | 3 | 3 | 2.1 | 2.6 | 1.8 | 1.4 | 1 | 1 | 1.2 | 1.2 | 1.2 | 2.1 | | | |
| | | | COA (KCS 302) | 2.4 | 2.4 | 1.6 | 1 | 2 | 1 | 1 | - | 1 | - | 1 | 1 | | | |
| | | | DSTL (KCS 303) | 3 | 2.4 | 2.1 | 2.6 | 2.6 | 2 | 1.6 | 1 | 1 | 1 | 1 | 2 | | | |
| | | | PYTHON (KNC302) | 2.8 | 3 | 2.8 | 2.75 | 3 | 2.7 | 2.4 | 2 | 2.8 | - | - | 3 | | | |
| | | IV SEMESTER | MATH IV (KAS 402) | 2.2 | 2.2 | 2 | 2 | 2 | - | 1 | - | - | - | 1.33 | 1 | | | |
| | | | TC (KAS 401) | 1.2 | 1.4 | 2.6 | 1.2 | 1.6 | 1.4 | 1.8 | 1.6 | - | 2 | - | 2.4 | | | |
| | | | MICROPROCESSOR (KCS 403) | 2.4 | 2.4 | 2.8 | 2 | 2.6 | 3 | 2.6 | 1.4 | 2.4 | 1 | 1 | 2.6 | | | |
| | | | OS (KCS 401) | 2.4 | 2 | 1.2 | 2.2 | 2.6 | 1 | 1 | 1 | 1 | 2.6 | 2.2 | 2.6 | | | |
| | | | CSS (KNC 401) | 2.2 | 2.6 | 2 | 2.2 | 2.5 | 3 | - | 2 | - | - | - | 3 | | | |
| | | | TAFL (KCS 402) | 3 | 3 | 3 | 2 | 3 | - | - | - | - | 2 | - | 3 | | | |
| | | | 2 | B.Tech (CSE) 3RD Year | V SEMESTER | DMS (KCS 501) | 2.8 | 2.6 | 3 | 3 | 2 | 1.4 | 1.4 | 1.4 | 2 | 2 | 2.4 | 2 |
| | | | | | | DAA (KCS 503) | 3 | 3 | 2.8 | 2.8 | 2.6 | 1 | 1 | - | - | - | 1 | 2.6 |
| CD (KCS 502) | 3 | 3 | | | | 3 | 3 | 2.8 | - | 2 | 2.8 | 2 | 2.8 | 2.2 | 2.4 | | | |
| OOP (KCS 054) | 3 | 2 | | | | 3 | 3 | 2 | 2 | 2 | - | - | - | 2 | 2 | | | |
| ASC (KCS 056) | 3 | 3 | | | | 2 | 3 | 3 | 2 | - | 2 | - | - | - | 2 | | | |
| CI (KNC 501) | - | - | | | | - | 2 | 2 | - | 3 | 3 | - | - | 2 | 3 | | | |
| VI SEMESTER | WT (KCS 602) | 2.6 | | | 3 | 2 | 2.4 | 3 | 1.6 | 1.3 | - | 2.2 | 1.8 | 2.2 | 2.4 | | | |
| | CN (KCS 603) | 2.6 | | | 2.8 | 2.6 | 1.8 | 2.8 | 1.3 | 1 | 1 | 1.5 | 2.8 | - | 2.2 | | | |
| | SE (KCS 601) | 2 | | | 2 | 3 | 2 | 2 | - | - | 1 | 2 | 2 | 2 | 1 | | | |
| | BD (KCS 061) | 3 | | | - | 3 | - | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | | |
| SPM (KOE 068) | 2.8 | 2.4 | 2.6 | 2.8 | 3 | 3 | 2.8 | 2.5 | 3 | 2.75 | 2 | 2.6 | | | | | | |
| IT,CS (KNC 602) | - | 2 | 2 | - | - | 2 | 2 | 2 | 2 | - | 2 | 2 | | | | | | |


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| | | | | | | | | | | | | | | | | |
|---|-----------------------|----------------|---------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 3 | B.Tech (CSE) 4th Year | VII SEMESTER | RD (KHU 701) | - | - | 2 | - | 2 | 2 | 2 | - | 2 | - | - | 2 | |
| | | | AI (KCS 071) | 3 | 3 | 2.6 | 3 | 2.8 | 3 | 1.8 | 1.3 | 2 | 2 | 1.6 | 3 | |
| | | | ML (KOE 073) | 3 | 3 | 3 | 2 | 2 | - | 2 | - | - | - | 1 | 2 | |
| | | | CC (KCS 713) | 3 | 2 | 3 | - | 3 | 2 | - | - | - | 3 | 2 | 2 | |
| | | VIII SEM. | PME (KHU 802) | - | - | 2 | - | 2 | 2 | 2 | - | 2 | - | - | 2 | |
| | | | QM (KOE 085) | 2.4 | - | - | 2.4 | 2.6 | 2 | 2.2 | 2 | 2 | 2 | 2 | 2.4 | |
| | | | DMW (KOE 093) | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 3 | 2 | 2 | 2 | 3 | |
| | | AVERAGE | | | 2.6 | 2.5 | 2.4 | 2.4 | 2.4 | 2.0 | 1.8 | 1.8 | 2.0 | 2.1 | 1.7 | 2.3 |


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**SAMPLE OF
CO-PO MAPPING**

**Department of
Electronics and
Communication
Engineering**

Engineering Graduates will be able to: -

- 1. Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
- 2. Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- 3. Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- 4. Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
- 5. Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
- 6. The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
- 7. Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
- 8. Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
- 9. Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
- 10. Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
- 11. Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
- 12. Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

- COs to be mapped with POs in Matrix form.
- Correlation levels 1, 2, 3 as defined (1: low, 2: Moderate, 3: High).
- COs will be mapped with POs on the basis of above-mentioned levels.
- If there is no correlation, put "-" or left blank or put zero.


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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
AVERAGE OF PROGRAM OUTCOMES (2022-2023)

| S.N. | YEAR | SEMESTER | Subjects/Labs With Codes | Program Outcomes | | | | | | | | | | | | |
|------|-----------------------|--------------|--------------------------|------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------------------|-----|
| | | | | PO ₁ | PO ₂ | PO ₃ | PO ₄ | PO ₅ | PO ₆ | PO ₇ | PO ₈ | PO ₉ | PO ₁₀ | PO ₁₁ | PO ₁₂ | |
| 1 | B.Tech (ECE) 2nd Year | III SEMESTER | Math-IV(KAS-302) | 2.2 | 2.2 | 2 | 2 | 2 | | 1 | | | | 1.33 | 1 | |
| | | | HUMAN VALUE (KVE-301) | | | | | 2 | 1 | 1 | 1 | 3 | | 1 | | |
| | | | ED(KEC-301) | 2.2 | 2.2 | 1.8 | 2.2 | 2.2 | | | | | | | | 3 |
| | | | DSD(KEC-302) | 3 | 3 | 2.8 | 3 | 3 | | | | | | | | 3 |
| | | | NAS(KEC-303) | 3 | 3 | 2 | 3 | 3 | | | | | | | | 3 |
| | | IV SEMESTER | SI (KOE-044) | 1.6 | 2 | 2 | 2 | 2 | | | | | | | | 1 |
| | | | TC (KAS-401) | 1.2 | 1.4 | 2.6 | 1.2 | 1.6 | 1.4 | 1.8 | 1.6 | | 2 | | | 2.4 |
| | | | CE(KEC-401) | 1.6 | 2 | 2 | 2 | 2 | | | | | | | | 1 |
| | | | AC (KEC-402) | 1.8 | 1.8 | 1.4 | 1.8 | 1.8 | | | | | | | | 3 |
| | | | SS(KEC-403) | 1.8 | 3 | 2 | 1.8 | 1.8 | | | | | | | | 2 |
| 2 | B.Tech (ECE) 3RD Year | V SEMESTER | IC(KEC-501) | 2.6 | 2.6 | 2 | 2.6 | 2.6 | | | | | | | 3 | |
| | | | MP (KEC-502) | 1.8 | 1.8 | 1.4 | 1.8 | 1.8 | | | | | | | 3 | |
| | | | DSP(KEC-503) | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | | | | | | | 2 | |
| | | | VLSI (KEC-053) | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | | | | | | | 3 | |
| | | | ASD(KEC-056) | 1.6 | 1.8 | 2 | 2 | 2 | | | | | | | 1 | |
| | | VI SEMESTER | D.COMM (KEC-601) | 3 | 3 | 2.4 | 3 | 3 | | | | | | | 3 | |
| | | | CS(KEC-602) | 1.4 | 1.8 | 1.5 | 2 | 2 | | | | | | | 1.8 | |
| | | | AWP(KEC-603) | 1.8 | 2 | 2 | 2 | 2 | | | | | | | 1 | |
| | | | DCN(KEC-063) | 2 | 2 | 2 | 2 | 2 | | | | | | | 1 | |
| | | | SPM(KOE-068) | 1.4 | 1.8 | 1.5 | 2 | 2 | | | | | | | 1 | |
| 3 | B.Tech (ECE) 4th Year | VII SEMESTER | RDAP (KHU-701) | 2 | 2 | 1.5 | | 1.75 | | | | | | 2 | | |
| | | | MRE(KEC-074) | 2 | 2 | 1.5 | 2 | 1.75 | | | | | | 2 | | |
| | | | WMC(KEC-076) | 1.8 | 2 | 2 | 2 | 2 | | | | | | 2 | | |
| | | | RER(KOE-074) | 2 | 1.75 | 2 | 2 | 2 | | | | | 1 | 2 | | |
| | | VIII SEM. | PME(KHU-802) | 2 | 2 | 1.5 | | 1.75 | | | | 1 | | 2 | 2 | |
| | | | CLOUD COMPUTING(KOE-081) | 2 | 2 | 2 | 2 | 2 | | | | | | | 2 | |
| | | | DSMM(KOE-094) | 2 | 2 | 1.5 | | 1.75 | | | | | | | 2 | |
| | | | AVERAGE | 2.0 | 2.1 | 1.9 | 2.1 | 2.1 | 1.2 | 1.3 | 1.3 | 2.0 | 2.0 | 1.3 | 2.0 | |


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| R.D. ENGINEERING COLLEGE, GHAZIABAD | | | |
|--|----------------|-------------|--------------|
| DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING | | | |
| ACTION TAKEN ON IDENTIFIED GAP OF PROGRAM OUTCOMES (2022-2023) | | | |
| S.N. | Gap Identified | Relevant PO | Action Taken |
| 1 | NO GAP | | |
| 2 | | | |
| 3 | | | |


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a


B.Tech. (Electronics & Communication Engg.)

Semester III

| Sr. No. | Course Code | Course Title | Periods | | | Evaluation Scheme | | | | End Semester | | Total | Credits |
|---------|----------------------|--|---------|---|---|-------------------|----|-------|----|--------------|----|------------|-----------|
| | | | L | T | P | CT | TA | Total | PS | TE | PE | | |
| | KOE031-38/ KAS302 | Engg. Science Course /Maths IV | 3 | 1 | 0 | 30 | 20 | 50 | | 100 | | 150 | 4 |
| 1. | KAS301/ KVE301 | Technical Communication /Universal Human values | 2 | 1 | 0 | 30 | 20 | 50 | | 100 | | 150 | 3 |
| | | | 3 | 0 | 0 | | | | | | | | |
| 2. | KEC301 | Electronic Devices | 3 | 1 | 0 | 30 | 20 | 50 | | 100 | | 150 | 4 |
| 3. | KEC302 | Digital System Design | 3 | 1 | 0 | 30 | 20 | 50 | | 100 | | 150 | 4 |
| 4. | KEC303 | Network Analysis and Synthesis | 3 | 0 | 0 | 30 | 20 | 50 | | 100 | | 150 | 3 |
| 6. | KEC351 | Electronics Devices Lab | 0 | 0 | 2 | | | | 25 | | 25 | 50 | 1 |
| 7. | KEC352 | Digital System Design Lab | 0 | 0 | 2 | | | | 25 | | 25 | 50 | 1 |
| 8. | KEC353 | Network Analysis and Synthesis lab | 0 | 0 | 2 | | | | 25 | | 25 | 50 | 1 |
| 9. | KEC354 | Mini Project or Internship Assessment | 0 | 0 | 2 | | | 50 | | | | 50 | 1 |
| 10. | KNC301 /KNC302 | Computer System Security /Python Programming | 2 | 0 | 0 | 15 | 10 | 25 | | 50 | | | 0 |
| 11. | | MOOCs (Essential for Hons. Degree) | | | | | | | | | | | |
| | | TOTAL | | | | | | | | | | 950 | 22 |

*The Mini Project or internship (3-4 weeks) conducted during summer break after II semester and will be assessed during III semester.

Semester IV

| Sr. No. | Course Code | Course Title | Periods | | | Evaluation Scheme | | | | End Semester | | Total | Credits |
|---------|----------------------|--|---------|---|---|-------------------|----|-------|----|--------------|----|------------|-----------|
| | | | L | T | P | CT | TA | Total | PS | TE | PE | | |
| 1. | KAS402/ KOE041-48 | Maths-IV / Engg. Science Course | 3 | 1 | 0 | 30 | 20 | 50 | | 100 | | 150 | 4 |
| 2. | KVE401/ KAS401 | Universal Human Values/ Technical Communication | 3 | 0 | 0 | 30 | 20 | 50 | | 100 | | 150 | 3 |
| | | | 2 | 1 | 0 | | | | | | | | |
| 3. | KEC401 | Communication Engineering | 3 | 0 | 0 | 30 | 20 | 50 | | 100 | | 150 | 3 |
| 4. | KEC402 | Analog Circuits | 3 | 1 | 0 | 30 | 20 | 50 | | 100 | | 150 | 4 |
| 5. | KEC403 | Signal System | 3 | 1 | 0 | 30 | 20 | 50 | | 100 | | 150 | 4 |
| 6. | KEC451 | Communication Engineering Lab | 0 | 0 | 2 | | | | 25 | | 25 | 50 | 1 |
| 7. | KEC452 | Analog Circuits Lab | 0 | 0 | 2 | | | | 25 | | 25 | 50 | 1 |
| 8. | KEC453 | Signal System Lab | 0 | 0 | 2 | | | | 25 | | 25 | 50 | 1 |
| 9. | KNC402/ KNC401 | Python Programming/ Computer System Security | 2 | 0 | 0 | 15 | 10 | 25 | | 50 | | | 0 |
| 10. | | MOOCs (Essential for Hons. Degree) | | | | | | | | | | | |
| | | TOTAL | | | | | | | | | | 900 | 21 |

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 DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
 COURSE OUTCOME (2022-23)

B. Tech II (Semester III)

KAS 302: Maths-IV

| CO | Course Outcomes |
|-----|---|
| CO1 | Remember the concept of partial differential equation and to solve partial differential equations. |
| CO2 | Analyze the concept of partial differential equations to evaluate the problems concerned with partial differential equations. |
| CO3 | Understand the concept of correlation, moments, skewness and kurtosis and curve fitting . |
| CO4 | Remember the concept of probability to evaluate probability distributions. |
| CO5 | Apply the concept of hypothesis testing and statistical quality control to create control charts. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KAS 302: Maths-IV | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 2 | 2 | 2 | - | 2 | - | - | - | - | - | - | 1 |
| CO2 | 3 | 3 | 2 | 2 | - | - | - | - | - | - | - | 1 |
| CO3 | 2 | 2 | 2 | 2 | - | - | - | - | - | - | 1 | 1 |
| CO4 | 2 | 2 | - | 2 | 2 | - | - | - | - | - | 1 | 1 |
| CO5 | 2 | 2 | - | - | 2 | - | 1 | - | - | - | 2 | 1 |
| Average | 2.2 | 2.2 | 2 | 2 | 2 | - | 1 | - | - | - | 1.33 | 1 |

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COURSE OUTCOME (2022-23)

KVE 301: Universal Human Value

| CO | Course Outcomes |
|-----|---|
| CO1 | Understand the significance of value inputs in a classroom, distinguish between values and skills, understand the need, basic guidelines, content of value education, explore the meaning of happiness and prosperity and do a correct appraisal of the current scenario in the society |
| CO2 | Distinguish between the Self and the Body, understand the meaning of Harmony in the Self the Co-existence of Self and Body. |
| CO3 | Understand the value of harmonious relationship based on trust, respect and other naturally acceptable feelings in human-human relationships and explore their role in ensuring a harmonious society. |
| CO4 | Understand the harmony in nature and existence, and work out their mutually fulfilling participation in the nature. |
| CO5 | Distinguish between ethical and unethical practices and start working out the strategy to actualize a harmonious environment wherever they work. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KVE 301: Universal Human Value | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | - | - | - | - | 2 | 1 | 1 | 1 | 3 | - | 1 | - |
| CO2 | - | - | - | - | - | 1 | - | 1 | 3 | - | - | - |
| CO3 | - | - | - | - | - | 1 | 1 | 1 | 3 | - | 1 | - |
| CO4 | - | - | - | - | - | 1 | - | 1 | 3 | - | 1 | - |
| CO5 | - | - | - | - | 2 | 1 | - | 1 | 3 | - | - | - |
| Average | - | - | - | - | 2 | 1 | 1 | 1 | 3 | - | 1 | - |


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 COURSE OUTCOME (2022-23)

KEC301: Electronics Devices

| CO | Course Outcomes |
|-----|--|
| CO1 | Understand the principles of semiconductor Physics. |
| CO2 | Understand and utilize the mathematical models of semiconductor junctions. |
| CO3 | Understand carrier transport in semiconductors and design resistors. |
| CO4 | Utilize the mathematical models of MOS transistors for circuits and systems. |
| CO5 | Analyse and find application of special purpose diodes. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KEC301 : Electronics Devices | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 1 | 1 | 1 | 1 | 1 | - | - | - | - | - | - | 3 |
| CO2 | 3 | 3 | 2 | 3 | 3 | - | - | - | - | - | - | 3 |
| CO3 | 3 | 3 | 2 | 3 | 3 | - | - | - | - | - | - | 3 |
| CO4 | 1 | 1 | 1 | 1 | 1 | - | - | - | - | - | - | 3 |
| CO5 | 3 | 3 | 3 | 3 | 3 | - | - | - | - | - | - | 3 |
| Average | 2.2 | 2.2 | 1.8 | 2.2 | 2.2 | - | - | - | - | - | - | 3 |

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COURSE OUTCOME (2022-23)

KEC302: Digital System Design

| CO | Course Outcomes | | | | | | | | | | | |
|---|---|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| CO1 | Design and analyze combinational logic circuits. | | | | | | | | | | | |
| CO2 | Design and analyze modular combinational circuits with MUX / DEMUX, Decoder & Encoder | | | | | | | | | | | |
| CO3 | Design & analyze synchronous sequential logic circuits | | | | | | | | | | | |
| CO4 | Analyze various logic families. | | | | | | | | | | | |
| CO5 | Design ADC and DAC and implement in amplifier, integrator, etc. | | | | | | | | | | | |
| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
| KEC302: Digital System Design | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 3 | 3 | 3 | - | - | - | - | - | - | 3 |
| CO2 | 3 | 3 | 3 | 3 | 3 | - | - | - | - | - | - | 3 |
| CO3 | 3 | 3 | 3 | 3 | 3 | - | - | - | - | - | - | 3 |
| CO4 | 3 | 3 | 2 | 3 | 3 | - | - | - | - | - | - | 3 |
| CO5 | 3 | 3 | 3 | 3 | 3 | - | - | - | - | - | - | 3 |
| Average | 3 | 3 | 2.8 | 3 | 3 | - | - | - | - | - | - | 3 |


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COURSE OUTCOME (2022-23)

KEC303: Network Analysis & Synthesis

| CO | Course Outcomes |
|-----|---|
| CO1 | Understand basics electrical circuits with nodal and mesh analysis. |
| CO2 | Appreciate electrical network theorems. |
| CO3 | Apply Laplace transform for steady state and transient analysis. |
| CO4 | Determine different network functions. |
| CO5 | Appreciate the frequency domain techniques. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KEC303: Network Analysis & Synthesis | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 2 | 3 | 3 | - | - | - | - | - | - | 3 |
| CO2 | 3 | 3 | 2 | 3 | 3 | - | - | - | - | - | - | 3 |
| CO3 | 3 | 3 | 2 | 3 | 3 | - | - | - | - | - | - | 3 |
| CO4 | 3 | 3 | 2 | 3 | 3 | - | - | - | - | - | - | 3 |
| CO5 | 3 | 3 | 2 | 3 | 3 | - | - | - | - | - | - | 3 |
| Average | 3 | 3 | 2 | 3 | 3 | - | - | - | - | - | - | 3 |


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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
COURSE OUTCOME (2022-23)

KEC351: Electronics Devices Lab

| CO | Course Outcomes |
|-----|---|
| CO1 | Understand working of basic electronics lab equipment. |
| CO2 | Understand working of PN junction diode and its applications. |
| CO3 | Understand characteristics of Zener diode. |
| CO4 | Design a voltage regulator using Zener diode. |
| CO5 | Understand working of BJT, FET, MOSFET and apply the concept in designing of amplifiers |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KEC351: Electronics Device Lab | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 2 | 3 | 3 | - | - | - | - | - | - | 3 |
| CO2 | 3 | 3 | 2 | 3 | 3 | - | - | - | - | - | - | 3 |
| CO3 | 3 | 3 | 2 | 3 | 3 | - | - | - | - | - | - | 3 |
| CO4 | 3 | 3 | 3 | 3 | 3 | - | - | - | - | - | - | 3 |
| CO5 | 3 | 3 | 2 | 3 | 3 | - | - | - | - | - | - | 3 |
| Average | 3 | 3 | 2.2 | 3 | 3 | - | - | - | - | - | - | 3 |


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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
COURSE OUTCOME (2022-23)

KEC352: Digital System Design Lab

| CO | Course Outcomes |
|-----|--|
| CO1 | Design and analyze combinational logic circuits. |
| CO2 | Design & analyze modular combinational circuits with MUX/DEMUX, decoder. |
| CO3 | Design & analyze synchronous sequential logic circuits. |
| CO4 | Design & build mini project using digital ICs. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KEC352: Digital System Design Lab | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 3 | 3 | 3 | - | - | - | - | - | - | 3 |
| CO2 | 3 | 3 | 3 | 3 | 3 | - | - | - | - | - | - | 3 |
| CO3 | 3 | 3 | 3 | 3 | 3 | - | - | - | - | - | - | 3 |
| CO4 | 3 | 3 | 3 | 3 | 3 | - | - | - | - | - | - | 3 |
| Average | 3 | 3 | 3 | 3 | 3 | - | - | - | - | - | - | 3 |


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COURSE OUTCOME (2022-23)

KEC353: Network Analysis & Synthesis Lab

| CO | Course Outcomes |
|-----|--|
| CO1 | Understand basics of electrical circuits with nodal and mesh analysis. |
| CO2 | Appreciate electrical network theorems. |
| CO3 | Analyse RLC circuits. |
| CO4 | Determine the stability of an electrical circuit. |
| CO5 | Design network filters. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KEC353: Network Analysis & Synthesis Lab | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 2 | 3 | 3 | - | - | - | - | - | - | 3 |
| CO2 | 3 | 3 | 2 | 3 | 3 | - | - | - | - | - | - | 3 |
| CO3 | 3 | 3 | 2 | 3 | 3 | - | - | - | - | - | - | 3 |
| CO4 | 3 | 3 | 3 | 3 | 3 | - | - | - | - | - | - | 3 |
| CO5 | 3 | 3 | 2 | 3 | 3 | - | - | - | - | - | - | 3 |
| Average | 3 | 3 | 2.2 | 3 | 3 | - | - | - | - | - | - | 3 |


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COURSE OUTCOME (2022-2023)

KEC 354: Mini Project

| CO | Course Outcomes |
|-----|--|
| CO1 | Criticize and experiment to arrive at solutions for real world mechanical engineering problems. |
| CO2 | Analyses and evaluate to obtain solution for problems in mechanical engineering systems. |
| CO3 | Demonstrate effective project execution and control techniques that result in successful projects. |
| CO4 | Conduct project closure activities and obtain formal project acceptance. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|-----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KEC 354: Mini Project | | | | | | | | | | | | |
| CO | Program outcomes (PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 2 | 2 | 1 | - | 2 | 1 | 1 | - | - | - | - | - |
| CO2 | 1 | 3 | 3 | 3 | - | - | - | - | - | - | - | - |
| CO3 | 2 | 1 | - | 1 | - | 1 | - | - | 1 | - | 1 | 1 |
| CO4 | 3 | 2 | - | 2 | 2 | 1 | - | - | 1 | 1 | 2 | 2 |
| Average | 2 | 2 | 2 | 2 | 2 | 1 | 1 | - | 1 | 1 | 1.5 | 1.5 |


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COURSE OUTCOME (2022-23)

B. Tech II (Semester IV)

KOE 044: Sensor and Instrumentation

| CO | Course Outcomes |
|-----|---|
| CO1 | Apply the use of sensors for measurement of displacement, force and pressure. |
| CO2 | Employ commonly used sensors in industry for measurement of temperature, position, accelerometer, vibration sensor, flow and level. |
| CO3 | Demonstrate the use of virtual instrumentation in automation industries. |
| CO4 | Identify and use data acquisition methods. |
| CO5 | Comprehend intelligent instrumentation in industrial automation. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KOE 044: Sensor and Instrumentation | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 2 | 2 | 2 | - | 2 | - | - | - | - | - | - | 1 |
| CO2 | 2 | 3 | 2 | 2 | - | - | - | - | - | - | - | - |
| CO3 | 1 | 2 | - | 2 | - | - | - | - | - | - | - | 1 |
| CO4 | 2 | 1 | - | 2 | 2 | - | - | - | - | - | - | 1 |
| CO5 | 1 | 2 | - | - | 2 | - | - | - | - | - | - | - |
| Average | 1.6 | 2 | 2 | 2 | 2 | - | - | - | - | - | - | 1 |


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COURSE OUTCOME (2022-23)

KAS 401: Technical Communication

| CO | Course Outcomes |
|-----|--|
| CO1 | Students will be enabled to understand the nature and objective of Technical Communication relevant for the work place as Engineers. |
| CO2 | Students will utilize the technical writing for the purposes of Technical Communication and its exposure in various dimensions. |
| CO3 | Students would imbibe inputs by presentation skills to enhance confidence in face of diverse audience. |
| CO4 | Technical communication skills will create a vast know-how of the application of learning to promote their technical competence. |
| CO5 | It would enable them to evaluate their efficacy as fluent & efficient communicators By learning the voice-dynamics. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KAS 401: Technical Communication | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 1 | 2 | 3 | 1 | 2 | 1 | 2 | 2 | - | 2 | - | 2 |
| CO2 | 1 | 2 | 3 | 1 | 2 | 2 | 2 | 1 | - | 2 | - | 2 |
| CO3 | 1 | 1 | 2 | 1 | 1 | 2 | 2 | 2 | - | 2 | - | 3 |
| CO4 | 2 | 1 | 3 | 2 | 1 | 1 | 2 | 1 | - | 2 | - | 3 |
| CO5 | 1 | 1 | 2 | 1 | 2 | 1 | 1 | 2 | - | 2 | - | 2 |
| Average | 1.2 | 1.4 | 2.6 | 1.2 | 1.6 | 1.4 | 1.8 | 1.6 | - | 2 | - | 2.4 |


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COURSE OUTCOME (2022-23)

KEC401: Communication Engineering

| CO | Course Outcomes |
|-----|---|
| CO1 | Analyze and compare different analog modulation schemes for their efficiency and bandwidth. |
| CO2 | Analyze the behavior of a communication system in presence of noise. |
| CO3 | Investigate pulsed modulation system and analyze their system performance. |
| CO4 | Investigate various multiplexing techniques. |
| CO5 | Analyze different digital modulation schemes and compute the bit error performance. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KEC401: Communication Engineering | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 2 | 2 | 2 | - | 2 | - | - | - | - | - | - | 1 |
| CO2 | 2 | 3 | 2 | 2 | - | - | - | - | - | - | - | - |
| CO3 | 1 | 2 | - | 2 | - | - | - | - | - | - | - | 1 |
| CO4 | 2 | 1 | - | 2 | 2 | - | - | - | - | - | - | 1 |
| CO5 | 1 | 2 | - | - | 2 | - | - | - | - | - | - | - |
| Average | 1.6 | 2 | 2 | 2 | 2 | - | - | - | - | - | - | 1 |


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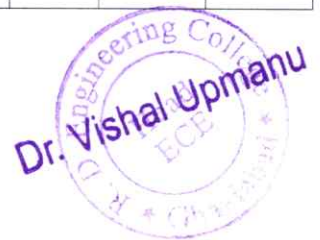
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COURSE OUTCOME (2022-23)

KEC402: Analog Circuits

| CO | Course Outcomes |
|-----|--|
| CO1 | Understand the characteristics of diodes and transistors. |
| CO2 | Design and analyze various rectifier and amplifier circuits. |
| CO3 | Design sinusoidal and non-sinusoidal oscillators. |
| CO4 | Understand the functioning of OP-AMP and design OP-AMP based circuits. |
| CO5 | Design LPF, HPF, BPF, BSF. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KEC402: Analog Circuits | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 2 | 3 | 3 | - | - | - | - | - | - | 3 |
| CO2 | 3 | 3 | 2 | 3 | 3 | - | - | - | - | - | - | 3 |
| CO3 | 1 | 1 | 1 | 1 | 1 | - | - | - | - | - | - | 3 |
| CO4 | 1 | 1 | 1 | 1 | 1 | - | - | - | - | - | - | 3 |
| CO5 | 1 | 1 | 1 | 1 | 1 | - | - | - | - | - | - | 3 |
| Average | 1.8 | 1.8 | 1.4 | 1.8 | 1.8 | - | - | - | - | - | - | 3 |


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COURSE OUTCOME (2022-23)

KEC403: Signal System

| CO | Course Outcomes |
|-----|--|
| CO1 | Analyze different types of signals. |
| CO2 | Analyze linear shift-invariant (LSI) systems. |
| CO3 | Represent continuous and discrete systems in time and frequency domain using Fourier Series and transform. |
| CO4 | Analyze discrete time signals in z-domain. |
| CO5 | Study sampling and reconstruction of a signal. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KEC403: Signal System | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 2 | 3 | 3 | - | - | - | - | - | - | 2 |
| CO2 | 3 | 3 | 2 | 3 | 3 | - | - | - | - | - | - | 2 |
| CO3 | 1 | 3 | 2 | 1 | 1 | - | - | - | - | - | - | 2 |
| CO4 | 1 | 3 | 2 | 1 | 1 | - | - | - | - | - | - | 2 |
| CO5 | 1 | 3 | 2 | 1 | 1 | - | - | - | - | - | - | 2 |
| Average | 1.8 | 3 | 2 | 1.8 | 1.8 | - | - | - | - | - | - | 2 |


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 COURSE OUTCOME (2022-23)

KEC451: Communication Engineering Lab

| CO | Course Outcomes |
|-----|--|
| CO1 | Analyze and compare different analog modulation schemes for their modulation factor and power. |
| CO2 | Study pulse amplitude modulation. |
| CO3 | Analyze different digital modulation schemes and can compute the bit error performance. |
| CO4 | Study and simulate the Phase shift keying. |
| CO5 | Design a front end BPSK modulator and demodulator. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|-----|------|-----|------|-----|-----|-----|-----|------|------|------|
| KEC451: Communication Engineering Lab | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 2 | 2 | - | 2 | 2 | - | - | - | - | - | - | 1 |
| CO2 | 2 | 1 | 2 | 2 | - | - | - | - | - | - | - | 1 |
| CO3 | 1 | 1 | 3 | 2 | - | - | - | - | - | - | - | 1 |
| CO4 | 2 | 2 | - | 2 | 1 | - | - | - | - | - | - | 1 |
| CO5 | 2 | 2 | - | 2 | 2 | - | - | - | - | - | - | 1 |
| Average | 1.8 | 1.6 | 1.66 | 2 | 1.66 | - | - | - | - | - | - | 1 |


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COURSE OUTCOME (2022-23)

KEC452: Analog Circuit Lab

| CO | Course Outcomes |
|-----|--|
| CO1 | Understand the characteristics of transistors.. |
| CO2 | Design and analyze various configurations of amplifier circuits.. |
| CO3 | Design sinusoidal and non-sinusoidal oscillators.. |
| CO4 | Understand the functioning of OP-AMP and design OP-AMP based circuits. |
| CO5 | Design ADC and DAC. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KEC452 : Analog Circuit Lab | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 2 | 1 | 2 | 2 | 2 | - | - | - | - | - | - | 1 |
| CO2 | 2 | 2 | 2 | 2 | - | - | - | - | - | - | - | - |
| CO3 | 1 | 2 | 2 | 2 | - | - | - | - | - | - | - | 1 |
| CO4 | 2 | 2 | 2 | 2 | 1 | - | - | - | - | - | - | 1 |
| CO5 | 2 | 1 | 2 | 2 | 2 | - | - | - | - | - | - | - |
| Average | 1.8 | 1.6 | 2 | 2 | 2 | - | - | - | - | - | - | 1 |


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COURSE OUTCOME (2022-23)

KEC453: Signal System Lab

| CO | Course Outcomes |
|-----|--|
| CO1 | Understand the basics operation of MATLAB. |
| CO2 | Analysis the time domain and frequency domain signals. |
| CO3 | Implement the concept of Fourier series and Fourier transforms. |
| CO4 | Find the stability of system using pole-zero diagrams and bode diagram |
| CO5 | Design frequency response of the system. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KEC453: Signal System Lab | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 1 | 2 | 2 | 2 | 2 | - | - | - | - | - | - | 2 |
| CO2 | 2 | 2 | 2 | 2 | - | - | - | - | - | - | - | 2 |
| CO3 | 2 | 1 | 2 | 2 | - | - | - | - | - | - | - | 2 |
| CO4 | 1 | 2 | 2 | 2 | 2 | - | - | - | - | - | - | 2 |
| CO5 | 2 | 1 | 2 | 2 | 2 | - | - | - | - | - | - | 2 |
| Average | 1.6 | 1.6 | 2 | 2 | 2 | - | - | - | - | - | - | 2 |


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ELECTRONICS AND COMMUNICATION ENGINEERING

B.Tech. V Semester

Electronics and Communication Engineering

| S. No. | Course Code | Course Title | Periods | | | Evaluation Scheme | | | | End Semester | | Total | Credits |
|--------------|---------------|--|---------|---|---|-------------------|----|-------|----|--------------|------------|-----------|---------|
| | | | L | T | P | CT | TA | Total | PS | TE | PE | | |
| 1 | KEC-501 | Integrated Circuits | 3 | 1 | 0 | 30 | 20 | 50 | | 100 | | 150 | 4 |
| 2 | KEC-502 | Microprocessor & Microcontroller | 3 | 1 | 0 | 30 | 20 | 50 | | 100 | | 150 | 4 |
| 3 | KEC-503 | Digital Signal Processing | 3 | 1 | 0 | 30 | 20 | 50 | | 100 | | 150 | 4 |
| 4 | KEC-051-054 | Department Elective-I | 3 | 0 | 0 | 30 | 20 | 50 | | 100 | | 150 | 3 |
| 5 | KEC-055-058 | Department Elective-II | 3 | 0 | 0 | 30 | 20 | 50 | | 100 | | 150 | 3 |
| 6 | KEC-551 | Integrated Circuits Lab | 0 | 0 | 2 | | | | 25 | | 25 | 50 | 1 |
| 7 | KEC-552 | Microprocessor & Microcontroller Lab | 0 | 0 | 2 | | | | 25 | | 25 | 50 | 1 |
| 8 | KEC-553 | Digital Signal Processing Lab | 0 | 0 | 2 | | | | 25 | | 25 | 50 | 1 |
| 9 | KEC-554 | Mini Project/Internship ** | 0 | 0 | 2 | | | | 50 | | | 50 | 1 |
| 10 | KNC501/KNC502 | Constitution of India, Law and Engineering / Indian Tradition, Culture and Society | 2 | 0 | 0 | 15 | 10 | 25 | | 50 | | | NC |
| 11 | | MOOCs (Essential for Hons. Degree) | | | | | | | | | | | |
| Total | | | | | | | | | | | 950 | 22 | |

**The Mini Project or Internship (4weeks) conducted during summer break after IV Semester and will be assessed during Vth Semester.

