

Department of  
Computer Science &  
Engineering  
And  
Allied Branches

# R. D. Engineering College, Ghaziabad

## Department of Computer Science & Engineering

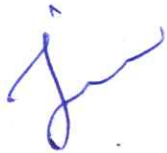
Date: 06<sup>th</sup> SEP, 2018

### Notice

All the students of CSE III Sem, II year are hereby informed that department is going to run an add on course on Core Python from 10 SEP 2018.

This Core Python Course Syllabus is designed to bridge the curriculum and industry gap. After completing the course you will be able to do some basic project to enhance your skills.

All Students are required to attend this course.



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Syllabus of course

Schedule of course

Course Contents



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**R D ENGINEERING COLLEGE, GHAZIABAD**  
**CORE PYTHON**  
**Add On Course for B.Tech (CSE/IT)**  
**SESSION 2018-19 ODD SEM**

### **Curriculum objectives**

#### **1. Understanding of basic programming concepts**

Participants should gain a solid understanding of fundamental programming concepts such as variables, data types, operators, conditional statements, loops, functions, and modules.

#### **2. Mastery of Python syntax and semantics**

Participants should become proficient in the syntax and semantics of the Python programming language. They should be able to write Python code to implement various programming constructs and algorithms.

#### **3. Proficiency in working with data structures and algorithms**

Participants should be able to work with various data structures in Python such as lists, tuples, sets, and dictionaries. They should also be familiar with basic algorithms and data manipulation techniques such as sorting, searching, and filtering.

#### **4. Familiarity with Python libraries and modules**

Participants should be familiar with popular Python libraries and modules such as NumPy, Pandas, and Matplotlib. They should be able to use these libraries to perform data analysis, visualization, and scientific computing.

#### **5. Proficiency in file handling and input/output operations**

Participants should be able to work with files and perform input/output operations in Python. They should be able to read and write data to and from files, handle exceptions, and use context managers.

#### **6. Understanding of object-oriented programming (OOP)**

Participants should gain a basic understanding of OOP concepts such as classes, objects, inheritance, and polymorphism. They should be able to design and implement simple classes and class hierarchies.

#### **7. Familiarity with basic web development using Python**

Participants should be familiar with basic web development concepts and technologies such as HTML, CSS, JavaScript, and Flask. They should be able to create simple web applications using Python.

#### **8. Proficiency in debugging and troubleshooting**

Participants should be able to debug and troubleshoot Python code using tools such as the Python debugger and logging. They should be able to identify and fix common errors and bugs in Python code.

Overall, a core Python training course should provide participants with a strong foundation in Python programming and enable them to write basic Python code, work with data, and build simple applications.

### **Duration**

Approximately 36 hours, when delivered synchronously by an educator. Detailed timings are provided below. Actual delivery times will vary from class to class and depending on the delivery format.

### **Delivery methods**

This course can be delivered in person with synchronous lectures or with digital training models that students can complete independently.

  
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## Learning resources

- Lecture materials
- Online multiple-choice knowledge checks
- Lab exercises
- Digital training (optional)
- Video introductions
- Video demos
- Example solutions

## Course timing

This table provides the suggested durations for all course activities. Note that the total classroom time for all the modules in this course is 36 hours. Items that are not applicable are marked NA.

Module Title	Lecture (Hrs)	Activity/Lab/Demo (Hrs)	Total Module (Hrs)
Course Introduction	1	NA	2
Module 1: Introduction to Python		1	
Module 2: String Manipulation and RE	1	3	4
Module 3: List and Tuples	1	2	3
Module 4: Sets and Dictionaries	2	2	4
Module 5: Functions	1	2	3
Module 6: Lambda and Built in Functions	1	2	3
Module 7: Recursion and Advanced Functions.	2	2	4
Module 8: File Handling and Exception Handling	1	2	3
Module 9: Object Oriented Programming in Python	1	3	4
Module 10: Python Modules and Packages	2	2	4
Module 11: Testing and Debugging	1	1	2
Total Course Time	14	22	36

## Module sections

This section lists the module sections in this course.

### Course Introduction

- Course objectives and overview

### Module 1: Introduction to Python

- Introduction to Python and its features
- Setting up the development environment
- Python data types, variables, and operators
- Control statements: if, else, while, for

### Module 2: String Manipulation and Regular Expressions

- String operations and methods in Python
- Formatting strings
- String slicing and indexing
- Regular expressions in Python

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CSE  
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- Searching and matching patterns using regex

#### Module 3: Lists and Tuples

- Creating and manipulating lists
- List methods and operations
- List slicing and indexing
- Tuples and their uses
- Packing and unpacking tuples

#### Module 4: Sets and Dictionaries

- Creating and using sets
- Set operations and methods
- Creating and using dictionaries
- Dictionary methods and operations
- Iterating through dictionaries

#### Module 5: Functions

- Introduction to functions
- Defining and calling functions
- Arguments and parameters
- Return statement and returning values
- Function scope and namespace

#### Module 6: Lambda Functions and Built-in Functions

- Lambda functions and their uses
- Anonymous functions and filter() function
- Map() function and its uses
- Reduce() function and its uses
- Built-in functions in Python

#### Module 7: Recursion and Advanced Functions

- Recursion and its implementation
- Tail recursion and its uses
- Higher-order functions and closures
- Decorators and their uses

#### Module 8: File Handling and Exception Handling

- Reading and writing files in Python
- File modes and file objects
- Handling exceptions in Python
- Try, except, and finally statements
- Raising exceptions and user-defined exceptions

#### Module 9: Object-Oriented Programming in Python

- Classes and objects in Python
- Inheritance and polymorphism
- Encapsulation and abstraction
- Access modifiers and constructors
- Method overriding and overloading

#### Module 10: Python Modules and Packages

- Creating and importing modules
- Namespace and module attributes
- Creating and using packages
- Importing and using packages

#### Module 11: Testing and Debugging in Python

- Introduction to testing in Python
- Unit testing and test-driven development
- Debugging techniques and tools
- pdb and logging modules

  
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## COURSE OUTCOMES of CORE PYTHON

The course outcomes for a basic Python programming course typically cover fundamental concepts and skills. Here are common outcomes you can expect from such a course:

### 1. **Introduction to Python:**

- Understand the basic syntax and structure of the Python programming language.
- Learn about variables, data types, and basic input/output operations.

### 2. **Control Flow:**

- Gain proficiency in using conditional statements (if, else, elif) and loops (for, while) for flow control in Python programs.

### 3. **Functions:**

- Learn to define and call functions in Python.
- Understand the concepts of parameters and return values in functions.

### 4. **Data Structures:**

- Explore fundamental data structures such as lists, tuples, dictionaries, and sets.
- Understand how to manipulate and work with these data structures.

### 5. **File Handling:**

- Learn how to read from and write to files in Python.
- Understand file modes, handling exceptions related to file operations.

### 6. **Error Handling:**

- Explore basic error handling mechanisms using try, except, and finally blocks.
- Understand common types of errors and exceptions in Python.



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# R D Engineering College, Ghaziabad

## CORE PYTHON

### BATCH-1

Add On Course for B.Tech (CSE) SECOND YEAR

Odd Sem. Session 2018-19

SN	Date	Timings (Theory)	Timings (Lab)
1	10.09.2018	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
2	11.09.2018	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
3	12.09.2018	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
4	13.09.2018	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
5	14.09.2018	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
6	17.09.2018	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
7	18.09.2018	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
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9	20.09.2018	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
10	21.09.2018	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM

*Manas Tripathi*

**Prof. Manas Tripathi**  
**Program Coordinator**

  
Director  
R.D. Engineering College  
Duhai, Ghaziabad





# R. D. Engineering College, Ghaziabad

## Department of Computer Science & Engineering

Date: 07<sup>th</sup> FEB, 2019

### Notice

All the students of CSE IV Sem, II year are hereby informed that department is going to run an add on course on Core Python from 11 FEB 2019.

This Core Python Course Syllabus is designed to bridge the curriculum and industry gap. After completing the course you will be able to do some basic project to enhance your skills.

All Students are required to attend this course.



A handwritten signature in blue ink, likely belonging to the Head of the CSE department.

CC:

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IQAC

Departmental Notice Board

Encls:

Syllabus of course

Schedule of course

Course Contents

A handwritten signature in blue ink, likely belonging to the Director of the college.

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# R D ENGINEERING COLLEGE, GHAZIABAD

## CORE PYTHON

### Add On Course for B.Tech (CSE/IT)

#### SESSION 2018-19 EVEN SEM

### Curriculum objectives

#### 1. Understanding of basic programming concepts

Participants should gain a solid understanding of fundamental programming concepts such as variables, data types, operators, conditional statements, loops, functions, and modules.

#### 2. Mastery of Python syntax and semantics

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Participants should gain a basic understanding of OOP concepts such as classes, objects, inheritance, and polymorphism. They should be able to design and implement simple classes and class hierarchies.

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### Duration

Approximately 36 hours, when delivered synchronously by an educator. Detailed timings are provided below. Actual delivery times will vary from class to class and depending on the delivery format.

### Delivery methods

This course can be delivered in person with synchronous lectures or with digital training models that students can complete independently.

  
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## Learning resources

- Lecture materials
- Online multiple-choice knowledge checks
- Lab exercises
- Digital training (optional)
- Video introductions
- Video demos
- Example solutions

## Course timing

This table provides the suggested durations for all course activities. Note that the total classroom time for all the modules in this course is 36 hours. Items that are not applicable are marked NA.

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Module 4: Sets and Dictionaries	2	2	4
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Module 9: Object Oriented Programming in Python	1	3	4
Module 10: Python Modules and Packages	2	2	4
Module 11: Testing and Debugging	1	1	2
Total Course Time	14	22	36

## Module sections

This section lists the module sections in this course.

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- Course objectives and overview

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- Setting up the development environment
- Python data types, variables, and operators
- Control statements: if, else, while, for

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- String operations and methods in Python
- Formatting strings
- String slicing and indexing
- Regular expressions in Python

  
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- Searching and matching patterns using regex

Module 3: Lists and Tuples

- Creating and manipulating lists
- List methods and operations
- List slicing and indexing
- Tuples and their uses
- Packing and unpacking tuples

Module 4: Sets and Dictionaries

- Creating and using sets
- Set operations and methods
- Creating and using dictionaries
- Dictionary methods and operations
- Iterating through dictionaries

Module 5: Functions

- Introduction to functions
- Defining and calling functions
- Arguments and parameters
- Return statement and returning values
- Function scope and namespace

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- Map() function and its uses
- Reduce() function and its uses
- Built-in functions in Python

Module 7: Recursion and Advanced Functions

- Recursion and its implementation
- Tail recursion and its uses
- Higher-order functions and closures
- Decorators and their uses

Module 8: File Handling and Exception Handling

- Reading and writing files in Python
- File modes and file objects
- Handling exceptions in Python
- Try, except, and finally statements
- Raising exceptions and user-defined exceptions

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- Classes and objects in Python
- Inheritance and polymorphism
- Encapsulation and abstraction
- Access modifiers and constructors
- Method overriding and overloading

Module 10: Python Modules and Packages

- Creating and importing modules
- Namespace and module attributes
- Creating and using packages
- Importing and using packages

Module 11: Testing and Debugging in Python

- Introduction to testing in Python
- Unit testing and test-driven development
- Debugging techniques and tools
- pdb and logging modules

  
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## COURSE OUTCOMES of CORE PYTHON

The course outcomes for a basic Python programming course typically cover fundamental concepts and skills. Here are common outcomes you can expect from such a course:

### 1. Introduction to Python:

- Understand the basic syntax and structure of the Python programming language.
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# R D Engineering College, Ghaziabad

## CORE PYTHON

### BATCH-1

Add On Course for B.Tech (CSE) SECOND YEAR

**EVEN Sem. Session 2018-19**

SN	Date	Timings (Theory)	Timings (Lab)
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*Manas Tripathi*

**Prof. Manas Tripathi**  
**Program Coordinator**

*[Signature]*  
Director  
R.D. Engineering College  
Duhai, Ghaziabad



# R. D. Engineering College, Ghaziabad

## Department of Computer Science & Engineering

Date: 06<sup>th</sup> SEP, 2018

### Notice

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Syllabus of course

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**R D ENGINEERING COLLEGE, GHAZIABAD**  
**CORE PYTHON**  
**Add On Course for B.Tech (CSE/IT)**  
**SESSION 2018-19 ODD SEM**

### **Curriculum objectives**

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## Learning resources

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Module 9: Object Oriented Programming in Python	1	3	4
Module 10: Python Modules and Packages	2	2	4
Module 11: Testing and Debugging	1	1	2
Total Course Time	14	22	36

## Module sections

This section lists the module sections in this course.

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- Course objectives and overview

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- Searching and matching patterns using regex

Module 3: Lists and Tuples

- Creating and manipulating lists
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- File modes and file objects
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- Try, except, and finally statements
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Module 9: Object-Oriented Programming in Python

- Classes and objects in Python
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- Encapsulation and abstraction
- Access modifiers and constructors
- Method overriding and overloading

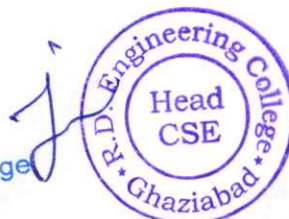
Module 10: Python Modules and Packages

- Creating and importing modules
- Namespace and module attributes
- Creating and using packages
- Importing and using packages

Module 11: Testing and Debugging in Python

- Introduction to testing in Python
- Unit testing and test-driven development
- Debugging techniques and tools
- pdb and logging modules

  
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# COURSE OUTCOMES of CORE PYTHON

The course outcomes for a basic Python programming course typically cover fundamental concepts and skills. Here are common outcomes you can expect from such a course:

## 1. Introduction to Python:

- Understand the basic syntax and structure of the Python programming language.
- Learn about variables, data types, and basic input/output operations.

## 2. Control Flow:

- Gain proficiency in using conditional statements (if, else, elif) and loops (for, while) for flow control in Python programs.

## 3. Functions:

- Learn to define and call functions in Python.
- Understand the concepts of parameters and return values in functions.

## 4. Data Structures:

- Explore fundamental data structures such as lists, tuples, dictionaries, and sets.
- Understand how to manipulate and work with these data structures.

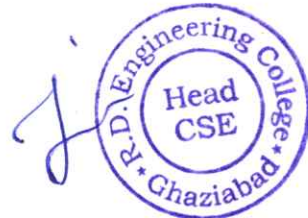
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- Learn how to read from and write to files in Python.
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## 6. Error Handling:

- Explore basic error handling mechanisms using try, except, and finally blocks.
- Understand common types of errors and exceptions in Python.

  
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## CORE PYTHON Training Schedule

### BATCH-1

Add On Course for B.Tech (CSE) THIRD YEAR

Odd Sem. Session 2018-19

SN	Date	Timings (Theory)	Timings (Lab)
1	10.09.2018	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
2	11.09.2018	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
3	12.09.2018	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
4	13.09.2018	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
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*Vikas Gupta*

**Prof. Vikas Gupta**  
Program Coordinator



*[Signature]*  
Director  
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# R. D. Engineering College, Ghaziabad

## Department of Computer Science & Engineering

Date: 07<sup>th</sup> FEB, 2019

### Notice

All the students of CSE VI Sem, III year are hereby informed that department is going to run an add on course on Core Python from 11 FEB 2019.

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**CORE PYTHON**  
**Add On Course for B.Tech (CSE/IT)**  
**SESSION 2018-19 EVEN SEM**

**Curriculum objectives**

**1. Understanding of basic programming concepts**

Participants should gain a solid understanding of fundamental programming concepts such as variables, data types, operators, conditional statements, loops, functions, and modules.

**2. Mastery of Python syntax and semantics**

Participants should become proficient in the syntax and semantics of the Python programming language. They should be able to write Python code to implement various programming constructs and algorithms.

**3. Proficiency in working with data structures and algorithms**

Participants should be able to work with various data structures in Python such as lists, tuples, sets, and dictionaries. They should also be familiar with basic algorithms and data manipulation techniques such as sorting, searching, and filtering.

**4. Familiarity with Python libraries and modules**

Participants should be familiar with popular Python libraries and modules such as NumPy, Pandas, and Matplotlib. They should be able to use these libraries to perform data analysis, visualization, and scientific computing.

**5. Proficiency in file handling and input/output operations**

Participants should be able to work with files and perform input/output operations in Python. They should be able to read and write data to and from files, handle exceptions, and use context managers.

**6. Understanding of object-oriented programming (OOP)**

Participants should gain a basic understanding of OOP concepts such as classes, objects, inheritance, and polymorphism. They should be able to design and implement simple classes and class hierarchies.

**7. Familiarity with basic web development using Python**

Participants should be familiar with basic web development concepts and technologies such as HTML, CSS, JavaScript, and Flask. They should be able to create simple web applications using Python.

**8. Proficiency in debugging and troubleshooting**

Participants should be able to debug and troubleshoot Python code using tools such as the Python debugger and logging. They should be able to identify and fix common errors and bugs in Python code.

Overall, a core Python training course should provide participants with a strong foundation in Python programming and enable them to write basic Python code, work with data, and build simple applications.

**Duration**

Approximately 36 hours, when delivered synchronously by an educator. Detailed timings are provided below. Actual delivery times will vary from class to class and depending on the delivery format.

**Delivery methods**

This course can be delivered in person with synchronous lectures or with digital training models that students can complete independently.

  
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## Learning resources

- Lecture materials
- Online multiple-choice knowledge checks
- Lab exercises
- Digital training (optional)
- Video introductions
- Video demos
- Example solutions

## Course timing

This table provides the suggested durations for all course activities. Note that the total classroom time for all the modules in this course is 36 hours. Items that are not applicable are marked NA.

Module Title	Lecture (Hrs)	Activity/Lab/Demo (Hrs)	Total Module (Hrs)
Course Introduction	1	NA	2
Module 1: Introduction to Python		1	
Module 2: String Manipulation and RE	1	3	4
Module 3: List and Tuples	1	2	3
Module 4: Sets and Dictionaries	2	2	4
Module 5: Functions	1	2	3
Module 6: Lambda and Built in Functions	1	2	3
Module 7: Recursion and Advanced Functions.	2	2	4
Module 8: File Handling and Exception Handling	1	2	3
Module 9: Object Oriented Programming in Python	1	3	4
Module 10: Python Modules and Packages	2	2	4
Module 11: Testing and Debugging	1	1	2
Total Course Time	14	22	36

## Module sections

This section lists the module sections in this course.

### Course Introduction

- Course objectives and overview

### Module 1: Introduction to Python

- Introduction to Python and its features
- Setting up the development environment
- Python data types, variables, and operators
- Control statements: if, else, while, for

### Module 2: String Manipulation and Regular Expressions

- String operations and methods in Python
- Formatting strings
- String slicing and indexing
- Regular expressions in Python

  
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- Searching and matching patterns using regex

Module 3: Lists and Tuples

- Creating and manipulating lists
- List methods and operations
- List slicing and indexing
- Tuples and their uses
- Packing and unpacking tuples

Module 4: Sets and Dictionaries

- Creating and using sets
- Set operations and methods
- Creating and using dictionaries
- Dictionary methods and operations
- Iterating through dictionaries

Module 5: Functions

- Introduction to functions
- Defining and calling functions
- Arguments and parameters
- Return statement and returning values
- Function scope and namespace

Module 6: Lambda Functions and Built-in Functions

- Lambda functions and their uses
- Anonymous functions and filter() function
- Map() function and its uses
- Reduce() function and its uses
- Built-in functions in Python

Module 7: Recursion and Advanced Functions

- Recursion and its implementation
- Tail recursion and its uses
- Higher-order functions and closures
- Decorators and their uses

Module 8: File Handling and Exception Handling

- Reading and writing files in Python
- File modes and file objects
- Handling exceptions in Python
- Try, except, and finally statements
- Raising exceptions and user-defined exceptions

Module 9: Object-Oriented Programming in Python

- Classes and objects in Python
- Inheritance and polymorphism
- Encapsulation and abstraction
- Access modifiers and constructors
- Method overriding and overloading

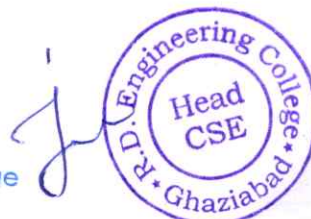
Module 10: Python Modules and Packages

- Creating and importing modules
- Namespace and module attributes
- Creating and using packages
- Importing and using packages

Module 11: Testing and Debugging in Python

- Introduction to testing in Python
- Unit testing and test-driven development
- Debugging techniques and tools
- pdb and logging modules

  
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## COURSE OUTCOMES of CORE PYTHON

The course outcomes for a basic Python programming course typically cover fundamental concepts and skills. Here are common outcomes you can expect from such a course:

### 1. Introduction to Python:

- Understand the basic syntax and structure of the Python programming language.
- Learn about variables, data types, and basic input/output operations.

### 2. Control Flow:

- Gain proficiency in using conditional statements (if, else, elif) and loops (for, while) for flow control in Python programs.

### 3. Functions:

- Learn to define and call functions in Python.
- Understand the concepts of parameters and return values in functions.

### 4. Data Structures:

- Explore fundamental data structures such as lists, tuples, dictionaries, and sets.
- Understand how to manipulate and work with these data structures.

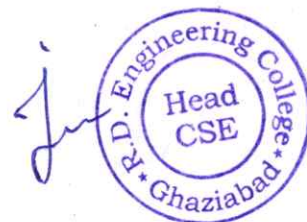
### 5. File Handling:

- Learn how to read from and write to files in Python.
- Understand file modes, handling exceptions related to file operations.

### 6. Error Handling:

- Explore basic error handling mechanisms using try, except, and finally blocks.
- Understand common types of errors and exceptions in Python.

  
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## CORE PYTHON Training Schedule

### BATCH-1

Add On Course for B.Tech (CSE) THIRD YEAR

EVEN Sem. Session 2018-19

SN	Date	Timings (Theory)	Timings (Lab)
1	11.02.2019	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
2	12.02.2019	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
3	13.02.2019	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
4	14.02.2019	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
5	15.02.2019	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
6	18.02.2019	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
7	19.02.2019	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
8	20.02.2019	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
9	21.02.2019	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
10	22.02.2019	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM



**Prof. Vikas Gupta**  
Program Coordinator



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# R. D. Engineering College, Ghaziabad

## Department of Computer Science & Engineering

Date: 16 AUG, 2018

### Notice

All the students of CSE VII Sem, IV year are hereby informed that department is going to run an add on course on Advanced Java from 20<sup>Th</sup> AUG 2018.

This Advanced Java Course Syllabus is designed to bridge the curriculum and industry gap. After completing the course you will be able to do some basic project to enhance your skills.

All Students are required to attend this course.



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Encls:

Syllabus of course

Schedule of course

Course Contents



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# R D ENGINEERING COLLEGE, GHAZIABAD

## ADVANCED JAVA

### Add On Course for B.Tech (CSE)

#### SESSION 2018-19 ODD SEM

## Curriculum objectives

### 1. Mastery of Java syntax and object-oriented programming (OOP)

Participants should be proficient in Java syntax and be able to design and implement complex class hierarchies, use inheritance and polymorphism effectively, and understand advanced topics such as abstract classes, interfaces, and lambda expressions.

### 2. Proficiency in concurrency and multithreading

Participants should be able to design and implement concurrent and multithreaded programs using Java's threading model. They should be able to use Java's synchronization constructs such as locks, semaphores, and monitors to ensure thread safety and avoid race conditions.

### 3. Expertise in Java web development

Participants should be able to develop web applications using Java frameworks such as Spring, Hibernate, and Struts. They should be able to create and deploy web applications, work with databases, and understand web security issues.

### 4. Mastery of Java collections and data structures

Participants should be able to work with Java collections and data structures such as lists, maps, and queues. They should be able to use Java's built-in collections framework and understand how to implement custom data structures.

### 5. Familiarity with Java I/O and networking

Participants should be able to work with Java I/O and networking APIs to read and write data from various sources and communicate over network protocols such as TCP/IP and HTTP.

### 6. Proficiency in software engineering principles and design patterns

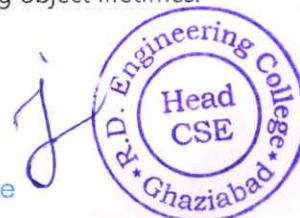
Participants should be familiar with software engineering principles such as design patterns, SOLID principles, and code refactoring. They should be able to write maintainable, scalable, and reusable code using these principles.

### 7. Understanding of Java memory management and garbage collection

Participants should understand Java's memory management and garbage collection model. They should be able to optimize Java applications by reducing memory usage and managing object lifetimes.



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## 8. Familiarity with Java performance tuning and profiling

Participants should be able to profile and tune the performance of Java applications using tools such as JProfiler and VisualVM. They should be able to identify performance bottlenecks and optimize Java code for speed and efficiency.

Overall, an advanced Java training course should provide participants with a deep understanding of Java programming and enable them to apply their knowledge to solve complex programming problems in various domains.

### Duration

Approximately 36 hours, when delivered synchronously by an educator. Detailed timings are provided below. Actual delivery times will vary from class to class and depending on the delivery format.

### Delivery methods

This course can be delivered in person with synchronous lectures or with digital training models that students can complete independently.

### Learning resources

- Lecture materials
- Online multiple-choice knowledge checks
- Lab exercises
- Digital training (optional)
- Video introductions
- Video demos
- Example solutions

### Course timing

This table provides the suggested durations for all course activities. Note that the total classroom time for all the modules in this course is 36 hours. Items that are not applicable are marked NA.

Module Title	Lecture (Hrs)	Activity/Lab/Demo (Hrs)	Total Module (Hrs)
Course Introduction	1	NA	2
Module 1: Introduction to Advanced java		1	
Module 2: Multithreading	1	1	2
Module 3: Exception Handling	1	1	2
Module 4: JAVA IO	1	1	2
Module 5: Networking	1	1	2
Module 6: Java Database Connectivity(JDBC)	1	1	2
Module 7: Advanced JDBC	1	1	2
Module 8: Servlets	1	1	2
Module 9: Java Server Pages (JSP)	1	1	2

  
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Module 10: Java Beans	1	1	2
Module 11: Enterprise Java Beans (EJB)	1	1	2
Module 12: Java Persistence API (JPA)	1	1	2
Module 13: Spring Framework	1	1	2
Module 14: Hibernate	1	1	2
Module 15: Web Services	1	1	2
Module 16: Security	1	1	2
Module 17: Design Patterns	1	1	2
Module 18: Minor project.	1	1	2
Total Course Time	18	18	36

## Module sections

This section lists the module sections in this course.

### Course Introduction

- Course objectives and overview

### Module 1: Introduction to Advanced Java

- Overview of Advanced Java
- Benefits of Advanced Java
- Features of Advanced Java
- Terminology (JVM, JRE, JDK, bytecode, etc.)
- Introduction to Eclipse IDE for Java development

### Module 2: Multithreading

- Introduction to multithreading
- Creating threads
- Thread synchronization
- Thread pools
- Thread safety and atomicity
- Deadlocks and solutions

### Module 3: Exception Handling

- Types of exceptions
- Try-catch statements
- Throwing exceptions
- Checked and unchecked exceptions
- Custom exception handling

### Module 4: Java IO

- Introduction to IO operations
- File IO

  
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- Byte streams vs character streams
- Buffered streams
- Object IO

### **Module 5: Networking**

- Introduction to networking
- Socket programming in Java
- Client-server communication
- Multithreaded servers
- Remote Method Invocation (RMI)

### **Module 6: Java Database Connectivity (JDBC)**

- Introduction to JDBC
- Connecting to databases
- Executing SQL queries
- Working with result sets
- Batch processing

### **Module 7: Advanced JDBC**

- PreparedStatement vs Statement
- Stored procedures
- Transactions
- Connection pooling
- Data source objects

### **Module 8: Servlets**

- Introduction to servlets
- Servlet lifecycle
- Handling HTTP requests and responses
- Session management
- Filters

### **Module 9: JavaServer Pages (JSP)**

- Introduction to JSP
- JSP lifecycle
- JSP directives and actions
- Implicit objects
- Scriptlets and expressions

### **Module 10: JavaBeans**

- Introduction to JavaBeans
- Properties and methods
- Event handling
- Bound and constrained properties
- Design patterns

  
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### **Module 11: Enterprise JavaBeans (EJB)**

- Introduction to EJB
- Session beans
- Entity beans
- Message-driven beans
- EJB lifecycle

### **Module 12: Java Persistence API (JPA)**

- Introduction to JPA
- Object-relational mapping (ORM)
- Annotations
- Persistence units
- CRUD operations

### **Module 13: Spring Framework**

- Introduction to Spring Framework
- Inversion of Control (IoC)
- Dependency Injection (DI)
- Spring MVC
- Spring Data JPA

### **Module 14: Hibernate**

- Introduction to Hibernate
- Object-relational mapping (ORM)
- Annotations and mapping files
- HQL and criteria queries
- Caching and lazy loading

### **Module 15: Web Services**

- Introduction to web services
- SOAP vs REST
- Creating SOAP web services in Java
- Creating RESTful web services in Java
- JAX-RS

### **Module 16: Security**

- Introduction to security
- Authentication and authorization
- Basic authentication
- Digest authentication
- Form-based authentication

### **Module 17: Design Patterns**

- Introduction to design patterns

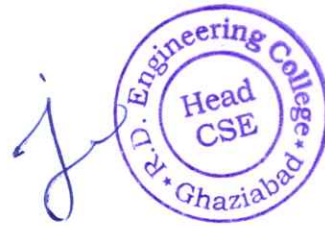
  
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- Creational patterns
- Structural patterns
- Behavioral patterns
- Singleton, Factory, Adapter, Observer, Command, and Template Method patterns

### Module 18: Minor project

- Participants will work on a final project that applies the concepts learned throughout the course. The project should involve Advanced Java principles and at least one other topic covered in the course (e.g. web services, Spring Framework, etc.). Participants will present their projects and receive feedback from the instructor and other participants.



  
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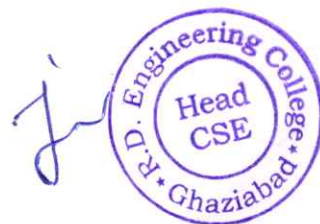


**COURSE OUTCOMES**  
**of**  
**ADVANCED JAVA**

An Advanced Java course typically extends the knowledge gained from Core Java and delves into more specialized topics and advanced Java technologies. Here are common course outcomes for an Advanced Java course:

1. **Servlets and JSP (JavaServer Pages):**
  - Understand the concepts of servlets for server-side Java programming.
  - Learn how to use JSP for dynamic web content generation.
2. **Java Database Connectivity (JDBC) Enhancements:**
  - Explore advanced JDBC features, such as batch processing and stored procedures.
  - Understand connection pooling for efficient database connections.
3. **Enterprise JavaBeans (EJB):**
  - Introduction to EJB for building scalable, distributed enterprise applications.
  - Learn about session beans, entity beans, and message-driven beans.
4. **Java Persistence API (JPA):**
  - Understand JPA for object-relational mapping in Java applications.
  - Learn how to perform database operations using JPA.
5. **Spring Framework:**
  - Introduction to the Spring Framework for building enterprise Java applications.
  - Learn about inversion of control (IoC), dependency injection, and aspect-oriented programming.
6. **Spring Boot:**
  - Explore Spring Boot for simplifying the development of Spring applications.
  - Understand how to create standalone, production-grade Spring-based Applications.
7. **Web Security:**
  - Explore security features and best practices for Java web applications.
  - Learn about authentication, authorization, and secure coding practices.

  
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ADVANCED JAVA			
BATCH-1			
Add On Course for B.Tech (CSE) FINAL YEAR			
Odd Sem. Session 2019-20			
SN	Date	Timings (Theory)	Timings (Lab)
1	20.08.2018	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
2	21.08.2018	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
3	22.08.2018	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
4	23.08.2018	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
5	24.08.2018	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
6	27.08.2018	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
7	28.08.2018	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
8	29.08.2018	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
9	30.08.2018	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
10	31.08.2018	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM

*Pankaj Singh*  
**Prof. Pankaj Singh**  
**Program Coordinator**

*[Signature]*  
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## Department of Computer Science & Engineering

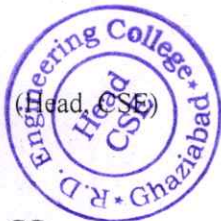
Date: 24 JAN, 2019

### Notice

All the students of CSE VIII Sem, IV year are hereby informed that department is going to run an add on course on Advanced Java from 28<sup>th</sup> JAN 2019.

This Advanced Java Course Syllabus is designed to bridge the curriculum and industry gap. After completing the course you will be able to do some basic project to enhance your skills.

All Students are required to attend this course.



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Syllabus of course

Schedule of course

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# R D ENGINEERING COLLEGE, GHAZIABAD

## ADVANCED JAVA

### Add On Course for B.Tech (CSE)

#### SESSION 2018-19 EVEN SEM

## Curriculum objectives

### 1. Mastery of Java syntax and object-oriented programming (OOP)

Participants should be proficient in Java syntax and be able to design and implement complex class hierarchies, use inheritance and polymorphism effectively, and understand advanced topics such as abstract classes, interfaces, and lambda expressions.

### 2. Proficiency in concurrency and multithreading

Participants should be able to design and implement concurrent and multithreaded programs using Java's threading model. They should be able to use Java's synchronization constructs such as locks, semaphores, and monitors to ensure thread safety and avoid race conditions.

### 3. Expertise in Java web development

Participants should be able to develop web applications using Java frameworks such as Spring, Hibernate, and Struts. They should be able to create and deploy web applications, work with databases, and understand web security issues.

### 4. Mastery of Java collections and data structures

Participants should be able to work with Java collections and data structures such as lists, maps, and queues. They should be able to use Java's built-in collections framework and understand how to implement custom data structures.

### 5. Familiarity with Java I/O and networking

Participants should be able to work with Java I/O and networking APIs to read and write data from various sources and communicate over network protocols such as TCP/IP and HTTP.

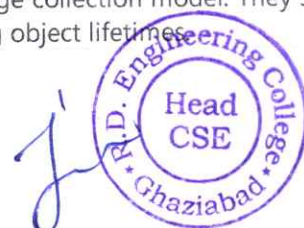
### 6. Proficiency in software engineering principles and design patterns

Participants should be familiar with software engineering principles such as design patterns, SOLID principles, and code refactoring. They should be able to write maintainable, scalable, and reusable code using these principles.

### 7. Understanding of Java memory management and garbage collection

Participants should understand Java's memory management and garbage collection model. They should be able to optimize Java applications by reducing memory usage and managing object lifetimes.

  
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## 8. Familiarity with Java performance tuning and profiling

Participants should be able to profile and tune the performance of Java applications using tools such as JProfiler and VisualVM. They should be able to identify performance bottlenecks and optimize Java code for speed and efficiency.

Overall, an advanced Java training course should provide participants with a deep understanding of Java programming and enable them to apply their knowledge to solve complex programming problems in various domains.

### Duration

Approximately 36 hours, when delivered synchronously by an educator. Detailed timings are provided below. Actual delivery times will vary from class to class and depending on the delivery format.

### Delivery methods

This course can be delivered in person with synchronous lectures or with digital training models that students can complete independently.

### Learning resources

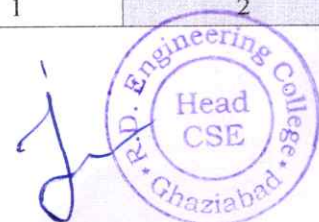
- Lecture materials
- Online multiple-choice knowledge checks
- Lab exercises
- Digital training (optional)
- Video introductions
- Video demos
- Example solutions

### Course timing

This table provides the suggested durations for all course activities. Note that the total classroom time for all the modules in this course is 36 hours. Items that are not applicable are marked NA.

Module Title	Lecture (Hrs)	Activity/Lab/ Demo (Hrs)	Total Module (Hrs)
Course Introduction	1	NA	2
Module 1: Introduction to Advanced java		1	
Module 2: Multithreading	1	1	2
Module 3: Exception Handling	1	1	2
Module 4: JAVA IO	1	1	2
Module 5: Networking	1	1	2
Module 6: Java Database Connectivity(JDBC)	1	1	2
Module 7: Advanced JDBC	1	1	2
Module 8: Servlets	1	1	2
Module 9: Java Server Pages (JSP)	1	1	2

  
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Module 10: Java Beans	1	1	2
Module 11: Enterprise Java Beans (EJB)	1	1	2
Module 12: Java Persistence API (JPA)	1	1	2
Module 13: Spring Framework	1	1	2
Module 14: Hibernate	1	1	2
Module 15: Web Services	1	1	2
Module 16: Security	1	1	2
Module 17: Design Patterns	1	1	2
Module 18: Minor project	1	1	2
<b>Total Course Time</b>	<b>18</b>	<b>18</b>	<b>36</b>

## Module sections

This section lists the module sections in this course.