Course Code

Course Title

| | |
|-------------------------------|---|
| Department Elective-I | |
| KEC-051 | Computer Architecture and Organization |
| KEC-052 | Industrial Electronics |
| KEC-053 | VLSI Technology |
| KEC-054 | Advance Digital Design using Verilog |
| Department Elective-II | |
| KEC-055 | Electronics Switching |
| KEC-056 | Advance Semiconductor Device |
| KEC-057 | Electronics Measurement & Instrumentation |
| KEC-058 | Optical Communication |


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COURSE OUTCOME (2022-23)

B. Tech III (Semester V)

KEC 501: Integrated Circuits

| CO | Course Outcomes |
|-----|---|
| CO1 | Explain complete internal analysis of Op-Amp 741-IC. |
| CO2 | Examine and design Op-Amp based circuits and basic components of ICs such as various types of filter. |
| CO3 | Implement the concept of Op-Amp to design Op-Amp based non-linear applications and wave-shaping circuits. |
| CO4 | Analyse and design basic digital IC circuits using CMOS technology. |
| CO5 | Describe the functioning of application specific ICs such as 555 timer ,VCO IC 566 and PLL. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KEC 501: Integrated Circuits | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 1 | 1 | 1 | 1 | 1 | - | - | - | - | - | - | 3 |
| CO2 | 3 | 3 | 2 | 3 | 3 | - | - | - | - | - | - | 3 |
| CO3 | 3 | 3 | 2 | 3 | 3 | - | - | - | - | - | - | 3 |
| CO4 | 3 | 3 | 3 | 3 | 3 | - | - | - | - | - | - | 3 |
| CO5 | 3 | 3 | 2 | 3 | 3 | - | - | - | - | - | - | 3 |
| Average | 2.6 | 2.6 | 2 | 2.6 | 2.6 | - | - | - | - | - | - | 3 |


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COURSE OUTCOME (2022-23)

KEC 502: Microprocessor & Microcontroller

| CO | Course Outcomes |
|-----|---|
| CO1 | Demonstrate the basic architecture of 8085. |
| CO2 | Illustrate the programming model of microprocessors & write program using 8085 microprocessor. |
| CO3 | Demonstrate the basics of 8086 Microprocessor and interface different external Peripheral Devices like timer, USART etc. with Microprocessor (8085/8086). |
| CO4 | Compare Microprocessors & Microcontrollers, and comprehend the architecture of 8051 microcontroller. |
| CO5 | Illustrate the programming model of 8051 and implement them to design projects on real time problems. |

Mapping of Course outcomes with Program outcomes

KEC 502: Microprocessor & Microcontroller

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 2 | 3 | 3 | - | - | - | - | - | - | 3 |
| CO2 | 3 | 3 | 2 | 3 | 3 | - | - | - | - | - | - | 3 |
| CO3 | 1 | 1 | 1 | 1 | 1 | - | - | - | - | - | - | 3 |
| CO4 | 1 | 1 | 1 | 1 | 1 | - | - | - | - | - | - | 3 |
| CO5 | 1 | 1 | 1 | 1 | 1 | - | - | - | - | - | - | 3 |
| Average | 1.8 | 1.8 | 1.4 | 1.8 | 1.8 | - | - | - | - | - | - | 3 |


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COURSE OUTCOME (2022-23)

KEC503 : Digital Signal Processing

| CO | Course Outcomes |
|-----|--|
| CO1 | Design and describe different types of realizations of digital systems (IIR and FIR) and their utilities. |
| CO2 | Select design parameters of analog IIR digital filters (Butterworth and Chebyshev filters) and implement various methods such as impulse invariant transformation and bilinear transformation of conversion of analog to digital filters |
| CO3 | Design FIR filter using various types of window functions. |
| CO4 | Define the principle of discrete Fourier transform & its various properties and concept of circular and linear convolution. Also, students will be able to define and implement FFT i.e. a fast computation method of DFT. |
| CO5 | Define the concept of decimation and interpolation. Also, they will be able to Implement it In various practical applications. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KEC503 : Digital Signal Processing | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 3 | 3 | 3 | - | - | - | - | - | - | 2 |
| CO2 | 3 | 3 | 3 | 3 | 3 | - | - | - | - | - | - | 2 |
| CO3 | 3 | 3 | 3 | 3 | 3 | - | - | - | - | - | - | 2 |
| CO4 | 1 | 1 | 1 | 1 | 1 | - | - | - | - | - | - | 2 |
| CO5 | 1 | 1 | 1 | 1 | 1 | - | - | - | - | - | - | 2 |
| Average | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | - | - | - | - | - | - | 2 |


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COURSE OUTCOME (2022-23)

KEC 053 : VLSI Technology

| CO | Course Outcomes | | | | | | | | | | | |
|---|---|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| CO1 | Interpret the basics of crystal growth, wafer preparation and wafer cleaning. | | | | | | | | | | | |
| CO2 | Evaluate the process of Epitaxy and oxidation. | | | | | | | | | | | |
| CO3 | Differentiate the lithography, etching and deposition process. | | | | | | | | | | | |
| CO4 | Analyze the process of diffusion and ion implantation | | | | | | | | | | | |
| CO5 | Express the basic process involved in metallization and packaging. | | | | | | | | | | | |
| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
| KEC 053 : VLSI Technology | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 3 | 3 | 3 | - | - | - | - | - | - | 3 |
| CO2 | 3 | 3 | 3 | 3 | 3 | - | - | - | - | - | - | 3 |
| CO3 | 3 | 3 | 3 | 3 | 3 | - | - | - | - | - | - | 3 |
| CO4 | 1 | 1 | 1 | 1 | 1 | - | - | - | - | - | - | 3 |
| CO5 | 1 | 1 | 1 | 1 | 1 | - | - | - | - | - | - | 3 |
| Average | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | - | - | - | - | - | - | 3 |


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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
COURSE OUTCOME (2022-23)

KEC 056 : Advanced Semiconductor Device

| CO | Course Outcomes |
|-----|---|
| CO1 | Explain the behavior of BJT and MOSFET in DC biasing and as CE amplifier circuit. |
| CO2 | Describe the Tunnel diode and IMPATT diode. |
| CO3 | Explain the basics of Light-Emitting Diode (LED) and evaluate the performance of Photoconductor and photodiode. |
| CO4 | Distinguish the performance of Photoconductor, photodiode, Phototransistor. |
| CO5 | Analyze the functioning of Metal-Semiconductor-Metal Photodetector. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KEC 056 : Advance Semiconductor Device | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 1 | 2 | 2 | - | 2 | - | - | - | - | - | - | 1 |
| CO2 | 2 | 1 | 2 | 2 | - | - | - | - | - | - | - | - |
| CO3 | 2 | 2 | - | 2 | - | - | - | - | - | - | - | 1 |
| CO4 | 1 | 2 | - | 2 | 2 | - | - | - | - | - | - | 1 |
| CO5 | 2 | 2 | - | - | 2 | - | - | - | - | - | - | - |
| Average | 1.6 | 1.8 | 2 | 2 | 2 | - | - | - | - | - | - | 1 |


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 COURSE OUTCOME (2022-23)

KEC 551: Integrated Circuits Lab

| CO | Course Outcomes |
|-----|---|
| CO1 | Design different non-linear applications of operational amplifiers such as log, antilog amplifiers and voltage comparators. |
| CO2 | Explain and design different linear applications of operational amplifiers such as filters. |
| CO3 | Demonstrate the function of waveforms generator using op-Amp. |
| CO4 | Construct multivibrator and oscillator circuits using IC555 and IC566 and perform measurements of frequency and time. |
| CO5 | Design and practically demonstrate the applications based on IC555. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KEC 551: Integrated Circuits Lab | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 1 | 2 | 2 | - | 2 | - | - | - | - | - | - | 2 |
| CO2 | 1 | 2 | 1 | 2 | - | - | - | - | - | - | - | 2 |
| CO3 | 2 | 1 | - | 2 | - | - | - | - | - | - | - | 1 |
| CO4 | 2 | 2 | - | 2 | 2 | - | - | - | - | - | - | 2 |
| CO5 | 1 | 2 | - | - | 2 | - | - | - | - | - | - | 2 |
| Average | 1.4 | 1.8 | 1.5 | 2 | 2 | - | - | - | - | - | - | 1.8 |


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 COURSE OUTCOME (2022-23)

KEC 552: Microprocessor & Microcontroller Lab

| CO | Course Outcomes |
|-----|--|
| CO1 | Use techniques, skills, modern engineering tools, instrumentation and software/hardware appropriately to list and demonstrate arithmetic and logical operations on 8 bit data using microprocessor 8085. |
| CO2 | Examine 8085 & 8086 microprocessor and its interfacing with peripheral devices. |
| CO3 | State various conversion techniques using 8085 & 8086 and generate waveforms using 8085. |
| CO4 | Implement programming concept of 8051 Microcontroller. |
| CO5 | Design concepts to Interface peripheral devices with Microcontroller so as to design Microcontroller based projects. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KEC 552: Microprocessor & Microcontroller Lab | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 2 | 2 | 2 | - | 2 | - | - | - | - | - | - | 2 |
| CO2 | 2 | 2 | 2 | 2 | - | - | - | - | - | - | - | 2 |
| CO3 | 2 | 2 | - | 2 | - | - | - | - | - | - | - | 2 |
| CO4 | 2 | 2 | - | 2 | 2 | - | - | - | - | - | - | 2 |
| CO5 | 2 | 2 | - | - | 2 | - | - | - | - | - | - | 2 |
| Average | 2 | 2 | 2 | 2 | 2 | - | - | - | - | - | - | 2 |


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 COURSE OUTCOME (2022-23)

KEC 553: Digital Signal Processing Lab

| CO | Course Outcomes |
|-----|--|
| CO1 | Create and visualize various discrete/digital signals using MATLAB/Scilab. |
| CO2 | Implement and test the basic operations of Signal processing. |
| CO3 | Examine and analyse the spectral parameters of window functions. |
| CO4 | Design IIR and FIR filters for band pass, band stop, low pass and high pass filters. |
| CO5 | Design the signal processing algorithms using MATLAB/SCI lab. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KEC 553: Digital Signal Processing Lab | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 2 | 2 | - | 2 | - | - | - | - | - | - | 2 |
| CO2 | 1 | 1 | 2 | 2 | - | - | - | - | - | - | - | 1 |
| CO3 | 2 | 2 | - | 2 | - | - | - | - | - | - | - | 2 |
| CO4 | 2 | 2 | - | 2 | 2 | - | - | - | - | - | - | 2 |
| CO5 | 2 | 3 | - | - | 2 | - | - | - | - | - | - | 3 |
| Average | 2 | 2 | 2 | 2 | 2 | - | - | - | - | - | - | 2 |


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 COURSE OUTCOME (2022-23)

KEC 554: Mini Project/Internship

| CO | Course Outcomes |
|-----|---|
| CO1 | Identify an engineering problem, devise a means of solving and exhibit the ability to execute the solution |
| CO2 | Demonstrate knowledge of professional and ethical responsibilities. |
| CO3 | Show the understanding of impact of engineering solutions on the society and also will be aware of contemporary issues. |
| CO4 | Communicate effectively in both verbal and written form. |
| CO5 | Develop confidence for self-education and ability for lifelong learning |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KEC 554: Mini Project/Internship | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 2 | 1 | 2 | - | 2 | 1 | 1 | - | - | - | - | - |
| CO2 | 2 | 2 | 2 | 2 | - | - | - | - | - | 2 | - | 2 |
| CO3 | 2 | 2 | - | 2 | - | 1 | - | - | 1 | 2 | 2 | 2 |
| CO4 | 1 | 2 | - | 2 | 2 | 1 | - | - | - | - | 1 | 2 |
| CO5 | 2 | 2 | - | - | 2 | - | - | - | 1 | - | - | - |
| Average | 1.8 | 1.8 | 2 | 2 | 2 | 1 | 1 | - | 1 | 2 | 1.5 | 2 |


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ELECTRONICS AND COMMUNICATION ENGINEERING

B.Tech. VI Semester

Electronics and Communication Engineering

| S. No. | Course Code | Course Title | Periods | | | Evaluation Scheme | | | | End Semester | | Total | Credits |
|--------|-------------------|--|---------|---|---|-------------------|----|-------|----|--------------|----|------------|-----------|
| | | | L | T | P | CT | TA | Total | PS | TE | PE | | |
| 1 | KEC-601 | Digital Communication | 3 | 1 | 0 | 30 | 20 | 50 | | 100 | | 150 | 4 |
| 2 | KEC-602 | Control System | 3 | 1 | 0 | 30 | 20 | 50 | | 100 | | 150 | 4 |
| 3 | KEC-603 | Antenna and Wave Propagation | 3 | 1 | 0 | 30 | 20 | 50 | | 100 | | 150 | 4 |
| 4 | | Department Elective-III | 3 | 0 | 0 | 30 | 20 | 50 | | 100 | | 150 | 3 |
| 5 | | Open Elective-I | 3 | 0 | 0 | 30 | 20 | 50 | | 100 | | 150 | 3 |
| 6 | KEC-651 | Digital Communication Lab | 0 | 0 | 2 | | | | 25 | | 25 | 50 | 1 |
| 7 | KEC-652 | Control System Lab | 0 | 0 | 2 | | | | 25 | | 25 | 50 | 1 |
| 8 | KEC-653 | Elective Lab | 0 | 0 | 2 | | | | 25 | | 25 | 50 | 1 |
| 9 | KNC601/ KNC602 | Constitution of India, Law and Engineering / Indian Tradition, Culture and Society | 2 | 0 | 0 | 15 | 10 | 25 | | 50 | | | NC |
| 10 | | MOOCs (Essential for Hons. Degree) | | | | | | | | | | | |
| | | Total | | | | | | | | | | 900 | 21 |

Course Code

Course Title

Department Elective-III

| | |
|---------|--|
| KEC-061 | Microcontroller & Embedded System Design |
| KEC-062 | Satellite Communication |
| KEC-063 | Data Communication Networks |
| KEC-064 | Analog Signal Processing |
| KEC-065 | Random Variables & Stochastic Process |

Course Code

Elective Lab

| | |
|----------|--|
| KEC-653A | Measurement & Instrumentation Lab |
| KEC-653B | Cad for Electronics Lab |
| KEC-653C | Microcontroller & Embedded System Design Lab |


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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
COURSE OUTCOME (2022-23)

B. Tech III (Semester VI)

KEC 601: Digital Communication

| CO | Course Outcomes |
|-----|---|
| CO1 | To formulate basic statistics involved in communication theory. |
| CO2 | To demonstrate the concepts involved in digital communication. |
| CO3 | To explain the concepts of digital modulation schemes. |
| CO4 | To analyze the performance of digital communication systems. |
| CO5 | To apply the concept of information theory in digital systems. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KEC 601: Digital Communication | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 2 | 3 | 3 | - | - | - | - | - | - | 3 |
| CO2 | 3 | 3 | 3 | 3 | 3 | - | - | - | - | - | - | 3 |
| CO3 | 3 | 3 | 2 | 3 | 3 | - | - | - | - | - | - | 3 |
| CO4 | 3 | 3 | 2 | 3 | 3 | - | - | - | - | - | - | 3 |
| CO5 | 3 | 3 | 3 | 3 | 3 | - | - | - | - | - | - | 3 |
| Average | 3 | 3 | 2.4 | 3 | 3 | - | - | - | - | - | - | 3 |


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 DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
 COURSE OUTCOME (2022-23)

KEC 602: Control System

| CO | Course Outcomes |
|-----|---|
| CO1 | Describe the basics of control systems along with different types of feedback and its effect. Additionally they will also be able to explain the techniques such as block diagrams reduction, signal flow graph and modelling of various physical systems along with modeling of DC servomotor. |
| CO2 | Explain the concept of state variables for the representation of LTI system. |
| CO3 | Interpret the time domain response analysis for various types of inputs along with the time domain specifications. |
| CO4 | Distinguish the concepts of absolute and relative stability for continuous data systems along with different methods. |
| CO5 | Interpret the concept of frequency domain response analysis and their specifications. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KEC 602 : Control System | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 1 | 2 | 2 | - | 2 | - | - | - | - | - | - | 2 |
| CO2 | 1 | 2 | 1 | 2 | - | - | - | - | - | - | - | 2 |
| CO3 | 2 | 1 | - | 2 | - | - | - | - | - | - | - | 1 |
| CO4 | 2 | 2 | - | 2 | 2 | - | - | - | - | - | - | 2 |
| CO5 | 1 | 2 | - | - | 2 | - | - | - | - | - | - | 2 |
| Average | 1.4 | 1.8 | 1.5 | 2 | 2 | - | - | - | - | - | - | 1.8 |


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 DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
 COURSE OUTCOME (2022-23)

KEC 603: Antenna and Wave Propagation

| CO | Course Outcomes |
|-----|---|
| CO1 | Identify different coordinate systems and their applications in electromagnetic field theory to establish a relation between any two systems using the vector calculus. |
| CO2 | Explain the concept of static electric field, current and properties of conductors. |
| CO3 | Express the basic concepts of ground, space, sky wave propagation mechanism. |
| CO4 | Demonstrate the knowledge of antenna fundamentals and radiation mechanism of the antenna. |
| CO5 | Analyze and design different types of basic antennas. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KEC 603: Antenna and Wave Propagation | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 2 | 2 | 2 | - | 2 | - | - | - | - | - | - | 1 |
| CO2 | 2 | 2 | 2 | 2 | - | - | - | - | - | - | - | - |
| CO3 | 1 | 2 | - | 2 | - | - | - | - | - | - | - | 1 |
| CO4 | 2 | 2 | - | 2 | 2 | - | - | - | - | - | - | 1 |
| CO5 | 2 | 2 | - | - | 2 | - | - | - | - | - | - | - |
| Average | 1.8 | 2 | 2 | 2 | 2 | - | - | - | - | - | - | 1 |


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COURSE OUTCOME (2022-23)

KEC 063 : Data Communication Networks

| CO | Course Outcomes |
|-----|---|
| CO1 | Identify the issues and challenges in the architecture of a network. |
| CO2 | Analyze the services and features of various protocol layers in data layer. |
| CO3 | Demonstrate the knowledge of multiple access to design a access technique for a particular application. |
| CO4 | Realize protocols at different layers of a network hierarchy. |
| CO5 | Recognize security issues in a network and various application of application layer. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KEC 063 : Data Communication Networks | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 1 | 2 | - | 2 | - | - | - | - | - | - | 1 |
| CO2 | 2 | 2 | 2 | 2 | - | - | - | - | - | - | - | - |
| CO3 | 2 | 2 | - | 2 | - | - | - | - | - | - | - | 1 |
| CO4 | 2 | 2 | - | 2 | 2 | - | - | - | - | - | - | 1 |
| CO5 | 1 | 3 | - | - | 2 | - | - | - | - | - | - | - |
| Average | 2 | 2 | 2 | 2 | 2 | - | - | - | - | - | - | 1 |


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 COURSE OUTCOME (2022-23)

KOE 068: Software Project Management

| CO | Course Outcomes |
|-----|---|
| CO1 | Identify project planning objectives, along with various cost/effort estimation models. |
| CO2 | Organize & schedule project activities to compute critical path for risk analysis. |
| CO3 | Monitor and control project activities. |
| CO4 | Formulate testing objectives and test plan to ensure good software quality under SEI-CMM. |
| CO5 | Configure changes and manage risks using project management tools. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KOE 068: Software Project Management | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 1 | 2 | 2 | - | 2 | - | - | - | - | - | - | 1 |
| CO2 | 1 | 2 | 1 | 2 | - | - | - | - | - | - | - | - |
| CO3 | 2 | 1 | - | 2 | - | - | - | - | - | - | - | 1 |
| CO4 | 2 | 2 | - | 2 | 2 | - | - | - | - | - | - | 1 |
| CO5 | 1 | 2 | - | - | 2 | - | - | - | - | - | - | - |
| Average | 1.4 | 1.8 | 1.5 | 2 | 2 | - | - | - | - | - | - | 1 |


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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
COURSE OUTCOME (2022-23)

KEC-651 Digital Communication Lab

| CO | Course Outcomes | | | | | | | | | | | |
|---|--|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| CO1 | To formulate basic concepts of pulse shaping in digital communication. | | | | | | | | | | | |
| CO2 | To identify different line coding techniques and demonstrate the concepts. | | | | | | | | | | | |
| CO3 | To design equipments related to digital modulation and demodulation schemes. | | | | | | | | | | | |
| CO4 | To analyze the performance of various digital communication systems and evaluate the key parameters. | | | | | | | | | | | |
| CO5 | To conceptualize error detection & correction using different coding schemes in digital communication. | | | | | | | | | | | |
| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
| KEC-651 Digital Communication Lab | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 2 | 3 | 3 | - | - | - | - | - | - | 2 |
| CO2 | 3 | 3 | 2 | 3 | 3 | - | - | - | - | - | - | 2 |
| CO3 | 3 | 3 | 2 | 3 | 3 | - | - | - | - | - | - | 2 |
| CO4 | 3 | 3 | 3 | 3 | 3 | - | - | - | - | - | - | 3 |
| CO5 | 3 | 3 | 3 | 3 | 3 | - | - | - | - | - | - | 3 |
| Average | 3 | 3 | 2.4 | 3 | 3 | - | - | - | - | - | - | 2.4 |


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Head
Dr. Vishal Upmanu
Ghaziabad



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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
COURSE OUTCOME (2022-23)

KEC 652: Control System Lab

| CO | Course Outcomes |
|-----|---|
| CO1 | Classify different tools in MATLAB along with the basic matrix operations used in MATLAB. |
| CO2 | Evaluate the poles and zeros on s-plane along with transfer function of a given system. |
| CO3 | Construct state space model of a linear continuous system. |
| CO4 | Evaluate the various specifications of time domain response of a given system. |
| CO5 | Appraise the steady state error of a given transfer function. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KEC 652: Control System Lab | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 2 | 3 | 3 | - | - | - | - | - | - | 2 |
| CO2 | 3 | 3 | 2 | 3 | 3 | - | - | - | - | - | - | 2 |
| CO3 | 3 | 3 | 2 | 3 | 3 | - | - | - | - | - | - | 2 |
| CO4 | 3 | 3 | 3 | 3 | 3 | - | - | - | - | - | - | 3 |
| CO5 | 3 | 3 | 3 | 3 | 3 | - | - | - | - | - | - | 3 |
| Average | 3 | 3 | 2.4 | 3 | 3 | - | - | - | - | - | - | 2.4 |


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COURSE OUTCOME (2022-23)

KEC 653B: Cad for Electronics Lab

| CO | Course Outcomes |
|-----|--|
| CO1 | Design and analyze the performance of different type of inverters. |
| CO2 | Design and analyze the performance of the basic logic gates using CMOS inverter circuit. |
| CO3 | Design and analyze the performance of the memory based digital circuits using CMOS inverter circuit. |
| CO4 | Analyze the performance of the different configuration of MOS amplifier circuits. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KEC 653B :Cad for Electronics Lab | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 2 | 2 | 2 | - | 2 | - | - | - | - | - | - | 2 |
| CO2 | 2 | 2 | 2 | 2 | - | - | - | - | - | - | - | 2 |
| CO3 | 2 | 2 | - | 2 | - | - | - | - | - | - | - | 2 |
| CO4 | 2 | 2 | - | 2 | 2 | - | - | - | - | - | - | 2 |
| Average | 2 | 2 | 2 | 2 | 2 | - | - | - | - | - | - | 2 |


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ELECTRONICS AND COMMUNICATION ENGINEERING

B.Tech. VII Semester

Electronics and Communication Engineering

| S. No. | Course Code | Course Title | Periods | | | Evaluation Scheme | | | | End Semester | | Total | Credits |
|--------|---------------|--|---------|---|---|-------------------|----|-------|-----|--------------|----|------------|-----------|
| | | | L | T | P | CT | TA | Total | PS | TE | PE | | |
| 1. | KHU701/KHU702 | HSMC-1 [#] /HSMC-2 [#] | 3 | 0 | 0 | 30 | 20 | 50 | | 100 | | 150 | 3 |
| 2. | KEC-071-074 | Department Elective –IV | 3 | 0 | 0 | 30 | 20 | 50 | | 100 | | 150 | 3 |
| 3. | KEC-075-076 | Department Elective –V | 3 | 0 | 0 | 30 | 20 | 50 | | 100 | | 150 | 3 |
| 4. | | Open Elective-II | 3 | 0 | 0 | 30 | 20 | 50 | | 100 | | 150 | 3 |
| 5. | KEC-751X | Lab for Department Elective - | 0 | 0 | 2 | | | | 25 | | 25 | 50 | 1 |
| 6. | KEC-752 | Mini Project or Internship Assessment** | 0 | 0 | 2 | | | | 50 | | | 50 | 1 |
| 7. | KEC-753 | Project I | 0 | 0 | 8 | | | | 150 | | | 150 | 4 |
| | | MOOCs (Essential for Hons. Degree) | | | | | | | | | | | |
| | | Total | | | | | | | | | | 850 | 18 |

Course Code

Course Title

| | |
|---------|---------------------------------|
| | Department Elective-IV |
| KEC-071 | Digital Image Processing |
| KEC-072 | VLSI Design |
| KEC-073 | Optical Network |
| KEC-074 | Microwave & Radar Engineering |
| | Department Elective-V |
| KEC-075 | Information Theory & Coding |
| KEC-076 | Wireless & Mobile Communication |
| KEC-077 | Micro & Smart Systems |
| KEC-078 | Speech Processing |


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Course Code

***Elective Lab

| | |
|---------|-----------------------------------|
| KEC751A | Digital Image Processing Lab |
| KEC751B | VLSI Design Lab |
| KEC751C | Optical System and Networking Lab |
| KEC751D | Microwave & Radar Engineering Lab |

***Students will opt one subject from the list of Department Elective-IV with its corresponding lab. i.e. if someone has opted Digital Image Processing (KEC071) from Department Elective-IV then it will be mandatory to opt the DIP Lab (KEC751A).



R.D. ENGINEERING COLLEGE, GHAZIABAD
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
COURSE OUTCOME (2022-23)

B. Tech IV (Semester VII)

KHU 701: Rural Development: Administration And Planning

| CO | Course Outcomes |
|-----|---|
| CO1 | Students can understand the definitions, concepts and components of Rural Development. |
| CO2 | Students will know the importance, structure, significance, resources of Indian rural economy. |
| CO3 | Students will have a clear idea about the area development programmes and its impact. |
| CO4 | Students will be able to acquire knowledge about rural entrepreneurship. |
| CO5 | Students will be able to understand about the using of different methods for human resource planning. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|---|----------------------|-----|-----|-----|------|-----|-----|-----|-----|------|------|------|
| KHU 701: Rural Development: Administration And Planning | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 2 | 1 | 2 | - | 2 | - | - | - | - | - | - | 2 |
| CO2 | 2 | 2 | 1 | - | - | - | - | - | - | - | - | 2 |
| CO3 | 1 | 3 | - | - | 1 | - | - | - | - | - | - | 2 |
| CO4 | 2 | 2 | - | - | 2 | - | - | - | - | - | - | 2 |
| CO5 | 3 | 2 | - | - | 2 | - | - | - | - | - | - | 2 |
| Average | 2 | 2 | 1.5 | - | 1.75 | - | - | - | - | - | - | 2 |


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 DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
 COURSE OUTCOME (2022-23)

KEC 074: Microwave & Radar Engineering

| CO | Course Outcomes |
|-----|--|
| CO1 | Analyze various parameters and characteristics of the transmission line and waveguide and also use of wave guide component as per applications. |
| CO2 | Describe, analyze and design simple microwave circuits and devices e g couplers, Attenuators, Phase Shifter and Isolators. Student will also understand the microwave propagation in ferrites. |
| CO3 | Analyze the difference between the conventional tubes and the microwave tubes for the transmission of the EM waves. |
| CO4 | Acquire knowledge about the handling and measurement of microwave equipment. |
| CO5 | Differentiate different Radars, find applications and use of its supporting systems. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|-----|-----|-----|------|-----|-----|-----|-----|------|------|------|
| KEC 074: Microwave & Radar Engineering | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 2 | 1 | 2 | 2 | 2 | - | - | - | - | - | - | 2 |
| CO2 | 2 | 2 | 1 | 2 | - | - | - | - | - | - | - | 2 |
| CO3 | 1 | 3 | - | 2 | 1 | - | - | - | - | - | - | 2 |
| CO4 | 2 | 2 | - | 2 | 2 | - | - | - | - | - | - | 2 |
| CO5 | 3 | 2 | - | 2 | 2 | - | - | - | - | - | - | 2 |
| Average | 2 | 2 | 1.5 | 2 | 1.75 | - | - | - | - | - | - | 2 |


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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
COURSE OUTCOME (2022-23)

KEC 076: Wireless & Mobile Communication

| CO | Course Outcomes |
|-----|--|
| CO1 | Express the basic knowledge of mobile radio & cellular communication fundamentals and their application to propagation mechanisms, path loss models and multi path phenomenon. |
| CO2 | Analyze the performance of various voice coding and diversity techniques. |
| CO3 | Apply the knowledge of wireless transmission basics to understand the concepts of equalization and multiple access techniques. |
| CO4 | Examine the performance of cellular systems being employed such as GSM, CDMA and LTE using various theoretical and mathematical aspects. |
| CO5 | Express basic knowledge of Mobile Adhoc networks and the existing & upcoming data communication networks in wireless and mobile communication domain. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KEC 076: Wireless & Mobile Communication | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 2 | 2 | 2 | - | 2 | - | - | - | - | - | - | 2 |
| CO2 | 1 | 2 | 2 | 2 | - | - | - | - | - | - | - | 2 |
| CO3 | 2 | 2 | - | 2 | - | - | - | - | - | - | - | 2 |
| CO4 | 2 | 2 | - | 2 | 2 | - | - | - | - | - | - | 2 |
| CO5 | 2 | 2 | - | - | 2 | - | - | - | - | - | - | 2 |
| Average | 1.8 | 2 | 2 | 2 | 2 | - | - | - | - | - | - | 2 |


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 DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
 COURSE OUTCOME (2022-23)

KOE 074: Renewable Energy Resources

| CO | Course Outcomes |
|-----|--|
| CO1 | Explain renewable energy sources & systems. |
| CO2 | Apply engineering techniques to build solar, wind, tidal, geothermal, bio fuel, fuel cell, Hydrogen and sterling engine. |
| CO3 | Analyze and evaluate the implication of renewable energy. Concepts in solving numerical problems pertaining to solar radiation geometry and wind energy systems. |
| CO4 | Demonstrate self-learning capability to design & establish renewable energy systems. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|------|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KOE 074: Renewable Energy Resources | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 2 | 2 | 2 | - | 2 | - | - | - | - | - | - | 2 |
| CO2 | 1 | 2 | 2 | 2 | - | - | - | - | - | - | - | 2 |
| CO3 | 2 | 2 | - | 2 | - | - | - | - | - | - | 1 | 2 |
| CO4 | 3 | 1 | - | 2 | 2 | - | - | - | - | - | 1 | 2 |
| Average | 2 | 1.75 | 2 | 2 | 2 | - | - | - | - | - | 1 | 2 |


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 DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
 COURSE OUTCOME (2022-23)

KEC751D: Microwave & Radar Engineering Lab

| CO | Course Outcomes |
|-----|--|
| CO1 | Describe working on microwave testing bench. |
| CO2 | Practically demonstrate the Characteristics of Reflex klystron using Microwave bench setup. |
| CO3 | Demonstrate the performance of the Gunn diode using Microwave bench setup.. |
| CO4 | Perform measurement of Frequency, attenuation, VSWR, Impedance of microwave passive device using Klystron Bench Setup. |
| CO5 | Interpret the basics of Smith chart for solution of transmission line problems and impedance matching. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|-----|-----|-----|------|-----|-----|-----|-----|------|------|------|
| KEC751D: Microwave & Radar Engineering Lab | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 2 | 1 | 2 | - | 2 | - | - | - | - | - | - | 2 |
| CO2 | 2 | 2 | 1 | - | - | - | - | - | - | - | - | 2 |
| CO3 | 1 | 3 | - | - | 1 | - | - | - | - | - | - | 2 |
| CO4 | 2 | 2 | - | - | 2 | - | - | - | - | - | - | 2 |
| CO5 | 3 | 2 | - | - | 2 | - | - | - | - | - | - | 2 |
| Average | 2 | 2 | 1.5 | - | 1.75 | - | - | - | - | - | - | 2 |


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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
COURSE OUTCOME (2022-23)

KEC 752: Mini Project

| CO | Course Outcomes |
|-----|---|
| CO1 | Be acquainted with appropriate utility. |
| CO2 | Apply fundamental principles of science and engineering to design and fabricate models for diversified applications. |
| CO3 | To enhance team spirit and improve the ability of students to work together for solution of common engineering problem. |
| CO4 | To improve ability of students for the selection of material and manufacturing process and approach for solving an engineering problem with minimum cost. |
| CO5 | To inculcate the habit of observing social problems and searching for a possible sustainable eco friendly solution. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KEC 752: Mini Project | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 2 | 1 | - | 2 | - | - | - | - | - | 1 | 2 |
| CO2 | 1 | 2 | 1 | 2 | - | - | - | - | 1 | - | 1 | 2 |
| CO3 | 2 | 2 | - | 3 | - | - | - | - | 1 | - | 1 | 2 |
| CO4 | 2 | 2 | - | 1 | 2 | - | - | - | 1 | - | 1 | 2 |
| CO5 | 2 | 2 | - | - | 2 | - | - | - | 1 | - | 1 | 2 |
| Average | 2 | 2 | 1 | 2 | 2 | - | - | - | 1 | - | 1 | 2 |


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COURSE OUTCOME (2022-23)

KEC 753: Project I

| CO | Course Outcomes |
|-----|--|
| CO1 | Criticize and experiment to arrive at solutions for real world mechanical engineering problems. |
| CO2 | Analyse and evaluate to obtain solution for problems in mechanical engineering systems. |
| CO3 | Demonstrate effective project execution and control techniques that result in successful projects. |
| CO4 | Conduct project closure activities and obtain formal project acceptance. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KEC 753 : Project I | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 2 | 2 | 2 | - | 2 | - | - | - | - | - | 2 | - |
| CO2 | 2 | 2 | 2 | 2 | - | - | - | - | - | - | 2 | 1 |
| CO3 | 2 | 2 | - | 2 | - | - | - | - | - | - | 2 | 1 |
| CO4 | 2 | 2 | - | 2 | 2 | - | - | - | - | - | 2 | - |
| Average | 2 | 2 | 2 | 2 | 2 | - | - | - | - | - | 2 | 1 |


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ELECTRONICS AND COMMUNICATION ENGINEERING

B.Tech. VIII Semester

Electronics and Communication Engineering

| S. No. | Course Code | Course Title | Periods | | | Evaluation Scheme | | | | End Semester | | Total | Credits |
|--------|---------------|--------------------------------|---------|---|----|-------------------|----|-------|-----|--------------|-----|------------|-----------|
| | | | L | T | P | CT | TA | Total | PS | TE | PE | | |
| 1. | KHU801/KHU802 | HSMC -1 #/HSMC-2 # | 3 | 0 | 0 | 30 | 20 | 50 | | 100 | | 150 | 3 |
| 2. | | Open Elective -III | 3 | 0 | 0 | 30 | 20 | 50 | | 100 | | 150 | 3 |
| 3. | | Open Elective -IV | 3 | 0 | 0 | 30 | 20 | 50 | | 100 | | 150 | 3 |
| 4. | KEC-851 | Project II | 0 | 0 | 18 | | | | 100 | | 300 | 400 | 9 |
| | | MOOCs (Essential for Hons.) | | | | | | | | | | | |
| | | Total | | | | | | | | | | 850 | 18 |


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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
COURSE OUTCOME (2022-23)

B. Tech IV (Semester VIII)

KHU802: Project Management & Entrepreneurship

| CO | Course Outcomes |
|-----|---|
| CO1 | Students can understand the definitions, concepts and components of Rural Development. |
| CO2 | Students will know the importance, structure, significance, resources of Indian rural economy |
| CO3 | Students will have a clear idea about the area development programmes and its impact |
| CO4 | Students will be able to acquire knowledge about rural entrepreneurship. |
| CO5 | Students will be able to understand about the using of different methods for human resource planning. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|-----|-----|-----|------|-----|-----|-----|-----|------|------|------|
| KHU802: Project Management & Entrepreneurship | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 2 | 1 | 2 | - | 2 | - | - | - | 1 | - | 2 | 2 |
| CO2 | 2 | 2 | 1 | - | - | - | - | - | - | - | 2 | 2 |
| CO3 | 1 | 3 | - | - | 1 | - | - | - | - | - | 2 | 2 |
| CO4 | 2 | 2 | - | - | 2 | - | - | - | 1 | - | - | 2 |
| CO5 | 3 | 2 | - | - | 2 | - | - | - | 1 | - | - | 2 |
| Average | 2 | 2 | 1.5 | - | 1.75 | - | - | - | 1 | - | 2 | 2 |


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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
COURSE OUTCOME (2022-23)

KOE O81: Cloud Computing

| CO | Course Outcomes |
|-----|--|
| CO1 | Explain the core concepts of the cloud computing paradigm: how and why this paradigm shift came about, the characteristics, advantages and challenges brought about by the various models and services in cloud computing. |
| CO2 | Apply the fundamental concepts in datacenters to understand the tradeoffs in power, efficiency and cost. |
| CO3 | Identify resource management fundamentals, i.e. resource abstraction, sharing and sandboxing and outline their role in managing infrastructure in cloud computing. |
| CO4 | Analyze various cloud programming models and apply them to solve problems on the cloud. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KOE O81: Cloud Computing | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 2 | 2 | 2 | - | 2 | - | - | - | - | - | - | 2 |
| CO2 | 2 | 2 | 2 | 2 | - | - | - | - | - | - | - | 2 |
| CO3 | 2 | 2 | - | 2 | - | - | - | - | - | - | - | 2 |
| CO4 | 2 | 2 | - | 2 | 2 | - | - | - | - | - | - | 2 |
| Average | 2 | 2 | 2 | 2 | 2 | - | - | - | - | - | - | 2 |


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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
COURSE OUTCOME (2022-23)

KOE O94: Digital And Social Media Marketing

| CO | Course Outcomes |
|-----|---|
| CO1 | Demonstrate advanced understanding of today's digital and social media marketing landscape. |
| CO2 | Demonstrate how user-generated content in social media can be collected and analysed to Guide marketing strategy. |
| CO3 | Demonstrate the understanding of digital and social media analytics and the capability to use online analytical tools. |
| CO4 | Articulate specialised knowledge of digital and social media marketing in both oral and written contexts. |
| CO5 | Demonstrate the capability to work both independently and in a team environment employing inquiry processes to complete marketing projects. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|-----|-----|-----|------|-----|-----|-----|-----|------|------|------|
| KOE O94: Digital And Social Media Marketing | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 2 | 1 | 2 | - | 2 | - | - | - | - | - | - | 2 |
| CO2 | 2 | 2 | 2 | - | - | - | - | - | - | - | - | 2 |
| CO3 | 1 | 3 | - | - | 1 | - | - | - | - | - | - | 2 |
| CO4 | 2 | 2 | - | - | 2 | - | - | - | - | - | - | 2 |
| CO5 | 3 | 2 | - | - | 2 | - | - | - | - | - | - | 2 |
| Average | 2 | 2 | 1.5 | - | 1.75 | - | - | - | - | - | - | 2 |


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 DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
 COURSE OUTCOME (2022-23)

KEC-851 Project II

| CO | Course Outcomes |
|-----|--|
| CO1 | Criticize and experiment to arrive at solutions for real world mechanical engineering problems. |
| CO2 | Analyse and evaluate to obtain solution for problems in mechanical engineering systems. |
| CO3 | Demonstrate effective project execution and control techniques that result in successful projects. |
| CO4 | Conduct project closure activities and obtain formal project acceptance.. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KEC-851 Project II | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 2 | 2 | 2 | - | 2 | - | - | - | 1 | - | 2 | 2 |
| CO2 | 2 | 2 | 2 | 2 | - | - | - | - | 1 | - | 2 | 2 |
| CO3 | 2 | 2 | - | 2 | - | - | - | - | 1 | - | 2 | 2 |
| CO4 | 2 | 2 | - | 2 | 2 | - | - | - | 1 | - | 2 | 2 |
| Average | 2 | 2 | 2 | 2 | 2 | - | - | - | 1 | - | 2 | 2 |


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**SAMPLE OF
CO-PO MAPPING**

**Department of
Information
Technology**

Engineering Graduates will be able to: -

- 1. Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
 - 2. Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
 - 3. Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
 - 4. Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
 - 5. Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
 - 6. The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
 - 7. Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
 - 8. Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
 - 9. Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
 - 10. Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
 - 11. Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
 - 12. Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.
- COs to be mapped with POs in Matrix form.
 - Correlation levels 1, 2, 3 as defined (1: low, 2: Moderate, 3: High).
 - COs will be mapped with POs on the basis of above-mentioned levels.
 - If there is no correlation, put "-" or left blank or put zero.


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B.TECH (COMPUTER SCIENCE AND ENGINEERING)

Information Technology

SEMESTER- III

| Sl. No. | Subject Codes | Subject | Periods | | | Evaluation Scheme | | | | End Semester | | Total | Credit |
|---------|----------------------|--|---------|---|---|-------------------|----|-------|----|--------------|----|------------|-----------|
| | | | L | T | P | CT | TA | Total | PS | TE | PE | | |
| 1 | KOE031-38/ KAS302 | Engineering Science Course/Maths-IV | 3 | 1 | 0 | 30 | 20 | 50 | | 100 | | 150 | 4 |
| 2 | KAS301/ KVE301 | Technical Communication/Universal Human Values | 2 | 1 | 0 | 30 | 20 | 50 | | 100 | | 150 | 3 |
| | | | 3 | 0 | 0 | | | | | | | | |
| 3 | KCS301 | Data Structure | 3 | 1 | 0 | 30 | 20 | 50 | | 100 | | 150 | 4 |
| 4 | KCS302 | Computer Organization and Architecture | 3 | 1 | 0 | 30 | 20 | 50 | | 100 | | 150 | 4 |
| 5 | KCS303 | Discrete Structures & Theory of Logic | 3 | 0 | 0 | 30 | 20 | 50 | | 100 | | 150 | 3 |
| 6 | KCS351 | Data Structures Using C Lab | 0 | 0 | 2 | | | | 25 | | 25 | 50 | 1 |
| 7 | KCS352 | Computer Organization Lab | 0 | 0 | 2 | | | | 25 | | 25 | 50 | 1 |
| 8 | KCS353 | Discrete Structure & Logic Lab | 0 | 0 | 2 | | | | 25 | | 25 | 50 | 1 |
| 9 | KCS354 | Mini Project or Internship Assessment* | 0 | 0 | 2 | | | 50 | | | | 50 | 1 |
| 10 | KNC301/ KNC302 | Computer System Security/Python Programming | 2 | 0 | 0 | 15 | 10 | 25 | | 50 | | | 0 |
| 11 | | MOOCs (Essential for Hons. Degree) | | | | | | | | | | | |
| | | Total | | | | | | | | | | 950 | 22 |

*The Mini Project or internship (3-4 weeks) conducted during summer break after II semester and will be assessed during III semester.


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SEMESTER- IV

| Sl. No. | Subject Codes | Subject | Periods | | | Evaluation Scheme | | | | End Semester | | Total | Credit |
|---------|----------------------|---|---------|---|---|-------------------|----|-------|----|--------------|----|------------|-----------|
| | | | L | T | P | CT | TA | Total | PS | TE | PE | | |
| 1 | KAS402/ KOE041-48 | Maths IV/Engg. Science Course | 3 | 1 | 0 | 30 | 20 | 50 | | 100 | | 150 | 4 |
| 2 | KVE401/ KAS401 | Universal Human Values/Technical Communication | 3 | 0 | 0 | 30 | 20 | 50 | | 100 | | 150 | 3 |
| | | | 2 | 1 | 0 | | | | | | | | |
| 3 | KCS401 | Operating Systems | 3 | 0 | 0 | 30 | 20 | 50 | | 100 | | 150 | 3 |
| 4 | KCS402 | Theory of Automata and Formal Languages | 3 | 1 | 0 | 30 | 20 | 50 | | 100 | | 150 | 4 |
| 5 | KIT401 | Web Designing | 3 | 1 | 0 | 30 | 20 | 50 | | 100 | | 150 | 4 |
| 6 | KCS451 | Operating Systems Lab | 0 | 0 | 2 | | | | 25 | | 25 | 50 | 1 |
| 7 | KIT451 | Web Designing Lab | 0 | 0 | 2 | | | | 25 | | 25 | 50 | 1 |
| 8 | KCS453 | Python Language Programming Lab | 0 | 0 | 2 | | | | 25 | | 25 | 50 | 1 |
| 9 | KNC402/ KNC401 | Python Programming/ Computer System Security | 2 | 0 | 0 | 15 | 10 | 25 | | 50 | | | 0 |
| 10 | | MOOCs (Essential for Hons. Degree) | | | | | | | | | | | |
| | | Total | | | | | | | | | | 900 | 21 |


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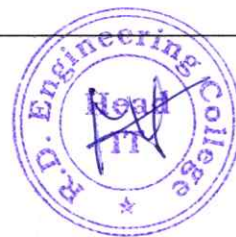


B.TECH (INFORMATION TECHNOLOGY AND CSI) CURRICULUM STRUCTURE

| SEMESTER- V | | | | | | | | | | | | | |
|-------------|------------------------|--|-----------|----------|----------|-------------------|----|-------|----|--------------|----|------------|-----------|
| Sl. No. | Subject | Subject | Periods | | | Evaluation Scheme | | | | End Semester | | Total | Credit |
| | Codes | | L | T | P | CT | TA | Total | PS | TE | PE | | |
| 1 | KCS501 | Database Management System | 3 | 1 | 0 | 30 | 20 | 50 | | 100 | | 150 | 4 |
| 2 | KIT501 | Web Technology | 3 | 1 | 0 | 30 | 20 | 50 | | 100 | | 150 | 4 |
| 3 | KCS503 | Design and Analysis of Algorithm | 3 | 1 | 0 | 30 | 20 | 50 | | 100 | | 150 | 4 |
| 4 | Deptt- Elective-I | Departmental Elective-I | 3 | 0 | 0 | 30 | 20 | 50 | | 100 | | 150 | 3 |
| 5 | Deptt.- Elective-II | Departmental Elective-II | 3 | 0 | 0 | 30 | 20 | 50 | | 100 | | 150 | 3 |
| 6 | KCS551 | Database Management System Lab | 0 | 0 | 2 | | | | 25 | | 25 | 50 | 1 |
| 7 | KIT551 | Web Technology Lab | 0 | 0 | 2 | | | | 25 | | 25 | 50 | 1 |
| 8 | KCS553 | Design and Analysis of Algorithm Lab | 0 | 0 | 2 | | | | 25 | | 25 | 50 | 1 |
| 9 | KCS554 | Mini Project or Internship Assessment* | 0 | 0 | 2 | | | | 50 | | | 50 | 1 |
| 10 | KNC501/ KNC502 | Constitution of India, Law and Engineering / Indian Tradition, Culture and Society | 2 | 0 | 0 | 15 | 10 | 25 | | 50 | | | |
| 11 | | MOOCs (Essential for Hons. Degree) | | | | | | | | | | | |
| | | Total | 17 | 3 | 8 | | | | | | | 950 | 22 |

*The Mini Project or internship (4 weeks) conducted during summer break after IV semester and will be assessed during V semester.


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| SEMESTER- VI | | | | | | | | | | | | | |
|--------------|------------------------|--|----------|----------|----------|-------------------|----|-------|----|--------------|----|------------|-----------|
| Sl. No. | Subject Codes | Subject | Periods | | | Evaluation Scheme | | | | End Semester | | Total | Credit |
| | | | L | T | P | CT | TA | Total | PS | TE | PE | | |
| 1 | KCS601 | Software Engineering | 3 | 1 | 0 | 30 | 20 | 50 | | 100 | | 150 | 4 |
| 2 | KIT601 | Data Analytics | 3 | 1 | 0 | 30 | 20 | 50 | | 100 | | 150 | 4 |
| 3 | KCS603 | Computer Networks | 3 | 1 | 0 | 30 | 20 | 50 | | 100 | | 150 | 4 |
| 4 | Deptt- Elective-III | Departmental Elective-III | 3 | 0 | 0 | 30 | 20 | 50 | | 100 | | 150 | 3 |
| 5 | | Open Elective-I | 3 | 0 | 0 | 30 | 20 | 50 | | 100 | | 150 | 3 |
| 6 | KCS651 | Software Engineering Lab | 0 | 0 | 2 | | | | 25 | | 25 | 50 | 1 |
| 7 | KIT651 | Data Analytics Lab | 0 | 0 | 2 | | | | 25 | | 25 | 50 | 1 |
| 8 | KCS653 | Computer Networks Lab | 0 | 0 | 2 | | | | 25 | | 25 | 50 | 1 |
| 9 | KNC601/ KNC602 | Constitution of India, Law and Engineering / Indian Tradition, Culture and Society | 2 | 0 | 0 | 15 | 10 | 25 | | 50 | | | |
| 10 | | MOOCs (Essential for Hons. Degree) | | | | | | | | | | | |
| | | Total | 0 | 3 | 6 | | | | | | | 900 | 21 |

Departmental Elective-I

1. KIT-051 Statistical Computing
2. KIT-052 Compiler Design
3. KCS-053 Computer Graphics
4. KCS-054 Object Oriented System Design

Departmental Elective-II

5. KCS-055 Machine Learning Techniques
6. KCS-056 Application of Soft Computing
7. KCS-057 Augmented & Virtual Reality
8. KCS-058 Human Computer Interface

Departmental Elective-III

1. KCS-061 Big Data
2. KCS-062 Image Processing
3. KIT -061 Blockchain Architecture Design
4. KCS-064 Data Compression



INFORMATION TECHNOLOGY /CSIT

B.TECH IV YEAR

(INFORMATION TECHNOLOGY /CSIT) CURRICULUM STRUCTURE

| SEMESTER- VII | | | | | | | | | | | | | |
|---------------|---------------|--|-----------|----------|-----------|-------------------|----|-------|----|--------------|----|------------|-----------|
| Sl. No. | Subject | Subject | Periods | | | Evaluation Scheme | | | | End Semester | | Total | Credit |
| | Codes | | L | T | P | CT | TA | Total | PS | TE | PE | | |
| 1 | KHU701/KHU702 | HSMC -1 / HSMC-2 | 3 | 0 | 0 | 30 | 20 | 50 | | 100 | | 150 | 3 |
| 2 | KCS07X | Departmental Elective-IV | 3 | 0 | 0 | 30 | 20 | 50 | | 100 | | 150 | 3 |
| 3 | KCS07X | Departmental Elective-V | 3 | 0 | 0 | 30 | 20 | 50 | | 100 | | 150 | 3 |
| 4 | KOE07X | Open Elective-II | 3 | 0 | 0 | 30 | 20 | 50 | | 100 | | 150 | 3 |
| 5 | KIT751A | The Department may conduct one Lab of either of the two Electives (4 or 5) based on the elective chosen for the curriculum. The Department shall on its own prepare complete list of practical for the Lab and arrange for proper setup and conduct accordingly. | 0 | 0 | 2 | | | | | 25 | 25 | 50 | 1 |
| 6 | KIT752 | Mini Project or Internship Assessment* | 0 | 0 | 2 | | | | | 50 | | 50 | 1 |
| 7 | KIT753 | Project 1 | 0 | 0 | 8 | | | | | 150 | | 150 | 4 |
| 8 | | MOOCs (Essential for Hons. Degree) | | | | | | | | | | | |
| | | Total | 12 | 0 | 12 | | | | | | | 850 | 18 |

*The Mini Project or internship (4 - 6 weeks) conducted during summer break after VI semester and will be assessed during VII semester.

| SEMESTER- VIII | | | | | | | | | | | | | |
|----------------|---------------|--|----------|----------|-----------|-------------------|----|-------|----|--------------|-----|------------|-----------|
| Sl. No. | Subject | Subject | Periods | | | Evaluation Scheme | | | | End Semester | | Total | Credit |
| | Codes | | L | T | P | CT | TA | Total | PS | TE | PE | | |
| 1 | KHU801/KHU802 | HSMC-2 [#] /HSMC-1 [#] | 3 | 0 | 0 | 30 | 20 | 50 | | 100 | | 150 | 3 |
| 2 | KOE08X | Open Elective-III | 3 | 0 | 0 | 30 | 20 | 50 | | 100 | | 150 | 3 |
| 3 | KOE08X | Open Elective-IV | 3 | 0 | 0 | 30 | 20 | 50 | | 100 | | 150 | 3 |
| 4 | KIT851 | Project | 0 | 0 | 18 | | | | | 100 | 300 | 400 | 9 |
| 5 | | MOOCs (Essential for Hons. Degree) | | | | | | | | | | | |
| | | Total | 9 | 0 | 18 | | | | | | | 850 | 18 |



INFORMATION TECHNOLOGY /CSIT

Departmental Elective-IV

1. KCS071 Artificial Intelligence
2. KCS072 Natural language processing
3. KCS073 High Performance Computing
4. KCS074 Cryptography and Network Security
5. KCS075 Design & Development of Applications
6. KCS076 Software Testing
7. KCS077 Distributed Systems

Departmental Elective-V

1. KCS078 Deep Learning
2. KCS079 Service Oriented Architecture
3. KCS710 Quantum Computing
4. KCS711 Mobile Computing
5. KCS712 Internet of Things
6. KCS713 Cloud Computing
7. KIT071 Software Project Management




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DEPARTMENT OF INFORMATION TECHNOLOGY

COURSE OUTCOME (2022-2023)

B. Tech II (Semester III)

KAS302: MATH IV

| CO | Course Outcomes |
|-----|---|
| CO1 | Remember the concept of partial differential equation and to solve partial differential equations. |
| CO2 | Analyze the concept of partial differential equations to evaluate the problems concerned with partial differential equations. |
| CO3 | Understand the concept of correlation, moments, skewness and kurtosis and curve fitting . |
| CO4 | Remember the concept of probability to evaluate probability distributions. |
| CO5 | Apply the concept of hypothesis testing and statistical quality control to create control charts. |

Mapping of Course outcomes with Program outcomes

KAS302: MATH IV

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 2 | 2 | 2 | - | 2 | - | - | - | - | - | - | 1 |
| CO2 | 3 | 3 | 2 | 2 | - | - | - | - | - | - | - | 1 |
| CO3 | 2 | 2 | 2 | 2 | - | - | - | - | - | - | 1 | 1 |
| CO4 | 2 | 2 | - | 2 | 2 | - | - | - | - | - | 1 | 1 |
| CO5 | 2 | 2 | - | - | 2 | - | 1 | - | - | - | 2 | 1 |
| Average | 2.2 | 2.2 | 2 | 2 | 2 | - | 1 | - | - | - | 1.33 | 1 |


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COURSE OUTCOME (2022-2023)

B. Tech II (Semester III)

KVE 301: Universal Human Value

| CO | Course Outcomes |
|-----|---|
| CO1 | Understand the significance of value inputs in a classroom, distinguish between values and skills, understand the need, basic guidelines, content of value education, explore the meaning of happiness and prosperity and do a correct appraisal of the current scenario in the society |
| CO2 | Distinguish between the Self and the Body, understand the meaning of Harmony in the Self the Co-existence of Self and Body. |
| CO3 | Understand the value of harmonious relationship based on trust, respect and other naturally acceptable feelings in human-human relationships and explore their role in ensuring a harmonious society. |
| CO4 | Understand the harmony in nature and existence, and work out their mutually fulfilling participation in the nature. |
| CO5 | Distinguish between ethical and unethical practices. |

Mapping of Course outcomes with Program outcomes

KVE 301: Universal Human Value

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 2 | 2 | 1 | - | 2 | 1 | 1 | - | - | - | 1 | - |
| CO2 | 3 | 2 | 2 | - | 2 | - | - | - | - | - | - | - |
| CO3 | 2 | 1 | 3 | - | - | 2 | 1 | - | - | - | 1 | - |
| CO4 | 1 | 3 | - | - | 2 | 3 | - | - | - | - | 1 | - |
| CO5 | 2 | 2 | - | - | 2 | - | - | - | - | - | - | - |
| Average | 2 | 2 | 2 | - | 2 | 2 | 1 | - | - | - | 1 | - |


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COURSE OUTCOME (2022-2023)

B. Tech II(Semester III)

KCS301: Data Structures Using C

| CO | Course Outcomes |
|-----|---|
| CO1 | Understand the complexity of algorithms by Describing various data structures and their representations in memory with their common applications. |
| CO2 | Describe the concept of recursion and implement various data structures like stack, queue, list, tree, and graph using static and dynamic memory allocations. |
| CO3 | Study and Apply various searching and sorting algorithms on different data structures. |
| CO4 | Analyze the algorithmic implementation of non-linear data structures such as searching and sorting by comparing their computational efficiency. |
| CO5 | Evaluate the alternate data structures algorithm with respect to its performance to solve a real-world problem. |

Mapping of Course outcomes with Program outcomes

KCS301: Data Structures Using C

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 |
| CO2 | 3 | 3 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 2 |
| CO3 | 3 | 3 | 2 | 3 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 2 |
| CO4 | 3 | 3 | 2 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 |
| CO5 | 3 | 3 | 3 | 3 | 2 | 2 | 1 | 1 | 2 | 2 | 2 | 3 |
| Average | 3 | 3 | 2.1 | 2.6 | 1.8 | 1.4 | 1 | 1 | 1.2 | 1.2 | 1.2 | 2.1 |


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COURSE OUTCOME (2022-2023)

B. Tech II(Semester III)

KCS302: Computer Organization and Architecture

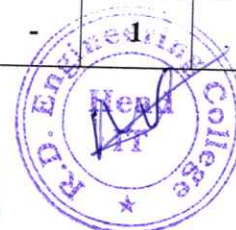
| CO | Course Outcomes |
|-----|---|
| CO1 | Understand and describe the basic organization and operation of the components of a digital computer system. |
| CO2 | Illustrate various arithmetic and logical operations on different types of numbers to design an arithmetic and logic unit. |
| CO3 | Analyze the performance issues of the processor and classify the control unit implementation techniques. |
| CO4 | Categorize the hierarchical memory system and examine the virtual memory implementation techniques. |
| CO5 | Compare the different I/O data transfer techniques, and describe the different ways of communication among I/O devices and standard I/O interfaces. |

Mapping of Course outcomes with Program outcomes

KCS302: Computer Organization and Architecture

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 2 | 1 | 2 | 1 | - | - | 1 | - | 1 | 1 |
| CO2 | 3 | 3 | 3 | 1 | 3 | 1 | - | - | 1 | - | 1 | 1 |
| CO3 | 2 | 2 | 2 | 1 | 3 | 1 | - | - | 1 | - | 1 | 1 |
| CO4 | 2 | 2 | 2 | 1 | 1 | 1 | - | - | 1 | - | 1 | 1 |
| CO5 | 2 | 2 | 2 | 1 | 1 | 1 | - | - | 1 | - | 1 | 1 |
| Average | 2.4 | 2.4 | 1.6 | 1 | 2 | 1 | 1 | - | 1 | - | 1 | 1 |


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COURSE OUTCOME (2022-2023)

B. Tech II(Semester III)

KCS303: Discrete Structures & Theory of Logic

| CO | Course Outcomes |
|-----|---|
| CO1 | Acquire Knowledge of Logical Notations which is used to define and understand the basic fundamental mathematical concepts such as sets, relations, functions. |
| CO2 | Discuss various structures and properties of modern algebra. |
| CO3 | Employ logical abilities such as reasoning to set up mathematical models for real life problems by applying advanced counting and computing techniques. |
| CO4 | Demonstrate various problems in the field of computer science using trees and graphs. |
| CO5 | Design a solution with the help of induction hypotheses, simple induction proofs and recurrences. |

Mapping of Course outcomes with Program outcomes

KCS303: Discrete Structures & Theory of Logic

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 2 | 2 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 |
| CO2 | 3 | 3 | 3 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 |
| CO3 | 3 | 2 | 2 | 3 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 2 |
| CO4 | 3 | 3 | 2 | 2 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 2 |
| CO5 | 3 | 2 | 2 | 2 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 2 |
| Average | 3 | 2.4 | 2.1 | 2.6 | 2.6 | 2 | 1.6 | 1 | 1 | 1 | 1 | 2 |


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COURSE OUTCOME (2022-2023)

B. Tech II (Semester III)

KNC302: Python Programming

| CO | Course Outcomes |
|-----|--|
| CO1 | Students are able to understand and read and write simple Python programs. |
| CO2 | Students are able to understand and develop Python programs with conditionals and loops. |
| CO3 | Students are able to understand and define Python functions and to use Python data structures – lists, tuples, dictionaries. |
| CO4 | Students are able to understand and do input/output with files in Python. |
| CO5 | Students are able to understand and do searching, sorting and merging in Python. |

Mapping of Course outcomes with Program outcomes

KNC302: Python Programming

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|------|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 2 | 3 | 3 | - | 3 | - | 3 | 2 | 2 | - | - | 3 |
| CO2 | 3 | 3 | 3 | 2 | 3 | 2 | 2 | 2 | 3 | - | - | 3 |
| CO3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 2 | 3 | - | - | 3 |
| CO4 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 3 | - | - | 3 |
| CO5 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 3 | - | - | 3 |
| Average | 2.8 | 3 | 2.8 | 2.75 | 3 | 2.7 | 2.4 | 2 | 2.8 | - | - | 3 |


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COURSE OUTCOME (2022-2023)

B. Tech II(Semester III)

KCS351 : Data Structure Lab

| CO | Course Outcomes |
|------|--|
| CO1. | Implement various Sorting and Searching Algorithms. |
| CO2. | Analyze the recursive implementation of different sorting and searching algorithms. |
| CO3. | Implement various data Structure using static and dynamic memory allocation. |
| CO4. | Demonstrate various operations like traversal, insertion, deletion on tree data structure. |
| CO5. | Design and Implement practical applications based on graphs and shortest paths. |

Mapping of Course outcomes with Program outcomes

KCS351 : Data Structure Lab

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 3 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 |
| CO2 | 3 | 3 | 3 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 |
| CO3 | 3 | 3 | 3 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 |
| CO4 | 3 | 3 | 3 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 |
| CO5 | 3 | 3 | 3 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 |
| Average | 3 | 3 | 3 | 2.8 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 |


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COURSE OUTCOME (2022-2023)

B. Tech II(Semester III)

KCS352 : Computer Organization Lab

| CO | Course Outcomes |
|------|--|
| CO1. | Examine the output of the basic logic gates for different combinations of input. |
| CO2. | Design and simulate the combinational circuits for binary arithmetic (such as adders, subtractors, and multiplier) and code converter |
| CO3. | Design and simulate combinational circuits for encoders/decoders and selection devices multiplexers/de-multiplexers using logic gates |
| CO4. | Design and simulate the basic building block of the sequential circuits (i.e. SR and D Flip Flops) using logic gates. |
| CO5. | Design and simulate the 2-bit Arithmetic Logic Unit using logic gates. |

Mapping of Course outcomes with Program outcomes

KCS352 : Computer Organization Lab

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 2 | 2 | 1 | 3 | 2 | - | - | 1 | - | 1 | 1 |
| CO2 | 3 | 2 | 3 | 1 | 3 | 2 | - | - | 1 | - | 1 | 1 |
| CO3 | 2 | 2 | 3 | 1 | 3 | 1 | - | - | 1 | - | 1 | 1 |
| CO4 | 2 | 2 | 3 | 1 | 2 | 1 | - | - | 1 | - | 1 | 1 |
| CO5 | 2 | 2 | 3 | 1 | 2 | 1 | - | - | 1 | - | 1 | 1 |
| Average | 2.4 | 2 | 2.8 | 1 | 2.6 | 1.4 | - | - | 1 | - | 1 | 1 |

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COURSE OUTCOME (2022-2023)

B. Tech II(Semester III)

KCS353 : Discrete Structure and Logic Lab

| CO | Course Outcomes |
|------|---|
| CO1. | To Implement various Set operations. |
| CO2. | To Demonstrate various basic Maple commands. |
| CO3. | To Implement various Inductive techniques, Recursive Techniques and expected value problems using Maple script. |
| CO4. | To Design and Implement practical applications based on graphs and shortest paths. |
| CO5. | To Implement various programming problems based on binary search. |

Mapping of Course outcomes with Program outcomes

KCS353 : Discrete Structure and Logic Lab

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 2 | 2 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 |
| CO2 | 3 | 3 | 3 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 |
| CO3 | 3 | 2 | 2 | 3 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 2 |
| CO4 | 3 | 3 | 2 | 2 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 2 |
| CO5 | 3 | 2 | 2 | 2 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 2 |
| Average | 3 | 2.4 | 2.2 | 2.6 | 2.6 | 2 | 1.6 | 1 | 1 | 1 | 1 | 2 |


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COURSE OUTCOME (2022-2023)

B. Tech II(Semester III)

KCS354 : Mini Project or Internship Assessment

| CO | Course Outcomes |
|------|---|
| CO1. | Students acquire 'real' working environment and get acquainted with the organization structure, business operations and administrative functions. |
| CO2. | Students develop hands-on experience in the student's related field so that they can relate and reinforce what has been taught at the institute. |
| CO3. | Students acquire knowledge of cooperation and to develop synergetic collaboration between industry and the institute in promoting a knowledgeable society. |
| CO4. | Students get stage for the future recruitment by the potential employers and get awareness of the social, cultural, global and environmental responsibility as an engineer. |
| CO5. | Students acquire presentation and demonstration skills to effectively communicate the progress of the work to peers and superiors using audio/video, software tools. |

Mapping of Course outcomes with Program outcomes

KCS354 : Mini Project or Internship Assessment

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|------|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 2 | 2 | 2 | 3 | 3 | - | - | 3 | 2 | 2 | 3 |
| CO2 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 2 | 3 |
| CO3 | 3 | 3 | 2 | 2 | 3 | 3 | - | 3 | 2 | 2 | 2 | 3 |
| CO4 | 3 | 3 | 3 | 2 | - | 3 | 3 | - | 3 | 2 | - | 3 |
| CO5 | 3 | 2 | 2 | - | 3 | - | - | 3 | 3 | - | 2 | - |
| Average | 3 | 2.6 | 2.2 | 2.25 | 3 | 3 | 3 | 3 | 2.6 | 2 | 2 | 3 |


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COURSE OUTCOME (2022-2023)

B. Tech II(Semester IV)

KOE 049 : DIGITAL ELECTRONICS

| CO | Course Outcomes |
|-----|---|
| CO1 | Apply concepts of Digital Binary System and implementation of Gates. |
| CO2 | Analyze and design of Combinational logic circuits. |
| CO3 | Analyze and design of Sequential logic circuits with their applications. |
| CO4 | Implement the Design procedure of Synchronous & Asynchronous Sequential Circuits. |
| CO5 | Apply the concept of Digital Logic Families with circuit implementation |

Mapping of Course outcomes with Program outcomes

KOE 049 : DIGITAL ELECTRONICS

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 2 | 3 | - | 1 | 1 | 3 | - | - | - | 1 | - |
| CO2 | 2 | 1 | 2 | - | 2 | 1 | 1 | - | - | - | 1 | - |
| CO3 | 1 | 2 | 1 | - | 3 | 1 | 2 | - | - | - | 1 | - |
| CO4 | 2 | 3 | 1 | - | 2 | 1 | - | - | - | - | 1 | - |
| CO5 | 2 | 2 | 2 | - | 2 | - | - | - | - | - | - | - |
| Average | 2 | 2 | 1.8 | - | 2 | 1 | 2 | - | - | - | 1 | - |

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COURSE OUTCOME (2022-2023)

B. Tech II(Semester IV)

KAS 401 : TECHNICAL COMMUNICATION

| CO | Course Outcomes |
|-----|--|
| CO1 | Students will be enabled to understand the nature and objective of Technical Communication relevant for the work place as Engineers. |
| CO2 | Students will utilize the technical writing for the purposes of Technical Communication and its exposure in various dimensions. |
| CO3 | Students would imbibe inputs by presentation skills to enhance confidence in face of diverse audience. |
| CO4 | Technical communication skills will create a vast know-how of the application of learning to promote their technical competence. |
| CO5 | It would enable them to evaluate their efficacy as fluent & efficient communicators By learning the voice-dynamics. |

Mapping of Course outcomes with Program outcomes

KAS 401 : TECHNICAL COMMUNICATION

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 1 | 2 | 3 | 1 | 2 | 1 | 2 | 2 | - | 2 | - | 2 |
| CO2 | 1 | 2 | 3 | 1 | 2 | 2 | 2 | 1 | - | 2 | - | 2 |
| CO3 | 1 | 1 | 2 | 1 | 1 | 2 | 2 | 2 | - | 2 | - | 3 |
| CO4 | 2 | 1 | 3 | 2 | 1 | 1 | 2 | 1 | - | 2 | - | 3 |
| CO5 | 1 | 1 | 2 | 1 | 2 | 1 | 1 | 2 | - | 2 | - | 2 |
| Average | 1.2 | 1.4 | 2.6 | 1.2 | 1.6 | 1.4 | 1.8 | 1.6 | - | 2 | - | 2.4 |

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COURSE OUTCOME (2022-2023)

B. Tech II (Semester IV)

KIT401: WEB DESIGNING

| CO | Course Outcomes |
|-----|---|
| CO1 | Understand principle of Web page design and about types of websites |
| CO2 | Visualize and Recognize the basic concept of HTML and application in web designing. |
| CO3 | Recognize and apply the elements of Creating Style Sheet (CSS). |
| CO4 | Understanding the basic concept of Java Script and its application. |
| CO5 | Introduce basics concept of Web Hosting and apply the concept of SEO |

Mapping of Course outcomes with Program outcomes

KIT401: WEB DESIGNING

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 2 | 2 | 3 | 2 | 2 | 3 | 2 | 1 | 2 | 1 | 1 | 2 |
| CO2 | 2 | 3 | 2 | 2 | 2 | 3 | 2 | 1 | 2 | 1 | 1 | 2 |
| CO3 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 1 | 2 | 1 | 1 | 3 |
| CO4 | 3 | 2 | 3 | 2 | 3 | 3 | 3 | 1 | 3 | 1 | 1 | 3 |
| CO5 | 2 | 2 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 1 | 1 | 3 |
| Average | 2.4 | 2.4 | 2.8 | 2 | 2.6 | 3 | 2.6 | 1.4 | 2.4 | 1 | 1 | 2.6 |

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COURSE OUTCOME (2022-2023)

B. Tech II (Semester IV)

KCS401: Operating Systems

| CO | Course Outcomes |
|-----|---|
| CO1 | Understand the structure and functions of OS |
| CO2 | Learn about Processes, Threads and Scheduling algorithms. |
| CO3 | Understand the principles of concurrency and Deadlocks |
| CO4 | Learn various memory management scheme |
| CO5 | Study I/O management and File systems. |

Mapping of Course outcomes with Program outcomes

KCS401: Operating Systems

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 3 |
| CO2 | 2 | 1 | 2 | 2 | 3 | - | - | - | 1 | 3 | 2 | 2 |
| CO3 | 3 | 3 | 1 | 3 | 3 | - | - | - | 1 | 3 | 3 | 3 |
| CO4 | 3 | 3 | 1 | 3 | 3 | - | - | - | 1 | 3 | 2 | 2 |
| CO5 | 3 | 2 | 1 | 2 | 3 | 1 | - | - | 1 | 3 | 3 | 3 |
| Average | 2.4 | 2 | 1.2 | 2.2 | 2.6 | 1 | 1 | 1 | 1 | 2.6 | 2.2 | 2.6 |


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COURSE OUTCOME (2022-2023)

B. Tech II (Semester IV)

KNC401: Computer System Security

| CO | Course Outcomes |
|-----|---|
| CO1 | Students acquire knowledge to recognize software bugs that pose cyber security threats and to explain how to fix the bugs to mitigate such threats |
| CO2 | Students acquire knowledge to define cyber attack scenarios to web browsers and web servers and to explain how to mitigate such threats |
| CO3 | Students acquire knowledge to discover and explain mobile software bugs posing cybersecurity threats, explain and recreate exploits, and to explain mitigation techniques. |
| CO4 | Students acquire knowledge to articulate the urgent need for cyber security in critical computer systems, networks, and world wide web, and to explain various threat scenarios |
| CO5 | Students acquire knowledge to the well known cyber attack incidents, explain the attack scenarios, and apply mitigation techniques. |

Mapping of Course outcomes with Program outcomes

KNC 401: Computer System Security

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 2 | 3 | 2 | 3 | 2 | 3 | - | 2 | - | - | - | 3 |
| CO2 | 2 | 3 | 2 | 2 | 3 | - | - | 2 | - | - | - | 3 |
| CO3 | 3 | 3 | 2 | 2 | 2 | - | - | 2 | - | - | - | 3 |
| CO4 | 2 | 2 | 2 | 2 | 3 | - | - | 2 | - | - | - | 3 |
| CO5 | 2 | 2 | 2 | 2 | | - | - | 2 | - | - | - | 3 |
| Average | 2.2 | 2.6 | 2 | 2.2 | 2.5 | 3 | - | 2 | - | - | - | 3 |


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COURSE OUTCOME (2022-2023)

B. Tech II (Semester IV)

KCS402: Theory of Automata and Formal Languages

| CO | Course Outcomes |
|-----|--|
| CO1 | able to understand and construct finite state machines |
| CO2 | able to prove the equivalence of languages described by finite state machines and regular expressions. |
| CO3 | able to construct pushdown automata and the equivalent context free grammars |
| CO4 | able to prove the equivalence of languages described by pushdown automata and context free grammars. |
| CO5 | able to construct Turing machines and Post machines. |

Mapping of Course outcomes with Program outcomes

KCS402: Theory of Automata and Formal Languages

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 3 | 2 | 3 | - | - | - | - | 2 | - | 3 |
| CO2 | 3 | 3 | 3 | 2 | 3 | - | - | - | - | 2 | - | 3 |
| CO3 | 3 | 3 | 3 | 2 | 3 | - | - | - | - | 2 | - | 3 |
| CO4 | 3 | 3 | 3 | 2 | 3 | - | - | - | - | 2 | - | 3 |
| CO5 | 3 | 3 | 3 | 2 | 3 | - | - | - | - | 2 | - | 3 |
| Average | 3 | 3 | 3 | 2 | 3 | - | - | - | - | 2 | - | 3 |


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COURSE OUTCOME (2022-2023)

B. Tech II(Semester IV)

KCS451 : Operating System Lab

| CO | Course Outcomes |
|------|--|
| CO1. | Students are familiarized with the operating system modules by implementing various process scheduling and memory management algorithms. |
| CO2. | Students simulate various CPU Scheduling Algorithms (FCFS, SJF, RR, Priority, Multilevel queue) and compare their performance. |
| CO3. | Students simulate banker's algorithms for deadlock avoidance, prevention. |
| CO4. | Students implement various page replacement algorithms for FIFO, LRU, and optimal page replacement and do a comparative study. |
| CO5. | Students implement and evaluate different disk scheduling algorithms (FCFS, SSTF, SCAN). |

Mapping of Course outcomes with Program outcomes

KCS451 : Operating System Lab

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 3 | 3 | 2 | 2 | 3 | - | - | - | 2 | 3 |
| CO2 | 3 | 3 | 3 | 2 | 2 | 2 | 3 | - | - | - | 2 | 3 |
| CO3 | 3 | 3 | 3 | 3 | 2 | 2 | 3 | - | - | - | 2 | 3 |
| CO4 | 3 | 3 | 3 | 3 | 2 | 2 | 3 | - | - | - | 2 | 3 |
| CO5 | 3 | 3 | 3 | 2 | 2 | 2 | 3 | - | - | - | 2 | 3 |
| Average | 3 | 3 | 3 | 2.6 | 2 | 2 | 3 | - | - | - | 2 | 3 |

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COURSE OUTCOME (2022-2023)

B. Tech II(Semester IV)

KIT451 : Web Designing Lab

| CO | Course Outcomes |
|------|---|
| CO1. | Students will be able to understand basic HTML tags and static website designing. |
| CO2. | Students will be able to execute the frames having text, list, tables, hyperlinks and forms. |
| CO3. | Students will be able to understand the CSS and learning of using different CSS properties. |
| CO4. | Students will be able to apply the scripting into HTML pages using Java Script and its different aspects. |
| CO5. | Students will be able to implement the hosting and FTP. |

Mapping of Course outcomes with Program outcomes

KIT451 : Web Designing Lab

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 2 | 3 | 2 | 2 | - | - | - | - | 2 | | 2 | 2 |
| CO2 | 2 | 2 | 3 | 2 | 2 | - | - | - | 2 | 2 | 2 | 2 |
| CO3 | 2 | 2 | 3 | 2 | 2 | - | - | - | 2 | 2 | 2 | 2 |
| CO4 | 2 | 2 | 2 | 2 | 2 | - | 2 | - | 2 | 2 | 2 | 2 |
| CO5 | 2 | 2 | 2 | 2 | 2 | 2 | | 2 | 3 | 2 | 2 | 2 |
| Average | 2 | 2.2 | 2.4 | 2 | 2 | 2 | 2 | 2 | 2.2 | 2 | 2 | 2 |


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COURSE OUTCOME (2022-2023)

B. Tech II(Semester IV)

KCS453 : Python Programming Lab

| CO | Course Outcomes |
|------|---|
| CO1. | Students are able to describe the numbers, math functions, strings, list,tuples and dictionaries in python |
| CO2. | Students acquire the skills to apply different decision making statementsand functions in python |
| CO3. | Students are able to interpret object oriented programming in python |
| CO4. | Students develop skill to understand and summarize different file handlingoperations |
| CO5. | Students demonstrate the ability to design GUI applications in python andevaluate different database operations |

Mapping of Course outcomes with Program outcomes

KCS453 : Python Programming Lab

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 2 | 2 | 3 | 3 | 2 | 3 | - | - | - | 3 | 3 |
| CO2 | 3 | 2 | 3 | 3 | 2 | 3 | 1 | - | - | - | 3 | 3 |
| CO3 | 3 | 2 | 3 | 2 | 3 | 3 | 3 | - | - | - | 3 | 2 |
| CO4 | 3 | 2 | 3 | 2 | 1 | 2 | 1 | - | - | - | 2 | 3 |
| CO5 | 3 | 2 | 3 | - | 3 | 3 | 2 | - | - | - | 2 | 3 |
| Average | 3 | 2 | 2.8 | 2.5 | 2.4 | 2.6 | 2 | - | - | - | 2.6 | 2.8 |


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COURSE OUTCOME (2022-2023)

B. Tech III (Semester V)

KCS 501 : Database Management System

| CO | Course Outcomes |
|-----|--|
| CO1 | Apply knowledge of database for real life applications. |
| CO2 | Apply query processing techniques to automate the real time problems of databases. |
| CO3 | Identify and solve the redundancy problem in database tables using normalization. |
| CO4 | Understand the concepts of transactions, their processing so they will familiar with broad range of database management issues including data integrity, security. |
| CO5 | Design, develop and implement a small database project using database tools. |

Mapping of Course outcomes with Program outcomes

KCS501 : Database Management System

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 3 | 3 | 2 | 1 | 1 | 2 | 2 | 2 | 3 | 2 |
| CO2 | 3 | 3 | 3 | 3 | 2 | 1 | 1 | 1 | 2 | 2 | 3 | 2 |
| CO3 | 3 | 3 | 3 | 3 | 2 | 1 | 1 | 1 | 2 | 2 | 2 | 2 |
| CO4 | 3 | 2 | 3 | 3 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 2 |
| CO5 | 2 | 2 | 3 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Average | 2.8 | 2.6 | 3 | 3 | 2 | 1.4 | 1.4 | 1.4 | 2 | 2 | 2.4 | 2 |


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COURSE OUTCOME (2022-2023)

B. Tech III (Semester V)

KCS 503 : Design and Analysis of Algorithm

| CO | Course Outcomes |
|-----|---|
| CO1 | Understand the designing new algorithms, prove them correct, and analyze their asymptotic and absolute runtime and memory demands. |
| CO2 | Apply the algorithm to solve the problem and prove that the algorithm solves the problem correctly. |
| CO3 | Analyze the mathematical criterion for deciding whether an algorithm is efficient, and know by evaluating many practically important problems that do not admit any |
| CO4 | Apply and design the classical sorting, searching, optimization and graph algorithms. |
| CO5 | Examine and formulate the basic techniques for designing algorithms and applying the techniques of recursion, divide-and-conquer, dynamic programming and greedy. |

Mapping of Course outcomes with Program outcomes

KCS 503 : Design and Analysis of Algorithm

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 3 | 3 | 2 | 1 | 1 | - | - | - | 1 | 3 |
| CO2 | 3 | 3 | 3 | 3 | 2 | 1 | 1 | - | - | - | 1 | 3 |
| CO3 | 3 | 3 | 2 | 2 | 3 | 1 | 1 | - | - | - | 1 | 2 |
| CO4 | 3 | 3 | 3 | 3 | 3 | 1 | 1 | - | - | - | 1 | 2 |
| CO5 | 3 | 3 | 3 | 3 | 3 | 1 | 1 | - | - | - | 1 | 3 |
| Average | 3 | 3 | 2.8 | 2.8 | 2.6 | 1 | 1 | - | - | - | 1 | 2.6 |


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COURSE OUTCOME (2022-2023)

B. Tech III (Semester V)

KCS 054: Object Oriented Programming

| CO | Course Outcomes | | | | | | | | | | | |
|---|--|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| CO1 | Students are able to Understand the application development and analyze the insights of object oriented programming to implement application | | | | | | | | | | | |
| CO2 | Students are able to understand, analyze and apply the role of overall modeling concepts (i.e. System, structural) | | | | | | | | | | | |
| CO3 | Students are able to understand, analyze and apply oops concepts (i.e. abstraction, inheritance) | | | | | | | | | | | |
| CO4 | Students are able to learn concepts of C++ for understanding the implementation of object oriented concepts | | | | | | | | | | | |
| CO5 | Students are able to understand the object oriented approach to implement real world problem. | | | | | | | | | | | |
| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
| KCS 054: Object Oriented Programming | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 2 | 3 | 3 | 2 | 2 | 2 | - | - | - | 2 | 2 |
| CO2 | 3 | 2 | 3 | 3 | 2 | 2 | 2 | - | - | - | 2 | 2 |
| CO3 | 3 | 2 | 3 | 3 | 2 | 2 | 2 | - | - | - | 2 | 2 |
| CO4 | 3 | 2 | 3 | 3 | 2 | 2 | 2 | - | - | - | 2 | 2 |
| CO5 | 3 | 2 | 3 | 3 | 2 | 2 | 2 | - | - | - | 2 | 2 |
| Average | 3 | 2 | 3 | 3 | 2 | 2 | 2 | - | - | - | 2 | 2 |


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COURSE OUTCOME (2022-2023)

B. Tech III (Semester VI)

KIT 501 : Web Technology

| CO | Course Outcomes |
|-----|--|
| CO1 | Apply the knowledge of the internet and related internet concepts that are vital in understanding web application development |
| CO2 | Understand, analyze, and apply the role of markup languages like HTML, DHTML, and XML in the workings of the web and its applications. |
| CO3 | Use web application development software tools i.e. XML, Apache Tomcat etc. and identifies the environments currently available on the market to design web sites. |
| CO4 | Understand, analyze, and build dynamic web pages using client-side programming JavaScript and develop the web application using servlet and JSP. |
| CO5 | Understand the impact of web designing by database connectivity with JDBC |

Mapping of Course outcomes with Program outcomes

KIT 501 : Web Technology

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 1 | 3 | 3 | 2 | 1 | - | 2 | 2 | 1 | 3 |
| CO2 | 2 | 3 | 2 | 1 | 3 | 1 | - | - | 3 | 2 | 3 | 2 |
| CO3 | 2 | 3 | 2 | 2 | 3 | 2 | 1 | - | 2 | 2 | 3 | 2 |
| CO4 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | - | 2 | 2 | 3 | 2 |
| CO5 | 3 | 3 | 2 | 3 | 3 | 1 | - | - | 2 | 1 | 1 | 3 |
| Average | 2.6 | 3 | 2 | 2.4 | 3 | 1.6 | 1.3 | - | 2.2 | 1.8 | 2.2 | 2.4 |


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COURSE OUTCOME (2022-2023)

B. Tech IV (Semester VII)

KCS 056: Application of Soft Computing

| CO | Course Outcomes |
|-----|---|
| CO1 | Students are able to identify and describe soft computing techniques and their roles in building intelligent machines and understand the concepts of neural networks to achieve human like decision making. |
| CO2 | Students are able to apply neural networks to pattern classification and regression problems. |
| CO3 | Students understand and learn fuzzy logic concepts and reasoning to handle uncertainty. |
| CO4 | Students are able to apply the fuzzy logic concepts to solve engineering problems related to uncertainty. |
| CO5 | Students are able recognize the feasibility of applying a soft computing methodology for a particular problem and learn to apply genetic algorithms to combinatorial optimization problems. |

Mapping of Course outcomes with Program outcomes

KCS 056: Application of Soft Computing

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 2 | 1 | 2 | 2 | - | - | - | - | - | - | 2 |
| CO2 | 3 | 3 | 2 | 3 | 3 | 2 | - | - | - | - | - | 2 |
| CO3 | 3 | 2 | 2 | 2 | 2 | - | - | - | - | - | - | 2 |
| CO4 | 3 | 3 | 3 | 3 | 3 | 3 | - | 2 | - | - | - | 2 |
| CO5 | 3 | 3 | 3 | 3 | 3 | 2 | - | 2 | - | - | - | 2 |
| Average | 3 | 3 | 2 | 3 | 3 | 2 | - | 2 | - | - | - | 2 |


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COURSE OUTCOME (2022-2023)

B. Tech III (Semester V)

KNC 501: Constitution of India

| CO | Course Outcomes |
|-----|--|
| CO1 | Identify and explore the basic features and modalities about Indian constitution. |
| CO2 | Differentiate and relate the functioning of Indian parliamentary system at the center and state level. |
| CO3 | Differentiate different aspects of Indian Legal System and its related bodies. |
| CO4 | Discover and apply different laws and regulations related to engineering practices. |
| CO5 | Correlate role of engineers with different organizations and governance models |

Mapping of Course outcomes with Program outcomes

KNC 501 : Constitution of India

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | - | - | - | - | - | - | - | - | - | - | - | - |
| CO2 | - | - | - | 2 | 2 | - | 3 | 3 | - | - | 2 | 3 |
| CO3 | - | - | - | 2 | 2 | - | 3 | 3 | - | - | 2 | 3 |
| CO4 | - | - | - | 2 | 2 | - | 3 | 3 | - | - | 2 | 3 |
| CO5 | - | - | - | 2 | 2 | - | 3 | 3 | - | - | 2 | 3 |
| Average | - | - | - | 2 | 2 | - | 3 | 3 | - | - | 2 | 3 |


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COURSE OUTCOME (2022-2023)

B. Tech III (Semester V)

KCS 551 : DBMS Lab

| CO | Course Outcomes | | | | | | | | | | | |
|---|---|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| CO1 | Students can explain the features of relational database and SQL. | | | | | | | | | | | |
| CO2 | Students can design ER Model for a database for a given real time application. | | | | | | | | | | | |
| CO3 | Students can create and populate an RDBMS for a given problem domain with constraints and keys using SQL. | | | | | | | | | | | |
| CO4 | Students can apply data manipulation language to query, update and manage the database. | | | | | | | | | | | |
| CO5 | Students will understand the concepts of database security and integrity. | | | | | | | | | | | |
| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
| KCS551 : DBMS Lab | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 3 | 3 | 2 | - | 2 | 3 | - | 2 | 2 | 2 |
| CO2 | 3 | 3 | 3 | 3 | 3 | - | - | 3 | - | 3 | 2 | 2 |
| CO3 | 3 | 3 | 3 | 3 | 3 | - | 2 | 3 | 2 | 3 | 2 | 3 |
| CO4 | 3 | 3 | 3 | 3 | 3 | - | 2 | 3 | 2 | 3 | 2 | 3 |
| CO5 | 3 | 3 | 3 | 3 | 3 | - | 2 | 3 | 2 | 3 | 3 | 3 |
| Average | 3 | 3 | 3 | 3 | 2.8 | - | 2 | 3 | 2 | 2.8 | 2.2 | 2.6 |


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COURSE OUTCOME (2022-2023)

B. Tech III (Semester V)

KCS 553 : DAA Lab

| CO | Course Outcomes |
|-----|---|
| CO1 | Students are able to analyze the performance of various algorithms in best case, average case and worst case. Students are able to implement various sorting, searching and graph traversal algorithms. |
| CO2 | Students develop better understanding of advanced data structures like tree, heaps and trees. |
| CO3 | Students acquire skill to identify the problem given and design the algorithm using various algorithm design techniques. |
| CO4 | Students develop better understanding of optimization techniques like dynamic programming, backtracking and branch and bound and their classical problems. |
| CO5 | Students understand the importance of different algorithmic paradigms by comparing the performance of different algorithms for same problem in team. |