### Course Introduction

- Course objectives and overview

### Module 1: Introduction to Advanced Java

- Overview of Advanced Java
- Benefits of Advanced Java
- Features of Advanced Java
- Terminology (JVM, JRE, JDK, bytecode, etc.)
- Introduction to Eclipse IDE for Java development

### Module 2: Multithreading

- Introduction to multithreading
- Creating threads
- Thread synchronization
- Thread pools
- Thread safety and atomicity
- Deadlocks and solutions

### Module 3: Exception Handling

- Types of exceptions
- Try-catch statements
- Throwing exceptions
- Checked and unchecked exceptions
- Custom exception handling

### Module 4: Java IO

- Introduction to IO operations
- File IO

  
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- Byte streams vs character streams
- Buffered streams
- Object IO

### **Module 5: Networking**

- Introduction to networking
- Socket programming in Java
- Client-server communication
- Multithreaded servers
- Remote Method Invocation (RMI)

### **Module 6: Java Database Connectivity (JDBC)**

- Introduction to JDBC
- Connecting to databases
- Executing SQL queries
- Working with result sets
- Batch processing

### **Module 7: Advanced JDBC**

- PreparedStatement vs Statement
- Stored procedures
- Transactions
- Connection pooling
- Data source objects

### **Module 8: Servlets**

- Introduction to servlets
- Servlet lifecycle
- Handling HTTP requests and responses
- Session management
- Filters

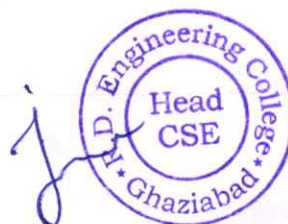
### **Module 9: JavaServer Pages (JSP)**

- Introduction to JSP
- JSP lifecycle
- JSP directives and actions
- Implicit objects
- Scriptlets and expressions

### **Module 10: JavaBeans**

- Introduction to JavaBeans
- Properties and methods
- Event handling
- Bound and constrained properties
- Design patterns

  
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### **Module 11: Enterprise JavaBeans (EJB)**

- Introduction to EJB
- Session beans
- Entity beans
- Message-driven beans
- EJB lifecycle

### **Module 12: Java Persistence API (JPA)**

- Introduction to JPA
- Object-relational mapping (ORM)
- Annotations
- Persistence units
- CRUD operations

### **Module 13: Spring Framework**

- Introduction to Spring Framework
- Inversion of Control (IoC)
- Dependency Injection (DI)
- Spring MVC
- Spring Data JPA

### **Module 14: Hibernate**

- Introduction to Hibernate
- Object-relational mapping (ORM)
- Annotations and mapping files
- HQL and criteria queries
- Caching and lazy loading

### **Module 15: Web Services**


- Introduction to web services
- SOAP vs REST
- Creating SOAP web services in Java
- Creating RESTful web services in Java
- JAX-RS

### **Module 16: Security**

- Introduction to security
- Authentication and authorization
- Basic authentication
- Digest authentication
- Form-based authentication

### **Module 17: Design Patterns**

- Introduction to design patterns

  
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- Creational patterns
- Structural patterns
- Behavioral patterns
- Singleton, Factory, Adapter, Observer, Command, and Template Method patterns

### **Module 18: Minor project**

- Participants will work on a final project that applies the concepts learned throughout the course. The project should involve Advanced Java principles and at least one other topic covered in the course (e.g. web services, Spring Framework, etc.). Participants will present their projects and receive feedback from the instructor and other participants.



  
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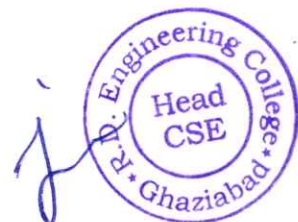


**COURSE OUTCOMES**  
**of**  
**ADVANCED JAVA**

An Advanced Java course typically extends the knowledge gained from Core Java and delves into more specialized topics and advanced Java technologies. Here are common course outcomes for an Advanced Java course:

1. **Servlets and JSP (JavaServer Pages):**
  - Understand the concepts of servlets for server-side Java programming.
  - Learn how to use JSP for dynamic web content generation.
2. **Java Database Connectivity (JDBC) Enhancements:**
  - Explore advanced JDBC features, such as batch processing and stored procedures.
  - Understand connection pooling for efficient database connections.
3. **Enterprise JavaBeans (EJB):**
  - Introduction to EJB for building scalable, distributed enterprise applications.
  - Learn about session beans, entity beans, and message-driven beans.
4. **Java Persistence API (JPA):**
  - Understand JPA for object-relational mapping in Java applications.
  - Learn how to perform database operations using JPA.
5. **Spring Framework:**
  - Introduction to the Spring Framework for building enterprise Java applications.
  - Learn about inversion of control (IoC), dependency injection, and aspect-oriented programming.
6. **Spring Boot:**
  - Explore Spring Boot for simplifying the development of Spring applications.
  - Understand how to create standalone, production-grade Spring-based Applications.
7. **Web Security:**
  - Explore security features and best practices for Java web applications.
  - Learn about authentication, authorization, and secure coding practices.

  
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ADVANCED JAVA

BATCH-1

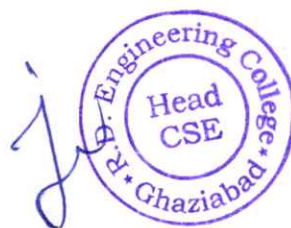
Add On Course for B.Tech (CSE) FINAL YEAR

EVEN Sem. Session 2018-19

SN	Date	Timings (Theory)	Timings (Lab)
1	28.01.2019	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
2	29.01.2019	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
3	30.01.2019	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
4	31.01.2019	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
5	01.02.2019	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
6	04.02.2019	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
7	05.02.2019	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
8	06.02.2019	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
9	07.02.2019	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
10	08.02.2019	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM

*Pankaj Singh*

**Prof. Pankaj Singh**  
**Program Coordinator**



*[Signature]*  
Director  
R.D. Engineering College  
Duhai, Ghaziabad

# Department of Information Technology



# R. D. Engineering College, Ghaziabad

## Department of Information Technology

Date: 20<sup>th</sup> SEP, 2018

### Notice

All the students of IT III Sem, II year are hereby informed that department is going to run an add on course on Core Python from 24 SEP 2018.

This Core Python Course Syllabus is designed to bridge the curriculum and industry gap. After completing the course you will be able to do some basic project to enhance your skills.

All Students are required to attend this course.



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Encls:

Syllabus of course

Schedule of course

Course Contents

  
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# R D ENGINEERING COLLEGE, GHAZIABAD

## CORE PYTHON

### Add On Course for B.Tech (CSE/IT)

#### SESSION 2018-19 ODD SEM

### Curriculum objectives

#### 1. Understanding of basic programming concepts

Participants should gain a solid understanding of fundamental programming concepts such as variables, data types, operators, conditional statements, loops, functions, and modules.

#### 2. Mastery of Python syntax and semantics

Participants should become proficient in the syntax and semantics of the Python programming language. They should be able to write Python code to implement various programming constructs and algorithms.

#### 3. Proficiency in working with data structures and algorithms

Participants should be able to work with various data structures in Python such as lists, tuples, sets, and dictionaries. They should also be familiar with basic algorithms and data manipulation techniques such as sorting, searching, and filtering.

#### 4. Familiarity with Python libraries and modules

Participants should be familiar with popular Python libraries and modules such as NumPy, Pandas, and Matplotlib. They should be able to use these libraries to perform data analysis, visualization, and scientific computing.

#### 5. Proficiency in file handling and input/output operations

Participants should be able to work with files and perform input/output operations in Python. They should be able to read and write data to and from files, handle exceptions, and use context managers.

#### 6. Understanding of object-oriented programming (OOP)

Participants should gain a basic understanding of OOP concepts such as classes, objects, inheritance, and polymorphism. They should be able to design and implement simple classes and class hierarchies.

#### 7. Familiarity with basic web development using Python

Participants should be familiar with basic web development concepts and technologies such as HTML, CSS, JavaScript, and Flask. They should be able to create simple web applications using Python.

#### 8. Proficiency in debugging and troubleshooting

Participants should be able to debug and troubleshoot Python code using tools such as the Python debugger and logging. They should be able to identify and fix common errors and bugs in Python code.

Overall, a core Python training course should provide participants with a strong foundation in Python programming and enable them to write basic Python code, work with data, and build simple applications.

### Duration

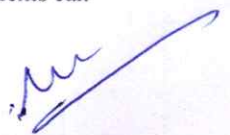
Approximately 36 hours, when delivered synchronously by an educator. Detailed timings are provided below. Actual delivery times will vary from class to class and depending on the delivery format.

### Delivery methods

This course can be delivered in person with synchronous lectures or with digital training models that students can complete independently.

  
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## Learning resources

- Lecture materials
- Online multiple-choice knowledge checks
- Lab exercises
- Digital training (optional)
- Video introductions
- Video demos
- Example solutions

## Course timing

This table provides the suggested durations for all course activities. Note that the total classroom time for all the modules in this course is 36 hours. Items that are not applicable are marked NA.

Module Title	Lecture (Hrs)	Activity/Lab/ Demo (Hrs)	Total Module (Hrs)
Course Introduction	1	NA	2
Module 1: Introduction to Python		1	
Module 2: String Manipulation and RE	1	3	4
Module 3: List and Tuples	1	2	3
Module 4: Sets and Dictionaries	2	2	4
Module 5: Functions	1	2	3
Module 6: Lambda and Built in Functions	1	2	3
Module 7: Recursion and Advanced Functions.	2	2	4
Module 8: File Handling and Exception Handling	1	2	3
Module 9: Object Oriented Programming in Python	1	3	4
Module 10: Python Modules and Packages	2	2	4
Module 11: Testing and Debugging	1	1	2
Total Course Time	14	22	36

## Module sections

This section lists the module sections in this course.

### Course Introduction

- Course objectives and overview

### Module 1: Introduction to Python

- Introduction to Python and its features
- Setting up the development environment
- Python data types, variables, and operators
- Control statements: if, else, while, for

### Module 2: String Manipulation and Regular Expressions

- String operations and methods in Python
- Formatting strings
- String slicing and indexing
- Regular expressions in Python

  
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- Searching and matching patterns using regex

Module 3: Lists and Tuples

- Creating and manipulating lists
- List methods and operations
- List slicing and indexing
- Tuples and their uses
- Packing and unpacking tuples

Module 4: Sets and Dictionaries

- Creating and using sets
- Set operations and methods
- Creating and using dictionaries
- Dictionary methods and operations
- Iterating through dictionaries

Module 5: Functions

- Introduction to functions
- Defining and calling functions
- Arguments and parameters
- Return statement and returning values
- Function scope and namespace

Module 6: Lambda Functions and Built-in Functions

- Lambda functions and their uses
- Anonymous functions and filter() function
- Map() function and its uses
- Reduce() function and its uses
- Built-in functions in Python

Module 7: Recursion and Advanced Functions

- Recursion and its implementation
- Tail recursion and its uses
- Higher-order functions and closures
- Decorators and their uses

Module 8: File Handling and Exception Handling

- Reading and writing files in Python
- File modes and file objects
- Handling exceptions in Python
- Try, except, and finally statements
- Raising exceptions and user-defined exceptions

Module 9: Object-Oriented Programming in Python

- Classes and objects in Python
- Inheritance and polymorphism
- Encapsulation and abstraction
- Access modifiers and constructors
- Method overriding and overloading

Module 10: Python Modules and Packages

- Creating and importing modules
- Namespace and module attributes
- Creating and using packages
- Importing and using packages

Module 11: Testing and Debugging in Python

- Introduction to testing in Python
- Unit testing and test-driven development
- Debugging techniques and tools
- pdb and logging modules



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## COURSE OUTCOMES of CORE PYTHON

The course outcomes for a basic Python programming course typically cover fundamental concepts and skills. Here are common outcomes you can expect from such a course:

### 1. **Introduction to Python:**

- Understand the basic syntax and structure of the Python programming language.
- Learn about variables, data types, and basic input/output operations.

### 2. **Control Flow:**

- Gain proficiency in using conditional statements (if, else, elif) and loops (for, while) for flow control in Python programs.

### 3. **Functions:**

- Learn to define and call functions in Python.
- Understand the concepts of parameters and return values in functions.

### 4. **Data Structures:**

- Explore fundamental data structures such as lists, tuples, dictionaries, and sets.
- Understand how to manipulate and work with these data structures.

### 5. **File Handling:**

- Learn how to read from and write to files in Python.
- Understand file modes, handling exceptions related to file operations.

### 6. **Error Handling:**

- Explore basic error handling mechanisms using try, except, and finally blocks.
- Understand common types of errors and exceptions in Python.

  
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# R D Engineering College, Ghaziabad

## CORE PYTHON Training Schedule

### BATCH-1

Add On Course for B.Tech (IT) SECOND YEAR

Odd Sem. Session 2018-19

SN	Date	Timings (Theory)	Timings (Lab)
1	24.09.2018	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
2	25.09.2018	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
3	26.09.2018	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
4	27.09.2018	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
5	28.09.2018	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
6	01.10.2018	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
7	03.10.2018	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
8	04.10.2018	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
9	05.10.2018	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM



**Prof. Hari Singh**  
Program Coordinator



Director  
R.D. Engineering College  
Duhai, Ghaziabad



**R. D. Engineering College, Ghaziabad**  
**Department of Information Technology**

Date: 20<sup>th</sup> SEP, 2018

**Notice**

All the students of IT V Sem, III year are hereby informed that department is going to run an add on course on Core Python from 24 SEP 2018.

This Core Python Course Syllabus is designed to bridge the curriculum and industry gap. After completing the course you will be able to do some basic project to enhance your skills.

All Students are required to attend this course.



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CC:

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Departmental Notice Board

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Duhai, Ghaziabad

Encls:

Syllabus of course

Schedule of course

Course Contents

R D ENGINEERING COLLEGE, GHAZIABAD  
**CORE PYTHON**  
**Add On Course for B.Tech (CSE/IT)**  
**SESSION 2018-19 ODD SEM**

### **Curriculum objectives**

#### **1. Understanding of basic programming concepts**

Participants should gain a solid understanding of fundamental programming concepts such as variables, data types, operators, conditional statements, loops, functions, and modules.

#### **2. Mastery of Python syntax and semantics**

Participants should become proficient in the syntax and semantics of the Python programming language. They should be able to write Python code to implement various programming constructs and algorithms.

#### **3. Proficiency in working with data structures and algorithms**

Participants should be able to work with various data structures in Python such as lists, tuples, sets, and dictionaries. They should also be familiar with basic algorithms and data manipulation techniques such as sorting, searching, and filtering.

#### **4. Familiarity with Python libraries and modules**

Participants should be familiar with popular Python libraries and modules such as NumPy, Pandas, and Matplotlib. They should be able to use these libraries to perform data analysis, visualization, and scientific computing.

#### **5. Proficiency in file handling and input/output operations**

Participants should be able to work with files and perform input/output operations in Python. They should be able to read and write data to and from files, handle exceptions, and use context managers.

#### **6. Understanding of object-oriented programming (OOP)**

Participants should gain a basic understanding of OOP concepts such as classes, objects, inheritance, and polymorphism. They should be able to design and implement simple classes and class hierarchies.

#### **7. Familiarity with basic web development using Python**

Participants should be familiar with basic web development concepts and technologies such as HTML, CSS, JavaScript, and Flask. They should be able to create simple web applications using Python.

#### **8. Proficiency in debugging and troubleshooting**

Participants should be able to debug and troubleshoot Python code using tools such as the Python debugger and logging. They should be able to identify and fix common errors and bugs in Python code.

Overall, a core Python training course should provide participants with a strong foundation in Python programming and enable them to write basic Python code, work with data, and build simple applications.

### **Duration**

Approximately 36 hours, when delivered synchronously by an educator. Detailed timings are provided below. Actual delivery times will vary from class to class and depending on the delivery format.

### **Delivery methods**

This course can be delivered in person with synchronous lectures or with digital training models that students can complete independently.

  
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## Learning resources

- Lecture materials
- Online multiple-choice knowledge checks
- Lab exercises
- Digital training (optional)
- Video introductions
- Video demos
- Example solutions

## Course timing

This table provides the suggested durations for all course activities. Note that the total classroom time for all the modules in this course is 36 hours. Items that are not applicable are marked NA.

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Module 6: Lambda and Built in Functions	1	2	3
Module 7: Recursion and Advanced Functions.	2	2	4
Module 8: File Handling and Exception Handling	1	2	3
Module 9: Object Oriented Programming in Python	1	3	4
Module 10: Python Modules and Packages	2	2	4
Module 11: Testing and Debugging	1	1	2
Total Course Time	14	22	36

## Module sections

This section lists the module sections in this course.

### Course Introduction

- Course objectives and overview

### Module 1: Introduction to Python

- Introduction to Python and its features
- Setting up the development environment
- Python data types, variables, and operators
- Control statements: if, else, while, for

### Module 2: String Manipulation and Regular Expressions

- String operations and methods in Python
- Formatting strings
- String slicing and indexing
- Regular expressions in Python



  
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- Searching and matching patterns using regex

#### Module 3: Lists and Tuples

- Creating and manipulating lists
- List methods and operations
- List slicing and indexing
- Tuples and their uses
- Packing and unpacking tuples

#### Module 4: Sets and Dictionaries

- Creating and using sets
- Set operations and methods
- Creating and using dictionaries
- Dictionary methods and operations
- Iterating through dictionaries

#### Module 5: Functions

- Introduction to functions
- Defining and calling functions
- Arguments and parameters
- Return statement and returning values
- Function scope and namespace

#### Module 6: Lambda Functions and Built-in Functions

- Lambda functions and their uses
- Anonymous functions and filter() function
- Map() function and its uses
- Reduce() function and its uses
- Built-in functions in Python

#### Module 7: Recursion and Advanced Functions

- Recursion and its implementation
- Tail recursion and its uses
- Higher-order functions and closures
- Decorators and their uses

#### Module 8: File Handling and Exception Handling

- Reading and writing files in Python
- File modes and file objects
- Handling exceptions in Python
- Try, except, and finally statements
- Raising exceptions and user-defined exceptions

#### Module 9: Object-Oriented Programming in Python

- Classes and objects in Python
- Inheritance and polymorphism
- Encapsulation and abstraction
- Access modifiers and constructors
- Method overriding and overloading

#### Module 10: Python Modules and Packages

- Creating and importing modules
- Namespace and module attributes
- Creating and using packages
- Importing and using packages

#### Module 11: Testing and Debugging in Python

- Introduction to testing in Python
- Unit testing and test-driven development
- Debugging techniques and tools
- pdb and logging modules



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# COURSE OUTCOMES of CORE PYTHON

The course outcomes for a basic Python programming course typically cover fundamental concepts and skills. Here are common outcomes you can expect from such a course:

## 1. **Introduction to Python:**

- Understand the basic syntax and structure of the Python programming language.
- Learn about variables, data types, and basic input/output operations.

## 2. **Control Flow:**

- Gain proficiency in using conditional statements (if, else, elif) and loops (for, while) for flow control in Python programs.

## 3. **Functions:**

- Learn to define and call functions in Python.
- Understand the concepts of parameters and return values in functions.

## 4. **Data Structures:**

- Explore fundamental data structures such as lists, tuples, dictionaries, and sets.
- Understand how to manipulate and work with these data structures.

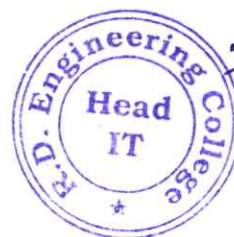
## 5. **File Handling:**

- Learn how to read from and write to files in Python.
- Understand file modes, handling exceptions related to file operations.

## 6. **Error Handling:**

- Explore basic error handling mechanisms using try, except, and finally blocks.
- Understand common types of errors and exceptions in Python.

  
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# R D Engineering College, Ghaziabad

## CORE PYTHON Training Schedule

### BATCH-1

Add On Course for B.Tech (IT) THIRD YEAR

Odd Sem. Session 2018-19

SN	Date	Timings (Theory)	Timings (Lab)
1	24.09.2018	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
2	25.09.2018	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
3	26.09.2018	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
4	27.09.2018	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
5	28.09.2018	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
6	01.10.2018	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
7	03.10.2018	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
8	04.10.2018	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
9	05.10.2018	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM



**Prof. Sachin Tyagi**  
**Program Coordinator**



R.D.E. Ghaziabad  
College  
Ghaziabad



# R. D. Engineering College, Ghaziabad

## Department of Information Technology

Date: 16 AUG, 2018

### Notice

All the students of IT VII Sem, IV year are hereby informed that department is going to run an add on course on Advanced Java from 20<sup>th</sup> AUG 2018.

This Advanced Java Course Syllabus is designed to bridge the curriculum and industry gap. After completing the course you will be able to do some basic project to enhance your skills.

All Students are required to attend this course.