Mapping of Course outcomes with Program outcomes

KCS553 : DAA Lab

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 3 | 3 | 3 | - | 3 | 2 | 3 | 3 | 3 | 3 |
| CO2 | 3 | 3 | 3 | 3 | 3 | - | 3 | 2 | 3 | 3 | 3 | 3 |
| CO3 | 3 | 3 | 3 | 3 | 3 | - | 3 | 2 | 3 | 3 | 3 | 3 |
| CO4 | 3 | 3 | 3 | 3 | 3 | 2 | 3 | 2 | 3 | 3 | 2 | 2 |
| CO5 | 3 | 3 | 3 | 3 | 3 | 2 | 3 | 2 | 3 | 3 | 3 | 3 |
| Average | 3 | 3 | 3 | 3 | 3 | 2 | 3 | 2 | 3 | 3 | 2.8 | 2.8 |


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COURSE OUTCOME (2022-2023)

B. Tech III (Semester V)

KIT 551: Web Technology Lab

| CO | Course Outcomes | | | | | | | | | | | |
|---|---|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| CO1 | Student gets familiar with HTML and CSS web technologies for development and design of web pages. | | | | | | | | | | | |
| CO2 | Students are able to make console based applications for solving real life problems using syntactical and implementation knowledge of JAVA. | | | | | | | | | | | |
| CO3 | Students are able to design GUI based applications for solving real life problems applying knowledge of event handling using JAVA Swing component. | | | | | | | | | | | |
| CO4 | Students are able to make interactive GUI based applications for solving problems applying knowledge of Multithreading, File I/O and Exception Handling using JAVA Swing component. | | | | | | | | | | | |
| CO5 | Students are able to design web based applications for solving problems applying knowledge of advance JAVA concepts such as Servlets, JDBC, JSP and other web based technologies i.e. php | | | | | | | | | | | |
| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
| KIT 551: Web Technology Lab | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 3 | 3 | 3 | - | 2 | - | 3 | 2 | 3 | 3 |
| CO2 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | - | 3 | - | 3 | 3 |
| CO3 | 3 | 3 | 3 | 3 | 3 | - | 2 | - | 3 | - | 3 | 3 |
| CO4 | 3 | 3 | 3 | 3 | 3 | - | 2 | - | 3 | - | 3 | 3 |
| CO5 | 3 | 3 | 3 | 3 | 3 | - | 2 | - | 3 | - | 3 | 3 |
| Average | 3 | 3 | 3 | 3 | 3 | - | 2 | - | 3 | 2 | 3 | 3 |


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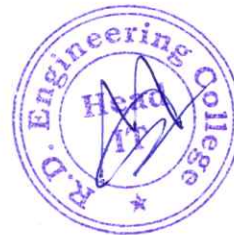
COURSE OUTCOME (2022-2023)

B. Tech III (Semester V)

KCS 554: Mini Project or Internal Assessment

| CO | Course Outcomes | | | | | | | | | | | |
|---|---|-----|-----|------|-----|-----|-----|-----|-----|------|------|------|
| CO1 | Students acquire 'real' working environment and get acquainted with the organization structure, business operations and administrative functions. | | | | | | | | | | | |
| CO2 | Students develop hands-on experience in the student's related field so that they can relate and reinforce what has been taught at the institute. | | | | | | | | | | | |
| CO3 | Students acquire knowledge of cooperation and to develop synergetic collaboration between industry and the institute in promoting a knowledgeable society. | | | | | | | | | | | |
| CO4 | Students get stage for the future recruitment by the potential employers and get awareness of the social, cultural, global and environmental responsibility as an engineer. | | | | | | | | | | | |
| CO5 | Students acquire presentation and demonstration skills to effectively communicate the progress of the work to peers and superiors using audio/video, software tools. | | | | | | | | | | | |
| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
| KCS 554: Mini Project or Internal Assessment | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 2 | 2 | 2 | 3 | 3 | - | - | 3 | 2 | 2 | 3 |
| CO2 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 2 | 3 |
| CO3 | 3 | 3 | 2 | 2 | 3 | 3 | - | 3 | 2 | 2 | 2 | 3 |
| CO4 | 3 | 3 | 3 | 2 | - | 3 | 3 | - | 3 | 2 | - | 3 |
| CO5 | 3 | 2 | 2 | - | 3 | - | - | 3 | 3 | - | 2 | - |
| Average | 3 | 2.6 | 2.2 | 2.25 | 3 | 3 | 3 | 3 | 2.6 | 2 | 3 | 3 |


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COURSE OUTCOME (2022-2023)

B. Tech III (Semester VI)

KIT 601: Data Analytics

| CO | Course Outcomes | | | | | | | | | | | |
|---|---|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| CO1 | Discuss various concepts of data analytics pipeline. | | | | | | | | | | | |
| CO2 | Apply classification and regression techniques. | | | | | | | | | | | |
| CO3 | Explain and apply mining techniques on streaming data | | | | | | | | | | | |
| CO4 | Compare different clustering and frequent pattern mining algorithms. | | | | | | | | | | | |
| CO5 | Describe the concept of R programming and implement analytics on Bigdata using R. | | | | | | | | | | | |
| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
| KIT 601: Data Analytics | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 3 | 3 | 2 | - | 2 | 3 | - | 2 | 2 | 3 |
| CO2 | 3 | 3 | 3 | 3 | 3 | - | - | 3 | - | 3 | 2 | 2 |
| CO3 | 3 | 3 | 3 | 3 | 3 | - | 2 | 2 | 2 | 3 | 2 | 2 |
| CO4 | 3 | 3 | 3 | 3 | 3 | - | 2 | 3 | 2 | 3 | 2 | 2 |
| CO5 | 3 | 3 | 3 | 3 | 3 | - | 2 | 3 | 2 | 3 | 3 | 3 |
| Average | 3 | 3 | 3 | 3 | 3 | - | 2 | 3 | 2 | 3 | 2 | 2 |


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COURSE OUTCOME (2022-2023)

B. Tech III (Semester VI)

KCS 603: Computer Network

| CO | Course Outcomes |
|-----|---|
| CO1 | Understand the practical meaning and importance of 'Computer Networks'. Familiar with how transmission of data takes place, network topologies signal coding, Ethernet, ISDN and switching technologies. |
| CO2 | Able to grasp the significance of error control and error correction protocols, flow control, MAC protocols and sliding window protocols among data communication networks. They also exhibit the understanding of how computers communicate with each other and the methods employed to assure that the communication is reliable. |
| CO3 | Apply the concepts of IP and other protocols in network layer for smooth functioning and maintenance of computer network. Also reveals confidence to work independently to setup and maintain computer and networking systems. |
| CO4 | Learn how the information is processed and managed at process to process delivery. They can also demonstrate attitudes that are beneficial to maintaining the security of a computer/network system and assisting people to use that system or network through cryptography and firewalls. |
| CO5 | Manage to skilled with the working and practical knowledge of E-mail, FTP, Telnet, POP, DNS etc. on public and private networks. |

Mapping of Course outcomes with Program outcomes

KCS 603: Computer Network

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 3 | 1 | 3 | 1 | 1 | 1 | 1 | 3 | - | 2 |
| CO2 | 3 | 3 | 3 | 3 | 3 | 1 | - | - | - | 3 | - | 2 |
| CO3 | 2 | 3 | 3 | 2 | 3 | - | - | - | 2 | 2 | - | 3 |
| CO4 | 2 | 3 | 2 | 2 | 2 | 1 | - | - | - | 3 | - | 2 |
| CO5 | 3 | 2 | 2 | 1 | 3 | 2 | - | - | - | 3 | - | 2 |
| Average | 2.6 | 2.8 | 2.6 | 1.8 | 2.8 | 1.3 | 1 | 1 | 1.5 | 2.8 | - | 2.2 |


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COURSE OUTCOME (2022-2023)

B. Tech III (Semester VI)

KCS 601: Software Engineering

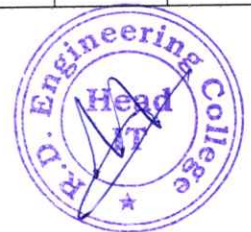
| CO | Course Outcomes |
|-----|--|
| CO1 | Explain various software characteristics and analyze different software Development Models. |
| CO2 | Demonstrate the contents of a SRS and apply basic software quality Assurance practices to ensure that design, development meet or exceed applicable standards. |
| CO3 | Compare and contrast various methods for software design |
| CO4 | Formulate testing strategy for software systems, employ techniques such as unit testing, Test driven development and functional testing. |
| CO5 | Manage software development process independently as well as in teams and make use of Various software management tools for development, maintenance and analysis. |

Mapping of Course outcomes with Program outcomes

KCS 601: Software Engineering

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 3 | 1 | - | - | - | - | - | - | - | - |
| CO2 | 2 | 2 | 3 | 3 | 3 | - | - | - | - | - | - | - |
| CO3 | 2 | 2 | 3 | 3 | 3 | - | - | - | 2 | 2 | 2 | 2 |
| CO4 | 2 | 2 | 2 | 2 | 2 | - | - | 1 | 3 | 2 | 1 | 1 |
| CO5 | 2 | 2 | 3 | 1 | 2 | - | - | - | 2 | 2 | 2 | 1 |
| Average | 2 | 2 | 3 | 2 | 2 | - | - | 1 | 2 | 2 | 2 | 1 |


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COURSE OUTCOME (2022-2023)

B. Tech III (Semester VI)

KCS 061: Big Data

| CO | Course Outcomes | | | | | | | | | | | |
|---|---|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| CO1 | Demonstrate knowledge of Big Data Analytics concepts and its applications in business | | | | | | | | | | | |
| CO2 | Demonstrate functions and components of MAP & REDUCE Framework and HDFS. | | | | | | | | | | | |
| CO3 | Discuss Data Management concepts in No SQL environment | | | | | | | | | | | |
| CO4 | Explain process of developing Map Reduce based distributed processing applications | | | | | | | | | | | |
| CO5 | Explain process of developing applications using HBASE, Hive, Pig etc. | | | | | | | | | | | |
| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
| KCS 061: Big Data | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 2 | - | 2 | - | 3 | 3 | 3 | 3 | 2 | 2 | 3 | 3 |
| CO2 | 3 | - | 3 | - | 3 | 3 | 3 | 3 | 3 | 2 | 3 | 2 |
| CO3 | 3 | - | 3 | - | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| CO4 | 3 | - | 1 | - | 1 | 2 | 3 | 3 | 3 | - | - | - |
| CO5 | 3 | - | 3 | - | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Average | 3 | - | 3 | - | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |

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COURSE OUTCOME (2022-2023)

B. Tech III (Semester VI)

KOE 068: Software Project Management

| CO | Course Outcomes | | | | | | | | | | | |
|---|--|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| CO1 | Identify the project objectives and their planning, along with analyze various cost/effort estimation Models. | | | | | | | | | | | |
| CO2 | Organize & schedule project activities to compute critical path for risk analysis. | | | | | | | | | | | |
| CO3 | Monitor and control the Project Activities. | | | | | | | | | | | |
| CO4 | Formulate testing objectives and test plan to ensure good software quality management with the norms of SEI-CMM. | | | | | | | | | | | |
| CO5 | Configure changes and manage risks using project management advanced tools. | | | | | | | | | | | |
| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
| KOE 068: Software Project Management | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 2 | 2 | 3 | 3 | 3 | 3 | 2 | 2 | 3 | 3 | - | 2 |
| CO2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 | 2 | - | 3 |
| CO3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | - | 3 |
| CO4 | 3 | 1 | 1 | 2 | 3 | 3 | 3 | - | 3 | - | 2 | 2 |
| CO5 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | - | 3 |
| Average | 2.8 | 2.4 | 2.6 | 2.8 | 3 | 3 | 2.8 | 2.5 | 3 | 2.75 | 2 | 2.6 |


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COURSE OUTCOME (2022-2023)

B. Tech III (Semester VI)

KNC 602: Indian Tradition, Culture and Society

| CO | Course Outcomes | | | | | | | | | | | |
|---|--|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| CO1 | To recall & state thought process of social setting in ancient India to identify the roots and details of some contemporary issues faced by Indians and try to formulate & construct possible solutions to these Challenges by digging deep into our past. | | | | | | | | | | | |
| CO2 | The students are able to identify & inspect the importance of our surroundings & culture to design & formulate sustainable developmental solutions of prevailing social evils. | | | | | | | | | | | |
| CO3 | The students are able to & understand the issues related to 'Indian' culture, tradition and its composite character to apply the same in the socio-technological developments in present scenario. | | | | | | | | | | | |
| CO4 | The students will be able to identify and understand the holistic life styles of Yogic-science and wisdom described in ancient literatures that are important to design & develop sustainability in modern society with rapid technological advancements and societal disruptions. | | | | | | | | | | | |
| CO5 | The students are able to relate & assess Indian Knowledge System, Indian perspective of modern scientific world-view and basic principles of Yoga and holistic health care system to illustrate, devise, manage, the healthcare, architecture, water management & other systems in the present scenario. | | | | | | | | | | | |
| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
| KNC 602: Indian Tradition, Culture and Society | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | - | - | - | - | - | 2 | - | 2 | - | - | - | 2 |
| CO2 | - | - | - | - | - | 2 | - | - | - | - | - | 2 |
| CO3 | - | 2 | 2 | - | - | 2 | 2 | 2 | - | - | 2 | 2 |
| CO4 | - | 2 | 2 | - | - | 2 | 2 | - | - | - | 2 | 2 |
| CO5 | - | 2 | 2 | - | - | 2 | 2 | - | - | - | 2 | 2 |
| Average | - | 2 | 2 | - | - | 2 | 2 | - | - | - | 2 | 2 |


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COURSE OUTCOME (2022-2023)

B. Tech III (Semester V)

KIT 651: Data Analytics Lab

| CO | Course Outcomes | | | | | | | | | | | |
|---|---|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| CO1 | Implement numerical and statistical analysis on various data sources | | | | | | | | | | | |
| CO2 | Apply data pre-processing and dimensionality reduction methods on raw data | | | | | | | | | | | |
| CO3 | Implement linear regression technique on numeric data for prediction | | | | | | | | | | | |
| CO4 | Execute clustering and association rule mining algorithms on different datasets | | | | | | | | | | | |
| CO5 | Implement and evaluate the performance of KNN algorithm on different datasets | | | | | | | | | | | |
| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
| KIT 651: Data Analytics Lab | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 3 | 3 | 1 | 3 | 3 | 2 | - | 2 | 2 | 3 |
| CO2 | 3 | 3 | 3 | 3 | 2 | 3 | 3 | 2 | 2 | 2 | 2 | 3 |
| CO3 | 3 | 3 | 3 | 3 | - | 3 | 3 | 2 | - | 2 | 2 | 3 |
| CO4 | 3 | 3 | 3 | 3 | - | 3 | 3 | 2 | 2 | 2 | 2 | 3 |
| CO5 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 2 | 2 | 3 |
| Average | 3 | 3 | 3 | 3 | 2 | 3 | 3 | 2 | 2 | 2 | 2 | 3 |


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COURSE OUTCOME (2022-2023)

B. Tech III (Semester VI)

KCS 653: Computer Network Lab

| CO | Course Outcomes |
|-----|--|
| CO1 | Students are able to understand and simulate various network topologies using CISCO packet tracer. |
| CO2 | Students are able to create network in CISCO Packet Tracer using Routers connected with other network access equipment (like switches and buses) subsequently connected with end devices. Use commands to establish connectivity among them. |
| CO3 | Students are able to understand and implement network layer protocols (like DHCP, RIP, OSPF) using CISCO packet tracer. |
| CO4 | Students are able to resolve IP address to host name and host name to IP address using JAVA/C. |
| CO5 | Students are able to implement a TCP based Client-Server System for one sided communication in JAVA/C. |

Mapping of Course outcomes with Program outcomes

KCS 653: Computer Network Lab

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | - | 2 | - | - | 2 |
| CO2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | - | 2 | - | - | 2 |
| CO3 | 3 | 3 | 3 | 3 | 2 | 3 | 2 | - | 3 | - | - | 2 |
| CO4 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | - | 3 | - | - | 2 |
| CO5 | 3 | 3 | 2 | 2 | 2 | 3 | 2 | - | 3 | - | - | 2 |
| Average | 2.6 | 2.6 | 2.4 | 2.4 | 2.2 | 2.6 | 2 | - | 2.6 | - | - | 2 |


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COURSE OUTCOME (2022-2023)

B. Tech III (Semester VI)

KCS 651: Software Engineering Lab

| CO | Course Outcomes | | | | | | | | | | | |
|---|--|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| CO1 | Identify ambiguities, inconsistencies and incompleteness from a requirements specification and state functional and non-functional requirement. | | | | | | | | | | | |
| CO2 | Identify different actors and use cases from a given problem statement and draw use case diagram to associate use cases with different types of relationship | | | | | | | | | | | |
| CO3 | Draw a class diagram after identifying classes and association among them | | | | | | | | | | | |
| CO4 | Graphically represent various UML diagrams, and associations among them and identify the logical sequence of activities undergoing in a system, and represent them pictorially | | | | | | | | | | | |
| CO5 | Able to use modern engineering tools for specification, design, implementation and testing | | | | | | | | | | | |
| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
| KCS 651: Software Engineering Lab | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 3 | 1 | - | - | - | - | - | - | - | - |
| CO2 | 2 | 2 | 3 | 3 | 3 | - | - | - | - | - | - | - |
| CO3 | 2 | 2 | 3 | 3 | 3 | - | - | - | 2 | 2 | 2 | 2 |
| CO4 | 2 | 2 | 2 | 2 | 2 | - | - | 1 | 3 | 2 | 1 | 1 |
| CO5 | 2 | 2 | 3 | 1 | 2 | - | - | | 2 | 2 | 2 | 1 |
| Average | 2 | 2 | 3 | 2 | 2 | - | - | 1 | 2 | 2 | 2 | 1 |


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COURSE OUTCOME (2022-2023)

B. Tech IV (Semester VII)

KHU 701: Rural Development

| CO | Course Outcomes | | | | | | | | | | | |
|---|--|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| CO1 | Students are able to understand the definitions, concepts and components of Rural Development. | | | | | | | | | | | |
| CO2 | Students will be able to know the importance, structure, significance, resources of Indian rural economy & also able to identify & inspect the importance of present policies & programs of Government of India to design & formulate sustainable developmental solutions of prevailing problems in Rural Areas. | | | | | | | | | | | |
| CO3 | Students will have a clear idea about the area development programs and its impact. | | | | | | | | | | | |
| CO4 | Students will be able to acquire knowledge & Skills about rural entrepreneurship so that they will be able to opt entrepreneurship as major career option. | | | | | | | | | | | |
| CO5 | Students will be able to acquire knowledge & Skills about rural entrepreneurship so that they will be able to opt entrepreneurship as major career option. | | | | | | | | | | | |
| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
| KHU 701: Rural Development | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | - | - | 2 | - | 2 | 2 | 2 | - | 2 | - | - | 2 |
| CO2 | - | - | 2 | - | 2 | 2 | 2 | - | 2 | - | - | 2 |
| CO3 | - | - | 2 | - | 2 | 2 | 2 | - | 2 | - | - | 2 |
| CO4 | - | - | 2 | - | 2 | 2 | 2 | - | 2 | - | - | 2 |
| CO5 | - | - | 2 | - | 2 | 2 | 2 | - | 2 | - | - | 2 |
| Average | - | - | 2 | - | 2 | 2 | 2 | - | 2 | - | - | 2 |


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COURSE OUTCOME (2022-2023)

B. Tech IV (Semester VII)

KCS 071: Artificial Intelligence

| CO | Course Outcomes |
|-----|--|
| CO1 | Understand the concept of artificial intelligence, intelligent agents, Computer vision, Natural Language Processing, Uniformed and Informed search strategies, Search. |
| CO2 | Apply basic principles of AI in solutions that require problem solving, inference, perception, knowledge representation, and learning. |
| CO3 | Explain the concepts of supervised, unsupervised and reinforcement learning. |
| CO4 | Evaluate Probabilistic reasoning for uncertainty, parameter estimation methods and various classification techniques of pattern reorganization. |
| CO5 | Analyze various searching for solutions, machine learning techniques and classification techniques. |

Mapping of Course outcomes with Program outcomes

KCS 071: Artificial Intelligence

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 3 | 3 | 2 | 3 | 2 | 2 | 2 | 2 | 2 | 3 |
| CO2 | 3 | 3 | 3 | 3 | 3 | 3 | 1 | - | 2 | 2 | 1 | 3 |
| CO3 | 3 | 3 | 2 | 3 | 3 | 3 | 2 | - | 2 | 2 | 1 | 3 |
| CO4 | 3 | 3 | 2 | 3 | 3 | 3 | 2 | 1 | 2 | 2 | 2 | 3 |
| CO5 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 1 | 2 | 2 | 2 | 3 |
| Average | 3 | 3 | 2.6 | 3 | 2.8 | 3 | 1.8 | 1.3 | 2 | 2 | 1.6 | 3 |


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COURSE OUTCOME (2022-2023)

B. Tech IV (Semester VII)

KOE 073: Machine Learning

| CO | Course Outcomes |
|-----|---|
| CO1 | To understand the need for Machine Learning for various problem solving. |
| CO2 | To study the various, semi-supervised and unsupervised learning algorithms in machine learning. |
| CO3 | To understand latest trends in machine learning. |
| CO4 | To design appropriate machine learning algorithms for problem solving. |
| CO5 | To understand the need for machine learning for various problem solving. |

Mapping of Course outcomes with Program outcomes

KOE 073: Machine Learning

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 3 | 2 | 2 | - | 2 | - | - | - | 1 | 2 |
| CO2 | 3 | 3 | 3 | 2 | 2 | - | 2 | - | - | - | 1 | 2 |
| CO3 | 3 | 3 | 3 | 2 | 2 | - | 2 | - | - | - | 1 | 2 |
| CO4 | 3 | 3 | 3 | 2 | 2 | - | 2 | - | - | - | 1 | 2 |
| CO5 | 3 | 3 | 3 | 2 | 2 | - | 2 | - | - | - | 1 | 2 |
| Average | 3 | 3 | 3 | 2 | 2 | - | 2 | - | - | - | 1 | 2 |


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COURSE OUTCOME (2022-2023)

B. Tech IV (Semester VII)

KCS 713: Cloud Computing

| CO | Course Outcomes | | | | | | | | | | | |
|---|--|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| CO1 | Students are able to understand and define Cloud Computing, different Cloud service and deployment models. | | | | | | | | | | | |
| CO2 | Students are able to understand the Cloud applications with their architecture, vulnerabilities and resource management. | | | | | | | | | | | |
| CO3 | Students are able to describe importance of virtualization along with their technologies. | | | | | | | | | | | |
| CO4 | Students are able to analyze the components of open stack & Google Cloud platform and understand Mobile Cloud Computing, | | | | | | | | | | | |
| CO5 | Students are able to understand the design & develop backup strategies for cloud database on features. | | | | | | | | | | | |
| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
| KCS 713: Cloud Computing | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 2 | 3 | - | 3 | 2 | - | - | - | 3 | 2 | 2 |
| CO2 | 3 | 2 | 3 | - | 3 | 2 | - | - | - | 3 | 2 | 2 |
| CO3 | 3 | 2 | 3 | - | 3 | 2 | - | - | - | 3 | 2 | 2 |
| CO4 | 3 | 2 | 3 | - | 3 | 2 | - | - | - | 3 | 2 | 2 |
| CO5 | 3 | 2 | 3 | - | 3 | 2 | - | - | - | 3 | 2 | 2 |
| Average | 3 | 2 | 3 | - | 3 | 2 | - | - | - | 3 | 2 | 2 |


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COURSE OUTCOME (2022-2023)

B. Tech IV (Semester VII)

KIT 751A: Departmental Elective Lab

| CO | Course Outcomes | | | | | | | | | | | |
|---|---|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| CO1 | Students are able to perform Resource allocation and deadlock detection and avoidance techniques in the distributed system. | | | | | | | | | | | |
| CO2 | Students are able to understand remote procedure call for various applications. | | | | | | | | | | | |
| CO3 | Students are able to understand IPC mechanism in distributed system. | | | | | | | | | | | |
| CO4 | Students are able to Design and build application programs on distributed systems. | | | | | | | | | | | |
| CO5 | Students are able to design and build newer distributed file systems for any OS | | | | | | | | | | | |
| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
| KIT 751A: Departmental Elective Lab | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | - | 3 | 3 | 3 | - | - | - | - | 2 | 2 |
| CO2 | 3 | 3 | - | 3 | 3 | 3 | - | - | - | - | 2 | 2 |
| CO3 | 3 | 3 | - | 3 | 3 | 3 | - | - | - | - | 2 | 2 |
| CO4 | 3 | 3 | - | 3 | 3 | 3 | - | - | - | - | 2 | 2 |
| CO5 | 3 | 3 | - | 3 | 3 | 3 | - | - | - | - | 2 | 2 |
| Average | 3 | 3 | - | 3 | 3 | 3 | - | - | - | - | 2 | 2 |


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COURSE OUTCOME (2022-2023)

B. Tech IV (Semester VII)

KIT 752: Mini Project or Internship Assessment

| CO | Course Outcomes |
|-----|---|
| CO1 | Students acquire 'real' working environment and get acquainted with the organization structure, business operations and administrative functions. |
| CO2 | Students develop hands-on experience in the student's related field so that they can relate and reinforce what has been taught at the institute. |
| CO3 | Students acquire knowledge of cooperation and to develop synergetic collaboration between industry and the institute in promoting a knowledgeable society. |
| CO4 | Students get stage for the future recruitment by the potential employers and get awareness of the social, cultural, global and environmental responsibility as an engineer. |
| CO5 | Students acquire presentation and demonstration skills to effectively communicate the progress of the work to peers and superiors using audio/video, software tools. |

Mapping of Course outcomes with Program outcomes

KIT 752: Mini Project or Internship Assessment

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|------|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | - | 3 | 3 | 2 | - | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| CO2 | - | - | 2 | - | - | 3 | 3 | 3 | 3 | 3 | 3 | 2 |
| CO3 | - | 2 | - | - | 3 | 2 | 3 | 3 | 2 | 3 | 2 | 3 |
| CO4 | - | - | 3 | - | - | 3 | 3 | 3 | 3 | 3 | 2 | 2 |
| CO5 | 2 | 2 | 2 | 2 | 3 | - | 2 | 2 | 2 | - | 3 | 2 |
| Average | 2 | 2.3 | 2.25 | 2 | 3 | 2.7 | 2.8 | 2.8 | 2.6 | 3 | 2.6 | 2.4 |


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COURSE OUTCOME (2022-2023)

B. Tech IV (Semester VII)

KIT 753: Project I

| CO | Course Outcomes | | | | | | | | | | | |
|---|--|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| CO1 | The students are able to work effectively in teams to accomplish a common goal. | | | | | | | | | | | |
| CO2 | The students are able to develop the ability to communicate effectively with a wide range of audience. | | | | | | | | | | | |
| CO3 | The students acquire the knowledge to undertake technical, research tasks and ethical response responsibilities to develop a software or hardware product. | | | | | | | | | | | |
| CO4 | The students apply the knowledge for developing a business plan for an entrepreneurial venture and its implementation. | | | | | | | | | | | |
| CO5 | The students develop the ability of self-learning and apply it in life- long learning. | | | | | | | | | | | |
| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
| KIT 753: Project I | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | - | - | 3 | 3 | 3 | 2 | - | - | 3 | 3 | 3 | 3 |
| CO2 | - | - | - | - | - | - | - | - | 3 | 3 | 2 | 3 |
| CO3 | 3 | 3 | 3 | 3 | 3 | 2 | - | 3 | 3 | 3 | 3 | 3 |
| CO4 | 3 | 3 | 3 | 3 | 3 | - | 2 | 3 | 2 | 3 | 3 | 2 |
| CO5 | 3 | 3 | 3 | 2 | 3 | - | 2 | - | 3 | - | 2 | 3 |
| Average | 3 | 3 | 3 | 2.7 | 3 | 2 | 2 | 3 | 2.8 | 3 | 2.6 | 2.8 |


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COURSE OUTCOME (2022-2023)

B. Tech IV (Semester VIII)

KHU 802: Project Management & Entrepreneurship

| CO | Course Outcomes |
|-----|---|
| CO1 | Students will be able to understand the need, concept, program & various schemes related to entrepreneurship. |
| CO2 | Students will be able to develop Innovative Idea with sustainable Business Opportunities. |
| CO3 | Students will be able to understand the concept of Project management and related issues during the implementation of selected project. |
| CO4 | Students will be able to understand and implement the methods & Techniques of Project Financing. |
| CO5 | Students will be motivated & empowered to apply the concept of Social Entrepreneurship for upliftment of the backward areas. |

Mapping of Course outcomes with Program outcomes

KHU 802: Project Management & Entrepreneurship

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | -- | - | 2 | - | 2 | 2 | 2 | - | 2 | - | - | 2 |
| CO2 | -- | - | 2 | - | 2 | 2 | 2 | - | 2 | - | - | 2 |
| CO3 | - | - | 2 | - | 2 | 2 | 2 | - | 2 | - | - | 2 |
| CO4 | - | - | 2 | - | 2 | 2 | 2 | - | 2 | - | - | 2 |
| CO5 | - | - | 2 | - | 2 | 2 | 2 | - | 2 | - | - | 2 |
| Average | - | - | 2 | - | 2 | 2 | 2 | - | 2 | - | - | 2 |


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COURSE OUTCOME (2022-2023)

B. Tech IV (Semester VIII)

KOE 085: Quality Management

| CO | Course Outcomes |
|-----|--|
| CO1 | Develop in-depth knowledge on various quality tools & techniques of Quality Management. |
| CO2 | Develop an understanding on Quality Management philosophies and frameworks. |
| CO3 | Apply the learnt tools and techniques for controlling, improving and measuring quality in manufacturing & service industry. |
| CO4 | Understand and analyse proven methodologies to enhance management processes such as six sigma, benchmarking, quality circles etc. |
| CO5 | Choose a framework to evaluate the performance excellence of an Organisation, and determine the set of performance indicators that will align people with objective of organisation. |

Mapping of Course outcomes with Program outcomes

KOE 085: Quality Management

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 2 | - | - | 2 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 3 |
| CO2 | 3 | - | - | 2 | 3 | 2 | 3 | 2 | 2 | 2 | 2 | 3 |
| CO3 | 2 | - | - | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| CO4 | 3 | - | - | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| CO5 | 2 | - | - | 2 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Average | 2.4 | - | - | 2.4 | 2.6 | 2 | 2.2 | 2 | 2 | 2 | 2 | 2.4 |


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COURSE OUTCOME (2022-2023)

B. Tech IV (Semester VIII)

KOE 093 : Data Mining and Warehousing

| CO | Course Outcomes | | | | | | | | | | | |
|---|--|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| CO1 | Understand the functionality of the various data mining and data warehousing component | | | | | | | | | | | |
| CO2 | Appreciate the strengths and limitations of various data mining and data warehousing models | | | | | | | | | | | |
| CO3 | Explain the analyzing techniques of various data | | | | | | | | | | | |
| CO4 | Describe different methodologies used in data mining and data ware housing. | | | | | | | | | | | |
| CO5 | Compare different approaches of data ware housing and data mining with various technologies. | | | | | | | | | | | |
| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
| KOE 093 : Data Mining and Warehousing | | | | | | | | | | | | |
| CO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 2 | - | 2 | 3 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| CO2 | 3 | 2 | 2 | 2 | 3 | 2 | - | - | 3 | - | - | - |
| CO3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 | 3 | 2 | 2 | - | 3 |
| CO4 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | - | 2 | - | - | - |
| CO5 | - | 2 | 3 | 2 | 3 | 2 | 2 | 3 | 2 | - | 2 | 3 |
| Average | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 3 | 2 | 2 | 2 | 3 |


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COURSE OUTCOME (2022-2023)

B. Tech IV (Semester VIII)

KIT 851: Project II

| CO | Course Outcomes |
|-----|--|
| CO1 | The students are able to work effectively in teams to accomplish a common goal. |
| CO2 | The students are able to develop the ability to communicate effectively with a wide range of audience. |
| CO3 | The students acquire the knowledge to undertake technical, research tasks and ethical response responsibilities to develop a software or hardware product. |
| CO4 | The students apply the knowledge for developing a business plan for an entrepreneurial venture and its implementation. |
| CO5 | The students develop the ability of self-learning and apply it in life- long learning. |

Mapping of Course outcomes with Program outcomes

KIT 851 : Project II

| CO | Program outcomes(PO) | | | | | | | | | | | |
|---------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | - | - | 3 | 3 | 3 | 2 | - | - | 3 | 3 | 3 | 3 |
| CO2 | - | - | - | - | - | - | - | - | 3 | 3 | 2 | 3 |
| CO3 | 3 | 3 | 3 | 3 | 3 | 2 | - | 3 | 3 | 3 | 3 | 3 |
| CO4 | 3 | 3 | 3 | 3 | 3 | - | 2 | 3 | 2 | 3 | 3 | 2 |
| CO5 | 3 | 3 | 3 | 2 | 3 | - | 2 | - | 3 | - | 2 | 3 |
| Average | 3 | 3 | 3 | 2.7 | 3 | 2 | 2 | 3 | 2.8 | 3 | 2.6 | 2.8 |


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DEPARTMENT OF INFORMATION TECHNOLOGY AVERAGE OF PROGRAM OUTCOMES (2022-2023)

| S.N. | YEAR | SEMESTER | Subjects With Codes | Program Outcomes | | | | | | | | | | | |
|------|----------------------|--------------|---------------------------------|------------------|-----|-----|------|-----|-----|-----|-----|-----|------|------|------|
| | | | | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| 1 | B.Tech (IT) 2nd Year | III SEMESTER | MATH (KAS 302) | 2.2 | 2.2 | 2 | 2 | 2 | - | 1 | - | - | - | 1.33 | 1 |
| | | | UHV (KVE 301) | 2 | 2 | 2 | - | 2 | 2 | 1 | - | - | - | 1 | - |
| | | | DS (KCS 301) | 3 | 3 | 2.1 | 2.6 | 1.8 | 1.4 | 1 | 1 | 1.2 | 1.2 | 1.2 | 2.1 |
| | | | COA (KCS 301) | 2.4 | 2.4 | 1.6 | 1 | 2 | 1 | 1 | - | 1 | - | 1 | 1 |
| | | | DST (KCS 303) | 3 | 2.4 | 2.1 | 2.6 | 2.6 | 2 | 1.6 | 1 | 1 | 1 | 1 | 2 |
| | | | PYTHON PROGRAMMING (KNC 302) | 2.8 | 3 | 2.8 | 2.75 | 3 | 2.7 | 2.4 | 2 | 2.8 | - | - | 3 |
| | | IV SEMESTER | DE (KOE 049) | 2 | 2 | 1.8 | - | 2 | 1 | 2 | - | - | - | 1 | - |
| | | | TE (KAS 401) | 1.2 | 1.4 | 2.6 | 1.2 | 1.6 | 1.4 | 1.8 | 1.6 | - | 2 | - | 2.4 |
| | | | WD (KIT 401) | 2.4 | 2.4 | 2.8 | 2 | 2.6 | 3 | 2.6 | 1.4 | 2.4 | 1 | 1 | 2.6 |
| | | | OS (KCS 401) | 2.4 | 2 | 1.2 | 2.2 | 2.6 | 1 | 1 | 1 | 1 | 2.6 | 2.2 | 2.6 |
| | | | CSS (KNC 401) | 2.2 | 2.6 | 2 | 2.2 | 2.5 | 3 | - | 2 | - | - | - | 3 |
| | | | TAFL (KCS 402) | 3 | 3 | 3 | 2 | 3 | - | - | - | - | 2 | - | 3 |
| 2 | B.Tech (IT) 3RD Year | V SEMESTER | DBMS (KCS 501) | 2.8 | 2.6 | 3 | 3 | 2 | 1.4 | 1.4 | 1.4 | 2 | 2 | 2.4 | 2 |
| | | | DAA (KCS 503) | 3 | 3 | 2.8 | 2.8 | 2.6 | 1 | 1 | - | - | - | 1 | 2.6 |
| | | | OOP (KCS 054) | 3 | 2 | 3 | 3 | 2 | 2 | 2 | - | - | - | 2 | 2 |
| | | | WEB TECHNOLOGY (KIT 501) | 2.6 | 3 | 2 | 2.4 | 3 | 1.6 | 1.3 | - | 2.2 | 1.8 | 2.2 | 2.4 |
| | | | ASC (KCS 056) | 3 | 3 | 2 | 3 | 3 | 2 | - | 2 | - | - | - | 2 |
| | | | CONSTITUTION OF INDIA (KNC 501) | - | - | - | 2 | 2 | - | 3 | 3 | - | - | 2 | 3 |
| | | VI SEMESTER | DA (KIT 601) | 3 | 3 | 3 | 3 | 3 | - | 2 | 3 | 2 | 3 | 2 | 2 |
| | | | COMPUTER NETWORK (KCS 603) | 2.6 | 2.8 | 2.6 | 1.8 | 2.8 | 1.3 | 1 | 1 | 1.5 | 2.8 | - | 2.2 |
| | | | SOFTWARE ENGINEERING (KCS 601) | 2 | 2 | 3 | 2 | 2 | - | - | 1 | 2 | 2 | 2 | 1 |
| | | | BIG DATA (KCS 061) | 3 | - | 3 | - | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| | | | SPM (KOE 068) | 2.8 | 2.4 | 2.6 | 2.8 | 2.8 | 3 | 2.8 | 2.5 | 3 | 2.75 | 2 | 2.6 |
| | | | ITCS (KNC 602) | - | 2 | 2 | - | - | 2 | 2 | - | - | - | 2 | 2 |

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|---|----------------------|----------------|----------------------------|-----|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 3 | B.Tech (IT) 4th Year | VII SEMESTER | RURAL DEVLOPMENT (KHU 701) | - | - | 2 | - | 2 | 2 | 2 | - | 2 | - | - | 2 | | |
| | | | AI (KCS 071) | 3 | 3 | 2.6 | 3 | 2.8 | 3 | 1.8 | 1.3 | 2 | 2 | 1.6 | 3 | | |
| | | | ML (KOE 073) | 3 | 3 | 3 | 2 | 2 | - | 2 | - | - | - | 1 | 2 | | |
| | | | CC (KCS 713) | 3 | 2 | 3 | - | 3 | 2 | - | - | - | 3 | 2 | 2 | | |
| | | VIII SEM. | PME (KHU 802) | - | - | 2 | - | 2 | 2 | 2 | - | 2 | - | - | 2 | | |
| | | | QM (KOE 085) | 2.4 | - | - | 2.4 | 2.6 | 2 | 2.2 | 2 | 2 | 2 | 2 | 2.4 | | |
| | | | DMW (KOE 093) | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 3 | 2 | 2 | 2 | 3 | | |
| | | AVERAGE | | | | 2.6 | 2.5 | 2.4 | 2.4 | 2.5 | 2.0 | 1.8 | 1.8 | 2.0 | 2.1 | 1.7 | 2.3 |


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SAMPLE OF COPO MAPPING

**Department of
Mechanical
Engineering**

Engineering Graduates will be able to: -

- 1. Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
 - 2. Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
 - 3. Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
 - 4. Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
 - 5. Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
 - 6. The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
 - 7. Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
 - 8. Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
 - 9. Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
 - 10. Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
 - 11. Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
 - 12. Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.
- COs to be mapped with POs in Matrix form.
 - Correlation levels 1, 2, 3 as defined (1: low, 2: Moderate, 3: High).
 - COs will be mapped with POs on the basis of above-mentioned levels.
 - If there is no correlation, put “-” or left blank or put zero.




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R.D. ENGINEERING COLLEGE, GHAZIABAD
DEPARTMENT OF MECHANICAL ENGINEERING
COURSE OUTCOME (2022-23)

KME301: Thermodynamics

| CO | CO Statement |
|-----|---|
| CO1 | To apply energy balance to systems and control volumes, in situations involving heat and work interactions. |
| CO2 | To evaluate changes in thermodynamic properties of substances. |
| CO3 | The students will be able to evaluate the performance of energy conversion devices. |
| CO4 | To differentiate between high grade and low-grade energies. |
| CO5 | To evaluate the changes in properties of substances in various processes. |

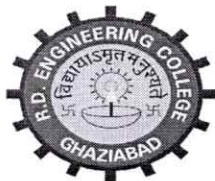
Mapping of Course Outcomes with Program Outcomes

KME301: Thermodynamics

| PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| CO | | | | | | | | | | | | |
| CO1 | 3 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| CO2 | 3 | 2 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| CO3 | 3 | 3 | 2 | 3 | 2 | 2 | - | - | - | - | - | 1 |
| CO4 | 2 | 3 | 3 | 3 | 3 | 1 | - | - | - | - | - | 2 |
| CO5 | 3 | 2 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| Average | 2.8 | 2.6 | 2.8 | 3 | 2.2 | 1.2 | - | - | - | - | - | 1.8 |




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COURSE OUTCOME (2022-23)

KME302: Fluid Mechanics & Fluid Machines

| CO | CO Statement |
|------|--|
| CO 1 | To mathematically analyze simple flow situations. |
| CO 2 | To learn about the application of mass and momentum conservation laws for fluid flows. |
| CO 3 | To understand the importance of dimensional analysis. |
| CO 4 | To obtain the velocity and pressure variations in various types of simple flows |
| CO 5 | To analyze the flow in water pumps and turbines. |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KME302 : Fluid Mechanics & Fluid Machines | | | | | | | | | | | | |
| PO \ CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| CO2 | 2 | 3 | 3 | 3 | 2 | 2 | - | - | - | - | - | 2 |
| CO3 | 3 | 2 | 2 | 3 | 1 | 2 | - | - | - | - | - | 1 |
| CO4 | 3 | 3 | 2 | 3 | 3 | 1 | - | - | - | - | - | 1 |
| CO5 | 2 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| Average | 2.6 | 2.8 | 2.6 | 3 | 2.0 | 1.4 | - | - | - | - | - | 1.6 |




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R.D. ENGINEERING COLLEGE, GHAZIABAD
DEPARTMENT OF MECHANICAL ENGINEERING
COURSE OUTCOME (2022-23)

KME303: MATERIALS ENGINEERING

| CO | CO Statement |
|------|--|
| CO 1 | Student will be able to identify crystal structures for various materials and understand the defects in such structures. |
| CO 2 | Understand how to tailor material properties of ferrous and non-ferrous alloys. |
| CO 3 | To provide a detailed interpretation of equilibrium phase diagrams. How to quantify mechanical integrity and failure in materials. |
| CO 4 | Learning about different phases and heat treatment methods to tailor the properties of Fe-C alloys. |
| CO 5 | Understanding of the correlation between the internal structure of materials, their mechanical properties and various methods to quantify their mechanical integrity and failure criteria. |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KME303: MATERIALS ENGINEERING | | | | | | | | | | | | |
| PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO | | | | | | | | | | | | |
| CO1 | 3 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| CO2 | 3 | 3 | 3 | 3 | 2 | 2 | - | - | - | - | - | 2 |
| CO3 | 2 | 2 | 2 | 3 | 3 | 2 | - | - | - | - | - | 2 |
| CO4 | 3 | 3 | 2 | 2 | 3 | 1 | - | - | - | - | - | 1 |
| CO5 | 2 | 2 | 3 | 3 | 2 | 2 | - | - | - | - | - | 2 |
| Average | 2.6 | 2.8 | 2.6 | 2.8 | 2.4 | 1.8 | - | - | - | - | - | 1.8 |




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R.D. ENGINEERING COLLEGE, GHAZIABAD
DEPARTMENT OF MECHANICAL ENGINEERING
COURSE OUTCOME (2022-23)

KME303: MATERIALS ENGINEERING

| CO | CO Statement |
|------|--|
| CO 1 | Student will be able to identify crystal structures for various materials and understand the defects in such structures. |
| CO 2 | Understand how to tailor material properties of ferrous and non-ferrous alloys. |
| CO 3 | To provide a detailed interpretation of equilibrium phase diagrams. How to quantify mechanical integrity and failure in materials. |
| CO 4 | Learning about different phases and heat treatment methods to tailor the properties of Fe-C alloys. |
| CO 5 | Understanding of the correlation between the internal structure of materials, their mechanical properties and various methods to quantify their mechanical integrity and failure criteria. |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KME303: MATERIALS ENGINEERING | | | | | | | | | | | | |
| PO \ CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| CO2 | 3 | 3 | 3 | 3 | 2 | 2 | - | - | - | - | - | 2 |
| CO3 | 2 | 2 | 2 | 3 | 3 | 2 | - | - | - | - | - | 2 |
| CO4 | 3 | 3 | 2 | 2 | 3 | 1 | - | - | - | - | - | 1 |
| CO5 | 2 | 2 | 3 | 3 | 2 | 2 | - | - | - | - | - | 2 |
| Average | 2.6 | 2.8 | 2.6 | 2.8 | 2.4 | 1.8 | - | - | - | - | - | 1.8 |




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DEPARTMENT OF MECHANICAL ENGINEERING
COURSE OUTCOME (2022-23)

KME351: FLUID MECHANICS LAB

| CO | CO Statement |
|------|--|
| CO 1 | To measure various properties of fluids and characterize the performance of fluid/thermal machinery. |
| CO 2 | To understand the principles and performance characteristics of flow and thermal devices |
| CO 3 | To know about the measurement of the fluid properties. |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KME351: FLUID MECHANICS LAB | | | | | | | | | | | | |
| CO \ PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 3 | 2 | 3 | 1 | - | - | - | - | - | 1 |
| CO2 | 3 | 2 | 3 | 2 | 2 | 2 | - | - | - | - | - | 1 |
| CO3 | 3 | 3 | 3 | 3 | 3 | 1 | - | - | - | - | - | 2 |
| Average | 3 | 2.6 | 3 | 2.3 | 2.6 | 1.2 | - | - | - | - | - | 1.2 |




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COURSE OUTCOME (2022-23)

KAS302: MATHS IV

| CO | CO Statement |
|-----|---|
| CO1 | Remember the concept of partial differential equation and to solve partial differential equations |
| CO2 | Analyze the concept of partial differential equations to evaluate the problems concerned with partial differential equations. |
| CO3 | Understand the concept of correlation, moments, skewness and curve fitting |
| CO4 | Remember the concept of probability to evaluate probability distributions |
| CO5 | Apply the concept of hypothesis testing and statistical quality control to create control charts |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KAS302: MATHS IV | | | | | | | | | | | | |
| PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO | | | | | | | | | | | | |
| CO1 | 2 | 2 | 2 | - | 2 | - | - | - | - | - | - | 1 |
| CO2 | 3 | 3 | 2 | 2 | - | - | - | - | - | - | - | 1 |
| CO3 | 2 | 2 | 2 | 2 | - | - | - | - | - | - | 1 | 1 |
| CO4 | 2 | 2 | - | 2 | 2 | - | - | - | - | - | 1 | 1 |
| CO5 | 2 | 2 | - | - | 2 | - | 1 | - | - | - | 2 | 1 |
| Average | 2.2 | 2.2 | 2 | 2 | 2 | - | 1 | - | - | - | 1.33 | 1 |




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COURSE OUTCOME (2022-23)

KVE 301: Universal Human Value

| CO | Course Outcomes |
|-----|---|
| CO1 | Understand the significance of value inputs in a classroom, distinguish between values and skills, understand the need, basic guidelines, content of value education, explore the meaning of happiness and prosperity and do a correct appraisal of the current scenario in the society |
| CO2 | Distinguish between the Self and the Body, understand the meaning of Harmony in the Self the Co-existence of Self and Body. |
| CO3 | Understand the value of harmonious relationship based on trust, respect and other naturally acceptable feelings in human-human relationships and explore their role in ensuring a harmonious society. |
| CO4 | Understand the harmony in nature and existence, and work out their mutually fulfilling participation in the nature. |
| CO5 | Distinguish between ethical and unethical practices, and start working out the strategy to actualize a harmonious environment wherever they work. |

| Mapping of Course outcomes with Program outcomes | | | | | | | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KVE 301: Universal Human Value | | | | | | | | | | | | |
| CO \ PO | Program outcomes(PO) | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | - | - | - | - | 2 | 1 | 1 | 1 | 3 | - | 1 | - |
| CO2 | - | - | - | - | - | 1 | - | 1 | 3 | - | - | - |
| CO3 | - | - | - | - | - | 1 | 1 | 1 | 3 | - | 1 | - |
| CO4 | - | - | - | - | - | 1 | - | 1 | 3 | - | 1 | - |
| CO5 | - | - | - | - | 2 | 1 | - | 1 | 3 | - | - | - |
| Average | - | - | - | - | 2 | 1 | 1 | 1 | 3 | - | 1 | - |




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COURSE OUTCOME (2022-23)

KME354: :- Mini Project or Internship Assessment

| CO | CO Statement |
|-----|---|
| CO1 | Be acquainted with appropriate utility. To inculcate the habit of observing social problems and searching for a possible sustainable eco friendly solution. |
| CO2 | Apply fundamental principles of science and engineering to design and fabricate models for diversified applications. |
| CO3 | To enhance team spirit and improve the ability of students to work together for solution of common engineering problem. To improve ability of students for the selection of material and manufacturing process and approach for solving an engineering problem with minimum cost. |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KME354: :- Mini Project or Internship Assessment | | | | | | | | | | | | |
| CO \ PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 2 | 2 | - | - | - | - | - | - | - | - | - | 1 |
| CO2 | 2 | | 2 | 2 | | - | - | - | 2 | 2 | - | - |
| CO3 | 2 | 2 | 2 | - | - | - | - | - | 2 | 2 | - | 1 |
| Average | 2 | 2 | 2 | 2 | 2 | 2 | 2 | - | 2 | 2 | - | 1 |




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COURSE OUTCOME (2022-23)

KME353: COMPUTER AIDED MACHINE DRAWING-I LAB

| CO | CO Statement |
|------|---|
| CO 1 | To provide an overview of how computers can be utilized in mechanical component design. |
| CO2 | The students can use computer and CAD software for modeling Mechanical components. |
| CO 3 | The students can use computer and CAD software for assembling Mechanical components. |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KME353: COMPUTER AIDED MACHINE DRAWING-I LAB | | | | | | | | | | | | |
| PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO | | | | | | | | | | | | |
| CO1 | 2 | 3 | 3 | 2 | 3 | 1 | - | - | - | - | - | 1 |
| CO2 | 2 | 2 | 2 | 2 | 2 | 2 | - | - | - | - | - | 2 |
| CO3 | 3 | 3 | 3 | 2 | 3 | 1 | - | - | - | - | - | 1 |
| Average | 2.3 | 2.6 | 2.6 | 2.0 | 2.6 | 1.2 | - | - | - | - | - | 1.3 |




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COURSE OUTCOME (2022-23)

KME401: Applied Thermodynamics

| CO | CO Statement |
|-----|---|
| CO1 | The students will get a good understanding of various practical power cycles and heat pump cycles. To learn about of I law for reacting systems and heating value of fuels . |
| CO2 | To analyze energy conversion in various thermal devices such as combustors, air coolers, nozzles, diffusers, steam turbines and reciprocating compressors. To learn about gas and vapor cycles and their first law and second law efficiencies. |
| CO3 | To understand phenomena occurring in high speed compressible flows. To understand about the properties of dry and wet air and the principles of psychometric. |
| CO4 | To learn about gas dynamics of air flow and steam through nozzles |
| CO5 | To analyze the performance of steam turbines. |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KME401: Applied Thermodynamics | | | | | | | | | | | | |
| PO \ CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| CO2 | 3 | 2 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| CO3 | 3 | 3 | 2 | 3 | 2 | 2 | - | - | - | - | - | 1 |
| CO4 | 2 | 3 | 3 | 3 | 3 | 1 | - | - | - | - | - | 2 |
| CO5 | 3 | 2 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| Average | 2.8 | 2.6 | 2.8 | 3 | 2.2 | 1.2 | - | - | - | - | - | 1.8 |




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COURSE OUTCOME (2022-23)

KME402: Engineering Mechanics

| CO | CO Statement |
|------|--|
| CO 1 | To understand the various effect of force on the engineering design structures |
| CO 2 | To understand the various effect o motion on the engineering design structures |
| CO 3 | To understand Centroid and moment of inertia. |
| CO 4 | To understand about SFD and BMD. |
| CO 5 | To understand Simple stress and strain, Pure bending of beams and torsion |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KME402: Engineering Mechanics | | | | | | | | | | | | |
| PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO | | | | | | | | | | | | |
| CO1 | 3 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| CO2 | 3 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| CO3 | 3 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| CO4 | 3 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| CO5 | 3 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| Average | 3 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |




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COURSE OUTCOME (2022-23)

KME403: Manufacturing Processes

| CO | CO Statement |
|------|--|
| CO 1 | To understand the different casting methods employed for making different products |
| CO 2 | To understand about the tool geometry, tool life and different machining operation. |
| CO 3 | To understand the grinder and different grinding processes and super finishing. |
| CO 4 | To understand different joining processes. |
| CO 5 | To understand the different conventional and unconventional manufacturing methods employed for making different products |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KME403: Manufacturing Processes | | | | | | | | | | | | |
| PO \ CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| CO2 | 3 | 2 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| CO3 | 3 | 3 | 2 | 3 | 2 | 2 | - | - | - | - | - | 1 |
| CO4 | 2 | 3 | 3 | 3 | 3 | 1 | - | - | - | - | - | 2 |
| CO5 | 3 | 2 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| Average | 2.8 | 2.6 | 2.8 | 3 | 2.2 | 1.2 | - | - | - | - | - | 1.8 |




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COURSE OUTCOME (2022-23)

KME451: APPLIED THERMODYNAMICS LAB

| CO | CO Statement |
|------|---|
| CO 1 | To identify various properties of system |
| CO 2 | To understand the principles of various boilers and engines. |
| CO 3 | To understand the performance of various boilers and engines. |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KME451: APPLIED THERMODYNAMICS LAB | | | | | | | | | | | | |
| PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO | | | | | | | | | | | | |
| CO1 | 2 | 3 | 3 | 2 | 3 | 1 | - | - | - | - | - | 1 |
| CO2 | 3 | 2 | 3 | 2 | 2 | 2 | - | - | - | - | - | 1 |
| CO3 | 3 | 3 | 3 | 2 | 3 | 1 | - | - | - | - | - | 1 |
| Average | 2.6 | 2.6 | 3 | 2.0 | 2.6 | 1.2 | - | - | - | - | - | 1 |




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COURSE OUTCOME (2022-23)

KME452: MANUFACTURING PROCESS LAB

| CO | CO Statement |
|------|--|
| CO 1 | To understand the different conventional and unconventional manufacturing methods. |
| CO 2 | To develop an appreciation of the processes in correlation with material properties which change the shape, size and form of the raw materials into the desirable product by conventional methods. |
| CO 3 | To develop an appreciation of the processes in with material properties which change the shape, size and form of the raw materials into the desirable product by unconventional manufacturing methods. |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KME452: MANUFACTURING PROCESS LAB | | | | | | | | | | | | |
| PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 2 | 3 | 3 | 2 | 3 | 1 | - | - | - | - | - | 1 |
| CO2 | 3 | 3 | 2 | 2 | 2 | 2 | - | - | - | - | - | 1 |
| CO3 | 3 | 3 | 3 | 2 | 3 | 1 | - | - | - | - | - | 1 |
| Average | 2.6 | 3 | 2.6 | 2.0 | 2.6 | 1.2 | - | - | - | - | - | 1 |




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COURSE OUTCOME (2022-23)

KME453: COMPUTER AIDED MACHINE DRAWING-II LAB

| CO | CO Statement |
|------|---|
| CO 1 | To provide an overview of how computers can be utilized in mechanical component design. |
| CO 2 | The students can use computer and CAD software for modeling Mechanical components. |
| CO 3 | The students can use computer and CAD software for assembling Mechanical components |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KME453: COMPUTER AIDED MACHINE DRAWING-II LAB | | | | | | | | | | | | |
| PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO | | | | | | | | | | | | |
| CO1 | 3 | 3 | 3 | 2 | 3 | 1 | - | - | - | - | - | 1 |
| CO2 | 3 | 2 | 3 | 3 | 2 | 2 | - | - | - | - | - | 2 |
| CO3 | 3 | 3 | 3 | 2 | 3 | 1 | - | - | - | - | - | 1 |
| Average | 3 | 2.6 | 3 | 2.3 | 2.6 | 1.2 | - | - | - | - | - | 1.3 |




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COURSE OUTCOME (2022-23)

KOE043 : Energy Science & Engineering

| CO | CO Statement |
|------|---|
| CO 1 | To know about different Energy and its Usage |
| CO 2 | To know about Nuclear Energy and its Usage |
| CO 3 | To know about Solar Energy and its Usage |
| CO 4 | To know about Conventional & non-conventional energy source and its Usage |
| CO 5 | To know about Systems and Synthesis and its Usage |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KOE043 : Energy Science & Engineering | | | | | | | | | | | | |
| PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO | | | | | | | | | | | | |
| CO1 | 3 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| CO2 | 3 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| CO3 | 3 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| CO4 | 3 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| CO5 | 3 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| Average | 3 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |




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R.D. ENGINEERING COLLEGE, GHAZIABAD
DEPARTMENT OF MECHANICAL ENGINEERING
COURSE OUTCOME (2022-23)

KAS401: Technical Communication

| CO | CO Statement |
|------|--|
| CO 1 | Students will be enabled to understand the nature and objective of Technical Communication relevant for the work place as Engineers. |
| CO 2 | Students will utilize the technical writing for the purposes of Technical Communication and its exposure in various dimensions. |
| CO 3 | Students would imbibe inputs by presentation skills to enhance confidence in face of diverse audience. |
| CO 4 | Technical communication skills will create a vast know-how of the application of the learning to promote their technical competence. |
| CO 5 | It would enable them to evaluate their efficacy as fluent & efficient communicators by learning the voice-dynamics. |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KAS401: Technical Communication | | | | | | | | | | | | |
| PO \ CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 1 | 2 | 3 | 1 | 2 | 1 | 2 | 2 | - | 2 | - | 2 |
| CO2 | 1 | 2 | 3 | 1 | 2 | 2 | 2 | 1 | - | 2 | - | 2 |
| CO3 | 1 | 1 | 2 | 1 | 1 | 2 | 2 | 2 | - | 2 | - | 3 |
| CO4 | 2 | 1 | 3 | 2 | 1 | 1 | 2 | 1 | - | 2 | - | 3 |
| CO5 | 1 | 1 | 2 | 1 | 2 | 1 | 1 | 2 | - | 2 | - | 2 |
| Average | 1.2 | 1.4 | 2.6 | 1.2 | 1.6 | 1.4 | 1.8 | 1.6 | - | 2 | - | 2.4 |




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COURSE OUTCOME (2022-23)

KME501: Heat and Mass Transfer

| CO | CO Statement |
|-----|--|
| CO1 | Understand the fundamentals of heat and mass transfer. |
| CO2 | Apply the concept of steady and transient heat conduction. |
| CO3 | Apply the concept of thermal behavior of fins. |
| CO4 | Apply the concept of forced and free convection. |
| CO5 | Apply the concept of radiation for black and non-black bodies. Conduct thermal analysis of heat exchangers |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KME501: Heat and Mass Transfer | | | | | | | | | | | | |
| PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO | | | | | | | | | | | | |
| CO1 | 3 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| CO2 | 3 | 2 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| CO3 | 3 | 3 | 2 | 3 | 2 | 2 | - | - | - | - | - | 1 |
| CO4 | 2 | 3 | 3 | 3 | 3 | 1 | - | - | - | - | - | 2 |
| CO5 | 3 | 2 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| Average | 2.8 | 2.6 | 2.8 | 3 | 2.2 | 1.2 | - | - | - | - | - | 1.8 |




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COURSE OUTCOME (2022-23)

KME502: Strength of Material

| CO | CO Statement |
|-----|--|
| CO1 | Understand the concept of stress and strain under different conditions of loading |
| CO2 | Determine the principal stresses and strains in structural members |
| CO3 | Determine the stresses and strains in the members subjected to axial, bending and |
| CO4 | Apply the concepts of stresses and strain in solving problems related to springs, torsional loads column and pressure vessels |
| CO5 | Calculate the slope, deflection and buckling of loaded members . Analyze the stresses developed in straight and curved beams of different cross sections |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KME502: Strength of Material | | | | | | | | | | | | |
| PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO | | | | | | | | | | | | |
| CO1 | 3 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| CO2 | 3 | 3 | 3 | 3 | 2 | 2 | - | - | - | - | - | 2 |
| CO3 | 2 | 2 | 2 | 3 | 3 | 2 | - | - | - | - | - | 2 |
| CO4 | 3 | 3 | 2 | 2 | 3 | 1 | - | - | - | - | - | 1 |
| CO5 | 2 | 2 | 3 | 3 | 2 | 2 | - | - | - | - | - | 2 |
| Average | 2.6 | 2.8 | 2.6 | 2.8 | 2.4 | 1.8 | - | - | - | - | - | 1.8 |




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COURSE OUTCOME (2022-23)

KME503: Industrial Engineering

| CO | CO Statement |
|-----|--|
| CO1 | Understand the concept of production system, productivity, facility and process planning in various industries |
| CO2 | Apply the various forecasting and project management techniques |
| CO3 | Apply the concept of break-even analysis, inventory control and resource utilization using queuing theory |
| CO4 | Apply principles of work study and ergonomics for design of work systems |
| CO5 | Formulate mathematical models for optimal solution of industrial problems using linear programming approach |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KME503: Industrial Engineering | | | | | | | | | | | | |
| PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO | | | | | | | | | | | | |
| CO1 | 3 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| CO2 | 2 | 3 | 3 | 3 | 2 | 2 | - | - | - | - | - | 2 |
| CO3 | 3 | 2 | 2 | 3 | 1 | 2 | - | - | - | - | - | 1 |
| CO4 | 3 | 3 | 2 | 3 | 3 | 1 | - | - | - | - | - | 1 |
| CO5 | 2 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| Average | 2.6 | 2.8 | 2.6 | 3 | 2.0 | 1.4 | - | - | - | - | - | 1.6 |




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COURSE OUTCOME (2022-23)

KME551: Heat and Mass Transfer Lab

| CO | CO Statement |
|-----|---|
| CO1 | Apply the concept of conductive heat transfer. |
| CO2 | Apply empirical correlations for both forced and free convection to determine the value of convection heat transfer coefficient |
| CO3 | Apply the concept of radiation heat transfer for black and grey body. |
| CO4 | Analyze the thermal behaviour of parallel or counter flow heat exchangers. |
| CO5 | Conduct thermal analysis of a heat pipe.. |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KME551: Heat and Mass Transfer Lab | | | | | | | | | | | | |
| PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO | | | | | | | | | | | | |
| CO1 | 2 | 3 | 3 | 2 | 3 | 1 | - | - | - | - | - | 1 |
| CO2 | 2 | 2 | 2 | 2 | 2 | 2 | - | - | - | - | - | 2 |
| CO3 | 3 | 3 | 3 | 2 | 3 | 1 | - | - | - | - | - | 1 |
| Average | 2.3 | 2.6 | 2.6 | 2.0 | 2.6 | 1.2 | - | - | - | - | - | 1.3 |




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COURSE OUTCOME (2022-23)

KME552: Python Lab

| CO | CO Statement |
|-----|---|
| CO1 | Apply conditional statement, loops condition and functions in python program. |
| CO2 | Solve mathematical and mechanical problems using python program. |
| CO3 | Plot various type of chart using python program. Analyze the mechanical problem using python program. |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KME552: Python Lab | | | | | | | | | | | | |
| PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO | | | | | | | | | | | | |
| CO1 | 2 | 3 | 3 | 2 | 3 | 1 | - | - | - | - | - | 1 |
| CO2 | 2 | 2 | 2 | 2 | 2 | 2 | - | - | - | - | - | 2 |
| CO3 | 3 | 3 | 3 | 2 | 3 | 1 | - | - | - | - | - | 1 |
| Average | 2.3 | 2.6 | 2.6 | 2.0 | 2.6 | 1.2 | - | - | - | - | - | 1.3 |




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COURSE OUTCOME (2022-23)

KME553: Internet of Things Lab

| CO | CO Statement |
|-----|---|
| CO1 | Understand Internet of Things and its hardware and software components. |
| CO2 | Interface I/O devices, sensors & communication modules. Design prototype of IoT based smart system. |
| CO3 | Remotely monitor data and control devices. Develop IoT based projects for real life problem. |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KME553: Internet of Things Lab | | | | | | | | | | | | |
| PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO | | | | | | | | | | | | |
| CO1 | 2 | 3 | 3 | 2 | 3 | 1 | - | - | - | - | - | 1 |
| CO2 | 3 | 2 | 3 | 2 | 2 | 2 | - | - | - | - | - | 1 |
| CO3 | 3 | 3 | 3 | 2 | 3 | 1 | - | - | - | - | - | 1 |
| Average | 2.6 | 2.6 | 3 | 2.0 | 2.6 | 1.2 | - | - | - | - | - | 1 |




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COURSE OUTCOME (2022-23)

KME554: :- Mini Project or Internship Assessment

| CO | CO Statement |
|-----|---|
| CO1 | Be acquainted with appropriate utility. To inculcate the habit of observing social problems and searching for a possible sustainable eco friendly solution. |
| CO2 | Apply fundamental principles of science and engineering to design and fabricate models for diversified applications. |
| CO3 | To enhance team spirit and improve the ability of students to work together for solution of common engineering problem. To improve ability of students for the selection of material and manufacturing process and approach for solving an engineering problem with minimum cost. |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KME554: :- Mini Project or Internship Assessment | | | | | | | | | | | | |
| PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO | | | | | | | | | | | | |
| CO1 | 2 | 2 | - | - | - | - | - | - | - | - | - | 1 |
| CO2 | 2 | - | 2 | 2 | - | - | - | - | 2 | 2 | - | |
| CO3 | 2 | 2 | 2 | - | - | - | - | - | 2 | 2 | - | 1 |
| Average | 2 | 2 | 2 | 2 | 2 | 2 | 2 | - | 2 | 2 | - | 1 |




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COURSE OUTCOME (2022-23)

KME 054: I C Engine, Fuel and Lubrication

| CO | CO Statement |
|------|---|
| CO 1 | Explain the working principle, performance parameters and testing of IC Engine. |
| CO 2 | Understand the combustion phenomena in SI and CI engines and factors influencing combustion chamber design. |
| CO 3 | Understand the essential systems of IC engine and latest trends and developments in IC Engines. |
| CO 4 | Understand the effect of engine emissions on environment and human health and methods of reducing it. |
| CO 5 | Apply the concepts of thermodynamics to air standard cycle in IC Engines . Analyze the effect of various operating parameters on IC engine performance. |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KME 054: I C Engine, Fuel and Lubrication | | | | | | | | | | | | |
| PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO | | | | | | | | | | | | |
| CO1 | 3 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| CO2 | 3 | 3 | 3 | 3 | 2 | 2 | - | - | - | - | - | 2 |
| CO3 | 2 | 2 | 2 | 3 | 3 | 2 | - | - | - | - | - | 2 |
| CO4 | 3 | 3 | 2 | 2 | 3 | 1 | - | - | - | - | - | 1 |
| CO5 | 2 | 2 | 3 | 3 | 2 | 2 | - | - | - | - | - | 2 |
| Average | 2.6 | 2.8 | 2.6 | 2.8 | 2.4 | 1.8 | - | - | - | - | - | 1.8 |




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COURSE OUTCOME (2022-23)

KME 055: Advance welding

| CO | CO Statement |
|------|---|
| CO 1 | Understand the physics of arc welding process and various operating characteristics of |
| CO 2 | Analyse various welding processes and their applications. |
| CO 3 | Apply the knowledge of welding for repair & maintenance, along with the weldability of different materials. |
| CO 4 | Apply the concept of quality control and testing of weldments in industrial environment. |
| CO 5 | Evaluate heat flow in welding and physical metallurgy of weldments |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KME 055: Advance welding | | | | | | | | | | | | |
| PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO | | | | | | | | | | | | |
| CO1 | 3 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| CO2 | 2 | 3 | 3 | 3 | 2 | 2 | - | - | - | - | - | 2 |
| CO3 | 3 | 2 | 2 | 3 | 1 | 2 | - | - | - | - | - | 1 |
| CO4 | 3 | 3 | 2 | 3 | 3 | 1 | - | - | - | - | - | 1 |
| CO5 | 2 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| Average | 2.6 | 2.8 | 2.6 | 3 | 2.0 | 1.4 | - | - | - | - | - | 1.6 |




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COURSE OUTCOME (2022-23)

KME 601: Refrigeration & Air Conditioning

| CO | CO Statement |
|-----|---|
| CO1 | Understand the basics concepts of Refrigeration & Air-Conditioning and its future prospects. |
| CO2 | Explain the construction and working of various components in Refrigeration & Air-Conditioning systems. |
| CO3 | Understand the different types of RAC systems with their respective applications. |
| CO4 | Apply the basic laws to the thermodynamic analysis of different processes Involved in Refrigeration and Air-Conditioning. |
| CO5 | Apply the basic concepts to calculate the COP and other performance parameters for different RAC systems . |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KME 601: Refrigeration & Air Conditioning | | | | | | | | | | | | |
| PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO | | | | | | | | | | | | |
| CO1 | 3 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| CO2 | 3 | 3 | 3 | 3 | 2 | 2 | - | - | - | - | - | 2 |
| CO3 | 2 | 2 | 2 | 3 | 3 | 2 | - | - | - | - | - | 2 |
| CO4 | 3 | 3 | 2 | 2 | 3 | 1 | - | - | - | - | - | 1 |
| CO5 | 2 | 2 | 3 | 3 | 2 | 2 | - | - | - | - | - | 2 |
| Average | 2.6 | 2.8 | 2.6 | 2.8 | 2.4 | 1.8 | - | - | - | - | - | 1.8 |




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DEPARTMENT OF MECHANICAL ENGINEERING
COURSE OUTCOME (2022-23)

KME602: Machine Design

| CO | CO Statement |
|------|--|
| CO 1 | Recall the basic concepts of Solid Mechanics to understand the subject. |
| CO 2 | Classify various machine elements based on their functions and applications. |
| CO 3 | Apply the principles of solid mechanics to machine elements subjected to static and fluctuating loads. |
| CO 4 | Analyze forces, bending moments, twisting moments and failure causes in various machine elements to be designed. |
| CO 5 | Design the machine elements to meet the required specification. |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KME602: Machine Design | | | | | | | | | | | | |
| CO \ PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| CO2 | 2 | 3 | 3 | 3 | 2 | 2 | - | - | - | - | - | 2 |
| CO3 | 3 | 2 | 2 | 3 | 1 | 2 | - | - | - | - | - | 1 |
| CO4 | 3 | 3 | 2 | 3 | 3 | 1 | - | - | - | - | - | 1 |
| CO5 | 2 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| Average | 2.6 | 2.8 | 2.6 | 3 | 2.0 | 1.4 | - | - | - | - | - | 1.6 |




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COURSE OUTCOME (2022-23)

KME603: Theory of Machines

| CO | CO Statement |
|-----|---|
| CO1 | Understand the principles of kinematics and dynamics of machines. |
| CO2 | Calculate the velocity and acceleration for 4-bar and slider crank mechanism. |
| CO3 | Develop cam profile for followers executing various types of motions. |
| CO4 | Apply the concept of gear, gear train and flywheel for power transmission. |
| CO5 | Apply dynamic force analysis for slider crank mechanism and balance rotating & reciprocating masses in machines. Apply the concepts of gyroscope, governors in fluctuation of load and brake & dynamometer in power transmission. |

Mapping of Course Outcomes with Program Outcomes

KME603: Theory of Machines

| PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| CO | | | | | | | | | | | | |
| CO1 | 3 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| CO2 | 3 | 2 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| CO3 | 3 | 3 | 2 | 3 | 2 | 2 | - | - | - | - | - | 1 |
| CO4 | 2 | 3 | 3 | 3 | 3 | 1 | - | - | - | - | - | 2 |
| CO5 | 3 | 2 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| Average | 2.8 | 2.6 | 2.8 | 3 | 2.2 | 1.2 | - | - | - | - | - | 1.8 |




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COURSE OUTCOME (2022-23)

KME651: Refrigeration & Air Conditioning Lab

| CO | CO Statement |
|-----|--|
| CO1 | Determine the performance of different refrigeration and air-conditioning systems. |
| CO2 | Apply the concept of psychrometry on different air cooling systems. |
| CO3 | Interpret the use of different components, control systems and tools used in RAC systems Demonstrate the working of practical applications of RAC systems. |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KME651: Refrigeration & Air Conditioning Lab | | | | | | | | | | | | |
| PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO | | | | | | | | | | | | |
| CO1 | 3 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| CO2 | 3 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| CO3 | 3 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| Average | 3 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |




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COURSE OUTCOME (2022-23)

KME652: Machine Design Lab

| CO | CO Statement |
|-----|---|
| CO1 | Apply the principles of solid mechanics to design various machine Elements subjected to static and fluctuating loads. |
| CO2 | Write computer programs and validate it for the design of different machine elements |
| CO3 | Evaluate designed machine elements to check their safety. |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KME652: Machine Design Lab | | | | | | | | | | | | |
| PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO | | | | | | | | | | | | |
| CO1 | 3 | 3 | 3 | 2 | 3 | 1 | - | - | - | - | - | 1 |
| CO2 | 3 | 2 | 3 | 2 | 2 | 2 | - | - | - | - | - | 1 |
| CO3 | 3 | 3 | 3 | 3 | 3 | 1 | - | - | - | - | - | 2 |
| Average | 3 | 2.6 | 3 | 2.3 | 2.6 | 1.2 | - | - | - | - | - | 1.2 |




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COURSE OUTCOME (2022-23)

KME653: Theory of Machines Lab

| CO | CO Statement |
|-----|--|
| CO1 | Demonstrate various mechanisms, their inversions and brake and clutches in Automobiles. Apply the concept of governors to control the fuel supply in engine. |
| CO2 | Apply cam-follower mechanism to get desired motion of follower. |
| CO3 | Apply the concepts of gears and gear train to get desired velocity ratio for power transmission. Determine the balancing load in static and dynamic balancing problem. |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KME653: Theory of Machines Lab | | | | | | | | | | | | |
| PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO | | | | | | | | | | | | |
| CO1 | 2 | 3 | 3 | 2 | 3 | 1 | - | - | - | - | - | 1 |
| CO2 | 3 | 2 | 3 | 2 | 2 | 2 | - | - | - | - | - | 1 |
| CO3 | 3 | 3 | 3 | 2 | 3 | 1 | - | - | - | - | - | 1 |
| Average | 2.6 | 2.6 | 3 | 2.0 | 2.6 | 1.2 | - | - | - | - | - | 1 |




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COURSE OUTCOME (2022-23)

KOE068 : SOFTWARE PROJECT MANAGEMENT

| CO | CO Statement |
|------|---|
| CO 1 | Identify project planning objectives, along with various cost/effort estimation models |
| CO 2 | Organize & schedule project activities to compute critical path for risk analysis. |
| CO 3 | Monitor and control project activities. |
| CO 4 | Formulate testing objectives and test plan to ensure good software quality under SEI-CMM. |
| CO 5 | Configure changes and manage risks using project management tools. |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KOE068 : SOFTWARE PROJECT MANAGEMENT | | | | | | | | | | | | |
| PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO | | | | | | | | | | | | |
| CO1 | 3 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| CO2 | 2 | 3 | 3 | 3 | 2 | 2 | - | - | - | - | - | 2 |
| CO3 | 3 | 2 | 2 | 3 | 1 | 2 | - | - | - | - | - | 1 |
| CO4 | 3 | 3 | 2 | 3 | 3 | 1 | - | - | - | - | - | 1 |
| CO5 | 2 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| Average | 2.6 | 2.8 | 2.6 | 3 | 2.0 | 1.4 | - | - | - | - | - | 1.6 |




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COURSE OUTCOME (2022-23)

KME061: Nondestructive Testing

| CO | CO Statement |
|------|--|
| CO1 | Understand the concept of destructive and Non-destructive testing methods. |
| CO 2 | Explain the working principle and application of die penetrant test and magnetic particle inspection |
| CO3 | Understand the working principle of eddy current inspection. |
| CO 4 | Apply radiographic techniques for testing. |
| CO 5 | Apply the principle of Ultrasonic testing and applications in medical and engineering areas. |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KME061: Nondestructive Testing | | | | | | | | | | | | |
| PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO | | | | | | | | | | | | |
| CO1 | 3 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| CO2 | 3 | 3 | 3 | 3 | 2 | 2 | - | - | - | - | - | 2 |
| CO3 | 2 | 2 | 2 | 3 | 3 | 2 | - | - | - | - | - | 2 |
| CO4 | 3 | 3 | 2 | 2 | 3 | 1 | - | - | - | - | - | 1 |
| CO5 | 2 | 2 | 3 | 3 | 2 | 2 | - | - | - | - | - | 2 |
| Average | 2.6 | 2.8 | 2.6 | 2.8 | 2.4 | 1.8 | - | - | - | - | - | 1.8 |




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COURSE OUTCOME (2022-23)

KME071: Additive manufacturing

| CO | CO Statement |
|------------|---|
| CO1 | Understanding the basics of additive manufacturing/rapid prototyping and its advantages and disadvantages . |
| CO2 | Understanding the role of additive manufacturing in the design process and the implications for design. |
| CO3 | Understanding the processes used in additive manufacturing for a range of materials and applications. |
| CO4 | Understand the various software tools, processes and techniques that enable advanced/additive manufacturing and personal fabrication. |
| CO5 | Apply knowledge of additive manufacturing for various real-life applications. |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KME071: Additive manufacturing | | | | | | | | | | | | |
| PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO | | | | | | | | | | | | |
| CO1 | 3 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| CO2 | 3 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| CO3 | 2 | 2 | 2 | 2 | 2 | 1 | - | - | - | - | - | 2 |
| CO4 | 3 | 3 | 2 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| CO5 | 2 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| Average | 2.8 | 2.8 | 2.6 | 2.8 | 2 | 1 | - | - | - | - | - | 2 |




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COURSE OUTCOME (2022-23)

KME076: Power Plant Engineering

| CO | CO Statement |
|-----|---|
| CO1 | Understand the different sources of power generation and their impact on environment. |
| CO2 | Understand the elements of power generation using conventional and non-conventional energy sources. |
| CO3 | Understand the elements of power generation using conventional and non-conventional energy sources. |
| CO4 | Apply the basic concepts of thermodynamics to measure the performance of different power plants. |
| CO5 | Determine the performance of power plants based on load variations. |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KME076: Power Plant Engineering | | | | | | | | | | | | |
| PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO | | | | | | | | | | | | |
| CO1 | 3 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| CO2 | 3 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| CO3 | 3 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| CO4 | 3 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| CO5 | 3 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| Average | 3 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |




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COURSE OUTCOME (2022-23)

KOE074: RENEWABLE ENERGY RESOURCES

| CO | CO Statement |
|-----|--|
| CO1 | Understand the concept of solar cell, material etc. |
| CO2 | Understand the concept of solar thermal energy, solar thermal power plant etc. |
| CO3 | Understand the concept of geothermal and MHD. |
| CO4 | Understand the concept of thermoelectric and thermionic conversion, wind energy concept etc. |
| CO5 | Understand the concept of tidal power plant, OTEC, biomass conversion etc. |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KOE074: RENEWABLE ENERGY RESOURCES | | | | | | | | | | | | |
| PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO | | | | | | | | | | | | |
| CO1 | 3 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| CO2 | 2 | 3 | 3 | 3 | 2 | 2 | - | - | - | - | - | 2 |
| CO3 | 3 | 2 | 2 | 3 | 1 | 2 | - | - | - | - | - | 1 |
| CO4 | 3 | 3 | 2 | 3 | 3 | 1 | - | - | - | - | - | 1 |
| CO5 | 2 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| Average | 2.6 | 2.8 | 2.6 | 3 | 2.0 | 1.4 | - | - | - | - | - | 1.6 |




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COURSE OUTCOME (2022-23)

KME751: Measurement & Metrology Lab

| CO | CO Statement |
|-----|--|
| CO1 | Understand the basic principles of instrumentation for measurement of surface finish, strain, temperature, pressure and flow. |
| CO2 | Understand the principle and operation of Coordinate Measuring Machine (CMM). |
| CO3 | Apply Sine Bar, Slip Gauges, Bevel Protractor, Stroboscope, Dial Indicator etc. for measurement of different attributes. Apply the basic concepts of limits, fits & tolerances for selective assembly. |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KME751: Measurement & Metrology Lab | | | | | | | | | | | | |
| PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO | | | | | | | | | | | | |
| CO1 | 2 | 3 | 3 | 2 | 3 | 1 | - | - | - | - | - | 1 |
| CO2 | 2 | 2 | 2 | 2 | 2 | 2 | - | - | - | - | - | 2 |
| CO3 | 3 | 3 | 3 | 2 | 3 | 1 | - | - | - | - | - | 1 |
| Average | 2.3 | 2.6 | 2.6 | 2.0 | 2.6 | 1.2 | - | - | - | - | - | 1.3 |




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R.D. ENGINEERING COLLEGE, GHAZIABAD
DEPARTMENT OF MECHANICAL ENGINEERING
COURSE OUTCOME (2022-23)

KHU 702: PROJECT MANAGEMENT & ENTREPRENEURSHIP

| CO | CO Statement |
|-----|--|
| CO1 | Understand the basics concepts of Entrepreneurship. |
| CO2 | Understand the basics concepts of Entrepreneurial Idea and Innovation. |
| CO3 | Understand the basics concepts of Project Management. |
| CO4 | Understand the basics concepts of Project Financing. |
| CO5 | Understand the basics concepts of Social Entrepreneurship. |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KHU 702: PROJECT MANAGEMENT & ENTREPRENEURSHIP | | | | | | | | | | | | |
| PO \ CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| CO2 | 3 | 2 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| CO3 | 3 | 3 | 2 | 3 | 2 | 2 | - | - | - | - | - | 1 |
| CO4 | 2 | 3 | 3 | 3 | 3 | 1 | - | - | - | - | - | 2 |
| CO5 | 3 | 2 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| Average | 2.8 | 2.6 | 2.8 | 3 | 2.2 | 1.2 | - | - | - | - | - | 1.8 |




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DEPARTMENT OF MECHANICAL ENGINEERING
COURSE OUTCOME (2022-23)

KME752: :- Mini Project or Internship Assessment

| CO | CO Statement |
|-----|---|
| CO1 | Be acquainted with appropriate utility. To inculcate the habit of observing social problems and Searching for a possible sustainable eco friendly solution. |
| CO2 | Apply fundamental principles of science and engineering to design and fabricate models for diversified applications. |
| CO3 | To enhance team spirit and improve the ability of students to work together for solution of common engineering problem. To improve ability of students for the selection of material and manufacturing process and approach for solving an engineering problem with minimum cost. |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KME752: :- Mini Project or Internship Assessment | | | | | | | | | | | | |
| PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO | | | | | | | | | | | | |
| CO1 | 2 | 2 | - | - | - | - | - | - | - | - | - | 1 |
| CO2 | 2 | - | 2 | 2 | - | - | - | - | 2 | 2 | - | |
| CO3 | 2 | 2 | 2 | - | - | - | - | - | 2 | 2 | - | 1 |
| Average | 2 | 2 | 2 | 2 | 2 | 2 | 2 | - | 2 | 2 | - | 1 |