  
  
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Encls:

Syllabus of course

Schedule of course

Course Contents

  
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# R D ENGINEERING COLLEGE, GHAZIABAD

## ADVANCED JAVA

### Add On Course for B.Tech (IT)

#### SESSION 2018-19 ODD SEM

## Curriculum objectives

### 1. Mastery of Java syntax and object-oriented programming (OOP)

Participants should be proficient in Java syntax and be able to design and implement complex class hierarchies, use inheritance and polymorphism effectively, and understand advanced topics such as abstract classes, interfaces, and lambda expressions.

### 2. Proficiency in concurrency and multithreading

Participants should be able to design and implement concurrent and multithreaded programs using Java's threading model. They should be able to use Java's synchronization constructs such as locks, semaphores, and monitors to ensure thread safety and avoid race conditions.

### 3. Expertise in Java web development

Participants should be able to develop web applications using Java frameworks such as Spring, Hibernate, and Struts. They should be able to create and deploy web applications, work with databases, and understand web security issues.

### 4. Mastery of Java collections and data structures

Participants should be able to work with Java collections and data structures such as lists, maps, and queues. They should be able to use Java's built-in collections framework and understand how to implement custom data structures.

### 5. Familiarity with Java I/O and networking

Participants should be able to work with Java I/O and networking APIs to read and write data from various sources and communicate over network protocols such as TCP/IP and HTTP.

### 6. Proficiency in software engineering principles and design patterns

Participants should be familiar with software engineering principles such as design patterns, SOLID principles, and code refactoring. They should be able to write maintainable, scalable, and reusable code using these principles.

### 7. Understanding of Java memory management and garbage collection

Participants should understand Java's memory management and garbage collection model. They should be able to optimize Java applications by reducing memory usage and managing object lifetimes.

## 8. Familiarity with Java performance tuning and profiling

Participants should be able to profile and tune the performance of Java applications using tools such as JProfiler and VisualVM. They should be able to identify performance bottlenecks and optimize Java code for speed and efficiency.

Overall, an advanced Java training course should provide participants with a deep understanding of Java programming and enable them to apply their knowledge to solve complex programming problems in various domains.

### Duration

Approximately 36 hours, when delivered synchronously by an educator. Detailed timings are provided below. Actual delivery times will vary from class to class and depending on the delivery format.

### Delivery methods

This course can be delivered in person with synchronous lectures or with digital training models that students can complete independently.

### Learning resources

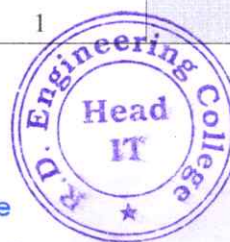
- Lecture materials
- Online multiple-choice knowledge checks
- Lab exercises
- Digital training (optional)
- Video introductions
- Video demos
- Example solutions

### Course timing

This table provides the suggested durations for all course activities. Note that the total classroom time for all the modules in this course is 36 hours. Items that are not applicable are marked NA.

Module Title	Lecture (Hrs)	Activity/Lab/Demo (Hrs)	Total Module (Hrs)
Course Introduction	1	NA	2
Module 1: Introduction to Advanced java		1	
Module 2: Multithreading	1	1	2
Module 3: Exception Handling	1	1	2
Module 4: JAVA IO	1	1	2
Module 5: Netyworking	1	1	2
Module 6: Java Database Connectivity(JDBC)	1	1	2
Module 7: Advanced JDBC	1	1	2
Module 8: Servlets	1	1	2
Module 9: Java Server Pages (JSP)	1	1	2

  
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Module 10: Java Beans	1	1	2
Module 11: Enterprise Java Beans (EJB)	1	1	2
Module 12: Java Persistence API (JPA)	1	1	2
Module 13: Spring Framework	1	1	2
Module 14: Hibernate	1	1	2
Module 15: Web Services	1	1	2
Module 16: Security	1	1	2
Module 17: Design Patterns	1	1	2
Module 18: Minor project	1	1	2
Total Course Time	18	18	36

## Module sections

This section lists the module sections in this course.

### Course Introduction

- Course objectives and overview

### Module 1: Introduction to Advanced Java

- Overview of Advanced Java
- Benefits of Advanced Java
- Features of Advanced Java
- Terminology (JVM, JRE, JDK, bytecode, etc.)
- Introduction to Eclipse IDE for Java development

### Module 2: Multithreading

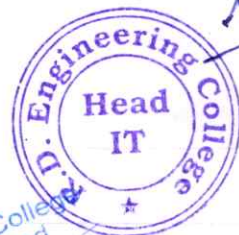
- Introduction to multithreading
- Creating threads
- Thread synchronization
- Thread pools
- Thread safety and atomicity
- Deadlocks and solutions

### Module 3: Exception Handling

- Types of exceptions
- Try-catch statements
- Throwing exceptions
- Checked and unchecked exceptions
- Custom exception handling

### Module 4: Java IO

- Introduction to IO operations
- File IO



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- Byte streams vs character streams
- Buffered streams
- Object IO

### **Module 5: Networking**

- Introduction to networking
- Socket programming in Java
- Client-server communication
- Multithreaded servers
- Remote Method Invocation (RMI)

### **Module 6: Java Database Connectivity (JDBC)**

- Introduction to JDBC
- Connecting to databases
- Executing SQL queries
- Working with result sets
- Batch processing

### **Module 7: Advanced JDBC**

- PreparedStatement vs Statement
- Stored procedures
- Transactions
- Connection pooling
- Data source objects

### **Module 8: Servlets**

- Introduction to servlets
- Servlet lifecycle
- Handling HTTP requests and responses
- Session management
- Filters

### **Module 9: JavaServer Pages (JSP)**

- Introduction to JSP
- JSP lifecycle
- JSP directives and actions
- Implicit objects
- Scriptlets and expressions

### **Module 10: JavaBeans**

- Introduction to JavaBeans
- Properties and methods
- Event handling
- Bound and constrained properties
- Design patterns

  
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### **Module 11: Enterprise JavaBeans (EJB)**

- Introduction to EJB
- Session beans
- Entity beans
- Message-driven beans
- EJB lifecycle

### **Module 12: Java Persistence API (JPA)**

- Introduction to JPA
- Object-relational mapping (ORM)
- Annotations
- Persistence units
- CRUD operations

### **Module 13: Spring Framework**

- Introduction to Spring Framework
- Inversion of Control (IoC)
- Dependency Injection (DI)
- Spring MVC
- Spring Data JPA

### **Module 14: Hibernate**

- Introduction to Hibernate
- Object-relational mapping (ORM)
- Annotations and mapping files
- HQL and criteria queries
- Caching and lazy loading

### **Module 15: Web Services**

- Introduction to web services
- SOAP vs REST
- Creating SOAP web services in Java
- Creating RESTful web services in Java
- JAX-RS

### **Module 16: Security**

- Introduction to security
- Authentication and authorization
- Basic authentication
- Digest authentication
- Form-based authentication

### **Module 17: Design Patterns**

- Introduction to design patterns

  
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- Creational patterns
- Structural patterns
- Behavioral patterns
- Singleton, Factory, Adapter, Observer, Command, and Template Method patterns

### **Module 18: Minor Project**

Participants will work on a final project that applies the concepts learned throughout the course. The project should involve Advanced Java principles and at least one other topic covered in the course (e.g. web services, Spring Framework, etc.). Participants will present their projects and receive feedback from the instructor and other participants.

  
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# COURSE OUTCOMES

## of ADVANCED JAVA

An Advanced Java course typically extends the knowledge gained from Core Java and delves into more specialized topics and advanced Java technologies. Here are common course outcomes for an Advanced Java course:

### 1. **Servlets and JSP (JavaServer Pages):**

- Understand the concepts of servlets for server-side Java programming.
- Learn how to use JSP for dynamic web content generation.

### 2. **Java Database Connectivity (JDBC) Enhancements:**

- Explore advanced JDBC features, such as batch processing and stored procedures.
- Understand connection pooling for efficient database connections.

### 3. **Enterprise JavaBeans (EJB):**

- Introduction to EJB for building scalable, distributed enterprise applications.
- Learn about session beans, entity beans, and message-driven beans.

### 4. **Java Persistence API (JPA):**

- Understand JPA for object-relational mapping in Java applications.
- Learn how to perform database operations using JPA.

### 5. **Spring Framework:**

- Introduction to the Spring Framework for building enterprise Java applications.
- Learn about inversion of control (IoC), dependency injection, and aspect-oriented programming.

### 6. **Spring Boot:**

- Explore Spring Boot for simplifying the development of Spring applications.
- Understand how to create standalone, production-grade Spring-based Applications.

### 7. **Web Security:**

- Explore security features and best practices for Java web applications.
- Learn about authentication, authorization, and secure coding practices.

  
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R D Engineering College, Ghaziabad			
ADVANCED JAVA			
BATCH-1			
Add On Course for B.Tech (IT) FINAL YEAR			
ODD Sem. Session 2018-19			
SN	Date	Timings (Theory)	Timings (Lab)
1	20.08.2018	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
2	21.08.2018	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
3	22.08.2018	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
4	23.08.2018	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
5	24.08.2018	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
6	27.08.2018	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
7	28.08.2018	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
8	29.08.2018	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
9	30.08.2018	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
10	31.08.2018	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM

*Pankaj Singh*

**Prof. Pankaj Singh**  
Program Coordinator

*[Signature]*  
Director  
R.D. Engineering College  
Duhai, Ghaziabad



*[Signature]*



**Department of  
Electronics and  
Communication  
Engineering**



## R. D. Engineering College, Ghaziabad

Approved by AICTE & Affiliated to Dr. APJ Abdul Kalam Technical University, Lucknow

Date: 6<sup>th</sup> Sep, 2018

### Notice

### Add on Course-PCB Design

From: Program Coordinator

To: All the ECE 2<sup>nd</sup> year Students(3<sup>rd</sup> Sem)

All the students of ECE II year (III Sem) are hereby informed that department is going to run an add on course on PCB Design from 15<sup>th</sup> Sep 2018.

This PCB Design course Syllabus is designed after the consultation with Industry Experts. This is a basic course for designing of PCB using software. PCB (Printed Circuit Board) designing is an integral part of each electronics products and this program is designed to make students capable to design their own projects PCB up to industrial grade.

All Students are required to attend this course.

Mr. Prabhash Singh  
(Program Coordinator)

Director  
R.D. Engineering College  
Duhai, Ghaziabad



CC:

Director

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# R. D. Engineering College, Ghaziabad

Approved by AICTE & Affiliated to Dr.APJ Abdul Kalam Technical University, Lucknow

## Syllabus- Add On Course for B.Tech ECE – III Sem

### PCB Design

Session 2018-19

This is a basic course for designing of PCB using software. PCB (Printed Circuit Board) designing is an integral part of each electronics products and this program is designed to make students capable to design their own projects PCB up to industrial grade.

#### Topics Covered:

1. Introduction to PCB designing concepts
2. Component introduction and their categories
3. Introduction to Development Tools
4. Detailed description and practical of PCB designing
5. Lab practice and designing concepts

#### Detailed Syllabus of the Course

##### Topic 1: Introduction to PCB designing concepts

###### Introduction & Brief History

1 Hrs

- What is PCB
- Difference between PWB and PCB
- Types of PCBs: Single Sided (Single Layer), Multi-Layer (Double Layer)
- PCB Materials

###### Introduction to Electronic design Automation (EDA)

1 Hrs

- Brief History of EDA
- Latest Trends in Market
- How it helps and Why it requires
- Different EDA tools
- Introduction to SPICE and PSpice Environment
- Introduction and Working of PROTEUS

Hands on Practice \_\_\_\_\_





**Topic 2: Component introduction and their categories**

**Types of Component**

**2 Hrs**

- Active Components
  - Diode
  - Transistor
  - MOSFET
  - LED
  - SCR
  - Integrated Circuits (ICs)
- Passive Components
  - Resistor
  - Capacitor
  - Inductor
  - Transformer
  - Speaker/Buzzer

**Component Package Types**

**2 Hrs**

- Through Hole Packages
  - Axial lead
  - Radial Lead
  - Single Inline Package(SIP)
  - Dual Inline Package(DIP)
  - Transistor Outline(TO)
  - Pin Grid Array(PGA)
- Through Hole Packages
  - Metal Electrode Face(MELF)
  - Leadless Chip Carrier(LCC)
  - Small Outline Integrated Circuit(SOIC)
  - Quad Flat Pack(QFP) and Thin QFP (TQFP)
  - Ball Grid Array(BGA)
  - Plastic Leaded Chip Carrier(PLCC)

Hands on Practice \_\_\_\_\_

**2 Hrs**

**Topic 3: Introduction to Development Tools**

**2 Hrs**

- Introduction to PCB Design using OrCAD tool
- Introduction to PCB Design using PROTEUS tool

Hands on Practice \_\_\_\_\_

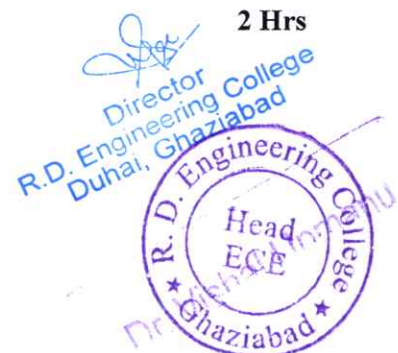
**2 Hrs**

**Topic 4: Detailed description and practical of PCB designing**

**PCB Designing Flow Chart**

**2 Hrs**

- Schematic Entry
- Net listing
- PCB Layout Designing
- Prototype Designing
  - Design Rule Check(DRC)
  - Design For Manufacturing(DFM)
- PCB Making
  - Printing



- Etching
- Drilling
- Assembly of components

### **Description of PCB Layers**

**2 Hrs**

- Electrical Layers
  - Top Layer
  - Mid Layer
  - Bottom Layer
- Mechanical Layers
  - Board Outlines and Cutouts
  - Drill Details
- Documentation Layers
  - Components Outlines
  - Reference Designation
  - Text

### **Keywords & Their Description**

**1 Hrs**

- Footprint
- Pad stacks
- Vias
- Tracks
- Color of Layers
- PCB Track Size Calculation Formula

### **PCB Materials**

**1 Hrs**

- Standard FR-4 Epoxy Glass
- Multifunctional FR-4
- Tetra Functional FR-4
- NelcoN400-6
- GETEK
- BT Epoxy Glass
- Cyanate Aster
- Plyimide Glass
- Teflon

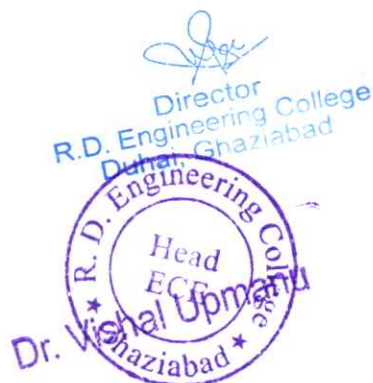
### **Rules for Track**

**1 Hrs**

- Track Length
- Track Angle
- Rack Joints
- Track Size

Hands on Practice \_\_\_\_\_

**2 Hrs**



**Topic 5: Lab practice and designing concepts**

- Starting the PCB designing** **2 Hrs**
- Understanding the schematic Entry
  - Creating Library & Components
  - Drawing a Schematic
  - Flat Design / hierarchical Design
  - Setting up Environment for PCB
  - Design a Board
- Auto routing** **1 Hrs**
- Introduction to Auto routing
  - Setting up Rules
  - Defining Constraints
  - Auto router Setup
- PCB Designing Practice** **2 Hrs**
- PCB Designing of Basic and Analog Electronic Circuits
  - PCB Designing of Power Supplies
  - PCB Designing of Different Sensor modules
  - PCB Designing of Electronics Projects
  - PCB Designing of Embedded Projects
- Post Designing & PCB Fabrication Process** **4 Hrs**
- Printing the Design
  - Etching
  - Drilling
  - Interconnecting and Packaging electronic Circuits (IPC) Standards
  - Gerber Generation
  - Soldering and De-soldering
  - Component Mounting
  - PCB and Hardware Testing
- Hands on practice (Project work)** **8 Hrs**
- Making the schematic of Academic and Industrial projects
  - PCB Designing of these projects
  - Soldering and De-soldering of components as per Design
  - Testing and Troubleshooting Methods

Theory Hours	Lab Hours	Total
20 hours	20 Hours	40 Hours



Mr. Prabhash Singh  
Program Coordinator

Director  
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Head  
ECE Department  
Dr. Ashish Jaiswal  
Ghaziabad



ECE

# COURSE OUTCOMES

## Of

### PCB DESIGN

Upon the completion of this course, students will demonstrate the ability to:

**1. Understanding of PCB Basics:**

- Knowledge of basic concepts related to printed circuit boards, including layers, traces, pads etc.

**2. Electronic Component Familiarity:**

- Identification and understanding of various electronic components commonly used in PCB design.

**3. PCB Layout Design:**

- Hands-on experience in designing PCB layouts using dedicated software tools.
- Placement and routing of components on the PCB.

**4. Design for Manufacturability (DFM):**

- Knowledge of design considerations that impact the manufacturability of PCBs.
- Implementing DFM principles to optimize the manufacturing process.

**5. Design Rule Checking (DRC):**

- Implementing and performing design rule checks to identify and correct potential issues.

**6. Prototyping and Testing:**

- Understanding the prototyping process for PCBs.
- Testing and debugging prototypes for functionality and performance.



  
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**R D Engineering College, Ghaziabad**  
**Schedule-Add On Course for B.Tech ECE-III sem**

**PCB Design**  
**Session 2018-19**

SN	Date	Timings (Theory)	Timings (Lab)
1	15-09-2018	09:00AM - 11:00AM	11:00AM - 01:00PM
2	22-09-2018	09:00AM - 11:00AM	11:00AM - 01:00PM
3	29-09-2018	09:00AM - 11:00AM	11:00AM - 01:00PM
4	05-10-2018	09:00AM - 11:00AM	11:00AM - 01:00PM
5	12-10-2018	09:00AM - 11:00AM	11:00AM - 01:00PM
6	19-10-2018	09:00AM - 11:00AM	11:00AM - 01:00PM
7	26-10-2018	09:00AM - 11:00AM	11:00AM - 01:00PM
8	02-11-2018	09:00AM - 11:00AM	11:00AM - 01:00PM
9	09-11-2018	09:00AM - 11:00AM	11:00AM - 01:00PM
10	16-11-2018	09:00AM - 11:00AM	11:00AM - 01:00PM



Mr. Prabhash Singh  
Program Coordinator



Director  
R.D. Engineering College  
Duhai, Ghaziabad



Head  
ECE  
R. D. Engineering College  
Ghaziabad



## R. D. Engineering College, Ghaziabad

Approved by AICTE & Affiliated to Dr.APJ Abdul Kalam Technical University, Lucknow

Date: 6<sup>th</sup> Sep, 2018

### Notice

### Add on Course-IoT

From: Program Coordinator

To: All the ECE 3<sup>rd</sup> year Students(5<sup>th</sup> Sem)

All the students of ECE (III year) V-Sem are hereby informed that department is going to run an add on course on IoT Internet of Things from 15<sup>th</sup> Sep 2018.

This IoT Internet of Things Course Syllabus is designed after the consultation with Industry Experts. This IoT Internet of Things Course Syllabus covers in-depth knowledge of IOT fundamentals, Arduino Simulation, Sensor & Actuators, ESP8266 Wi-Fi module, IoT Protocols and Cloud Platforms for IoT with live Projects.