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COURSE OUTCOME (2022-23)

KME753: :- Project

| CO | CO Statement |
|-----|---|
| CO1 | Identify real world problems of mechanical engineering and related systems. |
| CO2 | Interpret the working of mechanical engineering systems. |
| CO3 | Apply the principles of mechanical engineering in real world systems. |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KME753: :- Project | | | | | | | | | | | | |
| PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO | | | | | | | | | | | | |
| CO1 | 2 | 2 | 2 | 2 | - | - | 2 | 2 | 2 | 2 | - | - |
| CO2 | 2 | 2 | 2 | 2 | - | - | 2 | 2 | 2 | 2 | - | 1 |
| CO3 | 2 | 2 | 2 | 2 | - | - | 2 | 2 | 2 | 2 | - | 1 |
| Average | 2 | 2 | 2 | 2 | 2 | 2 | 2 | - | 2 | 2 | - | 1 |




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COURSE OUTCOME (2022-23)

KHU801::RURAL DEVELOPMENT: ADMINISTRATION AND PLANNING

| CO | CO Statement |
|-----|--|
| CO1 | Students can understand the definitions, concepts and components of Rural Development |
| CO2 | Students will know the importance, structure, significance, resources of Indian rural economy. |
| CO3 | Students will have a clear idea about the area development programmes and its impact. |
| CO4 | Students will be able to acquire knowledge about rural entrepreneurship. |
| CO5 | Students will be able to understand about the using of different methods for human resource planning |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KHU801::RURAL DEVELOPMENT: ADMINISTRATION AND PLANNING | | | | | | | | | | | | |
| PO \ CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 3 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| CO2 | 2 | 3 | 3 | 3 | 2 | 2 | - | - | - | - | - | 2 |
| CO3 | 3 | 2 | 2 | 3 | 1 | 2 | - | - | - | - | - | 1 |
| CO4 | 3 | 3 | 2 | 3 | 3 | 1 | - | - | - | - | - | 1 |
| CO5 | 2 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| Average | 2.6 | 2.8 | 2.6 | 3 | 2.0 | 1.4 | - | - | - | - | - | 1.6 |




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DEPARTMENT OF MECHANICAL ENGINEERING
COURSE OUTCOME (2022-23)

KOE085: QUALITY MANAGEMENT

| CO | CO Statement |
|-----|--|
| CO1 | Students can understand the definitions, concepts and components of Quality Concepts |
| CO2 | Students can understand the definitions, concepts and components of Quality Management |
| CO3 | Students can understand the definitions, concepts and components of Control Charts |
| CO4 | Students can understand the definitions, concepts and components of reliability |
| CO5 | Students can understand the definitions, concepts and components of Taguchi method, JIT in some details. |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KOE085: QUALITY MANAGEMENT | | | | | | | | | | | | |
| PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO | | | | | | | | | | | | |
| CO1 | 3 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| CO2 | 3 | 3 | 3 | 3 | 2 | 2 | - | - | - | - | - | 2 |
| CO3 | 2 | 2 | 2 | 3 | 3 | 2 | - | - | - | - | - | 2 |
| CO4 | 3 | 3 | 2 | 2 | 3 | 1 | - | - | - | - | - | 1 |
| CO5 | 2 | 2 | 3 | 3 | 2 | 2 | - | - | - | - | - | 2 |
| Average | 2.6 | 2.8 | 2.6 | 2.8 | 2.4 | 1.8 | - | - | - | - | - | 1.8 |




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R.D. ENGINEERING COLLEGE, GHAZIABAD
DEPARTMENT OF MECHANICAL ENGINEERING
COURSE OUTCOME (2022-23)

KOE091: Automation and robotics

| CO | CO Statement |
|-----|--|
| CO1 | Students can understand the definitions, concepts and components of Automation. |
| CO2 | Students can understand the definitions, concepts and components of Manufacturing Automation. |
| CO3 | Students can understand the definitions, concepts and components of Robotics. |
| CO4 | Students can understand the definitions, concepts and components of Robot Drives and Power Transmission Systems. |
| CO5 | Students can understand the definitions, concepts and components of Robot Simulation. |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KOE091: Automation and robotics | | | | | | | | | | | | |
| PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO | | | | | | | | | | | | |
| CO1 | 3 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| CO2 | 2 | 3 | 3 | 3 | 2 | 2 | - | - | - | - | - | 2 |
| CO3 | 3 | 2 | 2 | 3 | 1 | 2 | - | - | - | - | - | 1 |
| CO4 | 3 | 3 | 2 | 3 | 3 | 1 | - | - | - | - | - | 1 |
| CO5 | 2 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 |
| Average | 2.6 | 2.8 | 2.6 | 3 | 2.0 | 1.4 | - | - | - | - | - | 1.6 |




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DEPARTMENT OF MECHANICAL ENGINEERING
COURSE OUTCOME (2022-23)

KME851: - Project

| CO | CO Statement |
|-----|---|
| CO1 | Identify real world problems of mechanical engineering and related systems. |
| CO2 | Interpret the working of mechanical engineering systems. |
| CO3 | Apply the principles of mechanical engineering in real world systems. |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KME851: :- Project | | | | | | | | | | | | |
| CO \ PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | 2 | 3 | 3 | 2 | 3 | 1 | - | - | - | - | - | 1 |
| CO2 | 2 | 2 | 2 | 2 | 2 | 2 | - | - | - | - | - | 2 |
| CO3 | 3 | 3 | 3 | 2 | 3 | 1 | - | - | - | - | - | 1 |
| Average | 2.3 | 2.6 | 2.6 | 2.0 | 2.6 | 1.2 | - | - | - | - | - | 1.3 |




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DEPARTMENT OF MECHANICAL ENGINEERING
AVERAGE OF PROGRAM OUTCOMES (2022-2023)

| S.N. | YEAR | SEMESTER | Subjects/Labs With Codes | Program Outcomes | | | | | | | | | | | | |
|------|--------------------|---------------|--|------------------|-----|------------|----------|-----------|----------|----------|-----|-----|------|-------|--------|---|
| | | | | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | |
| 1 | B.Tech (ME) 2nd Yr | III SEMESTER | KME301: Thermodynamics | 2.8 | 2.6 | 2.8 | 3 | 2.2 | 1.2 | - | - | - | - | - | 1.8 | |
| | | | KME302: Fluid Mechanics & Fluid Machines | 2.6 | 2.8 | 2.6 | 3 | 2 | 1.4 | - | - | - | - | - | 1.6 | |
| | | | KME303: MATERIALS ENGINEERING | 2.6 | 2.8 | 2.6 | 2.8 | 2.4 | 1.8 | - | - | - | - | - | 1.8 | |
| | | | KAS302: MATHS IV | 2.2 | 2.2 | - | 2 | 2 | - | 1 | - | - | - | - | 1.33 | 1 |
| | | | KVE301: Universal Human Values | - | - | - | - | 2 | 1 | 1 | 1 | 3 | - | 1 | - | |
| | | IV SEMESTER | KME401: Applied Thermodynamics | 2.8 | 2.6 | 2.8 | 3 | 2.2 | 1.2 | - | - | - | - | - | 1.8 | |
| | | | KME402: Engineering Mechanics | 3 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 | |
| | | | KME403: Manufacturing Processes | 2.8 | 2.6 | 2.8 | 3 | 2.2 | 1.2 | - | - | - | - | - | 1.8 | |
| | | | KOE043 : Energy Science & Engineering | 3 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | - | 2 | |
| | | | KAS401: Technical Communication | 1.2 | 1.4 | 2.6 | 1.2 | 1.6 | 1.4 | 1.8 | 1.6 | - | 2 | - | 2.4 | |
| 2 | B.Tech (ME) 3RD Yr | V SEMESTER | KME501: Heat and Mass Transfer | 2.8 | 2.6 | 2.8 | 3 | 2.2 | 1.2 | - | - | - | - | 1.8 | | |
| | | | KME502: Strength of Material | 2.6 | 2.8 | 2.6 | 2.8 | 2.4 | 1.8 | - | - | - | - | 1.8 | | |
| | | | KME503: Industrial Engineering | 2.6 | 2.8 | 2.6 | 3 | 2 | 1.4 | - | - | - | - | 1.6 | | |
| | | | KME 054: I C Engine, Fuel and Lubrication | 2.6 | 2.8 | 2.6 | 2.8 | 2.4 | 1.8 | - | - | - | - | 1.8 | | |
| | | | KME 055: Advance welding | 2.6 | 2.8 | 2.6 | 3 | 2 | 1.4 | - | - | - | - | 1.6 | | |
| | | VI SEMESTER | KME 601: Refrigeration & Air Conditioning | 2.6 | 2.8 | 2.6 | 2.8 | 2.4 | 1.8 | - | - | - | - | 1.8 | | |
| | | | KME602: Machine Design | 2.6 | 2.8 | 2.6 | 3 | 2 | 1.4 | - | - | - | - | 1.6 | | |
| | | | KME603: Theory of Machines | 2.8 | 2.6 | 2.8 | 3 | 2.2 | 1.2 | - | - | - | - | 1.8 | | |
| | | | KOE068 : SOFTWARE PROJECT MANAGEMENT | 2.6 | 2.8 | 2.6 | 3 | 2 | 1.4 | - | - | - | - | 1.6 | | |
| | | | KME061: Nondestructive Testing | 2.6 | 2.8 | 2.6 | 2.8 | 2.4 | 1.8 | - | - | - | - | 1.8 | | |
| 3 | B.Tech (ME) 4th Yr | VII SEMESTER | KME071: Additive manufacturing | 2.8 | 2.8 | 2.6 | 2.8 | 2 | 1 | - | - | - | - | 2 | | |
| | | | KME076: Power Plant Engineering | 3 | 3 | 3 | 3 | 2 | 1 | - | - | - | - | 2 | | |
| | | | KOE074: RENEWABLE ENERGY RESOURCES | 2.6 | 2.8 | 2.6 | 3 | 2 | 1.4 | - | - | - | - | 1.6 | | |
| | | | KHU 702: PROJECT MANAGEMENT & ENTREPRENEURSHIP | 2.8 | 2.6 | 2.8 | 3 | 2.2 | 1.2 | - | - | - | - | 1.8 | | |
| | | | KHU801: RURAL DEVELOPMENT: ADMINISTRATION AND | 2.6 | 2.8 | 2.6 | 3 | 2 | 1.4 | - | - | - | - | 1.6 | | |
| | | VIII SEMESTER | KOE085: QUALITY MANAGEMENT | 2.6 | 2.8 | 2.6 | 2.8 | 2.4 | 1.8 | - | - | - | - | 1.8 | | |
| | | | KOE091: Automation and robotics | 2.6 | 2.8 | 2.6 | 3 | 2 | 1.4 | - | - | - | - | 1.6 | | |
| | | | AVERAGE | 2.630769 | 2.7 | 2.66923077 | 2.838462 | 2.1185185 | 1.369231 | 1.266667 | 1.3 | 3 | 2 | 1.165 | 1.7615 | |



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|--|----------------|-------------|--------------|
| DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING | | | |
| ACTION TAKEN ON IDENTIFIED GAP OF PROGRAM OUTCOMES (2022-2023) | | | |
| S.N. | Gap Identified | Relevant PO | Action Taken |
| 1 | NO GAP | - | NOT NEED |
| 2 | | | |
| 3 | | | |




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**SAMPLE OF
CO-PO MAPPING**

**Department of
MBA**



R.D. ENGINEERING COLLEGE, GHAZIABAD
DEPARTMENT OF MANAGEMENT

| <u>Program Outcomes (Pos) For MBA(2022-23)</u> | |
|---|---|
| PO1 | Apply knowledge of management theories and practices to solve business problems. |
| PO2 | Foster analytical and critical thinking abilities for data-based decision making. |
| PO3 | Integrate and utilize qualitative and quantitative tools and concepts to investigate and solve critical business problems. |
| PO4 | Ability to develop Value based Leadership ability. |
| PO5 | Ability to understand, analyze and communicate global, economic, legal, and ethical aspects of business. |
| PO6 | Ability to lead themselves and others in the achievement of organizational goals, contributing effectively to a team environment. |




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**MBA 1st Year Course Structure in accordance with
AICTE Model Curriculum Effective w.e.f.
Academic Session 2020-21
Semester I**

| SN | Codes | SUBJECT | PERIODS | | | INTERNAL EVALUATION SCHEME | | | | END SEMESTER EVALUATION | | TOTAL | CREDIT |
|------------------|---------|--|---------|---|---|----------------------------|----|----|-------|-------------------------|-----|-------|--------|
| | | | L | T | P | CT | TA | PS | TOTAL | TE | PE | | |
| 1 | KMBN101 | MANAGEMENT CONCEPTS & ORGANISATIONAL BEHAVIOUR | 4 | 0 | 0 | 30 | 20 | 0 | 50 | 100 | 0 | 150 | 3 |
| 2 | KMBN102 | MANAGERIAL ECONOMICS | 4 | 0 | 0 | 30 | 20 | 0 | 50 | 100 | 0 | 150 | 3 |
| 3 | KMBN103 | FINANCIAL ACCOUNTING & ANALYSIS | 3 | 1 | 0 | 30 | 20 | 0 | 50 | 100 | 0 | 150 | 3 |
| 4 | KMBN104 | BUSINESS STATISTICS & ANALYTICS | 3 | 1 | 0 | 30 | 20 | 0 | 50 | 100 | 0 | 150 | 3 |
| 5 | KMBN105 | MARKETING MANAGEMENT | 4 | 0 | 0 | 30 | 20 | 0 | 50 | 100 | 0 | 150 | 3 |
| 6 | KMBN106 | DESIGN THINKING | 2 | 0 | 0 | 15 | 10 | 0 | 25 | 50 | | 75 | 2 |
| 7 | KMBN107 | BUSINESS COMMUNICATION | 3 | 1 | 0 | 30 | 20 | 0 | 50 | 100 | 0 | 150 | 3 |
| LAB / PRACTICALS | | | | | | | | | | | | | |
| 8 | KMBN151 | IT SKILLS LAB -I | 0 | 0 | 3 | 0 | | 50 | 50 | - | 100 | 150 | 3 |
| 9 | KMBN152 | MINI PROJECT -I | 0 | 0 | 3 | 0 | 0 | 25 | 25 | 0 | 50 | 75 | 3 |
| | | | | | | | | | | | | 1200 | 26 |



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Semester II

| SN | CODE | SUBJECT | PERIODS | | | INTERNAL EVALUATION SCHEME | | | | END SEMESTER EVALUATION | | TOTAL | CREDIT |
|-------------------------|---------|---|---------|---|---|----------------------------|----|----|-------|-------------------------|-------------|-----------|--------|
| | | | L | T | P | CT | TA | PS | TOTAL | TE | PE | | |
| 1 | KMBN201 | BUSINESS ENVIRONMENT & LEGAL ASPECT OF BUSINESS | 4 | 0 | 0 | 30 | 20 | 0 | 50 | 100 | 0 | 150 | 3 |
| 2 | KMBN202 | HUMAN RESOURCE MANAGEMENT | 4 | 0 | 0 | 30 | 20 | 0 | 50 | 100 | 0 | 150 | 3 |
| 3 | KMBN203 | BUSINESS RESEARCH METHODS | 4 | 0 | 0 | 30 | 20 | 0 | 50 | 100 | 0 | 150 | 3 |
| 4 | KMBN204 | FINANCIAL MANAGEMENT & CORPORATE FINANCE | 3 | 1 | 0 | 30 | 20 | 0 | 50 | 100 | 0 | 150 | 3 |
| 5 | KMBN205 | OPERATIONS MANAGEMENT | 3 | 1 | 0 | 30 | 20 | 0 | 50 | 100 | 0 | 150 | 3 |
| 6 | KMBN206 | QUANTITATIVE TECHNIQUES FOR MANAGERS | 3 | 1 | 0 | 30 | 20 | 0 | 50 | 100 | 0 | 150 | 3 |
| 7 | KMBN207 | DIGITAL MARKETING & E COMMERCE | 4 | 0 | 0 | 30 | 20 | 0 | 50 | 100 | 0 | 150 | 3 |
| 8 | KMBN208 | MANAGEMENT INFORMATION SYSTEMS | 2 | 0 | 0 | 15 | 10 | 0 | 25 | 25 | 0 | 50 | 2 |
| LAB / PRACTICALS | | | | | | | | | | | | | |
| 9 | KMBN251 | IT SKILLS LAB-2 | 0 | 0 | 2 | 0 | 0 | 25 | 25 | 0 | 25 | 50 | 1 |
| 10 | KMBN252 | MINI PROJECT -2 | 0 | 0 | 3 | 0 | 0 | 25 | 25 | 0 | 25 | 50 | 2 |
| | | | | | | | | | | | 1200 | 26 | |

L/T/P – Lecture/Tutorial/Practical, CT/TA/PS- Class Test/Teachers Assessment/Practical Session, TE/PE- Term End/ Practical End




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| Evaluation Criteria and Marks | Understanding of Objectives with topic (20) | Understanding of the relevance of Research (20) | Interpretation & Analysis (20) | Presentation & Communication skills (20) | Query Handling (20) | Total (100) |
|-------------------------------|---|---|--------------------------------|--|---------------------|-------------|
|-------------------------------|---|---|--------------------------------|--|---------------------|-------------|

MBA II Year Teaching and Evaluation Scheme
W.E.F. Academic Session 2021-22
(In Accordance with AICTE Model Curriculum & New Education Policy)

SEMESTER III

| SNo | Codes | SUBJECT | PERIODS | | | INTERNAL EVALUATION SCHEME | | | | END SEMESTER EVALUATION | | TOTAL | CREDIT |
|-----|---------|--|---------|---|---|----------------------------|----|----|-------|-------------------------|-----|-------------|-----------|
| | | | L | T | P | CT | TA | PS | TOTAL | TE | PE | | |
| 1 | KMBN301 | STRATEGIC MANAGEMENT | 4 | 0 | 0 | 30 | 20 | 0 | 50 | 100 | 0 | 150 | 3 |
| 2 | KMBN302 | INNOVATION AND ENTREPRENEURSHIP | 4 | 0 | 0 | 30 | 20 | 0 | 50 | 100 | 0 | 150 | 3 |
| 3 | KVE 301 | HUMAN VALUES AND ETHICS | 3 | 1 | 0 | 30 | 20 | 0 | 50 | 100 | 0 | 150 | 3 |
| 4 | | Elective-1 Specialization Group-1 | 4 | 0 | 0 | 30 | 20 | 0 | 50 | 100 | 0 | 150 | 3 |
| 5 | | Elective -2 Specialization Group-1 | 4 | 0 | 0 | 30 | 20 | 0 | 50 | 100 | 0 | 150 | 3 |
| 6 | | Elective -1 Specialization Group-2 | 4 | 0 | 0 | 30 | 20 | 0 | 50 | 100 | 0 | 150 | 3 |
| 7 | | Elective -2 Specialization Group-2 | 4 | 0 | 0 | 30 | 20 | 0 | 50 | 100 | 0 | 150 | 3 |
| 8 | KMBN308 | Summer Training Project Report & Viva Voce | 0 | 2 | 0 | 0 | 50 | 0 | 50 | 0 | 100 | 150 | 4 |
| | | TOTAL | | | | | | | | | | 1200 | 25 |

SEMESTER IV

| SNo | Codes | SUBJECT | PERIODS | | | INTERNAL EVALUATION SCHEME | | | | END SEMESTER EVALUATION | | TOTAL | CREDIT |
|-----|---------|--|---------|---|---|----------------------------|----|----|-------|-------------------------|----|-------|--------|
| | | | L | T | P | CT | TA | PS | TOTAL | TE | PE | | |
| 1 | KMBN401 | Emerging Technologies in Global Business Environment | 4 | 0 | 0 | 30 | 20 | 0 | 50 | 100 | 0 | 150 | 3 |
| 2 | | Elective- 3 Specialization Group-1 | 4 | 0 | 0 | 30 | 20 | 0 | 50 | 100 | 0 | 150 | 3 |
| 3 | | Elective -4 Specialization Group-1 | 4 | 0 | 0 | 30 | 20 | 0 | 50 | 100 | 0 | 150 | 3 |
| 4 | | Elective- 5 Specialization Group-1 | 4 | 0 | 0 | 30 | 20 | 0 | 50 | 100 | 0 | 150 | 3 |
| 5 | | Elective -3 Specialization Group-2 | 4 | 0 | 0 | 30 | 20 | 0 | 50 | 100 | 0 | 150 | 3 |
| 6 | | Elective -4 Specialization Group-2 | 4 | 0 | 0 | 30 | 20 | 0 | 50 | 100 | 0 | 150 | 3 |
| 7 | | Elective -5 Specialization Group-2 | 4 | 0 | 0 | 30 | 20 | 0 | 50 | 100 | 0 | 150 | 3 |



| | | | | | | | | | | | | | |
|---|---------|-------------------------------------|---|---|---|---|----|---|----|---|-----|------|----|
| 8 | KMBN408 | Research Project Report & Viva Voce | 0 | 2 | 0 | 0 | 50 | 0 | 50 | 0 | 100 | 150 | 4 |
| | | TOTAL | | | | | | | | | | 1200 | 25 |

Specialization Group: HUMAN RESOURCE (HR)

Elective Subjects in III Semester

| S.No. | Code | Course Title |
|-------|-----------|------------------------------------|
| 1 | KMBN HR01 | TALENT MANAGEMENT |
| 2 | KMBN HR02 | EMPLOYEE RELATIONS AND LABOUR LAWS |

Elective Subjects in IV Semester

| S.No. | Code | Course Title |
|-------|-----------|-----------------------------------|
| 1 | KMBN HR03 | HR ANALYTICS |
| 2 | KMBN HR04 | PERFORMANCE AND REWARD MANAGEMENT |
| 3 | KMBN HR05 | INTERNATIONAL HRM |

Specialization Group: MARKETING (MK)

Elective Subjects in III Semester

| S.No. | Code | Course Title |
|-------|-----------|--|
| 1 | KMBN MK01 | CONSUMER BEHAVIOUR AND MARKETING COMMUNICATION |
| 2 | KMBN MK02 | MARKETING ANALYTICS |

Elective Subjects in IV Semester

| S.No. | Code | Course Title |
|-------|-----------|--------------------------------|
| 1 | KMBN MK03 | B2B AND SERVICES MARKETING |
| 2 | KMBN MK04 | SALES AND RETAIL MANAGEMENT |
| 3 | KMBN MK05 | SOCIAL MEDIA AND WEB ANALYTICS |



Specialization Group: FINANCE (FM)

Elective Subjects in III Semester

| S.No. | Code | Course Title |
|-------|-----------|--|
| 1 | KMBN FM01 | INVESTMENT ANALYSIS AND PORTFOLIO MANAGEMENT |
| 2 | KMBN FM02 | FINANCIAL PLANNING AND TAX MANAGEMENT |

Elective Subjects in IV Semester

| S.No. | Code | Course Title |
|-------|-----------|--------------------------------------|
| 1 | KMBN FM03 | FINANCIAL DERIVATIVES |
| 2 | KMBN FM04 | FOREIGN EXCHANGE AND RISK MANAGEMENT |
| 3 | KMBN FM05 | FINANCIAL AND CREDIT RISK ANALYTICS |

Specialization Group: INTERNATIONAL BUSINESS (IB)

Elective Subjects in III Semester

| S.No. | Code | Course Title |
|-------|-----------|-----------------------------------|
| 1 | KMBN IB01 | INTERNATIONAL BUSINESS MANAGEMENT |
| 2 | KMBN IB02 | EXPORT IMPORT DOCUMENTATION |

Elective Subjects in IV Semester

| S.No. | Code | Course Title |
|-------|-----------|---------------------------|
| 1 | KMBN IB03 | INTERNATIONAL LOGISTICS |
| 2 | KMBN IB04 | CROSS CULTURAL MANAGEMENT |
| 3 | KMBN IB05 | INTERNATIONAL TRADE LAWS |

Specialization Group: INFORMATION TECHNOLOGY (IT)

Elective Subjects in III Semester

| S.No. | Code | Course Title |
|-------|-----------|--------------------------------------|
| 1 | KMBN IT01 | DATA ANAYTICS FOR BUSINESS DECISIONS |




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| | | |
|---|-----------|------------------------|
| 2 | KMBN IT02 | AI AND ML FOR BUSINESS |
|---|-----------|------------------------|

Elective Subjects in IV Semester

| S.No. | Code | Course Title |
|-------|-----------|---|
| 1 | KMBN IT03 | DATA BASE MANAGEMENT SYSTEM |
| 2 | KMBNI T04 | CLOUD COMPUTING FOR BUSINESS |
| 3 | KMBN IT05 | BUSINESS DATA WAREHOUSING & DATA MINING |

Specialization Group: OPERATION MANAGEMENT (OM)

Elective Subjects in III Semester

| | | |
|----------|------------|-------------------------------------|
| 1 | KMBN OM 01 | SUPPLY CHAIN & LOGISTICS MANAGEMENT |
| 2 | KMBN OM 02 | OPERATIONS PLANNING & CONTROL |

Elective Subjects in IV Semester

| | | |
|----------|------------|------------------------------------|
| 3 | KMBN OM 03 | QUALITY MANAGEMENT |
| 4 | KMBN OM 04 | PROJECT & SOURCING MANAGEMENT |
| 5 | KMBN OM 05 | MANAGEMENT OF MANUFACTURING SYSTEM |



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R.D. ENGINEERING COLLEGE, GHAZIABAD

DEPARTMENT OF MANAGEMENT STUDIES

AVERAGE OF PROGRAM OUTCOME(2022-23)

| S.No. | YEAR | SEMESTER | SUBJECTS/ LABS WITH CODES | Program outcomes | | | | | |
|----------------|--------------|--------------|--|------------------|-------------|-------------|-------------|-------------|-------------|
| | | | | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 |
| 1 | MBA 1ST YEAR | I SEMESTER | MCOB(KMBN-101) | 2 | 1.2 | 1.4 | 2 | 1.2 | 1.6 |
| | | | ME(KMBN-102) | 3 | 3 | 2.6 | - | 1.8 | - |
| | | | FAA(KMBN-103) | 3 | 3 | 3 | - | 2.6 | 2.6 |
| | | | BSA(KMBN-104) | 3 | 3 | 3 | - | 1.6 | - |
| | | | MM(KMBN-105) | 2.2 | 2.2 | 2.4 | 1.4 | 2.2 | 2.4 |
| | | | DT(KMBN-106) | 3 | 2.4 | 3 | - | 2 | 2.3 |
| | | | BUSS.COMM.(KMBN-107) | 1 | 1 | - | - | 3 | 1 |
| 2 | MBA 1ST YEAR | 2ND SEMESTER | BE & LA (KMBN-201) | 3 | 1.7 | 1.7 | 2.4 | 2.8 | 3 |
| | | | HRM(KMBN-202) | 2 | 2 | 2 | 1.2 | 2.6 | 2 |
| | | | BRM(KMBN-203) | 3 | 3 | 2.4 | 1 | 2 | 2 |
| | | | FM & CF (KMBN-204) | 2.8 | 2.4 | 2.6 | 1 | 2 | 2 |
| | | | OM(KMBN-205) | 3 | 2.4 | 2.2 | 1.8 | 2.4 | 2.4 |
| | | | QTM(KMBN-206) | 3 | 3 | 3 | - | 1 | 1 |
| | | | DM & E-COMM.(KMBN-207) | 2.6 | 2 | 2.2 | 1.6 | 2 | 2.4 |
| | | | MIS(KMBN-208) | 3 | 1 | 1 | - | - | 1.8 |
| 3 | MBA 2ND YEAR | 3RD SEMESTER | SM(KMBN-301) | 2 | 1 | 1 | 2 | 1 | 2 |
| | | | I & E (KMBN-302) | 2 | 1 | 1 | 2 | 1 | 2 |
| | | | HV & PE(KVE-301) | 1 | 1 | 1 | 2.6 | 1.8 | 1.2 |
| | | | TM(KMBN-HR01) | 1.6 | 1.2 | 1.4 | 1.5 | 1.2 | 1.6 |
| | | | ER & LL(KMBN-HR02) | 3 | 3 | 3 | - | 3 | 1.2 |
| | | | CB & MC(KMBN-MK01) | 2.8 | 2.4 | 2.4 | - | 2.8 | 2.8 |
| | | | MA (KMBN MK02) | 2.4 | 2.7 | 2.3 | 1.2 | 1.2 | 2 |
| | | | IA & PM (KMBN FM01) | 3 | 2.6 | 3 | - | 2.6 | - |
| | | | FP & TM (KMBN FM02) | 3 | 2.8 | 3 | - | 2 | - |
| | | | DA FOR BUSS. DECISION(KMBN IT01) | 2 | 1.2 | - | 2 | 1.3 | 2 |
| | | | AI & ML FOR BUSS.(KMBN IT02) | 3 | 1 | 1 | 2 | - | 2 |
| 4 | MBA 2ND YEAR | 4TH SEMESTER | ET IN GBE(KMBN-401) | 3 | - | - | 2 | 3 | 1 |
| | | | HR ANALYTICS (KMBN HR03) | 3 | 3 | 2.7 | 3 | - | 2 |
| | | | P & RM (KMBN HR04) | 1.6 | 1 | 1.4 | - | 1.8 | 1.4 |
| | | | INT.HRM(KMBN HR05) | 2.4 | 2.2 | 2.2 | 1.2 | 2.4 | 2 |
| | | | B2B & SERVICES MARKETING (KMBN MK03) | 2.6 | 2 | 2.2 | 1.6 | 2 | 2.4 |
| | | | SALES & RETAIL MGT.(KMBN MK04) | 3 | 2 | 2 | 1 | 1 | 1 |
| | | | SM & WA (KMBN MK05) | 2.6 | 2 | 2.2 | 1.2 | 2 | 2.4 |
| | | | FD (KMBN FM03) | 3 | 3 | 3 | - | 2.2 | 2 |
| | | | FE & RM(KMBN FM04) | 2.4 | 1.2 | 1.2 | 1.5 | 1.2 | 1.6 |
| | | | FIN.&CRA(KMBN FM05) | 1.8 | 1.6 | 1.4 | 1 | 2 | 2 |
| | | | DBMS(KMBN IT 03) | 2 | 1.2 | 1 | 2 | 2 | 1.6 |
| | | | CC FOR BUSS. (KMBN IT04) | 2 | 1.2 | 1.4 | 2 | 1.2 | - |
| | | | BUSS. DATA WARE. & DATA MINING (KMBN IT05) | 2.6 | 2 | 3 | 2 | 2 | 3 |
| AVERAGE | | | | 2.50 | 1.99 | 2.09 | 1.70 | 1.94 | 1.93 |


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DEPARTMENT OF MANAGEMENT STUDIES

ACTION TAKEN ON IDENTIFIED GAP OF PROGRAM OUTCOMES(2022-2023)

| | Gap Identified | Relevant PO | Action Taken |
|--|----------------|-------------|--------------|
| | NO GAP | | |


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DEPARTMENT OF MANAGEMENT

COURSE OUTCOME (2022-2023)

MBA- I Sem. (2022-23)

KMBN-101 Management Concepts & Organizational Behaviour

| CO | Course Outcomes |
|-----|--|
| CO1 | Developing understanding of managerial practices and their perspectives. |
| CO2 | Understanding and Applying the concepts of organizational behavior. |
| CO3 | Applying the concepts of management and analyze organizational behaviors in real world situations. |
| CO4 | Comprehend and practice contemporary issues in management. |
| CO5 | Applying managerial and leadership skills among student. |

| Mapping of Course outcomes with Program outcomes | | | | | | |
|---|----------------------|-----|-----|-----|-----|-----|
| KMBN-101 Management Concepts & Organizational Behaviour | | | | | | |
| CO | Program outcomes(PO) | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 |
| CO1 | 1 | 1 | 2 | 1 | 1 | 1 |
| CO2 | 3 | 2 | 1 | 1 | 1 | 1 |
| CO3 | 2 | 1 | 2 | - | 1 | 2 |
| CO4 | 2 | 1 | 1 | 3 | 2 | 2 |
| CO5 | 2 | 1 | 1 | 3 | 1 | 2 |
| Average | 2.0 | 1.2 | 1.4 | 2.0 | 1.2 | 1.6 |




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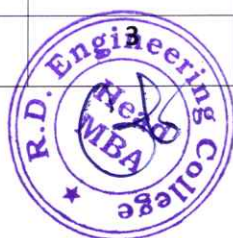


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DEPARTMENT OF MANAGEMENT

KMBN-102 Managerial Economics

| CO | Course Outcomes |
|-----|---|
| CO1 | Students will be able to remember the concepts of micro economics and also able to understand the various micro economic principles to make effective economic decisions under conditions of risk and uncertainty. |
| CO2 | The students would be able to understand the law of demand & supply & their elasticities, evaluate & analyse these concepts and apply them in various changing situations in industry. Students would be able to apply various techniques to forecast demand for better utilization of resources. |
| CO3 | The students would be able to understand the production concept and how the production output changes with the change in inputs and able to analyse the effect of cost to business and their relation to analyze the volatility in the business world |
| CO4 | The students would be able to understand & evaluate the different market structure and their different equilibriums for industry as well as for consumers for the survival in the industry by the application of various pricing strategic. |
| CO5 | The students would be able to analyse the macroeconomic concepts & their relation to micro economic concept & how they affect the business & economy. |

| Mapping of Course outcomes with Program outcomes | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|
| KMBN-102 Managerial Economics | | | | | | |
| CO | Program outcomes(PO) | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 |
| CO1 | 3 | 3 | 1 | - | 2 | - |
| CO2 | 3 | 3 | 3 | - | 1 | - |
| CO3 | 3 | 3 | 3 | - | 1 | - |
| CO4 | 3 | 3 | 3 | - | 2 | - |
| CO5 | 3 | 3 | 3 | - | 3 | - |
| Average | 3 | | 2.6 | - | 1.8 | - |




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DEPARTMENT OF MANAGEMENT

KMBN-103 Financial Accounting & Analysis

| CO | Course Outcomes |
|-----|---|
| CO1 | Understand and applying accounting concepts, principles and conventions for their routine monetary transaction. |
| CO2 | Understand about IFRS, Ind AS and IAS for preparation and reporting of financial statement. |
| CO3 | Create and prepare financial statements and cash flow in accordance with generally Accepted Accounting principles. |
| CO4 | Analyse, interpret and communicate the information contained in basic financial statements and explain the limitations of such statements. |
| CO5 | Recognising various types of accounting and utilize the technology and social responsibility in facilitating and enhancing accounting and financial reporting processes |

| Mapping of Course outcomes with Program outcomes | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|
| KMBN-103 Financial Accounting & Analysis | | | | | | |
| CO | Program outcomes(PO) | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 |
| CO1 | 3 | 2 | 3 | - | 3 | 2 |
| CO2 | 3 | 2 | 3 | - | 3 | 2 |
| CO3 | 3 | 3 | 3 | - | 2 | 3 |
| CO4 | 3 | 3 | 3 | - | 3 | 3 |
| CO5 | 3 | 3 | 3 | - | 2 | 3 |
| Average | 3 | 3 | 3 | - | 2.6 | 2.6 |




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DEPARTMENT OF MANAGEMENT

KMBN-104 Business Statistics and Analytics

| CO | Course Outcomes |
|-----|---|
| CO1 | Gaining knowledge of basic concept/ fundamentals of business statistics. |
| CO2 | To compute various measures of central tendency, Measure of dispersion, Time series analysis, Index Number , Correlation and Regression analysis and their implication on business performance. |
| CO3 | Evaluating basic concepts of probability and perform probability theoretical distribution. |
| CO4 | To apply Hypothesis testing concepts and able to apply inferential statistics-t, F, Z Test and Chi-Square Test. |
| CO5 | To perform practical application by taking managerial decision and evaluating the concept of Business Analytics |

| Mapping of Course outcomes with Program outcomes | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|
| KMBN-104 Business Statistics and Analytics | | | | | | |
| CO | Program outcomes(PO) | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 |
| CO1 | 3 | 3 | 3 | - | 1 | - |
| CO2 | 3 | 3 | 3 | - | 1 | - |
| CO3 | 3 | 3 | 3 | - | 1 | - |
| CO4 | 3 | 3 | 3 | - | 2 | - |
| CO5 | 3 | 3 | 3 | - | 3 | - |
| Average | 3 | 3 | 3 | - | 1.6 | - |




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KMBN-105 Marketing Management

| CO | Course Outcomes |
|-----|--|
| CO1 | Remember and Comprehend basic marketing concepts. |
| CO2 | Understand marketing Insights on application of basic marketing concepts. |
| CO3 | Able to apply and develop Marketing Strategies and Plans. |
| CO4 | Understand and analyzing Business/ Consumer Markets and ability Identify & evaluate Market Segments and Targeting. |
| CO5 | Develop skills to understand the current global and digital aspect of Marketing. |

| Mapping of Course outcomes with Program outcomes | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|
| KMBN-105 Marketing Management | | | | | | |
| CO | Program outcomes(PO) | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 |
| CO1 | 2 | 1 | 3 | 1 | 1 | 3 |
| CO2 | 3 | 3 | 2 | 1 | 3 | 2 |
| CO3 | 3 | 2 | 2 | 3 | 2 | 3 |
| CO4 | 1 | 2 | 2 | 1 | 3 | 3 |
| CO5 | 2 | 3 | 3 | 1 | 2 | 1 |
| Average | 2.2 | 2.2 | 2.4 | 1.4 | 2.2 | 2.4 |




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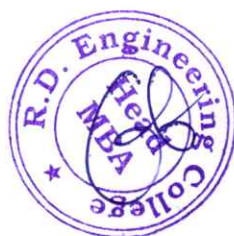
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DEPARTMENT OF MANAGEMENT

KMBN-106 Design Thinking

| CO | Course Outcomes |
|-----|--|
| CO1 | Gain in depth knowledge about creative thinking and design thinking in every stage of problem. |
| CO2 | To transform creative thinking into design thinking in every stage of your problem |
| CO3 | To apply design thinking to your real life problems. |
| CO4 | Applying design thinking to your real life problems/ situations in order to evolve an innovative and workable solutions. |
| CO5 | Understand and implement design thinking to your real life problems / situations in order to evolve an innovative and workable solution. |

| Mapping of Course outcomes with Program outcomes | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|
| KMBN-106 Design Thinking | | | | | | |
| CO | Program outcomes(PO) | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 |
| CO1 | 3 | 2 | 3 | - | 3 | 2 |
| CO2 | 3 | 3 | 3 | - | 3 | 2 |
| CO3 | 3 | 3 | 3 | - | 2 | 3 |
| CO4 | 3 | 2 | - | - | 1 | - |
| CO5 | 3 | 2 | - | - | 1 | - |
| Average | 3.0 | 2.4 | 3.0 | - | 2 | 2.3 |




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DEPARTMENT OF MANAGEMENT

KMBN-107 Business Communication

| CO | Course Outcomes |
|-----|--|
| CO1 | Applying business communication strategies and principles to prepare effective communication for domestic and international business situations. |
| CO2 | Analyse ethical, legal, cultural and global issues affecting business communication. |
| CO3 | Develop an understanding of appropriate organizational formats and channels used in business communications. |
| CO4 | Gaining and understanding of emerging electronic modes of communication. |
| CO5 | Developing effective verbal and non verbal communication skills |

| Mapping of Course outcomes with Program outcomes | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|
| KMBN-107 Business Communication | | | | | | |
| CO | Program outcomes(PO) | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 |
| CO1 | 1 | 1 | - | - | 3 | 1 |
| CO2 | 1 | 1 | - | - | 3 | 1 |
| CO3 | 1 | 1 | - | - | 3 | 1 |
| CO4 | 1 | 1 | - | - | 3 | 1 |
| CO5 | 1 | 1 | - | - | 3 | 1 |
| Average | 1 | 1 | - | - | 3 | 1 |




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KMBN-151 IT Skills Lab-I

| CO | Course Outcomes |
|-----|---|
| CO1 | Gain in depth knowledge about the functioning of computers and its uses for managers. |
| CO2 | Learn to use Internet and its applications. |
| CO3 | Understand and implement word processing software. |
| CO4 | Learn applications on spread sheet software. |
| CO5 | Analyse and learn Presentation software. |

| Mapping of Course outcomes with Program outcomes | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|
| KMBN-151 IT Skills Lab-I | | | | | | |
| CO | Program outcomes(PO) | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 |
| CO1 | 3 | - | 3 | 1 | 2 | - |
| CO2 | 3 | - | 3 | 1 | 2 | - |
| CO3 | 3 | 2 | 3 | 1 | 2 | - |
| CO4 | 3 | 2 | 3 | 1 | 2 | - |
| CO5 | 3 | 2 | 3 | 1 | 2 | - |
| Average | 3.0 | 2.0 | 3.0 | 1.0 | 2.0 | - |




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KMBN-152 Mini Project-1

| | |
|------------|---|
| CO | Course Outcomes |
| CO1 | Gain in depth knowledge on innovative idea for product or services in form of a project report. |
| CO2 | To apply innovative idea, its feasibilities and detail descriptions. |

| Mapping of Course outcomes with Program outcomes | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|
| KMBN-152 Mini Project-1 | | | | | | |
| CO | Program outcomes(PO) | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 |
| CO1 | 2 | 3 | - | 2 | 2 | 1 |
| CO2 | 2 | 3 | - | 2 | 2 | 1 |
| Average | 2.0 | 3.0 | - | 2.0 | 2.0 | 1.0 |