All Students are required to attend this course.

Mr. Sanjeev Sharma

(Program Coordinator)



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## R. D. Engineering College, Ghaziabad

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### Syllabus- Add On Course for B.Tech ECE – V Sem

#### IoT

#### Session 2018-19

This Course focuses on hands-on IoT concepts such as sensing, actuation and communication. It covers the development of Internet of Things (IoT) prototypes—including devices for sensing, actuation, processing, and communication—to help you develop skills and experiences. The Internet of Things (IoT) is the next wave, world is going to witness. Today we live in an era of connected devices the future is of connected things.

#### **Topic 1. Introduction to IoT 3 Hrs**

- Understanding IoT fundamentals
- IoT Architecture and protocols
- Various Platforms for IoT
- Real time Examples of IoT
- Overview of IoT components and IoT Communication Technologies
- Challenges in IoT

#### **Topic 2. Arduino Simulation Environment 3 Hrs**

- Arduino Uno Architecture
- Setup the IDE, Writing Arduino Software
- Arduino Libraries
- Basics of Embedded C programming for Arduino
- Interfacing LED, push button and buzzer with Arduino
- Interfacing Arduino with LCD

Hands on Practice \_\_\_\_\_ 2 Hrs

#### **Topic 3. Sensor & Actuators with Arduino 2 Hrs**

- Overview of Sensors working
- Analog and Digital Sensors
- Interfacing of Temperature, Humidity, Motion, Light



- Interfacing of Actuators with Arduino.
- Interfacing of Relay Switch and Servo Motor with Arduino

Hands on Practice \_\_\_\_\_ 3 Hrs

**Topic 4. Basic Networking with ESP8266 WiFi module 3 Hrs**

- Basics of Wireless Networking
- Introduction to ESP8266 Wi-Fi Module
- Various Wi-Fi library
- Web server- introduction, installation, configuration
- Posting sensor(s) data to web server

Hands on Practice \_\_\_\_\_ 2 Hrs

**Topic 5. IoT Protocols 2 Hrs**

- M2M vs. IoT
- Communication Protocols

**Topic 6. Cloud Platforms for IoT 3 Hrs**

- Virtualization concepts and Cloud Architecture
- Cloud computing, benefits
- Cloud services -- SaaS, PaaS, IaaS
- Cloud providers & offerings
- Study of IoT Cloud platforms
- Interfacing ESP8266 with Web services

Hands on Practice \_\_\_\_\_ 3 Hrs

**Topic 7. Project \_\_\_\_\_ 6 Hrs**

Therory Hours	Lab Hours	Total
16 hours	16 Hours	32 Hours



**Mr. Sanjeev Sharma**  
Program Coordinator



# COURSE OUTCOMES

## Of

## IOT

Students will be explored to the interconnection and integration of the physical world and the cyber space. They are also able to design & develop IOT Devices.

**1. Understanding of IoT Concepts:**

- Define and explain the basic concepts and principles of the Internet of Things.
- Understand the components and architecture of IoT systems.

**2. IoT Platforms and Frameworks:**

- Familiarity with popular IoT platforms and frameworks.
- Hands-on experience with setting up and using IoT platforms for data management.

**3. Data Acquisition and Processing:**

- Collecting and processing data from IoT devices.
- Analyzing and interpreting data collected from various sensors.

**4. Security in IoT:**

- Understanding the security challenges in IoT.
- Implementing security measures to protect IoT devices and data.

**5. Cloud Computing for IoT:**

- Integration of IoT with cloud computing platforms.
- Storing and retrieving data from the cloud in an IoT context.

  
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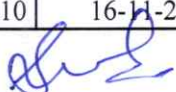


**R D Engineering College, Ghaziabad**  
**Schedule-Add On Course for B.Tech ECE-V sem**

**IoT**

**Session 2018-19**

SN	Date	Timings (Theory)	Timings (Lab)
1	15-09-2018	09:00AM - 11:00AM	11:00AM - 01:00PM
2	22-09-2018	09:00AM - 11:00AM	11:00AM - 01:00PM
3	29-09-2018	09:00AM - 11:00AM	11:00AM - 01:00PM
4	05-10-2018	09:00AM - 11:00AM	11:00AM - 01:00PM
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9	09-11-2018	09:00AM - 11:00AM	11:00AM - 01:00PM
10	16-11-2018	09:00AM - 11:00AM	11:00AM - 01:00PM



Mr. Sanjeev Sharma  
Program Coordinator



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## R. D. Engineering College, Ghaziabad

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Date: 6<sup>th</sup> Sep, 2018

### Notice

### Add on Course- Advanced Excel


From: Program Coordinator

To: All the ECE 4<sup>th</sup> year Students(7<sup>th</sup> Sem)

All the students of EC VII Sem, IV year are hereby informed that department is going to run an add on course on Advance excel from 15<sup>th</sup> Sep 2018.

This Advanced Microsoft Excel Course Syllabus is designed after the consultation with Industry Experts. This Advanced Excel Course Syllabus covers in-depth knowledge of pivot tables, audit and analyze worksheet data, VBA Macro, utilize data tools, collaborate with others, and create and manage macros with live Projects.

All Students are required to attend this course.

  
Mr. Vishal Upmanu  
(Program Coordinator)

  
Director  
R.D. Engineering College  
Duhai, Ghaziabad  
  
Mr. Vishal Upmanu  
(HOD, ECE)  
Ghaziabad

CC:

Director

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# R. D. Engineering College, Ghaziabad

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## Syllabus- Add On Course for B.Tech ECE – VII Sem

### Advanced Excel

Session 2018-19

This Advanced Microsoft Excel Course Syllabus is designed after the consultation with Industry Experts. This Advanced Excel Course Syllabus covers in-depth knowledge of pivot tables, audit and analyze worksheet data, VBA Macro, utilize data tools, collaborate with others, and create and manage macros with live Projects.

This advanced Excel course syllabus is designed for the intermediate Excel user who desires to learn more advanced skills. Learn the most advanced formulas, functions, charts and types of financial analysis to be an Excel power user.

<b>Topic 1</b>	Excel Introduction, Customizing Excel and using basic functions <ul style="list-style-type: none"><li>• An overview of the screen, navigation and basic spreadsheet concepts</li><li>• Various selection techniques</li><li>• Shortcut Keys</li><li>• Customizing the Ribbon • Using and Customizing AutoCorrect</li><li>• Changing Excel's Default Options</li><li>• Using Functions – Sum, Average, Max, Min, Count, Counta</li><li>• Absolute, Mixed and Relative Referencing</li></ul>	<b>1 Hrs</b>
<b>Topic 2</b>	Formatting and Proofing <ul style="list-style-type: none"><li>• Currency Format, Format Painter</li><li>• Formatting Dates</li><li>• Custom and Special Formats</li><li>• Formatting Cells with Number formats, Font formats, Alignment, Borders</li><li>• Basic conditional formatting</li></ul>	<b>1 Hrs</b>
<b>Topic 3</b>	Hands on Practice Mathematical Functions and Protecting Excel <ul style="list-style-type: none"><li>• SumIf, SumIfs CountIf, CountIfs Averagelf, Averagelfs, Nested IF, IFERROR Statement, AND, OR, NOT</li><li>• File Level Protection</li><li>• Workbook, Worksheet Protection</li></ul>	<b>2 Hrs</b> <b>1 Hrs</b>
<b>Topic 4</b>	Text Functions and Date and Time Functions <ul style="list-style-type: none"><li>• Upper, Lower, Proper</li><li>• Left, Mid, Right</li><li>• Trim, Len, Exact</li><li>• Concatenate</li><li>• Find, Substitute</li><li>• Today, Now</li><li>• Day, Month, Year</li><li>• Date, Date if, DateAdd</li><li>• EOMonth, Weekday</li></ul>	<b>1 Hrs</b>
<b>Topic 5</b>	Hands on Practice Advanced Paste Special Techniques in Excel 2013 / 2016 & 365 <ul style="list-style-type: none"><li>• Paste Formulas, Paste Formats</li><li>• Paste Validations</li><li>• Transpose Tables</li><li>• New Charts – Tree map &amp; Waterfall</li><li>• Sunburst, Box and whisker Charts</li></ul>	<b>2 Hrs</b> <b>3 Hrs</b>

  
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	<ul style="list-style-type: none"> <li>• Combo Charts – Secondary Axis</li> <li>• Adding Slicers Tool in Pivot &amp; Tables</li> <li>• Using Power Map and Power View</li> <li>• Forecast Sheet</li> <li>• Sparklines -Line, Column &amp; Win/ Loss</li> <li>• Using 3-D Map</li> <li>• New Controls in Pivot Table – Field, Items and Sets</li> <li>• Various Time Lines in Pivot Table</li> <li>• Auto complete a data range and list</li> <li>• Quick Analysis Tool</li> <li>• Smart Lookup and manage Store Sorting and Filtering</li> <li>• Filtering on Text, Numbers &amp; Colors</li> <li>• Sorting Options</li> <li>• Advanced Filters on 15-20 different criteria(s) Printing Workbooks</li> <li>• Setting Up Print Area</li> <li>• Customizing Headers &amp; Footers</li> <li>• Designing the structure of a template</li> <li>• Print Titles –Repeat Rows / Columns</li> </ul>	
<b>Topic 6</b>	Hands on Practice _____	<b>3 Hrs</b>
	Advance Excel What If Analysis	<b>2 Hrs</b>
	<ul style="list-style-type: none"> <li>• Goal Seek</li> <li>• Scenario Analysis</li> <li>• Data Tables (PMT Function)</li> <li>• Solver Tool</li> </ul>	
<b>Topic 7</b>	Logical Functions	<b>2 Hrs</b>
	<ul style="list-style-type: none"> <li>• If Function</li> <li>• How to Fix Errors – if error</li> <li>• Nested If</li> <li>• Complex if and or functions</li> </ul>	
<b>Topic 8</b>	Hands on Practice _____	<b>2 Hrs</b>
	Data Validation	<b>1 Hrs</b>
	<ul style="list-style-type: none"> <li>• Number, Date &amp; Time Validation</li> <li>• Text and List Validation</li> <li>• Custom validations based on formula for a cell</li> <li>• Dynamic Dropdown List Creation using Data Validation – Dependency List</li> </ul>	
<b>Topic 9</b>	Lookup Functions	<b>1 Hrs</b>
	<ul style="list-style-type: none"> <li>• Vlookup / HLookup</li> <li>• Index and Match</li> <li>• Creating Smooth User Interface Using Lookup</li> <li>• Nested VLookup</li> <li>• Reverse Lookup using Choose Function</li> <li>• Worksheet linking using Indirect</li> <li>• Vlookup with Helper Column</li> </ul>	
<b>Topic 10</b>	Hands on Practice _____	<b>2 Hrs</b>
	Pivot Tables	<b>2 Hrs</b>
	<ul style="list-style-type: none"> <li>• Creating Simple Pivot Tables</li> <li>• Basic and Advanced Value Field Setting</li> <li>• Classic Pivot table</li> <li>• Choosing Field</li> <li>• Filtering PivotTables</li> <li>• Modifying PivotTable Data</li> <li>• Grouping based on numbers and Dates</li> <li>• Calculated Field &amp; Calculated Items</li> <li>• Arrays Functions</li> <li>• What are the Array Formulas, Use of the Array Formulas?</li> <li>• Basic Examples of Arrays (Using ctrl+shift+enter).</li> </ul>	

  
 Director  
 R.D. Engineering College  
 Duhai, Ghaziabad





# COURSE OUTCOMES

## Of

### ADVANCED EXCEL

The course outcomes for an Advanced Excel course can vary depending on the specific content and objectives of the course. However, here are some common outcomes you might expect from an Advanced Excel course:

#### 1. Advanced Formulas and Functions:

- Ability to use advanced functions such as VLOOKUP, HLOOKUP, INDEX-MATCH, and nested functions.
- Understanding and implementing array formulas and logical functions.

#### 2. Data Analysis and Visualization:

- Proficiency in using PivotTables and Pivot Charts for data analysis.
- Creating and customizing various types of charts to visualize data effectively.
- Understanding and using data validation and conditional formatting.

#### 3. Data Management:

- Sorting and filtering data efficiently.
- Combining data from multiple sources and cleaning data for analysis.

#### 4. Advanced Charting and Graphs:

- Creating complex charts like waterfall charts, radar charts, and bubble charts.
- Customizing and formatting charts for professional presentations.

#### 5. Collaboration and Sharing:

- Sharing and protecting workbooks.
- Collaborating on Excel files using features like Track Changes.

  
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Duhai, Ghaziabad





**R D Engineering College, Ghaziabad**  
**Schedule-Add On Course for B.Tech ECE-VII sem**  
**Advanced Excel**  
**Session 2018-19**

SN	Date	Timings (Theory)	Timings (Lab)
1	15-09-2018	09:00AM - 11:00AM	11:00AM - 01:00PM
2	22-09-2018	09:00AM - 11:00AM	11:00AM - 01:00PM
3	29-09-2018	09:00AM - 11:00AM	11:00AM - 01:00PM
4	05-10-2018	09:00AM - 11:00AM	11:00AM - 01:00PM
5	12-10-2018	09:00AM - 11:00AM	11:00AM - 01:00PM
6	19-10-2018	09:00AM - 11:00AM	11:00AM - 01:00PM
7	26-10-2018	09:00AM - 11:00AM	11:00AM - 01:00PM
8	02-11-2018	09:00AM - 11:00AM	11:00AM - 01:00PM
9	09-11-2018	09:00AM - 11:00AM	11:00AM - 01:00PM
10	16-11-2018	09:00AM - 11:00AM	11:00AM - 01:00PM

Mr. Vishal Upmanu  
Program Coordinator



  
Director  
R.D. Engineering College  
Duhai, Ghaziabad

**Department of  
Mechanical  
Engineering**



AICTE ID: 1-3548321

College Code: 231

# R. D. ENGINEERING COLLEGE

Approved by AICTE New Delhi & Affiliated to Dr. APJ Abdul Kalam Technical University, Lucknow  
under the aegis of IQAC

Date...05 Sep 2018

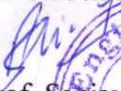
## Department of Mechanical Engineering

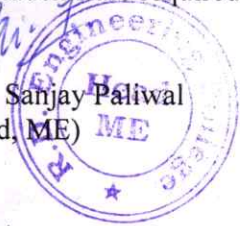
### Notice

All the students of ME III Sem, 2<sup>nd</sup> year are hereby informed that department is going to run an add on course on AUTO CAD from 15<sup>th</sup> Sep 2018.

This Auto CAD Course Syllabus is designed after the consultation with Industry Experts which covers in-depth knowledge of design.

All Students are required to register this course.

  
Prof. Sanjay Paliwal  
(Head, ME)

  
CC:  
Director  
IQAC  
Departmental Notice Board

Encls:  
Syllabus of course  
Schedule of course  
Course Contents

  
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Ghaziabad, U.P.



R D Engineering College, Ghaziabad  
Auto CAD  
Add On Course for B. Tech (ME, III Sem) Session 2018-19

## Syllabus

# Beginner AutoCAD

Learn basic drawing and modifying techniques for drafting and technical drawing, using AutoCAD to create drawings that can be used to build and real objects both mechanical and architectural. We'll cover basic methods of printing and plotting layouts and sheets, working between model space and paper space, and scaling drawings through viewports.

**Duration:**

**Prerequisites:**

## Course Outline

### 1: Getting Started with AutoCAD

- Opening and Creating Drawings
- Exploring the AutoCAD interface
- Zooming and Panning

### 2: Basic Drawing & Editing Commands

- Using the Mouse, Keyboard, and Enter Key to work quickly and efficiently in AutoCAD
- Lines
- Circles
- Rectangles

### 3: Creating a Simple Drawing

- Creating Simple Drawings
- Using Modify tools to arrange an office layout

### 4: Drawing Precision in AutoCAD

- Polar and Ortho Tracking
- Entering Coordinates and Angles
- Object Snaps and Tracking

### 5: Making Changes in Your Drawing

- Move
- Copy
- Rotate
- Mirror
- Scale
- Using the reference option with the Scale Tool

### 6: Drawing Templates

- Using Template Files (.dwt) to Make New Drawing

  
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Exploring what Settings and Elements are saved with Templates

**7: Organizing Your Drawing with Layers**

- Layer States
- Properties by Layer
- Layer Tools

**8: Object Types**

- Polylines
- Arcs
- Polygons
- Ellipses

**9: Editing Commands**

- Trim and Extend
- Fillet and Chamfer
- Polyline Edit and Spline
- Offset and Explode
- Join

**10: Inserting Blocks**

- The Insert Block Command
- Inserting Blocks with Tool Palettes
- Dynamic Blocs
- Migrating Blocks and other Elements between Drawings with Design Center

**11: Adding Dimensions**

- Using Dimensioning Tools
- Dimensioning in a Layout Tab vs. the Model Tab
- Using Dimension Styles
- Editing Dimensions

Theory/ Lab	Total Hours
32 Hrs	32

Mr. Pawan Yadav  
Trainer

Prof. Sanjay Paliwal  
Head ME

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**R.D. ENGINEERING COLLEGE, GHAZIABAD**  
**DEPARTMENT OF MECHANICAL ENGINEERING**

**COURSE OUTCOME (2018-19)**

**Auto CAD**

**Course Description**

Introduces Autodesk's AutoCAD software as a design and drafting tool. Introduces basic 2D CAD commands, command interface, workspace, viewports and printing concepts. Covers creation, retrieval and modification of 2D drawing files that meet industry standards with an emphasis on mechanical design for the manufacturing industry.

**Intended Outcomes for the course**

1. Upon completion of the course students will be able to:
2. Utilize the power and precision of AutoCAD as a drafting and design tool used in the mechanical design and manufacturing industries.
3. Apply basic CAD concepts to develop and construct accurate 2D geometry through creation of basic geometric constructions.
4. Create, manipulate and edit 2D drawings and figures.
5. Apply elements of mechanical drafting such as layers, dimensions, drawing formats, and 2D figures in projects with a focus on ANSI industry standards.



  
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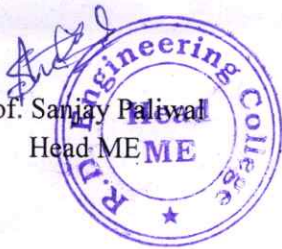


**R D Engineering College, Ghaziabad**  
**AUTO CAD TRAINING SCHEDULE**  
**Add On Course for B.Tech (ME , III SEM)**

**Session 2018-19**

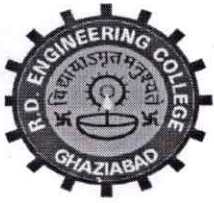
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5	13-10-2018	SAT	09:00AM - 12:00PM
6	20-10-2018	SAT	09:00AM - 12:00PM
7	27-10-2018	SAT	09:00AM - 12:00PM
8	03-11-2018	SAT	09:00AM - 12:00PM
9	10-11-2018	SAT	09:00AM - 12:00PM
10	17-11-2018	SAT	09:00AM - 12:00PM
11	24-11-2018	SAT	09:00AM - 12:00PM

Prof. Sanjay Palival  
Head ME



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AICTE ID: 1-3548321

College Code: 231

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Date...05 Sep 2018

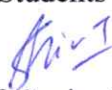
Department of Mechanical Engineering

## Notice

All the students of ME V Sem, 3<sup>RD</sup> year are hereby informed that department is going to run an add on course on SOLID WORKS from 15<sup>th</sup> Sep 2018.