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DEPARTMENT OF MANAGEMENT

2nd SEM

KMBN-201 Business Environment & Legal Aspect of Business

| CO | Course Outcomes |
|-----|---|
| CO1 | Develop understanding and fundamental Knowledge about business environment. |
| CO2 | Develop understanding on the concepts of Business Environment and international business environment. |
| CO3 | Develop basic understanding of Law of contract. |
| CO4 | Understanding of provisions of companies Act concerning incorporation and regulation of business organisations. |
| CO5 | Able to analyze case laws in arriving at conclusions facilitating business decisions. |

| Mapping of Course outcomes with Program outcomes | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|
| KMBN-201 Business Environment & Legal Aspect of Business | | | | | | |
| CO | Program outcomes(PO) | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 |
| CO1 | 3 | - | - | 2 | 2 | 3 |
| CO2 | 3 | - | - | 3 | 3 | 3 |
| CO3 | 3 | 2 | 2 | 3 | 3 | 3 |
| CO4 | 3 | 2 | 2 | 1 | 3 | 3 |
| CO5 | 3 | 1 | 1 | 3 | 3 | 3 |
| Average | 3.0 | 1.7 | 1.7 | 2.4 | 2.8 | 3.0 |




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KMBN-202 Human Resource Management

| CO | Course Outcomes |
|-----|--|
| CO1 | Synthesize the role of human resources management as it supports the success of the organization including the effective development of human capital as an agent for organisational change. |
| CO2 | Demonstrate knowledge of laws that impact behaviour in relationships between employers and employee that ultimately impact the goals and strategies of the organization. |
| CO3 | Understand the role of employee benefits and compensation as critical components of employee performance, productivity and organizational effectiveness. |
| CO4 | Show evidence of the ability to analyze, manage and problem solve to deal with the challenges and complexities of the practice of collective bargaining. |
| CO5 | Demonstrate knowledge of practical application of training and employee development as it impacts organizational strategy and competitive advantage. |

| Mapping of Course outcomes with Program outcomes | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|
| KMBN-202 Human Resource Management | | | | | | |
| CO | Program outcomes(PO) | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 |
| CO1 | 2 | 2 | 2 | 2 | 3 | 2 |
| CO2 | 2 | 2 | 2 | 1 | 2 | 2 |
| CO3 | 2 | 2 | 2 | 1 | 3 | 2 |
| CO4 | 2 | 2 | 2 | 1 | 3 | 2 |
| CO5 | 2 | 2 | 2 | 1 | 2 | 2 |
| Average | 2 | 2 | 2 | 1.2 | 2.6 | 2 |




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KMBN-203 Business Research Methods

| CO | Course Outcomes |
|-----|--|
| CO1 | Knowledge of concept / fundamentals for different types of research. |
| CO2 | Applying relevant research techniques. |
| CO3 | Understand relevant scaling and measurement techniques and should use appropriate sampling techniques. |
| CO4 | Synthesizing different techniques of coding, editing, tabulation and analysis in doing research. |
| CO5 | Evaluating statistical analysis which includes ANOVA technique and prepare research report. |

| Mapping of Course outcomes with Program outcomes | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|
| KMBN-203 Business Research Methods | | | | | | |
| CO | Program outcomes(PO) | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 |
| CO1 | 3 | 3 | 3 | 1 | 2 | 2 |
| CO2 | 3 | 3 | 3 | 1 | 2 | 2 |
| CO3 | 3 | 3 | 2 | 1 | 2 | 2 |
| CO4 | 3 | 3 | 2 | 1 | 2 | 2 |
| CO5 | 3 | 3 | 2 | 1 | 2 | 2 |
| Average | 3 | 3 | 2.4 | 1 | 2 | 2 |




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KMBN-204 Financial Management and Corporate Finance

| CO | Course Outcomes |
|-----|--|
| CO1 | Understand the different basic concept / Models of corporate finance and Governance. |
| CO2 | Understand the practical application of time value of money and evaluating long term investment decisions. |
| CO3 | Develop analytical skills to select the best source of capital, structure and leverage. |
| CO4 | Understand the use and application of different models for firm's optimum dividend pay-out. |
| CO5 | Understand the recent trends of mergers and acquisition and its valuation. |

| Mapping of Course outcomes with Program outcomes | | | | | | |
|---|----------------------|-----|-----|-----|-----|-----|
| KMBN-204 Financial Management and Corporate Finance | | | | | | |
| CO | Program outcomes(PO) | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 |
| CO1 | 3 | 3 | 3 | - | 3 | 2 |
| CO2 | 2 | 2 | 3 | - | 2 | 2 |
| CO3 | 3 | 3 | 3 | - | 1 | 2 |
| CO4 | 3 | 3 | 2 | 1 | 2 | 2 |
| CO5 | 3 | 1 | 2 | 1 | 2 | 2 |
| Average | 2.8 | 2.4 | 2.6 | 1 | 2 | 2 |




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KMBN-205 Operations Management

| CO | Course Outcomes |
|-----|--|
| CO1 | Understand the role of Operations in overall business Strategy of the firm – the application of OM policies and techniques to the service sector as well as manufacturing firms. |
| CO2 | Understand and Apply the concept of Material Management, Supply Chain Management and TQM perspectives. |
| CO3 | Identify and evaluate the key factors and their interdependence of these factors in the design of effective operating systems. |
| CO4 | Analyze / understand the trends and challenges of Operations Management in the current business environment. |
| CO5 | Apply techniques for effective utilization of operational resources and managing the processes to produce good quality products and services at competitive prices. |

| Mapping of Course outcomes with Program outcomes | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|
| KMBN-205 Operations Management | | | | | | |
| CO | Program outcomes(PO) | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 |
| CO1 | 3 | 3 | 2 | 1 | 2 | 3 |
| CO2 | 3 | 2 | 2 | 1 | 3 | 2 |
| CO3 | 3 | 2 | 2 | 3 | 2 | 3 |
| CO4 | 3 | 2 | 2 | 3 | 3 | 3 |
| CO5 | 3 | 3 | 3 | 1 | 2 | 1 |
| Average | 3 | 2.4 | 2.2 | 1.8 | 2.4 | 2.4 |




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KMBN-206 Quantitative Techniques for Managers

| CO | Course Outcomes |
|-----|--|
| CO1 | Be able to understand the characteristics of different types of decision-making environments and the appropriate decision making approaches and tools to be used in each type. |
| CO2 | To formulate linear programming problem and to find optimal solution by graphical simplex method. |
| CO3 | Be able to build and solve Transportation Models and Assignment Models also to solve game theory problems by understanding pure and mix strategies. |
| CO4 | To assign optimal sequence of difference jobs on different machines and develop understanding of queuing theory concepts. |
| CO5 | To implement replacement of equipments at right time and able to implement project management concepts like CPM, PERT to reduce cost and time. |

| Mapping of Course outcomes with Program outcomes | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|
| KMBN-206 Quantitative Techniques for Managers | | | | | | |
| CO | Program outcomes(PO) | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 |
| CO1 | 3 | 3 | 3 | - | 1 | 1 |
| CO2 | 3 | 3 | 3 | - | 1 | 1 |
| CO3 | 3 | 3 | 3 | - | 1 | 1 |
| CO4 | 3 | 3 | 3 | - | 1 | 1 |
| CO5 | 3 | 3 | 3 | - | 1 | 1 |
| Average | 3 | 3 | 3 | - | 1 | 1 |




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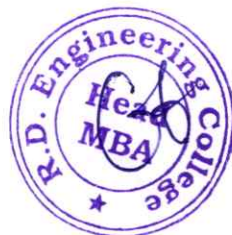
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DEPARTMENT OF MANAGEMENT

KMBN-207 Digital Marketing and E-Commerce

| CO | Course Outcomes |
|-----|--|
| CO1 | Be able to understand the concept of Digital Marketing & E-commerce in today's scenario. |
| CO2 | To able to create and maintain a good website and blog posts. |
| CO3 | Be able to understand and apply SEO and Email Marketing in today's modern world. |
| CO4 | To apply the Social Media Marketing techniques via various platforms. |
| CO5 | To implement various Analytics tools of online marketing. |

| Mapping of Course outcomes with Program outcomes | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|
| KMBN-207 Digital Marketing and E-Commerce | | | | | | |
| CO | Program outcomes(PO) | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 |
| CO1 | 3 | 2 | 2 | 1 | 1 | 1 |
| CO2 | 3 | 2 | 3 | 1 | 2 | 2 |
| CO3 | 2 | 3 | 2 | 3 | 2 | 3 |
| CO4 | 3 | 2 | 3 | 1 | 2 | 3 |
| CO5 | 2 | 1 | 1 | 2 | 3 | 3 |
| Average | 2.6 | 2 | 2.2 | 1.6 | 2 | 2.4 |




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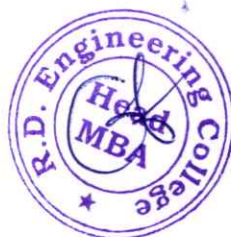
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DEPARTMENT OF MANAGEMENT

KMBN-208 Management Information System

| CO | Course Outcomes |
|-----|--|
| CO1 | Be able to understand the importance of information management in business and management. |
| CO2 | To understand and formulate different types of information systems in business. |
| CO3 | Be able to apply the theory and concepts in practical with help of software. |
| CO4 | To apply various security and ethical issues with Information Systems |
| CO5 | To synthesize applications on Spread sheet and database software. |

| Mapping of Course outcomes with Program outcomes | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|
| KMBN-208 Management Information System | | | | | | |
| CO | Program outcomes(PO) | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 |
| CO1 | 3 | 1 | - | - | - | 1 |
| CO2 | 3 | 1 | 1 | - | - | 2 |
| CO3 | 3 | 1 | 1 | - | - | 2 |
| CO4 | 3 | 1 | 1 | - | - | 2 |
| CO5 | 3 | 1 | 1 | - | - | 2 |
| Average | 3 | 1 | 1 | - | - | 1.8 |




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KMBN-251 IT Skills Lab-2

| CO | Course Outcomes |
|-----|---|
| CO1 | To gain knowledge of pivot table and understand the validating & auditing techniques. |
| CO2 | Learn to use different charting techniques in MS Excel. |
| CO3 | Learn to use different formatting techniques in MS Excel. |

| Mapping of Course outcomes with Program outcomes | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|
| KMBN-251 IT Skills Lab-2 | | | | | | |
| CO | Program outcomes(PO) | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 |
| CO1 | 1 | 1 | 2 | 1 | 1 | 1 |
| CO2 | 3 | 2 | 1 | 1 | 1 | 1 |
| CO3 | 2 | 1 | 2 | - | 1 | 2 |
| Average | 2.0 | 1.3 | 1.7 | 1.0 | 1.0 | 1.3 |




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KMBN-252 Mini Project-2

CO Course Outcomes

| CO | Course Outcomes |
|-----|--|
| CO1 | To gain knowledge of issues challenge of the industry |
| CO2 | Learn to prepare report on the application of emerging technologies in the selected industry |

| Mapping of Course outcomes with Program outcomes | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|
| KMBN-252 Mini Project-2 | | | | | | |
| CO | Program outcomes(PO) | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 |
| CO1 | 1 | 1 | 2 | 1 | 1 | 1 |
| CO2 | 3 | 2 | 1 | 1 | 1 | 1 |
| Average | 2 | 1.5 | 1.5 | 1 | 1 | 1 |




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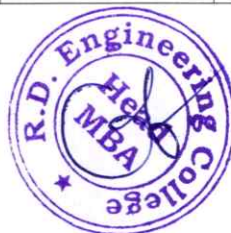
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MBA-3 Sem.

KMBN-301 STRATEGIC MANAGEMENT

| CO | Course Outcomes |
|-----|---|
| CO1 | Formulate organizational vision, mission, goals, and values |
| CO2 | Develop strategies and action plans to achieve an organization's vision, mission, and goals. |
| CO3 | Develop powers of managerial judgment, how to assess business risk, and improve ability to make sound decisions and achieve effective outcomes. |
| CO4 | Evaluate and revise programs and procedures in order to achieve organizational goals; |
| CO5 | Consider the ethical dimensions of the strategic management process |

| Mapping of Course outcomes with Program outcomes | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|
| KMBN-301 STRATEGIC MANAGEMENT | | | | | | |
| CO | Program outcomes(PO) | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 |
| CO1 | 1 | 1 | 2 | 1 | 1 | 1 |
| CO2 | 3 | 2 | 1 | 1 | 1 | 1 |
| CO3 | 2 | 1 | 2 | - | 1 | 2 |
| CO4 | 2 | 1 | 1 | 3 | 2 | 2 |
| CO5 | 2 | 1 | 1 | 3 | 1 | 2 |
| Average | 2 | 1 | 1 | 2 | 1 | 2 |




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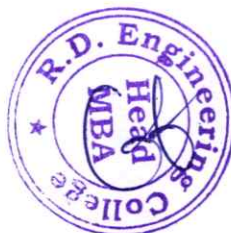
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DEPARTMENT OF MANAGEMENT

KMBN-302 INNOVATION & ENTREPRENEURSHIP

| CO | Course Outcomes |
|-----|---|
| CO1 | Remember and comprehend basic concepts of entrepreneurship |
| CO2 | Develop knowledge on Entrepreneurial Finance, Assistance and role of Entrepreneurial Development Agencies |
| CO3 | Develop understanding of converting an Idea to an opportunity and develop understanding of various funding sources |
| CO4 | Gain in depth knowledge of innovation and its various sources |
| CO5 | Develop understanding of various dimensions of innovation along with current trends and general awareness of innovation and startup |

| Mapping of Course outcomes with Program outcomes | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|
| KMBN302 INNOVATION & ENTREPRENEURSHIP | | | | | | |
| CO | Program outcomes(PO) | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 |
| CO1 | 1 | 1 | 2 | 1 | 1 | 1 |
| CO2 | 3 | 2 | 1 | 1 | 1 | 1 |
| CO3 | 2 | 1 | 2 | - | 1 | 2 |
| CO4 | 2 | 1 | 1 | 3 | 2 | 2 |
| CO5 | 2 | 1 | 1 | 3 | 1 | 2 |
| Average | 2 | 1 | 1 | 2 | 1 | 2 |




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KVE-301 UNIVERSAL HUMAN VALUES AND PROFESSIONAL ETHICS

| CO | Course Outcomes |
|-----|---|
| CO1 | Understand the significance of value inputs in a classroom, distinguish between values and skills, understand the need, basic guidelines, content and process of value education, explore the meaning of happiness and prosperity and do a correct appraisal of the current scenario in the society |
| CO2 | Distinguish between the Self and the Body, understand the meaning of Harmony in the Self the Co-existence of Self and Body. |
| CO3 | Understand the value of harmonious relationship based on trust, respect and other naturally acceptable feelings in human-human relationships and explore their role in ensuring a harmonious society |
| CO4 | Understand the harmony in nature and existence, and work out their mutually fulfilling participation in the nature. |
| CO5 | Distinguish between ethical and unethical practices, and start working out the strategy to actualize a harmonious environment wherever they work. |

| Mapping of Course outcomes with Program outcomes | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|
| KVE-301 UNIVERSAL HUMAN VALUES AND PROFESSIONAL ETHICS | | | | | | |
| CO | Program outcomes(PO) | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 |
| CO1 | 1 | - | - | 3 | 2 | 1 |
| CO2 | - | - | - | 3 | 1 | 1 |
| CO3 | - | - | 1 | 3 | 1 | 1 |
| CO4 | - | 1 | - | 3 | - | 1 |
| CO5 | - | - | - | 1 | 2 | 2 |
| Average | 1 | 1 | 1 | 2.6 | 1.8 | 1.2 |




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DEPARTMENT OF MANAGEMENT

KMBN HR01- Talent Management

| CO | Course Outcomes |
|-----|--|
| CO1 | Knowledge of Talent Management Processes |
| CO2 | Understanding for analysis of the impacts of Talent management in the organization |
| CO3 | Competency to implement Talent Management practices |
| CO4 | Competency to develop leadership qualities among subordinate. |
| CO5 | Knowledge about the reward system to support Talent management |

| Mapping of Course outcomes with Program outcomes | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|
| KMBN HR01- Talent Management | | | | | | |
| CO | Program outcomes(PO) | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 |
| CO1 | 1 | 2 | 1 | - | 1 | 1 |
| CO2 | 2 | 1 | 2 | - | 1 | 2 |
| CO3 | 2 | 1 | 2 | 1 | 1 | 2 |
| CO4 | 2 | 1 | 1 | 2 | 2 | 2 |
| CO5 | 1 | 1 | 1 | - | 1 | 1 |
| Average | 1.6 | 1.2 | 1.4 | 1.5 | 1.2 | 1.6 |




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DEPARTMENT OF MANAGEMENT

KMBN HR02- Employee Relations & Labour Laws

| CO | Course Outcomes |
|-----|---|
| CO1 | Knowledge of Industrial Relation framework |
| CO2 | Competency to understand the importance of Employee Relation within the perspective of Industrial Relation. |
| CO3 | Knowledge about relevant Laws of HR management. |
| CO4 | Competency to interpreted and implement the Labor Laws within organization. |
| CO5 | Competency to use Collective Bargaining and Grievance redressal Mechanism |

| Mapping of Course outcomes with Program outcomes KMBN HR02- Employee Relations & Labour Laws | | | | | | |
|---|----------------------|-----|-----|-----|-----|-----|
| CO | Program outcomes(PO) | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 |
| CO1 | 3 | - | - | - | 3 | 1 |
| CO2 | 3 | - | - | - | 3 | 1 |
| CO3 | 3 | 3 | 3 | - | 3 | 1 |
| CO4 | 3 | 3 | 3 | - | 3 | 1 |
| CO5 | 3 | 3 | 3 | - | 3 | 2 |
| Average | 3 | 3 | 3 | - | 3 | 1.2 |




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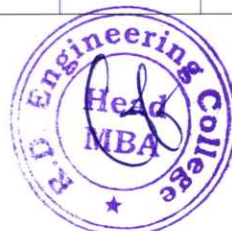
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DEPARTMENT OF MANAGEMENT

KMBN MK01-CONSUMER BEHAVIOR & MARKETING COMMUNICATION

| CO | Course Outcomes |
|-----|---|
| CO1 | Understand the three major influences on customer choice: the process of human decision making in a marketing context; the individual customers make up; the environment in which the customer is embedded. |
| CO2 | Develop the cognitive skills to enable the application of the above knowledge to marketing decision making and activities |
| CO3 | Be able to demonstrate how concepts may be applied to marketing strategy. |
| CO4 | Apply an IMC approach in the development of an overall advertising and promotional plan. |
| CO5 | Enhance creativity, critical thinking and analytical ability through developing an integrated marketing communication campaign. |

| Mapping of Course outcomes with Program outcomes | | | | | | |
|---|----------------------|-----|-----|-----|-----|-----|
| KMBN MK01-CONSUMER BEHAVIOR & MARKETING COMMUNICATION | | | | | | |
| CO | Program outcomes(PO) | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 |
| CO1 | 2 | 2 | 2 | - | 3 | 3 |
| CO2 | 3 | 3 | 3 | - | 3 | 3 |
| CO3 | 3 | 3 | 3 | - | 3 | 3 |
| CO4 | 3 | 2 | 2 | - | 3 | 3 |
| CO5 | 3 | 2 | 2 | - | 2 | 2 |
| Average | 2.8 | 2.4 | 2.4 | - | 2.8 | 2.8 |



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DEPARTMENT OF MANAGEMENT

KMBN MK02- Marketing Analytics

| CO | Course Outcomes |
|-----|---|
| CO1 | Students will develop the skill in marketing analytics |
| CO2 | Students will be acquainted with better understanding of real life marketing data and its analysis. |
| CO3 | To interpret the marketing data for effective marketing decision making |
| CO4 | To draw inferences from data in order to answer descriptive, predictive and prescriptive questions relevant to marketing managers |
| CO5 | Students will develop analytical skill for effective market decision making in real life environment. |

| Mapping of Course outcomes with Program outcomes | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|
| KMBN MK02- Marketing Analytics | | | | | | |
| CO | Program outcomes(PO) | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 |
| CO1 | 3 | 2 | 2 | 1 | 1 | 1 |
| CO2 | 3 | 3 | 3 | 2 | 2 | 2 |
| CO3 | 2 | 3 | 2 | 1 | 1 | 3 |
| CO4 | 2 | - | - | 1 | 1 | - |
| CO5 | 2 | - | - | 1 | 1 | - |
| Average | 2.4 | 2.7 | 2.3 | 1.2 | 1.2 | 2 |




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DEPARTMENT OF MANAGEMENT

KMBN FM01 Investment Analysis & Portfolio Management

| CO | Course Outcomes |
|-----|--|
| CO1 | Understand about various investment avenues. |
| CO2 | Understand the value of assets and manage investment portfolio. |
| CO3 | Understand various Models of Investment and its application |
| CO4 | Understand and create various investment strategies on the basis of various market conditions. |
| CO5 | Measure riskiness of a stock or a portfolio position.. |

| Mapping of Course outcomes with Program outcomes | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|
| KMBN FM01 Investment Analysis & Portfolio Management | | | | | | |
| CO | Program outcomes(PO) | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 |
| CO1 | 3 | 1 | 3 | - | 1 | - |
| CO2 | 3 | 3 | 3 | - | 3 | - |
| CO3 | 3 | 3 | 3 | - | 3 | - |
| CO4 | 3 | 3 | 3 | - | 3 | - |
| CO5 | 3 | 3 | 3 | - | 3 | - |
| Average | 3 | 2.6 | 3 | - | 2.6 | - |




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DEPARTMENT OF MANAGEMENT

KMBN FM02- Financial Planning & Tax Management

| CO | Course Outcomes |
|-----|--|
| CO1 | Understand about various tax provisions and planning. |
| CO2 | Understand the scope tax planning concerning various business and managerial and strategic activities can be explored. |
| CO3 | Have Know about various Tax Dates Rates and Forms |
| CO4 | Have Knowledge of Financial Planning and its Process. |
| CO5 | Have knowledge about asset allocation and retirement planning process |

| Mapping of Course outcomes with Program outcomes | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|
| KMBN FM02- Financial Planning & Tax Management | | | | | | |
| CO | Program outcomes(PO) | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 |
| CO1 | 3 | - | - | - | 2 | - |
| CO2 | 3 | 2 | 3 | - | 2 | - |
| CO3 | 3 | 3 | 3 | - | 2 | - |
| CO4 | 3 | 3 | 3 | - | - | - |
| CO5 | 3 | 3 | 3 | - | - | - |
| Average | 3 | 2.8 | 3 | - | 2 | - |




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KMBN IT01- Data Analytics for Business Decisions

| CO | Course Outcomes |
|-----|--|
| CO1 | Understand the basics of business analysis and Data Science |
| CO2 | Understand data management and handling and Data Science Project Life Cycle. |
| CO3 | Understand the data mining concept and its techniques |
| CO4 | Understand and Analyzing machine learning concept |
| CO5 | Understand the application of business analysis in different domain |

| Mapping of Course outcomes with Program outcomes | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|
| KMBN IT01- Data Analytics for Business Decisions | | | | | | |
| CO | Program outcomes(PO) | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 |
| CO1 | 1 | 1 | - | 1 | - | - |
| CO2 | 3 | 2 | - | 1 | - | - |
| CO3 | 2 | 1 | - | - | 1 | 2 |
| CO4 | 2 | 1 | - | 3 | 2 | 2 |
| CO5 | 2 | 1 | - | 3 | 1 | 2 |
| Average | 2 | 1.2 | - | 2 | 1.3 | 2 |




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KMBN IT02- AI & Machine Learning for Business

| CO | Course Outcomes |
|-----|---|
| CO1 | To understand the need of Machine Learning & Statistics for solving various problems. |
| CO2 | To understand the basic concepts of Supervised and Unsupervised learning. |
| CO3 | To apply regression analysis on the data available. |
| CO4 | To design appropriate machine learning and apply on real world problems |
| CO5 | To optimize different Machine Learning & Deep Learning Techniques. |

| Mapping of Course outcomes with Program outcomes | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|
| KMBN IT02- AI & Machine Learning for Business | | | | | | |
| CO | Program outcomes(PO) | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 |
| CO1 | 3 | - | - | 1 | - | - |
| CO2 | 3 | - | - | 1 | - | - |
| CO3 | 3 | - | - | - | - | - |
| CO4 | 3 | 1 | 1 | 3 | - | 2 |
| CO5 | 3 | 1 | 1 | 3 | - | 2 |
| Average | 3 | 1 | 1 | 2 | - | 2 |




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FOURTH SEMESTER

KMBN-401 Emerging Technologies in Global Business Environment

| CO | Course Outcomes |
|-----|--|
| CO1 | To get an overview of the changing context of International Business in the wake of Industry 4.0 |
| CO2 | Conceptual understanding of the new technologies that are driving change in business operations and strategy |
| CO3 | Understand shifts in economic thought and its impact on business decisions. |
| CO4 | Understand changing geo politics and analyses its impact on international Business |
| CO5 | Critically think about issues and challenges in the Global World and find sustainable solutions |

| Mapping of Course outcomes with Program outcomes | | | | | | |
|---|----------------------|-----|-----|-----|-----|-----|
| KMBN-401 Emerging Technologies in Global Business Environment | | | | | | |
| CO | Program outcomes(PO) | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 |
| CO1 | 3 | - | - | - | - | 1 |
| CO2 | 3 | - | - | 2 | - | 1 |
| CO3 | 3 | - | - | 2 | 3 | 1 |
| CO4 | 3 | - | - | 2 | 3 | 1 |
| CO5 | 3 | - | - | 2 | 3 | 1 |
| Average | 3 | - | - | 2 | 3 | 1 |




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DEPARTMENT OF MANAGEMENT

KMBN HR 03 – HR ANALYTICS

| CO | Course Outcomes |
|-----|--|
| CO1 | Apply HR Analytical techniques in the areas of HRP, recruitment and selection, Compensation and Benefits and Training etc. |
| CO2 | Demonstrate HR function in adding value in business terms. |
| CO3 | Utilise soft factors in a people management context and convert them into measurable variables. |
| CO4 | Design a Metrics and Analysis index for recruitment, performance and or a training and development context Applying |
| CO5 | Predict the issues using the available HR data and formulate the best strategies. |

| Mapping of Course outcomes with Program outcomes | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|
| KMBN HR 03 – HR ANALYTICS | | | | | | |
| CO | Program outcomes(PO) | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 |
| CO1 | 3 | - | - | 3 | - | - |
| CO2 | 3 | - | - | 3 | - | - |
| CO3 | 3 | 3 | 2 | 3 | - | 2 |
| CO4 | 3 | 3 | 3 | 3 | - | 2 |
| CO5 | 3 | 3 | 3 | 3 | - | 2 |
| Average | 3 | 3 | 2.7 | 3 | - | 2 |




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DEPARTMENT OF MANAGEMENT

KMBN HR 04 – Performance And Reward Management

| | |
|------------|--|
| CO | Course Outcomes |
| CO1 | Knowledge of Performance Management and Performance Appraisal |
| CO2 | Competency to understand the importance of importance of Performance Management |
| CO3 | Knowledge about the Compensation and Reward Systems |
| CO4 | Competency to implement the effective reward systems in the organization |
| CO5 | Ability to explain the relevance of competency mapping and understanding its linkage with career development |

| Mapping of Course outcomes with Program outcomes | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|
| KMBN HR 04 – Performance And Reward Management | | | | | | |
| CO | Program outcomes(PO) | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 |
| CO1 | 1 | 1 | 1 | - | 2 | 1 |
| CO2 | 2 | 1 | 1 | - | 2 | 1 |
| CO3 | 2 | 1 | 2 | - | 2 | 2 |
| CO4 | 1 | 1 | 1 | - | 2 | 2 |
| CO5 | 2 | 1 | 2 | - | 1 | 1 |
| Average | 1.6 | 1 | 1.4 | - | 1.8 | 1.4 |




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DEPARTMENT OF MANAGEMENT

KMBN HR 05 – International Management

| CO | Course Outcomes |
|-----|---|
| CO1 | Understanding the Contexts of International HRM |
| CO2 | Knowledge about the HR Processes in International Context |
| CO3 | Able to evaluate the impacts of Globalization on HRM |
| CO4 | Desired level of expertise on organizational |
| CO5 | Understanding the International culture in SHRM |

| Mapping of Course outcomes with Program outcomes | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|
| KMBN HR 05 – International Management | | | | | | |
| CO | Program outcomes(PO) | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 |
| CO1 | 3 | 2 | 2 | 1 | 3 | 2 |
| CO2 | 3 | 2 | 2 | 1 | 2 | 2 |
| CO3 | 2 | 3 | 3 | 1 | 3 | 2 |
| CO4 | 2 | 2 | 2 | 2 | 1 | 2 |
| CO5 | 2 | 2 | 2 | 1 | 3 | 2 |
| Average | 2.4 | 2.2 | 2.2 | 1.2 | 2.4 | 2 |




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DEPARTMENT OF MANAGEMENT

KMBN MK-03 – B2B And Services Marketing.

| CO | Course Outcomes |
|-----|--|
| CO1 | Understand and nature of B2B marketing |
| CO2 | Ability to create an integrated marketing communications plan which includes promotional strategies |
| CO3 | Define and apply knowledge of various aspects of managerial decision making related to pricing strategy and tactics. |
| CO4 | Be able to identify critical issues related to service design, such as identifying and managing customer service experience, expectations, perceptions and outcomes. |
| CO5 | Use critical analysis to perceive service shortcomings in reference to ingredients to create service excellence. |

| Mapping of Course outcomes with Program outcomes | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|
| KMBN MK-03 – B2B And Services Marketing | | | | | | |
| CO | Program outcomes(PO) | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 |
| CO1 | 3 | 2 | 2 | 1 | 1 | 1 |
| CO2 | 3 | 2 | 3 | 1 | 2 | 2 |
| CO3 | 2 | 3 | 2 | 3 | 2 | 3 |
| CO4 | 3 | 2 | 3 | 1 | 2 | 3 |
| CO5 | 2 | 1 | 1 | 2 | 3 | 3 |
| Average | 2.6 | 2 | 2.2 | 1.6 | 2 | 2.4 |




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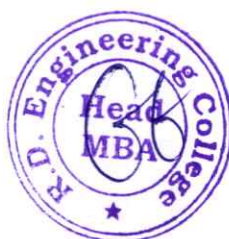
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DEPARTMENT OF MANAGEMENT

KMBN MK-04 – Sales And Retail Management.

| CO | Course Outcomes |
|-----|--|
| CO1 | Students will develop knowledge, understanding and skills in Sales force management. |
| CO2 | Acquainted with better understanding of implementation of sales management strategies. |
| CO3 | Develop analytical skills for effective decision alternatives in sales management problems |
| CO4 | Develop the knowledge, understanding and skills in retail management. |
| CO5 | Acquainted with better understanding of implementation of retail management strategies and develop analytical skills for effective decision alternatives in retail operations. |

| Mapping of Course outcomes with Program outcomes | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|
| KMBN MK-04 – Sales And Retail Management | | | | | | |
| CO | Program outcomes(PO) | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 |
| CO1 | 3 | 2 | 2 | 1 | 1 | 1 |
| CO2 | 3 | 2 | 2 | 1 | 1 | 1 |
| CO3 | 3 | 2 | 2 | 1 | 1 | 1 |
| CO4 | 3 | 2 | 2 | 1 | 1 | 1 |
| CO5 | 3 | 2 | 2 | 1 | 1 | 1 |
| Average | 3 | 2 | 2 | 1 | 1 | 1 |




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DEPARTMENT OF MANAGEMENT

KMBN MK-05 – Social Media And Web Analytics.

| | |
|------------|--|
| CO | Course Outcomes |
| CO1 | Students will develop knowledge, understanding and skills in analysis of Social Media |
| CO2 | Acquainted with better understanding of implementation Web Analytics tool |
| CO3 | Develop analytical skills for effective decision alternatives in social media problems |
| CO4 | Develop the knowledge, understanding and skills in Facebook and google analytics. |
| CO5 | Acquainted with better understanding of implementation of web analytics strategies and develop analytical skills for effective decision alternatives in social media operations. |

| Mapping of Course outcomes with Program outcomes | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|
| KMBN MK-05 – Social Media And Web Analytics | | | | | | |
| CO | Program outcomes(PO) | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 |
| CO1 | 3 | 2 | 2 | 1 | 1 | 1 |
| CO2 | 3 | 3 | 3 | 1 | 2 | 2 |
| CO3 | 2 | 3 | 2 | 1 | 2 | 3 |
| CO4 | 3 | 1 | 3 | 1 | 2 | 3 |
| CO5 | 2 | 1 | 1 | 2 | 3 | 3 |
| Average | 2.6 | 2 | 2.2 | 1.2 | 2 | 2.4 |



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DEPARTMENT OF MANAGEMENT

KMBN FM-03 Financial Derivatives.

| | |
|------------|---|
| CO | Course Outcomes |
| CO1 | Understand about various derivatives instruments and derivative Market structure |
| CO2 | Understand the forward and future pricing mechanism and strategies for hedging using various futures products |
| CO3 | Understand the option pricing mechanism and using options strategies for mitigating risk |
| CO4 | Understand the Commodity derivative market |
| CO5 | Understand the Swaps derivatives and their mechanism |

| Mapping of Course outcomes with Program outcomes | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|
| KMBN FM-03 Financial Derivatives. | | | | | | |
| CO | Program outcomes(PO) | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 |
| CO1 | 3 | 3 | 3 | - | 1 | 2 |
| CO2 | 3 | 3 | 3 | - | 1 | 2 |
| CO3 | 3 | 3 | 3 | - | 3 | 2 |
| CO4 | 3 | 3 | 3 | - | 3 | 2 |
| CO5 | 3 | 3 | 3 | - | 3 | 2 |
| Average | 3 | 3 | 3 | - | 2.2 | 2 |




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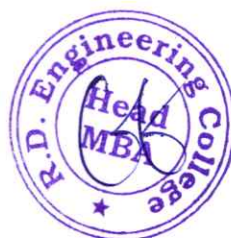
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DEPARTMENT OF MANAGEMENT

KMBN FM-04 Foreign Exchange And Risk Management

| CO | Course Outcomes |
|-----|--|
| CO1 | Understand the BOP and evaluation various exchange rate system |
| CO2 | Understand the theories of exchange rate determination |
| CO3 | Understand the foreign exchange transactions mechanism |
| CO4 | Understand the exchange dealings |
| CO5 | Understanding the various foreign exchange risk and its management |

| Mapping of Course outcomes with Program outcomes | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|
| KMBN FM-04 Foreign Exchange And Risk Management | | | | | | |
| CO | Program outcomes(PO) | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 |
| CO1 | 3 | - | - | 1 | 2 | 2 |
| CO2 | 3 | 2 | 1 | 1 | 1 | 1 |
| CO3 | 2 | 1 | 2 | - | 1 | 2 |
| CO4 | 2 | 1 | 1 | 1 | 1 | 1 |
| CO5 | 2 | 1 | 1 | 3 | 1 | 2 |
| Average | 2.4 | 1.2 | 1.2 | 1.5 | 1.2 | 1.6 |




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DEPARTMENT OF MANAGEMENT

KMBN FM-05 Financial And Credit Risk Analytics.

| CO | Course Outcomes |
|-----|---|
| CO1 | Understand about various types of financial credit. |
| CO2 | Understand the credit risk and its rating. |
| CO3 | Understanding of credit commitments and its application |
| CO4 | Understanding of risk management and corporate governance |
| CO5 | Measure riskiness of a stock or a portfolio position. |

| Mapping of Course outcomes with Program outcomes | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|
| KMBN FM-05 Financial And Credit Risk Analytics. | | | | | | |
| CO | Program outcomes(PO) | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 |
| CO1 | 3 | 2 | 1 | 1 | 2 | 2 |
| CO2 | 2 | 2 | 2 | - | 2 | 2 |
| CO3 | 1 | 1 | 1 | - | 2 | 2 |
| CO4 | 2 | 2 | 2 | - | 2 | 2 |
| CO5 | 1 | 1 | 1 | - | 2 | 2 |
| Average | 1.8 | 1.6 | 1.4 | 1 | 2 | 2 |




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DEPARTMENT OF MANAGEMENT

KMBN IT-03 Data Base Management System.

| CO | Course Outcomes |
|-----|--|
| CO1 | Knowledge about the DBMS Technology |
| CO2 | Understanding the business application of DBMS |
| CO3 | Application of DBMS for business process |
| CO4 | Knowledge and uses of Data mining techniques |
| CO5 | Working knowledge of DBMS Software ORACLE |

| Mapping of Course outcomes with Program outcomes | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|
| KMBN IT-03 Data Base Management System. | | | | | | |
| CO | Program outcomes(PO) | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 |
| CO1 | 1 | 1 | - | 1 | 2 | 1 |
| CO2 | 3 | 2 | - | 1 | 2 | 1 |
| CO3 | 2 | 1 | - | - | 2 | 2 |
| CO4 | 2 | 1 | 1 | 3 | 2 | 2 |
| CO5 | 2 | 1 | 1 | 3 | 2 | 2 |
| Average | 2 | 1.2 | 1 | 2 | 2 | 1.6 |




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DEPARTMENT OF MANAGEMENT

KMBN IT-04 Cloud Computing For Business

| CO | Course Outcomes |
|-----|--|
| CO1 | Describes the main concepts, key technologies, strengths and limitations of cloud computing. |
| CO2 | Learn the enabling technologies that help in the development of cloud. |
| CO3 | Develop the ability to understand and use the architecture cloud, service and delivery models. |
| CO4 | Explain the core issues of cloud computing like cloud virtualization |
| CO5 | To appreciate the emergence of cloud as the next generation computing paradigm. |

| Mapping of Course outcomes with Program outcomes | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|
| <u>KMBN IT-04 Cloud Computing For Business</u> | | | | | | |
| CO | Program outcomes(PO) | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 |
| CO1 | 1 | 1 | 2 | 1 | 1 | - |
| CO2 | 3 | 2 | 1 | 1 | 1 | - |
| CO3 | 2 | 1 | 2 | - | 1 | - |
| CO4 | 2 | 1 | 1 | 3 | 2 | - |
| CO5 | 2 | 1 | 1 | 3 | 1 | - |
| Average | 2 | 1.2 | 1.4 | 2 | 1.2 | - |




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DEPARTMENT OF MANAGEMENT

KMBN IT-05 Business Data Warehousing & Data Mining

| CO | Course Outcomes |
|-----|---|
| CO1 | Understanding of data warehousing and its functions |
| CO2 | To identify the key processes of data warehousing and applications. |
| CO3 | To understand data mining basic concepts |
| CO4 | To understand data mining techniques to solve problems in various disciplines |
| CO5 | Compare and evaluate data mining techniques |

| Mapping of Course outcomes with Program outcomes | | | | | | |
|--|----------------------|-----|-----|-----|-----|-----|
| KMBN IT-05 Business Data Warehousing & Data Mining | | | | | | |
| CO | Program outcomes(PO) | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 |
| CO1 | 3 | - | - | 2 | 2 | 3 |
| CO2 | 3 | - | - | 2 | 2 | 3 |
| CO3 | 2 | 2 | 3 | - | 2 | 3 |
| CO4 | 2 | 2 | 3 | 2 | 2 | 3 |
| CO5 | 3 | 2 | 3 | 2 | 2 | 3 |
| Average | 2.6 | 2 | 3 | 2 | 2 | 3 |




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**SAMPLE OF
CO-PO MAPPING**

Department of
MCA

Program Outcomes – MCA

PO 1: Computational Knowledge: Apply knowledge of computing fundamentals, computing specialisation, mathematics, and domain knowledge appropriate for the computing specialisation to the abstraction and conceptualisation of computing models from defined problems and requirements.

PO 2: Problem Analysis: Identify, formulate, research literature, and solve complex computing problems reaching substantiated conclusions using fundamental principles of mathematics, computing sciences, and relevant domain disciplines.

PO 3: Design /Development of Solutions: Design and evaluate solutions for complex computing problems, and design and evaluate systems, components, or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.

PO 4: Conduct investigations of complex Computing problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO 5: Modern Tool Usage: Create, select, adapt and apply appropriate techniques, resources, and modern computing tools to complex computing activities, with an understanding of the limitations.

PO 6: Professional Ethics: Understand and commit to professional ethics and cyber regulations, responsibilities, and norms of professional computing practices.

PO 7: Life-long Learning: Recognise the need, and have the ability, to engage in independent learning for continual development as a computing professional.

PO 8: Project management and finance: Demonstrate knowledge and understanding of the computing and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO 9: Communication Efficacy: Communicate effectively with the computing community, and with society at large, about complex computing activities by being able to comprehend and write effective reports, design documentation, make effective presentations, and give and understand clear instructions.

PO 10: Societal and Environmental Concern: Understand and assess societal, environmental, health, safety, legal, and cultural issues within local and global contexts, and the consequential responsibilities relevant to professional computing practices.

PO 11: Individual and Team Work: Function effectively as an individual and as a member or leader in diverse teams and in multidisciplinary environments.

PO 12: Innovation and Entrepreneurship: Identify a timely opportunity and using innovation to pursue that opportunity to create value and wealth for the betterment of the individual and society at large. Program Specific Outcomes – MCA

- COs to be mapped with POs in Matrix from.

Correlation levels 1,2,3 as defined (1: low, 2: Moderate, 3: High).

COs will be mapped with POs on the basis of above-mentioned levels.

If there is no correlation, put “-” or left blank or put zero.




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MASTER OF COMPUTER APPLICATION (Two Year Course) MCA Ist Year 2020-21

**MCA (MASTER OF COMPUTER APPLICATION)
MCA FIRST YEAR, 2020-21**

SEMESTER-I

| S.No | Subject Code | Subject Name | Periods | | | Sessional | | | ESE | Total | Credit |
|------|--------------|--|---------|---|---|-----------|----|-------|-----|-------------|-----------|
| | | | L | T | P | CT | TA | Total | | | |
| 1. | KCA101 | Fundamental of Computers & Emerging Technologies | 3 | 0 | 0 | 30 | 20 | 50 | 100 | 150 | 3 |
| 2. | KCA102 | Problem Solving using C | 3 | 1 | 0 | 30 | 20 | 50 | 100 | 150 | 4 |
| 3. | KCA103 | Principles of Management & Communication | 3 | 0 | 0 | 30 | 20 | 50 | 100 | 150 | 3 |
| 4. | KCA104 | Discrete Mathematics | 3 | 0 | 0 | 30 | 20 | 50 | 100 | 150 | 3 |
| 5. | KCA105 | Computer Organization & Architecture | 3 | 1 | 0 | 30 | 20 | 50 | 100 | 150 | 4 |
| 6. | KCA151 | Problem Solving using C Lab | 0 | 0 | 4 | 30 | 20 | 50 | 50 | 100 | 2 |
| 7. | KCA152 | Computer Organization & Architecture Lab | 0 | 0 | 3 | 30 | 20 | 50 | 50 | 100 | 2 |
| 8. | KCA153 | Professional Communication Lab | 0 | 0 | 2 | 30 | 20 | 50 | 50 | 100 | 2 |
| | | Total | | | | | | | | 1050 | 23 |

CT: Class Test TA: Teacher Assessment

L/T/P: Lecture/ Tutorial/ Practical

SEMESTER-II

| S.No | Subject Code | Subject Name | Periods | | | Sessional | | | ESE | Total | Credit |
|------|--------------|--|---------|---|---|-----------|----|-------|-----|-------------|-----------|
| | | | L | T | P | CT | TA | Total | | | |
| 1. | KCA201 | Theory of Automata & Formal Languages | 3 | 0 | 0 | 30 | 20 | 50 | 100 | 150 | 3 |
| 2. | KCA202 | Object Oriented Programming | 3 | 1 | 0 | 30 | 20 | 50 | 100 | 150 | 4 |
| 3. | KCA203 | Operating Systems | 3 | 0 | 0 | 30 | 20 | 50 | 100 | 150 | 3 |
| 4. | KCA204 | Database Management Systems | 3 | 0 | 0 | 30 | 20 | 50 | 100 | 150 | 3 |
| 5. | KCA205 | Data Structures & Analysis of Algorithms | 3 | 1 | 0 | 30 | 20 | 50 | 100 | 150 | 4 |
| 6. | KCAA01 | Cyber Security* | 2 | 0 | 0 | 30 | 20 | 50 | 100 | 150 | 0 |
| 7. | KCA251 | Object Oriented Programming Lab | 0 | 0 | 3 | 30 | 20 | 50 | 50 | 100 | 2 |
| 8. | KCA252 | DBMS Lab | 0 | 0 | 3 | 30 | 20 | 50 | 50 | 100 | 2 |
| 9. | KCA253 | Data Structures & Analysis of Algorithms Lab | 0 | 0 | 4 | 30 | 20 | 50 | 50 | 100 | 2 |
| | | Total | | | | | | | | 1200 | 23 |

CT: Class Test TA: Teacher Assessment

L/T/P: Lecture/ Tutorial/ Practical

* Qualifying Non-credit Course




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**MASTER OF COMPUTER APPLICATION (MCA)
MCA SECOND YEAR, 2021-22**

SEMESTER-III

| S. No. | Subject Code | Subject Name | Periods | | | Sessional | | | ESE | Total | Credit |
|--------------|--------------|-----------------------------|---------|---|---|-----------|----|-------|-------------|-----------|--------|
| | | | L | T | P | CT | TA | Total | | | |
| 1. | KCA301 | Artificial Intelligence | 3 | 0 | 0 | 30 | 20 | 50 | 100 | 150 | 3 |
| 2. | KCA302 | Software Engineering | 4 | 0 | 0 | 30 | 20 | 50 | 100 | 150 | 4 |
| 3. | KCA303 | Computer Network | 3 | 1 | 0 | 30 | 20 | 50 | 100 | 150 | 4 |
| 4. | | Elective – 1 | 3 | 0 | 0 | 30 | 20 | 50 | 100 | 150 | 3 |
| 5. | | Elective – 2 | 3 | 1 | 0 | 30 | 20 | 50 | 100 | 150 | 3 |
| 6. | KCA351 | Artificial Intelligence Lab | 0 | 0 | 3 | 30 | 20 | 50 | 50 | 100 | 2 |
| 7. | KCA352 | Software Engineering Lab | 0 | 0 | 3 | 30 | 20 | 50 | 50 | 100 | 2 |
| 8. | KCA353 | Mini Project** | 0 | 0 | 4 | 30 | 20 | 50 | 50 | 100 | 2 |
| Total | | | | | | | | | 1050 | 23 | |

CT: Class Test TA: Teacher Assessment

L/T/P: Lecture/ Tutorial/ Practical

SEMESTER-IV

| S. No. | Subject Code | Subject Name | Periods | | | Sessional | | | ESE | Total | Credit |
|--------------|--------------|--------------|---------|---|---|-----------|-----|-------|-------------|-----------|--------|
| | | | L | T | P | CT | TA | Total | | | |
| 1. | | Elective – 3 | 3 | 0 | 0 | 30 | 20 | 50 | 100 | 150 | 3 |
| 2. | | Elective – 4 | 3 | 0 | 0 | 30 | 20 | 50 | 100 | 150 | 3 |
| 3. | | Elective – 5 | 3 | 0 | 0 | 30 | 20 | 50 | 100 | 150 | 3 |
| 4. | KCA451 | Project | - | - | - | - | 200 | 200 | 500 | 700 | 14 |
| Total | | | | | | | | | 1050 | 23 | |

CT: Class Test TA: Teacher Assessment

L/T/P: Lecture/ Tutorial/ Practical

** The Mini Project (6 weeks) conducted during summer break after II semester and will be assessed during III semester. The Course will be carried out at the Institute under the guidance of a Faculty Members.

| | | |
|-------------------|--------|---------------------------------|
| Elective-1 | KCA011 | Cryptography & Network Security |
| | KCA012 | Data Warehousing & Data Mining |
| | KCA013 | Software Project Management |
| | KCA014 | Cloud Computing |
| | KCA015 | Compiler Design |

| | | |
|-------------------|--------|--------------------------------------|
| Elective-2 | KCA021 | Web Technology |
| | KCA022 | Big Data |
| | KCA023 | Simulation & Modeling |
| | KCA024 | Software Testing & Quality Assurance |
| | KCA025 | Digital Image Processing |





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DEPARTMENT OF MASTER OF COMPUTER APPLICATION
AVERAGE OF PROGRAM OUTCOMES (2022-2023)

| S.N. | YEAR | SEMESTER | Subjects/Labs With Codes | Program Outcomes | | | | | | | | | | | | | | |
|------|--------------|--------------|---|------------------|------|------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | | | | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | | | |
| 1 | MCA 1st Year | I SEMESTER | Fundamental of Computers & Emerging Technologies (KCA101) | 3.00 | 2.00 | 1.00 | 2.33 | 2.25 | - | 1.33 | - | - | 1.00 | 1.00 | - | | | |
| | | | Problem Solving using C (KCA102) | 3.00 | 2.20 | - | - | - | - | 2.20 | - | 2.00 | - | 1.00 | 1.00 | | | |
| | | | Principles of Management & Communication(KCA 103) | - | - | - | - | - | - | 1.60 | - | 3.00 | - | 2.00 | - | | | |
| | | | Discrete Mathematics(KCA 104) | 3.00 | 2.00 | - | - | - | - | 1.60 | - | - | - | - | - | | | |
| | | | Computer Organization & Architecture(KCA 105) | 3.00 | 1.00 | - | - | - | - | 1.00 | - | - | - | - | - | | | |
| | | II SEMESTER | THEORY OF AUTOMATA & FORMAL LANGUAGES (KCA201) | 1.00 | 1.50 | 1.50 | 1.67 | 1.25 | - | - | - | - | - | - | - | 1.00 | | |
| | | | OBJECT ORIENTED PROGRAMMING (KCA 202) | 1.60 | 2.20 | 2.20 | 2.00 | 1.00 | 1.00 | 1.50 | 1.00 | - | - | - | - | | | |
| | | | OPERATING SYSTEMS (KCA 203) | 1.80 | 1.50 | 1.50 | 1.00 | - | - | - | - | - | - | - | - | 1.60 | | |
| | | | DATABASE MANAGEMENT SYSTEMS (KCA 204) | 2.83 | 2.67 | 2.33 | 2.33 | 1.50 | 1.50 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 2.00 | | |
| | | | DATA STRUCTURES & ANALYSIS OF ALGORITHMS (KCA 205) | 2.50 | 2.50 | 2.00 | 1.67 | 1.00 | - | - | - | - | - | - | - | - | 2.17 | |
| 2 | MCA 2nd Year | III SEMESTER | ARTIFICIAL INTELLIGENCE (KCA 301) | 3.00 | 3.00 | - | 2.25 | 2.00 | - | - | - | - | - | - | - | | | |
| | | | SOFTWARE ENGINEERING (KCA 302) | 3.00 | 2.25 | - | 1.33 | - | 1.00 | 2.00 | 2.00 | 2.00 | - | - | - | | | |
| | | | COMPUTER NETWORK (KCA 303) | 2.60 | 1.50 | - | - | - | 1.00 | 1.40 | - | - | - | - | - | | | |
| | | | CLOUD COMPUTING (KCA 014) | 2.80 | 2.00 | 2.40 | 3.00 | 3.00 | 1.50 | 2.40 | 1.25 | 1.20 | 1.40 | 2.60 | 2.00 | | | |
| | | | WEB TECHNOLOGY (KCA 021) | - | - | 1.40 | - | 1.60 | - | 1.80 | - | - | - | - | - | 1.80 | | |
| | | | INTERNET OF THINGS (KCA 043) | 2.40 | 2.40 | 2.00 | 1.00 | 1.60 | - | - | 1.00 | - | - | - | - | 2.20 | | |
| | | IV SEMESTER | MOBILE COMPUTING (KCA 051) | 2.60 | 2.60 | 2.50 | 2.50 | 2.00 | 2.00 | 1.00 | - | 1.00 | - | 1.50 | 2.60 | | | |
| | | | SOFTWARE QUALITY ENGINEERING (KCA 035) | 2.40 | 2.40 | 1.40 | - | 1.60 | - | 1.80 | - | - | - | - | 1.80 | | | |
| | | | AVERAGE | | | | 2.53 | 2.11 | 1.84 | 1.92 | 1.71 | 1.33 | 1.59 | 1.25 | 1.70 | 1.13 | 1.52 | 1.82 |




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| R.D. ENGINEERING COLLEGE, GHAZIABAD | | | |
|--|-------------------|-------------|--------------|
| DEPARTMENT OF MASTER OF COMPUTER APPLICATION | | | |
| ACTION TAKEN ON IDENTIFIED GAP OF PROGRAM OUTCOMES (2022-2023) | | | |
| S.N. | Gap Identified | Relevant PO | Action Taken |
| | No Gap Identified | | |
| | | | |
| | | | |

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DEPARTMENT OF COMPUTER APPLICATION

COURSE OUTCOME (2022-23)

KCA201: THEORY OF AUTOMATA & FORMAL LANGUAGES

| CO | CO Statement |
|-----|---|
| CO1 | Define various types of automata for different classes of formal languages and explain their working. |
| CO2 | State and prove key properties of formal languages and automata. |
| CO3 | Construct appropriate formal notations (such as grammars, acceptors, transducers and regular expressions) for given formal languages. |
| CO4 | Convert among equivalent notations for formal languages. |
| CO5 | Explain the significance of the Universal Turing machine, Church-Turing thesis and concept of Undecidability. |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|-----|------|------|------|------|-----|-----|-----|-----|------|------|------|
| KCA201: THEORY OF AUTOMATA & FORMAL LANGUAGES | | | | | | | | | | | | |
| PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO | | | | | | | | | | | | |
| CO1 | 1 | 1 | - | - | 1 | SS- | - | - | - | - | - | 1 |
| CO2 | 1 | 2 | 2 | - | - | - | - | - | - | - | - | 1 |
| CO3 | 1 | - | 1 | 2 | 1 | - | - | - | - | - | - | 1 |
| CO4 | 1 | 2 | 1 | 1 | 1 | - | - | - | - | - | - | 1 |
| CO5 | 1 | 1 | 2 | 2 | 2 | - | - | - | - | - | - | 1 |
| Average | 1 | 1.50 | 1.50 | 1.67 | 1.25 | - | - | - | - | - | - | 1 |




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DEPARTMENT OF COMPUTER APPLICATION

COURSE OUTCOME (2022-23)

KCA202 : OBJECT ORIENTED PROGRAMMING

| CO | CO Statement |
|-----|--|
| CO1 | List the significance and key features of object oriented programming and modeling using UML |
| CO2 | Construct basic structural, behavioral and architectural models using object oriented software engineering approach. |
| CO3 | Integrate object oriented modeling techniques for analysis and design of a system. |
| CO4 | Use the basic features of data abstraction and encapsulation in C++ programs. |
| CO5 | Use the advanced features such as Inheritance, polymorphism and virtual function in C++ programs. |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KCA202 : OBJECT ORIENTED PROGRAMMING | | | | | | | | | | | | |
| PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO | | | | | | | | | | | | |
| CO1 | 2 | 2 | 1 | 2 | 1 | 1 | 1 | 1 | - | - | - | - |
| CO2 | 2 | 2 | 2 | 2 | 1 | 1 | 2 | - | - | - | - | - |
| CO3 | 2 | 3 | 2 | 2 | 1 | 1 | 1 | - | - | - | - | - |
| CO4 | 1 | 2 | 3 | 2 | 1 | 1 | - | 1 | - | - | - | - |
| CO5 | 1 | 2 | 3 | 2 | 1 | 1 | 2 | 1 | - | - | - | - |
| Average | 1.6 | 2.2 | 2.2 | 2 | 1 | 1 | 1.5 | 1 | - | - | - | - |




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COURSE OUTCOME (2022-23)
KCA203 : OPERATING SYSTEMS

| CO | CO Statement |
|-----|---|
| CO1 | Explain main components, services, types and structure of Operating Systems. |
| CO2 | Apply the various algorithms and techniques to handle the various concurrency control issues. |
| CO3 | Compare and apply various CPU scheduling algorithms for process execution. |
| CO4 | Identify occurrence of deadlock and describe ways to handle it. |
| CO5 | Explain and apply various memory, I/O and disk management techniques. |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|------|------|------|-----|-----|-----|-----|-----|-----|------|------|------|
| KCA203 : OPERATING SYSTEMS | | | | | | | | | | | | |
| PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO | | | | | | | | | | | | |
| CO1 | 1 | - | - | - | - | - | - | - | - | - | - | 1 |
| CO2 | 2 | 1 | 1 | - | - | - | - | - | - | - | - | 2 |
| CO3 | 2 | 2 | 2 | 1 | - | - | - | - | - | - | - | 2 |
| CO4 | 2 | 1 | 1 | - | - | - | - | - | - | - | - | 1 |
| CO5 | 2 | 2 | 2 | 1 | - | - | - | - | - | - | - | 2 |
| Average | 1.80 | 1.50 | 1.50 | 1 | - | - | - | - | - | - | - | 1.60 |




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COURSE OUTCOME (2022-23)
KCA204 : DATABASE MANAGEMENT SYSTEMS

| CO | CO Statement |
|-----|---|
| CO1 | Describe the features of a database system and its application and compare various types of data models. |
| CO2 | Construct an ER Model for a given problem and transform it into a relation database schema. |
| CO3 | Formulate solution to a query problem using SQL Commands, relational algebra, tuple calculus and domain calculus. |
| CO4 | Explain the need of normalization and normalize a given relation to the desired normal form. |
| CO5 | Explain different approaches of transaction processing and concurrency control. |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|------|------|------|------|-----|-----|-----|-----|-----|------|------|------|
| KCA204 : DATABASE MANAGEMENT SYSTEMS | | | | | | | | | | | | |
| PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO | | | | | | | | | | | | |
| CO1 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | - | - | - | 1 |
| CO2 | 3 | 3 | 3 | 3 | 2 | 2 | - | 1 | 1 | 1 | 1 | 2 |
| CO3 | 3 | 3 | 3 | 3 | 2 | 2 | - | 1 | 1 | 1 | 1 | 3 |
| CO4 | 3 | 3 | 3 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 3 |
| CO5 | 3 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | | | | 2 |
| Average | 2.83 | 2.67 | 2.33 | 2.33 | 1.5 | 1.5 | 1 | 1 | 1 | 1 | 1 | 2 |




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COURSE OUTCOME (2022-23)

KCA205: DATA STRUCTURES & ANALYSIS OF ALGORITHMS

| CO | CO Statement |
|-----|---|
| CO1 | Explain the concept of data structure, abstract data types, algorithms, analysis of algorithms and basic data organization schemes such as arrays and linked lists. |
| CO2 | Describe the applications of stacks and queues and implement various operations on them using arrays and linked lists. |
| CO3 | Describe the properties of graphs and trees and implement various operations such as searching and traversal on them. |
| CO4 | Compare incremental and divide-and-conquer approaches of designing algorithms for problems such as sorting and searching. |
| CO5 | Apply and analyze various design approaches such as Divide-and-Conquer, greedy and dynamic for problem solving . |

Mapping of Course Outcomes with Program Outcomes

KCA205: DATA STRUCTURES & ANALYSIS OF ALGORITHMS

| PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
|---------|------|------|-----|------|-----|-----|-----|-----|-----|------|------|------|
| CO | | | | | | | | | | | | |
| CO1 | 3 | 3 | 2 | 2 | - | - | - | - | - | - | - | 2 |
| CO2 | 3 | 3 | 2 | 2 | - | - | - | - | - | - | - | 3 |
| CO3 | 2 | 2 | 2 | 2 | - | - | - | - | - | - | - | 2 |
| CO4 | 2 | 2 | 2 | 1 | 1 | - | - | - | - | - | - | 2 |
| CO5 | 2 | 2 | 2 | 1 | 1 | - | - | - | - | - | - | 2 |
| Average | 2.50 | 2.50 | 2 | 1.67 | 1 | - | - | - | - | - | - | 2.17 |




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COURSE OUTCOME (2022-23)

KCAA01: CYBER SECURITY

| CO | CO Statement |
|-----|--|
| CO1 | Identify and analyze nature & inherent difficulties in the security of the Information System. |
| CO2 | Analyze various threats and attacks, corresponding counter measures and various vulnerability assessment and security techniques in an organization. |
| CO3 | Applications of cyber based policies and use of IPR and patent law for software-based design. Define E-commerce types and threats to E-commerce. |
| CO4 | Explain concepts and theories of networking and apply them to various situations, classifying networks, analyzing performance. |

Mapping of Course Outcomes with Program Outcomes

KCAA01: CYBER SECURITY

| PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| CO | | | | | | | | | | | | |
| CO1 | 2 | 2 | 1 | 1 | 3 | 3 | 1 | 3 | - | 1 | - | 3 |
| CO2 | 2 | 2 | 1 | 1 | - | 3 | 1 | 3 | - | 1 | - | 3 |
| CO3 | 2 | 2 | 1 | 1 | - | 3 | 1 | 3 | - | 1 | - | 3 |
| CO4 | 2 | 2 | 1 | 1 | 3 | 3 | 1 | 3 | - | 1 | - | 3 |
| Average | 2 | 2 | 1 | 1 | 3 | 3 | 1 | 3 | - | 1 | - | 3 |




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COURSE OUTCOME (2022-23)

KCA251:OBJECT ORIENTED PROGRAMMING LAB

| CO | CO Statement |
|-----|---|
| CO1 | Use the Concept of Data Abstraction and Encapsulation in C++programs. |
| CO2 | Design and Develop C++ program using the concept such as polymorphism, virtual function, exception handling and template. |
| CO3 | Apply object oriented techniques to analyze, design and develop a complete solution for a given problem. |

Mapping of Course Outcomes with Program Outcomes

KCA251:OBJECT ORIENTED PROGRAMMING LAB

| PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
|---------|-----|------|------|-----|-----|-----|------|-----|-----|------|------|------|
| CO | | | | | | | | | | | | |
| CO1 | 2 | 2 | 1 | 2 | 1 | 1 | 1 | 1 | - | - | - | - |
| CO2 | 2 | 2 | 2 | 2 | 1 | 1 | 2 | - | - | - | - | - |
| CO3 | 2 | 3 | 2 | 2 | 1 | 1 | 1 | - | - | - | - | - |
| Average | 2 | 2.33 | 1.66 | 2 | 1 | 1 | 1.33 | 1 | - | - | - | - |




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COURSE OUTCOME (2022-23)

KCA252: DATABASE MANAGEMENT SYSTEMS LAB

| CO | CO Statement |
|-----|---|
| CO1 | Use the Concept of Data Abstraction and Encapsulation in C++programs. |
| CO2 | Write SQL commands to query a database. |
| CO3 | Write PL/SQL programs for implementing stored procedures, storedfunctions, cursors, trigger and packages. |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|------|------|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KCA252: DATABASE MANAGEMENT SYSTEMS LAB | | | | | | | | | | | | |
| PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO | | | | | | | | | | | | |
| CO1 | 2 | 1 | - | - | - | - | - | 1 | - | - | - | 1 |
| CO2 | 3 | 3 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 3 |
| CO3 | 3 | 3 | 3 | 3 | 2 | - | 1 | - | - | - | 1 | 3 |
| Average | 2.66 | 2.33 | 2.5 | 2.5 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2.33 |




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COURSE OUTCOME (2022-23)

KCA253:DATA STRUCTURES & ANALYSIS OF ALGORITHMS LAB

| CO | CO Statement |
|-----|---|
| CO1 | Write and execute programs to implement various searching and sorting algorithms. |
| CO2 | Write and execute programs to implement various operations on two-dimensional arrays. |
| CO3 | Implement various operations of Stacks and Queues using both arrays and linked lists data structures. |
| CO4 | Implement graph algorithm to solve the problem of minimum spanning tree |

Mapping of Course Outcomes with Program Outcomes

| KCA253:DATA STRUCTURES & ANALYSIS OF ALGORITHMS LAB | | | | | | | | | | | | |
|---|-----|-----|-----|------|-----|-----|-----|-----|-----|------|------|------|
| PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO | | | | | | | | | | | | |
| CO1 | 3 | 3 | 2 | 2 | - | - | - | - | - | - | - | 2 |
| CO2 | 3 | 3 | 2 | 2 | - | - | - | - | - | - | - | 3 |
| CO3 | 2 | 2 | 2 | 2 | - | - | - | - | - | - | - | 2 |
| CO4 | 2 | 2 | 2 | 1 | 1 | - | - | - | - | - | - | 2 |
| Average | 2.5 | 2.5 | 2 | 1.75 | 1 | - | - | - | - | - | - | 2.25 |




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DEPARTMENT OF COMPUTER APPLICATION

COURSE OUTCOME (2020-21)

KCA101 : FUNDAMENTAL OF COMPUTERS & EMERGING TECHNOLOGIES

| CO | CO Statement |
|-----|---|
| CO1 | Demonstrate the knowledge of the basic structure, components, features and generations of computers. |
| CO2 | Describe the concept of computer languages, language translators and construct algorithms to solve problems using programming concepts. |
| CO3 | Compare and contrast features, functioning & types of operating system and computer networks. |
| CO4 | Demonstrate architecture, functioning & services of the Internet and basics of multimedia. |
| CO5 | Illustrate the emerging trends and technologies in the field of Information Technology. |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|---|-----|-----|-----|------|------|-----|------|-----|-----|------|------|------|
| KCA101 : FUNDAMENTAL OF COMPUTERS & EMERGING TECHNOLOGIES | | | | | | | | | | | | |
| PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO | | | | | | | | | | | | |
| CO1 | 3 | 2 | - | - | 2 | - | - | - | - | - | - | - |
| CO2 | 3 | - | - | - | - | - | - | - | - | - | - | - |
| CO3 | 3 | - | 1 | 2 | 2 | - | 1 | - | - | 1 | 1 | - |
| CO4 | 3 | - | - | 2 | 2 | - | 1 | - | - | - | - | - |
| CO5 | 3 | - | 1 | 3 | 3 | - | 2 | - | - | 1 | - | - |
| Average | 3 | 2 | 1 | 2.33 | 2.25 | - | 1.33 | - | - | 1 | 1 | - |




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COURSE OUTCOME (2022-23)

KCA102 :PROBLEM SOLVING USING C

| CO | CO Statement |
|-----|--|
| CO1 | Describe the functional components and fundamental concepts of a digital computer system including number systems. |
| CO2 | Construct flowchart and write algorithms for solving basic problems. |
| CO3 | Write 'C' programs that incorporate use of variables, operators and expressions along with data types. |
| CO4 | Write simple programs using the basic elements like control statements, functions, arrays and strings. |
| CO5 | Write advanced programs using the concepts of pointers, structures, unions and enumerated data types. |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KCA102 :PROBLEM SOLVING USING C | | | | | | | | | | | | |
| PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO | | | | | | | | | | | | |
| CO1 | 3 | 3 | - | - | - | - | 3 | - | 2 | - | 1 | 1 |
| CO2 | 3 | 2 | - | - | - | - | 2 | - | - | - | 1 | 1 |
| CO3 | 3 | 2 | - | - | - | - | 2 | - | - | - | 1 | 1 |
| CO4 | 3 | 2 | - | - | - | - | 2 | - | - | - | 1 | 1 |
| CO5 | 3 | 2 | - | - | - | - | 2 | - | - | - | 1 | 1 |
| Average | 3 | 2.2 | - | - | - | - | 2.2 | - | 2 | - | 1 | 1 |




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COURSE OUTCOME (2020-21)

KCA103 : Principles of Management & Communication

| CO | CO Statement |
|-----|---|
| CO1 | Describe primary features, processes and principles of management. |
| CO2 | Explain functions of management in terms of planning, decision making and organizing. |
| CO3 | Illustrate key factors of leadership skill in directing and controlling business resources and processes. |
| CO4 | Exhibit adequate verbal and non-verbal communication skills |
| CO5 | Demonstrate effective discussion, presentation and writing skills. |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KCA103 : Principles of Management & Communication | | | | | | | | | | | | |
| PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO | | | | | | | | | | | | |
| CO1 | - | - | - | - | - | - | 1 | - | - | - | 2 | - |
| CO2 | - | - | - | - | - | - | 1 | - | - | - | 2 | - |
| CO3 | - | - | - | - | - | - | 2 | - | - | - | 2 | - |
| CO4 | - | - | - | - | - | - | 2 | - | 3 | - | 2 | - |
| CO5 | - | - | - | - | - | - | 2 | - | 3 | - | 2 | - |
| Average | - | - | - | - | - | - | 1.6 | - | 3 | - | 2 | - |




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DEPARTMENT OF COMPUTER APPLICATION

COURSE OUTCOME (2020-21)

KCA104 : Discrete Mathematics

| CO | CO Statement |
|-----|--|
| CO1 | Use mathematical and logical notation to define and formally reason about basic discrete structures such as Sets, Relations and Functions |
| CO2 | Apply mathematical arguments using logical connectives and quantifiers to check the validity of an argument through truth tables and propositional and predicate logic |
| CO3 | Identify and prove properties of Algebraic Structures like Groups, Rings and Fields |
| CO4 | Formulate and solve recurrences and recursive functions |
| CO5 | Apply the concept of combinatorics to solve basic problems in discrete mathematics |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KCA104 : Discrete Mathematics | | | | | | | | | | | | |
| PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO | | | | | | | | | | | | |
| CO1 | 3 | 2 | - | - | - | - | - | - | - | - | - | - |
| CO2 | 3 | 2 | - | - | - | - | 2 | - | - | - | - | - |
| CO3 | 3 | 2 | - | - | - | - | - | - | - | - | - | - |
| CO4 | 3 | 2 | - | - | - | - | 1 | - | - | - | - | - |
| CO5 | 3 | 2 | - | - | - | - | 2 | - | - | - | - | - |
| Average | 3 | 2 | - | - | - | - | 1.6 | - | - | - | - | - |




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COURSE OUTCOME (2020-21)

KCA105 : COMPUTER ORGANIZATION & ARCHITECTURE

| CO | CO Statement |
|-----|--|
| CO1 | Describe functional units of digital system and explain how arithmetic and logical operations are performed by computers |
| CO2 | Describe the operations of control unit and write sequence of instructions for carrying out simple operation using various addressing modes. |
| CO3 | Design various types of memory and its organization. |
| CO4 | Describe the various modes in which IO devices communicate with CPU and memory. |
| CO5 | List the criteria for classification of parallel computer and describe various architectural schemes. |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KCA105 : COMPUTER ORGANIZATION & ARCHITECTURE | | | | | | | | | | | | |
| PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO | | | | | | | | | | | | |
| CO1 | 3 | 1 | - | - | - | - | 1 | - | - | - | - | - |
| CO2 | 3 | 1 | - | - | - | - | 1 | - | - | - | - | - |
| CO3 | 3 | 1 | - | - | - | - | 1 | - | - | - | - | - |
| CO4 | 3 | 1 | - | - | - | - | 1 | - | - | - | - | - |
| CO5 | 3 | 1 | - | - | - | - | 1 | - | - | - | - | - |
| Average | 3 | 1 | - | - | - | - | 1 | - | - | - | - | - |




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COURSE OUTCOME (2020-21)

KCA151: PROBLEM SOLVING USING C LAB

| CO | CO Statement |
|-----|--|
| CO1 | Write, compile, debug and execute programs in a C programming environment. |
| CO2 | Write programs that incorporate use of variables, operators and expressions along with data types. |
| CO3 | Write programs for solving problems involving use of decision control structures and loops. |
| CO4 | Write programs that involve the use of arrays, structures and user defined functions. |
| CO5 | Write programs using graphics and file handling operations. |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KCA151: PROBLEM SOLVING USING C LAB | | | | | | | | | | | | |
| PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO | | | | | | | | | | | | |
| CO1 | - | 2 | - | - | - | - | 1 | - | - | - | 1 | 1 |
| CO2 | 3 | 2 | - | - | - | - | 2 | - | - | - | 1 | 1 |
| CO3 | 3 | 2 | - | - | - | - | 2 | - | - | - | 1 | 1 |
| CO4 | 3 | 2 | - | - | - | - | 2 | - | - | - | 1 | 1 |
| CO5 | 3 | 2 | - | - | - | - | 2 | - | - | - | 1 | 1 |
| Average | 3 | 2 | - | - | - | - | 1.8 | - | - | - | 1 | 1 |




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COURSE OUTCOME (2020-21)

KCA152: COMPUTER ORGANIZATION & ARCHITECTURE LAB

| CO | CO Statement |
|-----|---|
| CO1 | Design and verify combinational circuits (adder, code converter, decoder, multiplexer) using basic gates. |
| CO2 | Design and verify various flip-flops. |
| CO3 | Design I/O system and ALU. |
| CO4 | Demonstrate combinational circuit using simulator |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KCA152: COMPUTER ORGANIZATION & ARCHITECTURE LAB | | | | | | | | | | | | |
| PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO | | | | | | | | | | | | |
| CO1 | 3 | 2 | - | - | - | - | 2 | - | - | - | - | - |
| CO2 | 3 | 2 | - | - | - | - | 1 | - | - | - | - | - |
| CO3 | 3 | 2 | - | - | - | - | 1 | - | - | - | - | - |
| CO4 | 3 | 2 | - | - | - | - | 1 | - | - | - | - | - |
| Average | 3 | 2 | - | - | - | - | 1 | - | - | - | - | - |




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COURSE OUTCOME (2020-21)

KCA153 : PROFESSIONAL COMMUNICATION LAB

| CO | CO Statement |
|-----|--|
| CO1 | Develop the ability to work as a team member as an integral activity in the workplace. |
| CO2 | Increase confidence in their ability to read, comprehend, organize, and retain written information. Improve reading fluency. |
| CO3 | Write coherent speech outlines that demonstrate their ability to use organizational formats with a specific purpose; Deliver effective speeches that are consistent with and appropriate for the audience and purpose. |
| CO4 | Develop proper listening skills; articulate and enunciate words and sentences clearly and efficiently. |
| CO5 | Show confidence and clarity in public speaking projects; be schooled in preparation and research skills for oral presentations. |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| KCA153 : PROFESSIONAL COMMUNICATION LAB | | | | | | | | | | | | |
| PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO | | | | | | | | | | | | |
| CO1 | - | - | - | - | - | - | 3 | - | 3 | - | - | - |
| CO2 | - | - | - | - | - | - | 3 | - | 3 | - | - | - |
| CO3 | - | - | - | - | - | - | 3 | - | 3 | - | - | - |
| CO4 | - | - | - | - | - | - | 3 | - | 3 | - | - | - |
| CO5 | - | - | - | - | - | - | 3 | - | 3 | - | - | - |
| Average | - | - | - | - | - | - | 3 | - | 3 | - | - | - |




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DEPARTMENT OF COMPUTER APPLICATION

COURSE OUTCOME (2020-21)

RCA501 : COMPUTER GRAPHICS & ANIMATION

| CO | CO Statement |
|-----|--|
| CO1 | Demonstrate computer graphics algorithms for image creation and filling. |
| CO2 | Express the fundamentals of animation and its techniques. |
| CO3 | Practice the concepts of graphics related to clipping and transformations. |
| CO4 | Illustrate the theory of projection and visible surface detection. |
| CO5 | Analyze illumination models and three-dimensional curves. |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| RCA501 : COMPUTER GRAPHICS & ANIMATION | | | | | | | | | | | | |
| PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO | | | | | | | | | | | | |
| CO1 | 3 | 3 | 1 | 1 | 1 | - | 1 | - | - | - | - | - |
| CO2 | - | - | - | - | 2 | - | 1 | - | - | - | - | - |
| CO3 | - | 3 | - | 2 | 1 | - | - | - | - | - | - | - |
| CO4 | - | 3 | - | 2 | 2 | - | - | - | - | - | - | - |
| CO5 | 3 | 3 | 1 | 1 | 1 | - | 1 | - | - | - | 1 | - |
| Average | 3 | 3 | 1 | 1.5 | 1.4 | - | 1 | - | - | - | 1 | - |




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DEPARTMENT OF COMPUTER APPLICATION

COURSE OUTCOME (2020-21)

RCA502 : SOFTWARE ENGINEERING

| CO | CO Statement |
|-----|--|
| CO1 | Describe Software Engineering Concepts and SDLC models. |
| CO2 | Prepare Software Requirement Specification (SRS) with Modelling tools and Quality standards. |
| CO3 | Analyse design concepts to software development with software metrics methods. |
| CO4 | Categorize software testing techniques and its implementation. |
| CO5 | Contrast Software project management activities with its parameters such as Cost, Efforts, Schedule/ Duration. |

Mapping of Course Outcomes with Program Outcomes

RCA502 : SOFTWARE ENGINEERING

| | PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
|---------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| CO | | | | | | | | | | | | | |
| CO1 | | 3 | 2 | - | - | - | - | - | - | - | - | - | - |
| CO2 | | 3 | 2 | - | 1 | - | 1 | 2 | - | 2 | - | - | - |
| CO3 | | 3 | 3 | - | 2 | - | - | - | - | 2 | - | - | - |
| CO4 | | 3 | - | - | - | - | - | 2 | - | - | - | - | - |
| CO5 | | 3 | 2 | - | 1 | - | - | - | 2 | - | - | - | - |
| Average | | 3 | 2.2 | - | 1.3 | - | 1 | 2 | 2 | 2 | - | - | - |




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COURSE OUTCOME (2020-21)

RCA-E35 : DISTRIBUTED SYSTEMS

| CO | CO Statement |
|-----|--|
| CO1 | Demonstrate knowledge of the basic elements and core architectural aspects of distributed systems |
| CO2 | Apply appropriate distributed system principles in ensuring transparency, consistency and fault tolerance in distributed file systems. |
| CO3 | Analyze different client server communication models and their practical applications |
| CO4 | Compare the different process synchronization algorithms and its application in real time systems. |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| RCA-E35 : DISTRIBUTED SYSTEMS | | | | | | | | | | | | |
| PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO | | | | | | | | | | | | |
| CO1 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | - | - | - | | 3 |
| CO2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | - | - | - | 3 |
| CO3 | 3 | 3 | 3 | 2 | 2 | - | 3 | - | - | - | - | 3 |
| CO4 | 2 | 3 | 3 | 3 | 2 | - | 3 | - | - | - | - | 3 |
| Average | 2.75 | 3 | 3 | 2.5 | 2.5 | 3 | 3 | 3 | - | - | - | 3 |




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COURSE OUTCOME (2020-21)

RCA-E44 : PATTERN RECOGNITION

| CO | CO Statement |
|-----|---|
| CO1 | Explain the Basics of Probability, Random Processes and Linear Algebra and define concepts of pattern recognition. |
| CO2 | Summarize, analyze, and discuss the Mathematical foundation of Statistical Pattern Recognition and Linear discriminant functions in the arena of pattern recognition. |
| CO3 | Apply performance evaluation methods Parameter estimation methods and Sequential Pattern Recognition for pattern recognition. |
| CO4 | Apply pattern recognition Nonparametric Techniques to real-world problems such as document analysis and recognition. |
| CO5 | Implement simple Unsupervised Learning & Clustering techniques such as pattern classifiers, classifier combinations. |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|-----|------|-----|------|-----|------|-----|-----|-----|------|------|------|
| RCA-E44 : PATTERN RECOGNITION | | | | | | | | | | | | |
| PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO | | | | | | | | | | | | |
| CO1 | 2 | 1 | - | 2 | - | 1 | 1 | - | - | - | - | - |
| CO2 | 3 | 2 | - | 2 | - | 2 | 1 | 1 | - | - | - | - |
| CO3 | - | - | 3 | 2 | 2 | 1 | 1 | - | - | - | - | - |
| CO4 | 2 | 1 | 2 | 2 | 1 | 1 | - | 1 | - | - | - | - |
| CO5 | 1 | 1 | 3 | 2 | 2 | 1 | - | 1 | - | - | - | - |
| Average | 2.5 | 1.25 | 2.5 | 1.75 | 1.5 | 1.50 | 1 | 1 | - | - | - | - |




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COURSE OUTCOME (2020-21)

RCA-E21 : CRYPTOGRAPHY AND NETWORK SECURITY

| CO | CO Statement |
|-----|---|
| CO1 | Understand the fundamental design principles of current IP networks,. |
| CO2 | Understand the Dijkstra and Bellman-Ford routing algorithms. |
| CO3 | Configure Internet routers using several intra-domain routing protocols. |
| CO4 | Demonstrate the network architecture for IP multicast and how IP multicast is distributed within a network. |
| CO5 | Practically configure a network with label switching and traffic engineering using MPLS and RSVP. |

Mapping of Course Outcomes with Program Outcomes

RCA-E21 : CRYPTOGRAPHY AND NETWORK SECURITY

| PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
|---------|-----|------|-----|------|-----|------|-----|-----|-----|------|------|------|
| CO | | | | | | | | | | | | |
| CO1 | 2 | 1 | - | 2 | - | 1 | 1 | - | - | - | - | - |
| CO2 | 3 | 2 | - | 2 | - | 2 | 1 | 1 | - | - | - | - |
| CO3 | - | - | 3 | 2 | 2 | 1 | 1 | - | - | - | - | - |
| CO4 | 2 | 1 | 2 | 2 | 1 | 1 | - | 1 | - | - | - | - |
| CO5 | 1 | 1 | 3 | 2 | 2 | 1 | - | 1 | - | - | - | - |
| Average | 2.5 | 1.25 | 2.5 | 1.75 | 1.5 | 1.50 | 1 | 1 | - | - | - | - |




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COURSE OUTCOME (2020-21)

RCA551 : COMPUTER GRAPHICS & ANIMATION LAB

| CO | CO Statement |
|-----|---|
| CO1 | Analyze the algorithms related with the creation of two-dimensional object |
| CO2 | Examine the techniques of two-dimensional objects transformations and splines . |
| CO3 | Evaluate polygon filling and clipping algorithms for two dimensional figures. |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| RCA551 : COMPUTER GRAPHICS & ANIMATION LAB | | | | | | | | | | | | |
| PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO | | | | | | | | | | | | |
| CO1 | 3 | 1 | 1 | 2 | 1 | - | 1 | - | - | - | 1 | - |
| CO2 | 3 | 1 | - | - | 2 | - | 1 | - | - | - | 1 | - |
| CO3 | 3 | 1 | - | - | 1 | - | 1 | - | - | - | 1 | - |
| Average | 3 | 1 | 1 | 2 | 1.5 | - | 1 | - | - | - | 1 | - |




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COURSE OUTCOME (2020-21)

RCA552 : PROJECT BASED ON SOFTWARE ENGINEERING

| CO | CO Statement |
|-----|---|
| CO1 | Demonstrate the Software Engineering Life Cycle Models. |
| CO2 | Prepare a SRS document in line with the IEEE recommended standards. |
| CO3 | Outline the graphic representation of various UML diagrams and associations among them. |
| CO4 | Develop the project along with its report. |

| Mapping of Course Outcomes with Program Outcomes | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| RCA552 : PROJECT BASED ON SOFTWARE ENGINEERING | | | | | | | | | | | | |
| PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO | | | | | | | | | | | | |
| CO1 | 3 | 3 | - | 2 | 1 | - | 3 | - | - | - | 2 | 1 |
| CO2 | 2 | 3 | - | - | - | - | - | - | 3 | - | 2 | - |
| CO3 | 3 | 3 | 2 | 2 | 2 | - | - | - | 3 | - | 2 | - |
| CO4 | 2 | 1 | 2 | - | 2 | - | 3 | - | 3 | - | 2 | 3 |
| Average | 2.5 | 2.5 | 2 | 2 | 1.6 | - | 3 | - | 3 | - | 2 | 2 |




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