This SOLID WORKS Course Syllabus is designed after the consultation with Industry Experts which covers in-depth knowledge of design.

All Students are required to register this course.

  
Prof. Sanjay Paliwal  
(Head, ME)



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Encls:  
Syllabus of course  
Schedule of course  
Course Contents

  
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# ME 3<sup>RD</sup> YEAR ADD ON COURSE

## SOLIDWORKS

### Course Outline

SolidWorks Essentials teaches you how to use the SolidWorks mechanical design automation software to build parametric models of parts and assemblies, and how to make drawings of those parts and assemblies.

The main topics covered include:

#### **Lesson 1:** SolidWorks Basics and the User Interface

File References

Opening Files

The SolidWorks User Interface

Using the Command Manager

#### **Lesson 2:** Introduction to Sketching

2D Sketching

Saving Files

Sketching

Sketch Relations

Dimensions

Extrude

#### **Lesson 3:** Basic Part Modeling

Basic Modeling

Terminology

Boss Feature

Cut Feature

Dimensioning

Filleting

Editing Tools

#### **Lesson 4:** Patterning

Why Use Patterns?

Linear Pattern

Circular Patterns

Mirror Patterns

#### **Lesson 5:** Revolved Features

Revolved Features

Building the Rim

Edit Material

#### **Lesson 6:** Editing: Design Changes

Part Editing

Design Changes

#### **Lesson 7:** Assembly

Creating a New Assembly

Position of the First Component

Adding Components

Mating Components



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**R.D. ENGINEERING COLLEGE, GHAZIABAD**  
**DEPARTMENT OF MECHANICAL ENGINEERING**

**COURSE OUTCOME (2018-19)**

**SOLID WORK**

Solid works is an engineering software package that allows engineers and designers to create detailed 3-dimensional representations of their ideas. These 3d models can then be used for virtual prototyping and simulation, blueprints or specifications, and photorealistic renders among other things. In this Solid works basic training course, you will learn the basics of how to create parts, assemblies, and drawings using the Solid works software package.

Solid Works Essentials teaches students how to use the Solid Works mechanical design automation software to build parametric models of parts and assemblies, and how to make drawings of those parts and assemblies.

**Learning Outcomes**

Upon completion of training, students will be able to:

1. Understand the underlying concepts of 3d modelling
2. Create basic to intermediate solid models using Solid works software
3. Detail out blueprints based on solid models or assemblies
4. Compose an assembly of multiple parts



  
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**R D Engineering College, Ghaziabad**  
**SOLID WORK TRAINING SCHEDULE**

**Add On Course for B.Tech (ME , V SEM)**

**2018-19**

SN	Date	Day	Timings (Theory/ Lab)
1	15-09-2018	SAT	10:00AM - 12:00PM(Introductory Session)
2	22-09-2018	SAT	10:00 AM - 1.00 PM
3	29-09-2018	SAT	10:00 AM - 1.00 PM
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6	20-10-2018	SAT	10:00 AM - 1.00 PM
7	27-10-2018	SAT	10:00 AM - 1.00 PM
8	03-11-2018	SAT	10:00 AM - 1.00 PM
9	10-11-2018	SAT	10:00 AM - 1.00 PM
10	17-11-2018	SAT	10:00 AM - 1.00 PM
11	24-11-2018	SAT	10:00 AM - 1.00 PM

Prof. Sanjay Palrwal  
Head ME



  
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**R.D. Engineering College**  
**Duhai, Ghaziabad**



## R. D. Engineering College, Ghaziabad

Approved by AICTE & Affiliated to Dr.APJ Abdul Kalam Technical University, Lucknow

Date: 3<sup>rd</sup> Sep, 2018

### Notice

### Add on Course- Advanced Excel

From: Program Coordinator

To: All the ME 4<sup>th</sup> year Students(7<sup>th</sup> Sem)

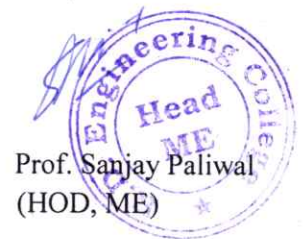
All the students of ME VII Sem, IV year are hereby informed that department is going to run an add on course on Advance excel from 15<sup>th</sup> Sep 2018.

This Advanced Microsoft Excel Course Syllabus is designed after the consultation with Industry Experts. This Advanced Excel Course Syllabus covers in-depth knowledge of pivot tables, audit and analyze worksheet data, VBA Macro, utilize data tools, collaborate with others, and create and manage macros with live Projects.

All Students are required to attend this course.

**Dr. Vishal Upmanu**

Dr. Vishal Upmanu  
(Program Coordinator)



Prof. Sanjay Paliwal  
(HOD, ME)

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# R. D. Engineering College, Ghaziabad

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## Syllabus- Add On Course for B.Tech ME VII Sem

### Advanced Excel

### Session 2018-19

This Advanced Microsoft Excel Course Syllabus is designed after the consultation with Industry Experts. This Advanced Excel Course Syllabus covers in-depth knowledge of pivot tables, audit and analyze worksheet data, VBA Macro, utilize data tools, collaborate with others, and create and manage macros with live Projects.

This advanced Excel course syllabus is designed for the intermediate Excel user who desires to learn more advanced skills. Learn the most advanced formulas, functions, charts and types of financial analysis to be an Excel power user.

<b>Topic 1</b>	Excel Introduction, Customizing Excel and using basic functions <ul style="list-style-type: none"><li>• An overview of the screen, navigation and basic spreadsheet concepts</li><li>• Various selection techniques</li><li>• Shortcut Keys</li><li>• Customizing the Ribbon • Using and Customizing AutoCorrect</li><li>• Changing Excel's Default Options</li><li>• Using Functions – Sum, Average, Max,Min, Count, Counta</li><li>• Absolute, Mixed and Relative Referencing</li></ul>	<b>1 Hrs</b>
<b>Topic 2</b>	Formatting and Proofing <ul style="list-style-type: none"><li>• Currency Format, Format Painter</li><li>• Formatting Dates</li><li>• Custom and Special Formats</li><li>• Formatting Cells with Number formats, Font formats, Alignment, Borders</li><li>• Basic conditional formatting</li></ul>	<b>1 Hrs</b>
<b>Topic 3</b>	Hands on Practice _____ Mathematical Functions and Protecting Excel <ul style="list-style-type: none"><li>• SumIf, SumIfs CountIf, CountIfs AverageIf, AverageIfs, Nested IF, IFERROR Statement, AND, OR, NOT</li><li>• File Level Protection</li><li>• Workbook, Worksheet Protection</li></ul>	<b>2 Hrs</b> <b>1 Hrs</b>
<b>Topic 4</b>	Text Functions and Date and Time Functions <ul style="list-style-type: none"><li>• Upper, Lower, Proper</li><li>• Left, Mid, Right</li><li>• Trim, Len, Exact</li><li>• Concatenate</li><li>• Find, Substitute</li><li>• Today, Now</li><li>• Day, Month, Year</li><li>• Date, Date if, DateAdd</li><li>• EOMonth, Weekday</li></ul>	<b>1 Hrs</b>
<b>Topic 5</b>	Hands on Practice _____ Advanced Paste Special Techniques in Excel 2013 / 2016 & 365 <ul style="list-style-type: none"><li>• Paste Formulas, Paste Formats</li><li>• Paste Validations</li><li>• Transpose Tables</li><li>• New Charts – Tree map &amp; Waterfall</li><li>• Sunburst, Box and whisker Charts</li></ul>	<b>2 Hrs</b> <b>3 Hrs</b>



  
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	<ul style="list-style-type: none"> <li>• Combo Charts – Secondary Axis</li> <li>• Adding Slicers Tool in Pivot &amp; Tables</li> <li>• Using Power Map and Power View</li> <li>• Forecast Sheet</li> <li>• Sparklines -Line, Column &amp; Win/ Loss</li> <li>• Using 3-D Map</li> <li>• New Controls in Pivot Table – Field, Items and Sets</li> <li>• Various Time Lines in Pivot Table</li> <li>• Auto complete a data range and list</li> <li>• Quick Analysis Tool</li> <li>• Smart Lookup and manage Store Sorting and Filtering</li> <li>• Filtering on Text, Numbers &amp; Colors</li> <li>• Sorting Options</li> <li>• Advanced Filters on 15-20 different criteria(s) Printing Workbooks</li> <li>• Setting Up Print Area</li> <li>• Customizing Headers &amp; Footers</li> <li>• Designing the structure of a template</li> <li>• Print Titles –Repeat Rows / Columns</li> </ul>	3 Hrs
	Hands on Practice _____	2 Hrs
<b>Topic 6</b>	Advance Excel What If Analysis <ul style="list-style-type: none"> <li>• Goal Seek</li> <li>• Scenario Analysis</li> <li>• Data Tables (PMT Function)</li> <li>• Solver Tool</li> </ul>	2 Hrs
<b>Topic 7</b>	Logical Functions <ul style="list-style-type: none"> <li>• If Function</li> <li>• How to Fix Errors – if error</li> <li>• Nested If</li> <li>• Complex if and or functions</li> </ul>	2 Hrs
	Hands on Practice _____	2 Hrs
<b>Topic 8</b>	Data Validation <ul style="list-style-type: none"> <li>• Number, Date &amp; Time Validation</li> <li>• Text and List Validation</li> <li>• Custom validations based on formula for a cell</li> <li>• Dynamic Dropdown List Creation using Data Validation – Dependency List</li> </ul>	1 Hrs
<b>Topic 9</b>	Lookup Functions <ul style="list-style-type: none"> <li>• Vlookup / HLookup</li> <li>• Index and Match</li> <li>• Creating Smooth User Interface Using Lookup</li> <li>• Nested VLookup</li> <li>• Reverse Lookup using Choose Function</li> <li>• Worksheet linking using Indirect</li> <li>• Vlookup with Helper Column</li> </ul>	1 Hrs
	Hands on Practice _____	2 Hrs
<b>Topic 10</b>	Pivot Tables <ul style="list-style-type: none"> <li>• Creating Simple Pivot Tables</li> <li>• Basic and Advanced Value Field Setting</li> <li>• Classic Pivot table</li> <li>• Choosing Field</li> <li>• Filtering PivotTables</li> <li>• Modifying PivotTable Data</li> <li>• Grouping based on numbers and Dates</li> <li>• Calculated Field &amp; Calculated Items</li> <li>• Arrays Functions</li> <li>• What are the Array Formulas, Use of the Array Formulas?</li> <li>• Basic Examples of Arrays (Using ctrl+shift+enter).</li> </ul>	2 Hrs

  
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	<ul style="list-style-type: none"> <li>• Array with if, len and mid functions formulas.</li> <li>• Advanced Use of formulas with Array.</li> </ul>	<b>3 Hrs</b>
<b>Topic 11</b>	Hands on Practice _____ Charts and slicers and Excel Dashboard <ul style="list-style-type: none"> <li>• Various Charts i.e. Bar Charts / Pie Charts/ Line Charts</li> <li>• Using SLICERS, Filter data with Slicers</li> <li>• Manage Primary and Secondary Axis</li> <li>• Adding Tables and Charts to Dashboard</li> <li>• Adding Dynamic Contents to Dashboard</li> </ul>	<b>2 Hrs</b>
<b>Topic 12</b>	Hands on Practice _____ VBA Macro <ul style="list-style-type: none"> <li>• Introduction to VBA             <ul style="list-style-type: none"> <li>• What Is VBA? What Can You Do with VBA?</li> <li>• Recording a Macro</li> <li>• Procedure and functions in VBA</li> </ul> </li> <li>• Variables in VBA             <ul style="list-style-type: none"> <li>• What is Variables?</li> <li>• Using Non-Declared Variables</li> <li>• Variable Data Types</li> <li>• Using Const variables</li> </ul> </li> <li>• Message Box and Input box Functions             <ul style="list-style-type: none"> <li>• Customizing Msgboxes and Input box</li> <li>• Reading Cell Values into Messages</li> <li>• Various Button Groups in VBA</li> </ul> </li> <li>• If and select statements             <ul style="list-style-type: none"> <li>• Simple If, Elseif Statements</li> <li>• Defining select case statements</li> </ul> </li> <li>• Looping in VBA             <ul style="list-style-type: none"> <li>• Introduction to Loops and its Types</li> <li>• The Basic Do and For Loop</li> <li>• Exiting from a Loop</li> <li>• Advanced Loop Examples</li> </ul> </li> <li>• Mail Functions – VBA             <ul style="list-style-type: none"> <li>• Using Outlook Namespace</li> <li>• Outlook Configurations, MAPI</li> <li>• Worksheet / Workbook Operations</li> <li>• Merge Worksheets using Macro</li> <li>• Merge multiple excel files into one sheet</li> <li>• Split worksheets using VBA filters</li> <li>• Worksheet copiers</li> </ul> </li> </ul>	<b>2 Hrs</b> <b>3 Hrs</b>
	Hands on Practice _____	<b>4 Hrs</b>

<b>Therory Hours</b>	<b>Lab Hours</b>	<b>Total</b>
20 hours	20 Hours	40 Hours

**Dr. Vishal Upmanu**

Mr. Vishal Upmanu  
Program Coordinator



*(Signature)*  
Director  
R.D. Engineering College  
Duhai, Ghaziabad





**R.D. ENGINEERING COLLEGE, GHAZIABAD**  
**DEPARTMENT OF MECHANICAL ENGINEERING**

**COURSE OUTCOME (2018-19)**

**Advanced Excel**

The Advanced Excel course shows you how to work with databases in Microsoft Excel using filtering, sorting and subtotals.

This training course introduces participants to PivotTables, Macros and Hyperlinks and teaches logical, lookup, reference, and statistical functions.

If you are experienced in designing and modifying spreadsheets, can write formulas and have worked with IF and VLOOKUP functions, this advanced Excel course is for you.

**Learning Outcomes**

After completion of the Advanced Excel course you will be able to:

- Use advanced functions and productivity tools to assist in developing worksheets
- Manipulate data lists using Outline, Auto filter and PivotTables
- Use Consolidation to summaries and report results from multiple worksheets
- Record repetitive tasks by creating Macros
- Use Hyperlinks to move around worksheets.



  
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**R D Engineering College, Ghaziabad**  
**Schedule-Add On Course for B.Tech ME-VII sem**

**Advanced Excel**  
**Session 2018-19**

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**Dr. Vishal Upmanu**  
Mr. Vishal Upmanu  
Program Coordinator



  
Director  
R.D. Engineering College  
Duhai, Ghaziabad

# Department of Civil Engineering





**R. D. ENGINEERING COLLEGE, GHAZIABAD**  
(Approved by AICTE & Affiliated to Dr.APJ Abdul Kalam Technical University, Lucknow)

Date: 6<sup>th</sup> Sep, 2018

**NOTICE**

**ADD ON COURSE- CAD**


From: Program Coordinator


To: All the CE 2<sup>nd</sup> year Students(3<sup>rd</sup> Sem)

All the students of CE II year (III Sem) are hereby informed that department is going to run an add on course on **CAD** from 15<sup>th</sup> Sep 2018.

This **CAD** Course Syllabus is designed after the consultation with Industry Experts and Syllabus covers in-depth knowledge of **CAD software**. **Students use CAD to create base maps**. It supports the creation of better construction documentation. Computer-aided drafting, or CAD, was seen as a pleasure rather than a need in the civil engineering sector.

All Students are required to attend this course.

  
Mr. Anirudh Kumar  
(Program Coordinator)

  
Dr. Pankaj Kumar Singh  
(HOD,CE)

CC:

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Dean Academics

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**R D ENGINEERING COLLEGE, GHAZIABAD**  
**CAD TRAINING SYLLABUS**  
**ADD ON COURSE FOR B.TECH (CE)-III SEM**  
**SESSION 2018-19**  
**SYLLABUS & FEATURES**

CAD is a software application that is used to create drafting solutions.

It may be used to develop blueprints for bridges, buildings, and computer chips, among other things.

For drafting, it provides 2D and 3D application features. CAD is commercial software that was initially designed as a desktop application

CAD creates designs; generate model drafts or blueprints in 3D on a computer using the CAD software.

The predominant topics covered in the program includes Analysis of Space Frames, Sketch Entities and Sketch Tools, Geometry and Dimensional Constraints, Interactive Design, and Smart Dimensions..

**Features of CAD:**

3D Presentations. Visualizing your layouts can be challenging especially if you're forced to look at it on a flat surface.

Smart tools. Smart or automated tools are one of the general features of CAD software.

Preset models.

Collaboration tools.

Simulation tools.

  
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**R D ENGINEERING COLLEGE, GHAZIABAD**  
**CAD TRAINING SYLLABUS**  
**ADD ON COURSE FOR B.TECH (CE)-III SEM**  
**SESSION 2018-19**

TOPIC 1	CONTENT	INDEX
	<b>Introduction</b>	<b>1 HRS</b>
	Intro	
	User Interface	
	Command Description	
	Use of Mouse	
	Use of keyboard	
	Various Features	
	Civil vs Mechanical	
	Use in Industry	
	<b>LAB</b>	<b>1 HR</b>
Topic 2	<b>Fundamentals</b> 1 HRS	
	Line	
	Co-ordinate System	
	Absolute	
	Relative Rectangular	
	Relative Polar	
	Pick point Method	
	Zoom & Erase	
	<b>LAB</b>	<b>1 HRS</b>
Topic 3	<b>Understanding Circle</b>	<b>1 HRS</b>
	Line	
	Co-ordinate System	
	Absolute	
	Relative Rectangular	
	Relative Polar	
	Pick point Method	
	Zoom & Erase	
	<b>LAB</b>	<b>1 HRS</b>

  
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Topic 4	Introduction to Product Design Cycle	1 HRS
	LAB	1 HRS
Topic 5	Views, Camera, Walk-through, Render & Solar Study	1 HRS
	LAB	1 HRS
Topic 6	Types of Lines & Circle	1 HRS
	LAB	1 HRS
Topic 7	Types of Polygons & Rectangle	1 HRS
	LAB	1 HRS
Topic 8	Draw Tools	1 HRS
	LAB	1 HRS
Topic 9	Drafting Setting & Option	1 HRS
	LAB	1 HRS
Topic 10	Dimension & Styles Setting	1 HRS
	LAB	1 HRS
Topic 11	Modify Tools	1 HRS
	LAB	1 HRS
Topic 12	Text & Layer Formatting	1 HRS
	LAB	1 HRS
Topic 13	Blocks & Design Libraries	1 HRS
	LAB	1 HRS
Topic 14	Dynamic Block & W Block	1 HRS
	LAB	1 HRS

  
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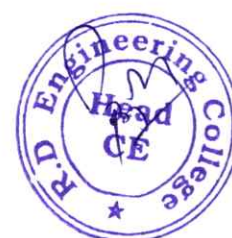


Topic 15	Layout & Page Setup	1 HRS
	LAB	1 HRS
Topic 16	Plotting Tools	1 HRS
	LAB	1 HRS
Topic 17	Parametric Tools	1 HRS
	LAB	1 HRS
Topic 18	Types of Projection & Elevation, Sectional Views	1 HRS
	LAB	1 HRS
Topic 19	Introduction to 3D TOOLS - Extrudes, Revolve, Sweep, Loft	1 HRS
	Solid Editing Tools, Advanced 3D Modelling Tools, Rendering Tools, Animation Tools	
	LAB	1 HRS
Topic 20	LIVE PROJECT	3 HRS

Theory Hours	Lab Hours	Total
18 hours	22 Hours	40 Hours

*Anirudh Kumar*  
 Mr. Anirudh Kumar  
 Program Coordinator

*[Signature]*  
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# R. D. Engineering College, Ghaziabad

Approved by AICTE & Affiliated to Dr. APJ Abdul Kalam Technical University, Lucknow.

## Department of Civil Engineering

### COURSE OUTCOME - CAD

The course outcomes of a Computer-Aided Design (CAD) course will depend on the specific objectives and curriculum of the course. However, I can provide you with a general list of potential outcomes that one might expect from a CAD course:

**Understanding of CAD Software:** Students should gain a comprehensive understanding of the CAD software being used in the course. This includes proficiency in using the interface, tools, and features of the software.

**2D Drafting Skills:** Mastery of 2D drafting is often a fundamental component of CAD courses. This includes creating accurate and detailed technical drawings using CAD software.

**Geometric Dimensioning and Tolerancing (GD&T):** Understanding how to apply GD&T principles is crucial in CAD for creating accurate and standardized technical drawings.

**Assembly Design:** Knowledge of how to create and manage assemblies is important for designing complex systems or products with multiple components.

**CAD Standards and Practices:** Understanding industry-standard practices and adhering to them in design work is a key outcome. This includes considerations for layering, naming conventions, and file management.

**Problem Solving and Critical Thinking:** CAD courses often require students to apply problem-solving skills to design challenges and encourage critical thinking in the design process.

**Documentation and Technical Drawing:** Producing accurate and detailed technical drawings with proper documentation is a key outcome, as these drawings are often used for manufacturing or construction purposes.

**Awareness of Industry Trends:** Keeping up with the latest trends and advancements in CAD technology and industry practices is essential for students to stay relevant in the field.

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**R D ENGINEERING COLLEGE**  
**CAD**  
**ADD ON COURSE FOR B.TECH - CE-III SEM**  
**SESSION 2018-19**

SN	Date	Timings (Theory)	Timings (Lab)
1	15-09-2018	09:00AM - 11:00AM	11:00AM - 01:00PM
2	22-09-2018	09:00AM - 11:00AM	11:00AM - 01:00PM
3	29-09-2018	09:00AM - 11:00AM	11:00AM - 01:00PM
4	05-10-2018	09:00AM - 11:00AM	11:00AM - 01:00PM
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8	02-11-2018	09:00AM - 11:00AM	11:00AM - 01:00PM
9	09-11-2018	09:00AM - 11:00AM	11:00AM - 01:00PM
10	16-11-2018	09:00AM - 11:00AM	11:00AM - 01:00PM

*Anirudh Kumar*

Anirudh Kumar  
Program Coordinator

*[Signature]*  
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# R. D. ENGINEERING COLLEGE, GHAZIABAD

(Approved by AICTE & Affiliated to Dr.APJ Abdul Kalam Technical University, Lucknow)

Date: 8<sup>th</sup> Sep, 2018

## NOTICE

### ADD ON COURSE- REVIT/STADDPRO

From: Program Coordinator

To: All the CE 3<sup>rd</sup> year Students(5<sup>th</sup> Sem)

All the students of CE III year (V Sem) are hereby informed that department is going to run an add on course on **REVIT/STADDPRO** from 15<sup>th</sup> Sep 2018.

This **REVIT/STADDPRO** Course Syllabus is designed after the consultation with Industry Experts. And Syllabus covers in-depth knowledge of ETABS is an engineering software product that caters to **multi-story building analysis and design** with live Projects and **MSP** is used in Architecture, Construction, and engineering industry for periodic control of work, coordination with subcontractors, pre-planning of work, scheduling, claims analysis, tracking, bidding, design development, cost management, and maintenance with live Project.

All Students are required to attend this course.

*Dharmendra Kumar*  
Mr. Dharmendra Kumar

(Program Coordinator)

*Pankaj Kumar Singh*  
Dr. Pankaj Kumar Singh

(HOD.CE)

CC:

Director

Dean Academics

IQAC

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**R D ENGINEERING COLLEGE, GHAZIABAD**  
**REVIT/STADDPRO TRAINING SYLLABUS**  
**ADD ON COURSE FOR B.TECH (CE)-V SEM**  
**SESSION 2018-19**  
**SYLLABUS & FEATURES**

This course is focused on the building design space and will help students capture ideas; communicate designs to various stakeholders, 3D Modeling, Building Information Modeling and Project Planning Management. This is possible by the inclusion of advanced tools.

**Objective:**

This course provides the participants a combination of software tools to manage the entire lifecycle of building projects. As building projects also includes project management these concepts and tools are covered as well.

**Revit is built for Building modeling information.** Revit software includes features for building architectural design, MEP and structural engineering, and construction. STAAD stands for Structural Analysis and Designing.

Revit design **allows designers to develop and execute complex work on time while also providing realistic, high-quality 3D visuals to the client.** Revit modeling services, which include Revit 3D models, Revit drafting, and Revit design, allow for a clear representation of the genuine architectural structure.

Revit is used **to coordinate all data inputs (including CAD) and produce federated project deliverables.** Both programs are often used within the same firm, with BIM and CAD specialists working on different elements of a project.

**Features:**

Interoperability improvements. Connect form making to documentation with improved Revit interoperability for tools like Rhino and FormIt Pro.

Shared parameters in key schedules.

Improved rebar modelling, detailing.

Tapered walls.

Native PDF export.

Improved documentation efficiency.

  
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**REVIT TRAINING SYLLABUS**  
**ADD ON COURSE FOR B.TECH (CE)-V SEM**  
**SESSION 2018-19**

TOPIC	CONTENT	INDEX
Topic 1	Introduction to BIM & Revit Architecture	1 HRS
	Lab	1 HRS
Topic 2	Structural Element	1 HRS
	Lab	1 HRS
Topic 3	Place and modify Walls & Complex Walls	1 HRS
	Lab	1 HRS
Topic 4	Sheets and Title Blocks	1 HRS
	Lab	1 HRS
Topic 5	Views, Camera, Walk-through, Render & Solar Study	1 HRS
	Lab	1 HRS
Topic 6	In-Place Families	1 HRS
	Lab	1 HRS
Topic 7	Place Doors, Windows & Components	1 HRS
	Lab	1 HRS
Topic 8	Family Creation	1 HRS
	Lab	1 HRS
Topic 9	Site Design	1 HRS
	Lab	1 HRS
Topic 10	Dimensions and Constraints	1 HRS
	Lab	1 HRS
Topic 11	<b>LIVE PROJECT (LAB)</b>	3 HRS

  
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**STADD TRAINING SYLLABUS**  
**ADD ON COURSE FOR B.TECH (CE)-V SEM**  
**SESSION 2018-19**

<b>Topic 1</b>	<b>Introduction to Structural Engineering</b>	2 HRS
	Introduction to STAAD.Pro V8i	
	Model Generation and Editing	
	Assigning loads	
	Automatic load generations:	
	<b>Lab</b>	1 HRS
<b>Topic 2</b>	<b>Slab, Wind and Moving loads</b>	1 HRS
	Creating Load Combinations	
	Concrete Design	
	<b>Lab</b>	1 HRS
<b>Topic 3</b>	<b>Column and Beam design</b>	1 HRS
	Seismology	
	Seismic Analysis and Design	
	Dynamic Analysis	
	Response Spectrum	
	Time History Analysis	
	<b>Lab</b>	1 HRS
<b>Topic 4</b>	FEM / FEA	1 HRS
	Introduction	
	Water Tank Design	
	Slab Design	
	Staircase Design	

  
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	Shear wall Design	
	Bridge Deck design using STAAD.Beava	
	<b>Lab</b>	1 HRS
<b>Topic 5</b>	Steel Design	1 HRS
	Introduction	
	Steel Frame Structure Design	
	Overhead Transmission Line Towers Design.	
	Steel Structure design with Pushover Analysis	
	<b>Lab</b>	1 HRS
<b>Topic 6</b>	Foundation Designs	1 HRS
	Isolate, Combined, Strip, Mat and Pile Cap	
	Report Generation and Plotting	
	<b>Lab</b>	1 HRS
<b>Topic 7</b>	<b>LIVE PROJECT (LAB)</b>	3 HRS

Theory Hours	Lab Hours	Total
17 hours	23 Hours	40Hours

*Dharmendra Kumar*  
 Mr. Dharmendra Kumar  
 Program Coordinator

*[Signature]*  
 Director  
 R.D. Engineering College  
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# R. D. Engineering College, Ghaziabad

Approved by AICTE & Affiliated to Dr. APJ Abdul Kalam Technical University, Lucknow.

## Department of Civil Engineering

### COURSE OUTCOME - CAD

The course outcomes of a Computer-Aided Design (CAD) course will depend on the specific objectives and curriculum of the course. However, I can provide you with a general list of potential outcomes that one might expect from a CAD course:

**Understanding of CAD Software:** Students should gain a comprehensive understanding of the CAD software being used in the course. This includes proficiency in using the interface, tools, and features of the software.

**2D Drafting Skills:** Mastery of 2D drafting is often a fundamental component of CAD courses. This includes creating accurate and detailed technical drawings using CAD software.

**Geometric Dimensioning and Tolerancing (GD&T):** Understanding how to apply GD&T principles is crucial in CAD for creating accurate and standardized technical drawings.

**Assembly Design:** Knowledge of how to create and manage assemblies is important for designing complex systems or products with multiple components.

**CAD Standards and Practices:** Understanding industry-standard practices and adhering to them in design work is a key outcome. This includes considerations for layering, naming conventions, and file management.

**Problem Solving and Critical Thinking:** CAD courses often require students to apply problem-solving skills to design challenges and encourage critical thinking in the design process.

**Documentation and Technical Drawing:** Producing accurate and detailed technical drawings with proper documentation is a key outcome, as these drawings are often used for manufacturing or construction purposes.

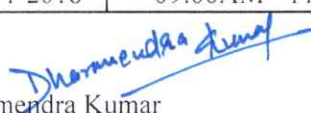
**Awareness of Industry Trends:** Keeping up with the latest trends and advancements in CAD technology and industry practices is essential for students to stay relevant in the field.

  
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**R D ENGINEERING COLLEGE**  
**REVIT/STADDPRO**  
**ADD ON COURSE FOR B.TECH - CE-V SEM**  
**SESSION 2018-19**

SN	Date	Timings (Theory)	Timings (Lab)
1	15-09-2018	09:00AM - 11:00AM	11:00AM - 01:00PM
2	22-09-2018	09:00AM - 11:00AM	11:00AM - 01:00PM
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Dharmendra Kumar  
Program Coordinator

  
Director  
R.D. Engineering College  
Duhai, Ghaziabad





# R. D. ENGINEERING COLLEGE, GHAZIABAD

(Approved by AICTE & Affiliated to Dr.APJ Abdul Kalam Technical University, Lucknow)

Date: 8<sup>th</sup> Sep, 2018

## NOTICE

### ADD ON COURSE-ETABS/AUTOCAD/MSP

From: Program Coordinator

To: All the CE 4<sup>th</sup> year Students(7<sup>th</sup> Sem)

All the students of CE IV year (VII Sem) are hereby informed that department is going to run an add on course on **ETABS/AUTOCAD/MSP** from 15<sup>th</sup> Sep 2018.

This ETABS provides like intuitive and integrated features make applications of any complexity practical to implement. Interoperability with a series a design and documentation platform makes ETABS a coordinated and productive tool for design which range from simple 2D frames to elaborate modern high rises. Although quick and easy for simple structure, ETABS can also handle the largest and most complex building models, including a wide range of geometrical nonlinear behaviours.

All Students are required to attend this course.

Dr. Pankaj Kumar Singh

(Program Coordinator)

Dr. Pankaj Kumar Singh

(HOD, CE)

CC:

Director

Dean Academics

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**R D ENGINEERING COLLEGE, GHAZIABAD**  
**ETABS/AUTOCAD/MSP TRAINING SYLLABUS**  
**ADD ON COURSE FOR B.TECH (CE)-V SEM**  
**SESSION 2018-19**  
**SYLLABUS & FEATURES**

This ETABS provides like intuitive and integrated features make applications of any complexity practical to implement. Interoperability with a series a design and documentation platform makes ETABS a coordinated and productive tool for design which range from simple 2D frames to elaborate modern high rises. Although quick and easy for simple structure, ETABS can also handle the largest and most complex building models, including a wide range of geometrical nonlinear behaviours.

**FEATURES OF ETABS COURSE:**

- » ETABS offers a single user interface to perform: Modelling, Analysis, Design, Detailing and Reporting.
- » A model explorer is available for quick access to objects properties and forms.
- » Direct graphics with hardware accelerated graphics allow for navigation of models with flythrough and fast rotation.
- » ETABS has wide selection of templates for quickly starting anew model.
- » Plan views and elevation views are automatically generated at every grid line.
- » Many drawing and drafting utilities are built into ETABS to enhance the engineers modelling experience.
- » ETABS data can be viewed and edited using onscreen dock able tables.
- » Engineers have many options when it comes to mesh generation.
- » ETABS has built in library of standard concrete, Steel, and composite sections of both US and International standard sections.
- » Shell elements are used to model wall, floor and ramps.
- » Link elements are available for users to accurately represent the behavior of the structure.
- » Users can create and apply hinge properties to perform pushover analysis.
- » Nonlinear behavior can be modelled for frame elements using fiber hinges.
- » Rigid, semi rigid and flexible floor diaphragms can be created.
- » ETABS will automatically generate and apply seismic and wind loads based on various international codes.
- » Its dynamic analysis capabilities include calculation of vibration modes using Ritz or Eigen vectors, response spectrum analysis and time history analysis for both linear and non-linear behavior.
- » Incremental construction sequences modelling and loading can be modelled in ETABS. Fully integrated steel connection design including members sizing is also available.
- » Rendered views can be used to create images to include in client reports.
- » ETABS has multiple lighting option shadows and texture options to create images of your structure.
- » ETABS has complete drawing generation capabilities.
- » The report generation features include an indexed table of contents, models definition information and analysis and design results in a tabulated format.
- » Reports are viewable within ETABS with live documents navigation connected to the model explorer and directly exportable to MS word.

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**ETABS Classes can handle the following types of system and analyses easily:**

- »Multi story commercial, government and health care facilities.
- »Parking garages with circular and linear ramps.
- »Staggered truss building.
- »Building with steel, concrete, composite or joist floor farming.
- »Building based on multiple/ rectangular or cylindrical grid system.
- »Flat and waffle slab concrete building.
- »P-Delta analysis with static or dynamic analysis
- »Foundation / supports settlement.
- »Non-linear static pushover.
- »Building with base Isolators and Dampers.




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**R D ENGINEERING COLLEGE, GHAZIABAD**  
**ETABS/AUTOCAD/MSP TRAINING SYLLABUS**  
**ADD ON COURSE FOR B.TECH (CE)-VII SEM**  
**SESSION 2018-19**

<b>Topic 1</b>		Modeling of Building Structure	1 Hrs
	Lab		2 Hrs
<b>Topic 2</b>		Object Editing tools	1 Hrs
	Lab		2 Hrs
<b>Topic 3</b>		Property specification	2 Hrs
	Lab		2 Hrs
<b>Topic 4</b>		Loads & load combination	2 Hrs
	Lab		2 Hrs
<b>Topic 5</b>		Analysis of Building System	3 Hrs
	Lab		4 Hrs
<b>Topic 6</b>		Concrete Frame Design	2 Hrs
	Lab		3 Hrs
<b>Topic 7</b>		Shear Wall Design	2 Hrs
	Lab		3 Hrs
<b>Topic 8</b>		Steel Frame Design	2 Hrs
	Lab		3 Hrs
<b>Topic 9</b>		Steel connection & Joist Design	2 Hrs
	Lab		2 Hrs

Theory Hours	Lab Hours	Total
17 hours	23 Hours	40Hours

  
 Dr. Pankaj Kumar Singh  
 Program Coordinator

  
 Director  
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# R. D. Engineering College, Ghaziabad

Approved by AICTE & Affiliated to Dr. APJ Abdul Kalam Technical University, Lucknow.

## Department of Civil Engineering

### COURSE OUTCOME – REVIT / STADD.PRO

Revit and STAAD.Pro are two different software applications used in the field of architecture and structural engineering, respectively. Here are the typical course outcomes for training in Revit and STAAD.Pro:

#### Revit:

**Understanding BIM (Building Information Modeling):** Gain knowledge about the principles and concepts of BIM, and how Revit is used for creating a digital representation of a building.

**User Interface and Navigation:** Learn the Revit interface, menu structure, and tools. Understand how to navigate through the software efficiently.

**Architectural Design:** Learn how to create architectural elements such as walls, doors, windows, roofs, and floors in Revit. Understand the process of designing and documenting the architectural aspects of a building.

**Structural Design Integration:** Explore the integration of structural elements into the Revit model. Understand how to work with columns, beams, and other structural components.

**MEP (Mechanical, Electrical, Plumbing) Systems:** Gain knowledge about incorporating MEP systems into the Revit model. Learn to design and coordinate mechanical, electrical, and plumbing systems.

**Construction Documentation:** Learn how to create construction documentation using Revit. This includes the generation of floor plans, elevations, sections, and schedules.

**Collaboration and Coordination:** Understand how to collaborate with other disciplines and coordinate the design process within a team using Revit. Explore features like work-sharing and collaboration tools.

**Family Creation:** Gain proficiency in creating custom families in Revit, including parametric families for elements that are not part of the default library.

**Project Management:** Understand how to manage and organize projects effectively in Revit, including setting up project templates, managing views, and controlling project settings.

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## **STAAD.Pro:**

**Introduction to Structural Analysis:** Understand the fundamentals of structural analysis and how STAAD.Pro is used for modeling and analyzing structures.

**Geometry Creation:** Learn how to create 3D models of structures in STAAD.Pro, including defining nodes, elements, and supports.

**Loading and Analysis:** Gain knowledge about applying loads and performing structural analysis using STAAD.Pro. Understand the principles of static and dynamic analysis.

**Design of Structural Elements:** Learn the design aspects of structural elements such as beams, columns, and slabs using various design codes and standards.

**Foundation Design:** Understand the principles of foundation design and how to design different types of foundations using STAAD.Pro.

**Result Verification and Post-Processing:** Learn how to verify analysis results and perform post-processing to ensure the structural integrity of the design.


**Steel and Concrete Design:** Understand the design of steel and concrete structures using STAAD.Pro. Learn about the application of design codes and standards.

  
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**R D ENGINEERING COLLEGE**  
**ETABS/AUTOCAD/MSP**  
**ADD ON COURSE FOR B.TECH - CE-VII SEM**  
**SESSION 2018-19**

SN	Date	Timings (Theory)	Timings (Lab)
1	15-09-2018	09:00AM - 11:00AM	11:00AM - 01:00PM
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Dr. Pankaj Kumar Singh  
Program Coordinator

  
Director  
R.D. Engineering College  
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# Department of MBA



## R. D. Engineering College, Ghaziabad

Approved by AICTE & Affiliated to Dr.APJ Abdul Kalam Technical University, Lucknow

Date:06/08/2018

### Notice

### Add on Course-PDP

From: Program Coordinator

To: All the MBA I<sup>ST</sup> Year Students (I<sup>st</sup> sem )

All the students of MBA I<sup>ST</sup> Year (I Sem) are hereby informed that department is going to run an add on course on PDP from 11/08/2018.

This PDP course Syllabus is designed after the consultation with Industry Experts. This is a basic course for personality development. This program is designed to make student capable to speak according to industry norms.

All Students are required to attend this course.

Mr.Sarthak Tyagi

(Program Coordinator)



Dr. Gaurav Bansal

(Head, MBA)

CC:

Director

Dean Academics

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## R.D. Engineering College, Ghaziabad (231)

### Department of Management (MBA)

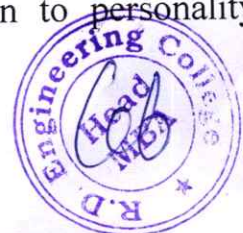
#### Add-on Course

#### Personality Development Programme Course Syllabus

For online certificate program of personality Development, it includes eight weeks comprises of the given below courses layout:-

1. **Week 1:** Define Personality, Determinants of Personality Development, Perception – Definition, Perceptual Process.
2. **Week 2:** Factors of Association – Relationship, Personality Traits, Developing Effective Habits, Emotional Intelligence.
3. **Week 3:** Motivation, Introspection, Self-Assessment, Self-Appraisal & Self-development, Sigmund Freud Id, Ego & Super Ego.
4. **Week 4:** Self Esteem and Maslow, Self Esteem & Erik Erikson, Mind Mapping, Competency Mapping & 360 Degree Assessment, Types of Personalities – Introvert, Extrovert & Ambivert person, Effective Communication & Its key aspects.
5. **Week 5:** Assertiveness, Decision-making skills, Conflict: Process & Resolution, Leadership & Qualities of Successful Leader.
6. **Week 6:** Interpersonal Relationship, Personality – Spiritual journey beyond the management of change, Good manners & Etiquities, Effective Speech, Understanding Body language, projective positive body language.
7. **Week 7:** Attitude – Concept -Significance -Factors affecting attitudes – Positive attitude–Advantages –Negative attitude-Disadvantages -Ways to develop a positive attitude, Carl Jung 's contribution to personality development theory.

  
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8. **Week 8:** Stress Management: Introduction, Causes, stress management
9. **Week 9:** Time management: Importance of time management,
10. **Week 10:** techniques, Techniques of time management, Time management styles.

## Personality Development Programme

Here is the list of subjects studied in the personality development course:

- Presentation Skills
- Communication Skills
- Interpersonal Skills
- Work Place Etiquette
- Meeting / Telephone / Group Etiquette
- Body Language
- Self Confidence
- Positive Attitude
- Conversation English
- Pronunciations
- Story narrations, Verb Patterns
- Speech fluency
- Self Motivation
- Confidence Building
- Role Plays
- Reporting, Speaking habits
- Powerful Presentation Techniques
- Time management
- Voice modulation
- Stress Management
- Building a positive attitude – creative thinking
- Executive Corporate Attire / Formal Dressing

Theory & Lab Hours	Total
40 Hours(20+20)	40 Hours

  
Mr. Sarthak Tyagi

Program Coordinator

  
Director  
R.D. Engineering College  
Duhai, Ghaziabad



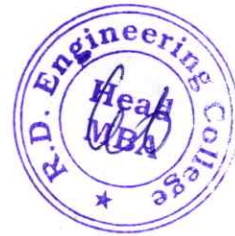
**R D Engineering College, Ghaziabad**  
**ADVANCE EXCEL**  
**Add On Course for MBA (I<sup>st</sup> Sem) Session 2018-19**

**PDP COURSE OUTCOME AFTER COMPLETION**

The course outcomes after completion of a program or course depend on the specific nature and goals of that particular educational or training initiative. Below are general types of outcomes that individuals might expect after completing different types of courses.

Some common course outcomes are:

1. Gain a deep understanding of the subject matter covered in the course.
2. Acquire knowledge of key theories, principles, and concepts.
3. Develop practical skills relevant to the course content.
4. Acquire hands-on experience through practical exercises, projects, or simulations.
5. Enhance critical thinking abilities.



  
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## R.D.ENGINEERING COLLEGE, GHAZIABAD

### Schedule-Add On Course for MBA I<sup>ST</sup> Year I Sem

### PDP

### Session 2018-2019

SN	Date	Timings (Theory)	Timings (Lab)
1	11/08/2018	10:00AM - 12:00PM	02:00PM - 04:00PM
2	18/08/2018	10:00AM - 12:00PM	02:00PM - 04:00PM
3	28/08/2018	10:00AM - 12:00PM	02:00PM - 04:00PM
4	07/09/2018	10:00AM - 12:00PM	02:00PM - 04:00PM
5	08/09/2018	10:00AM - 12:00PM	02:00PM - 04:00PM
6	15/09/2018	10:00AM - 12:00PM	02:00PM - 04:00PM
7	22/09/2018	10:00AM - 12:00PM	02:00PM - 04:00PM
8	29/09/2018	10:00AM - 12:00PM	02:00PM - 04:00PM
9	13/10/2018	10:00AM - 12:00PM	02:00PM - 04:00PM
10	20/10/2018	10:00AM - 12:00PM	02:00PM - 04:00PM

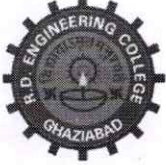
  
Mr. Sarthak Tyagi

(Program Coordinator)



  
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## R. D. Engineering College, Ghaziabad

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Date: 13<sup>th</sup> AUG, 2018

### Notice

### Add on Course- Advanced Excel

From: Program Coordinator

To: All the MBA 2<sup>nd</sup> year Students(3<sup>rd</sup> Sem)

All the students of MBA III Sem, II year are hereby informed that department is going to run an add on course on Advance excel from 18<sup>th</sup> AUG 2018.

This Advanced Microsoft Excel Course Syllabus is designed after the consultation with Industry Experts. This Advanced Excel Course Syllabus covers in-depth knowledge of pivot tables, audit and analyze worksheet data, VBA Macro, utilize data tools, collaborate with others, and create and manage macros with live Projects.

All Students are required to attend this course.

**Dr. Vishal Upmanu**

Dr. Vishal Upmanu

(Program Coordinator)



Dr. Gaurav Bansal

(HOD, MBA)

CC:

Director

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## Syllabus- Add On Course for MBA– III Sem

### Advanced Excel

### Session 2018-19

This Advanced Microsoft Excel Course Syllabus is designed after the consultation with Industry Experts. This Advanced Excel Course Syllabus covers in-depth knowledge of pivot tables, audit and analyze worksheet data, VBA Macro, utilize data tools, collaborate with others, and create and manage macros with live Projects.

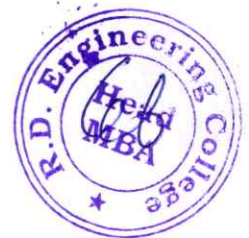
This advanced Excel course syllabus is designed for the intermediate Excel user who desires to learn more advanced skills. Learn the most advanced formulas, functions, charts and types of financial analysis to be an Excel power user.

<b>Topic 1</b>	Excel Introduction, Customizing Excel and using basic functions <ul style="list-style-type: none"><li>• An overview of the screen, navigation and basic spreadsheet concepts</li><li>• Various selection techniques</li><li>• Shortcut Keys</li><li>• Customizing the Ribbon • Using and Customizing AutoCorrect</li><li>• Changing Excel's Default Options</li><li>• Using Functions – Sum, Average, Max, Min, Count, Counta</li><li>• Absolute, Mixed and Relative Referencing</li></ul>	<b>1 Hrs</b>
<b>Topic 2</b>	Formatting and Proofing <ul style="list-style-type: none"><li>• Currency Format, Format Painter</li><li>• Formatting Dates</li><li>• Custom and Special Formats</li><li>• Formatting Cells with Number formats, Font formats, Alignment, Borders</li><li>• Basic conditional formatting</li></ul>	<b>1 Hrs</b>
<b>Topic 3</b>	Hands on Practice _____ Mathematical Functions and Protecting Excel <ul style="list-style-type: none"><li>• SumIf, SumIfs CountIf, CountIfs AverageIf, Averagelfs, Nested IF, IFERROR Statement, AND, OR, NOT</li><li>• File Level Protection</li><li>• Workbook, Worksheet Protection</li></ul>	<b>2 Hrs</b> <b>1 Hrs</b>
<b>Topic 4</b>	Text Functions and Date and Time Functions <ul style="list-style-type: none"><li>• Upper, Lower, Proper</li><li>• Left, Mid, Right</li><li>• Trim, Len, Exact</li><li>• Concatenate</li><li>• Find, Substitute</li><li>• Today, Now</li><li>• Day, Month, Year</li><li>• Date, Date if, DateAdd</li><li>• EOMonth, Weekday</li></ul>	<b>1 Hrs</b>
<b>Topic 5</b>	Hands on Practice _____ Advanced Paste Special Techniques in Excel 2013 / 2016 & 365 <ul style="list-style-type: none"><li>• Paste Formulas, Paste Formats</li><li>• Paste Validations</li><li>• Transpose Tables</li><li>• New Charts – Tree map &amp; Waterfall</li><li>• Sunburst, Box and whisker Charts</li></ul>	<b>2 Hrs</b> <b>3 Hrs</b>

  
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	<ul style="list-style-type: none"> <li>• Combo Charts – Secondary Axis</li> <li>• Adding Slicers Tool in Pivot &amp; Tables</li> <li>• Using Power Map and Power View</li> <li>• Forecast Sheet</li> <li>• Sparklines -Line, Column &amp; Win/ Loss</li> <li>• Using 3-D Map</li> <li>• New Controls in Pivot Table – Field, Items and Sets</li> <li>• Various Time Lines in Pivot Table</li> <li>• Auto complete a data range and list</li> <li>• Quick Analysis Tool</li> <li>• Smart Lookup and manage Store Sorting and Filtering</li> <li>• Filtering on Text, Numbers &amp; Colors</li> <li>• Sorting Options</li> <li>• Advanced Filters on 15-20 different criteria(s) Printing Workbooks</li> <li>• Setting Up Print Area</li> <li>• Customizing Headers &amp; Footers</li> <li>• Designing the structure of a template</li> <li>• Print Titles –Repeat Rows / Columns</li> </ul>	3 Hrs
<b>Topic 6</b>	Hands on Practice _____	2 Hrs
	Advance Excel What If Analysis <ul style="list-style-type: none"> <li>• Goal Seek</li> <li>• Scenario Analysis</li> <li>• Data Tables (PMT Function)</li> <li>• Solver Tool</li> </ul>	
<b>Topic 7</b>	Logical Functions <ul style="list-style-type: none"> <li>• If Function</li> <li>• How to Fix Errors – if error</li> <li>• Nested If</li> <li>• Complex if and or functions</li> </ul>	2 Hrs
<b>Topic 8</b>	Hands on Practice _____	2 Hrs
	Data Validation <ul style="list-style-type: none"> <li>• Number, Date &amp; Time Validation</li> <li>• Text and List Validation</li> <li>• Custom validations based on formula for a cell</li> <li>• Dynamic Dropdown List Creation using Data Validation – Dependency List</li> </ul>	1 Hrs
<b>Topic 9</b>	Lookup Functions <ul style="list-style-type: none"> <li>• Vlookup / HLookup</li> <li>• Index and Match</li> <li>• Creating Smooth User Interface Using Lookup</li> <li>• Nested VLookup</li> <li>• Reverse Lookup using Choose Function</li> <li>• Worksheet linking using Indirect</li> <li>• Vlookup with Helper Column</li> </ul>	1 Hrs
<b>Topic 10</b>	Hands on Practice _____	2 Hrs
	Pivot Tables <ul style="list-style-type: none"> <li>• Creating Simple Pivot Tables</li> <li>• Basic and Advanced Value Field Setting</li> <li>• Classic Pivot table</li> <li>• Choosing Field</li> <li>• Filtering PivotTables</li> <li>• Modifying PivotTable Data</li> <li>• Grouping based on numbers and Dates</li> <li>• Calculated Field &amp; Calculated Items</li> <li>• Arrays Functions</li> <li>• What are the Array Formulas, Use of the Array Formulas?</li> <li>• Basic Examples of Arrays (Using ctrl+shift+enter).</li> <li>• Array with if, len and mid functions formulas.</li> </ul>	2 Hrs



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	<ul style="list-style-type: none"> <li>• Advanced Use of formulas with Array.</li> </ul>	<b>3 Hrs</b>
<b>Topic 11</b>	Hands on Practice _____ Charts and slicers and Excel Dashboard <ul style="list-style-type: none"> <li>• Various Charts i.e. Bar Charts / Pie Charts / Line Charts</li> <li>• Using SLICERS, Filter data with Slicers</li> <li>• Manage Primary and Secondary Axis</li> <li>• Adding Tables and Charts to Dashboard</li> <li>• Adding Dynamic Contents to Dashboard</li> </ul>	<b>2 Hrs</b>
<b>Topic 12</b>	Hands on Practice _____ VBA Macro Introduction to VBA <ul style="list-style-type: none"> <li>• What Is VBA? What Can You Do with VBA?</li> <li>• Recording a Macro</li> <li>• Procedure and functions in VBA</li> </ul> Variables in VBA <ul style="list-style-type: none"> <li>• What is Variables?</li> <li>• Using Non-Declared Variables</li> <li>• Variable Data Types</li> <li>• Using Const variables</li> </ul> Message Box and Input box Functions <ul style="list-style-type: none"> <li>• Customizing Msgboxes and Input box</li> <li>• Reading Cell Values into Messages</li> <li>• Various Button Groups in VBA</li> </ul> If and select statements <ul style="list-style-type: none"> <li>• Simple If, Elseif Statements</li> <li>• Defining select case statements</li> </ul> Looping in VBA <ul style="list-style-type: none"> <li>• Introduction to Loops and its Types</li> <li>• The Basic Do and For Loop</li> <li>• Exiting from a Loop</li> <li>• Advanced Loop Examples</li> </ul> Mail Functions – VBA <ul style="list-style-type: none"> <li>• Using Outlook Namespace</li> <li>• Outlook Configurations, MAPI</li> <li>• Worksheet / Workbook Operations</li> <li>• Merge Worksheets using Macro</li> <li>• Merge multiple excel files into one sheet</li> <li>• Split worksheets using VBA filters</li> <li>• Worksheet copiers</li> </ul>	<b>2 Hrs</b> <b>3 Hrs</b>
	Hands on Practice _____	<b>4 Hrs</b>

<b>Theory Hours</b>	<b>Lab Hours</b>	<b>Total</b>
16 hours	16 Hours	32 Hours

**Dr. Vishal Upmanu**

Dr. Vishal Upmanu  
Program Coordinator



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**ADVANCE EXCEL**  
**Add On Course for MBA (III Sem) Session 2018-19**

**ADVANCE EXCEL COURSE OUTCOME AFTER COMPLETION**

Upon completion of an Advanced Excel course, Students can expect to achieve a range of outcomes that enhance their proficiency in using Microsoft Excel for complex data analysis, reporting, and decision-making.

Some common course outcomes are:

1. Mastery of advanced Excel formulas and functions, including nested functions, array formulas, and lookup functions like INDEX-MATCH.
2. Competence in using PivotTables and Pivot Charts for efficient data summarization and analysis.
3. Ability to clean, transforms, and manipulates data effectively using advanced techniques.
4. Advanced charting skills and customization options for effective data visualization.
5. Competence in conducting scenario analysis and using Excel's Scenario Manager.



  
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### Schedule-Add On Course for MBA-III sem

### Advanced Excel

### Session 2018-19

SN	Date	Timings (Theory)	Timings (Lab)
1	18/08/2018	10:00AM - 12:00PM	02:00PM - 04:00PM
2	25/08/2018	10:00AM - 12:00PM	02:00PM - 04:00PM
3	01/09/2018	10:00AM - 12:00PM	02:00PM - 04:00PM
4	08/09/2018	10:00AM - 12:00PM	02:00PM - 04:00PM
5	15/09/2018	10:00AM - 12:00PM	02:00PM - 04:00PM
6	22/09/2018	10:00AM - 12:00PM	02:00PM - 04:00PM
7	20/10/2018	10:00AM - 12:00PM	02:00PM - 04:00PM
8	27/10/2018	10:00AM - 12:00PM	02:00PM - 04:00PM



  
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# Department of MCA

# R. D. Engineering College, Ghaziabad

## Department of Master of Computer Application


Date: 15<sup>th</sup>, Jan 2019

### Notice

All the students of MCA IV Sem, II year are hereby informed that department is going to run an add on course on Advanced Java 28<sup>th</sup> Jan 2019

This Advanced Java Course Syllabus is designed to bridge the curriculum and industry gap. After completing the course you will be able to do some basic project to enhance your skills.

All Students are required to attend this course.

  
Prof. Ashutosh Pradhan  
(Head, MCA)



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Syllabus of course

Schedule of course

Course Contents

  
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**R D ENGINEERING COLLEGE, GHAZIABAD**  
**ADVANCED JAVA TRAINING**  
**Add On Course for MCA**  
**SESSION 2018-19**

**Curriculum objectives**

**1. Mastery of Java syntax and object-oriented programming (OOP)**

Participants should be proficient in Java syntax and be able to design and implement complex class hierarchies, use inheritance and polymorphism effectively, and understand advanced topics such as abstract classes, interfaces, and lambda expressions.

**2. Proficiency in concurrency and multithreading**

Participants should be able to design and implement concurrent and multithreaded programs using Java's threading model. They should be able to use Java's synchronization constructs such as locks, semaphores, and monitors to ensure thread safety and avoid race conditions.

**3. Expertise in Java web development**

Participants should be able to develop web applications using Java frameworks such as Spring, Hibernate, and Struts. They should be able to create and deploy web applications, work with databases, and understand web security issues.

**4. Mastery of Java collections and data structures**

Participants should be able to work with Java collections and data structures such as lists, maps, and queues. They should be able to use Java's built-in collections framework and understand how to implement custom data structures.

**5. Familiarity with Java I/O and networking**

Participants should be able to work with Java I/O and networking APIs to read and write data from various sources and communicate over network protocols such as TCP/IP and HTTP.

**6. Proficiency in software engineering principles and design patterns**

Participants should be familiar with software engineering principles such as design patterns, SOLID principles, and code refactoring. They should be able to write maintainable, scalable, and reusable code using these principles.

**7. Understanding of Java memory management and garbage collection**

Participants should understand Java's memory management and garbage collection model. They should be able to optimize Java applications by reducing memory usage and managing object lifetimes.

**8. Familiarity with Java performance tuning and profiling**

Participants should be able to profile and tune the performance of Java applications using tools such as JProfiler and VisualVM. They should be able to identify performance bottlenecks and optimize Java code for speed and efficiency.

  
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Overall, an advanced Java training course should provide participants with a deep understanding of Java programming and enable them to apply their knowledge to solve complex programming problems in various domains.

## Duration

Approximately 36 hours, when delivered synchronously by an educator. Detailed timings are provided below. Actual delivery times will vary from class to class and depending on the delivery format.

## Delivery methods

This course can be delivered in person with synchronous lectures or with digital training models that students can complete in dependently.

## Learning resources

- Lecture materials
- Online multiple-choice knowledge checks
- Lab exercises
- Digital training(optional)
- Video introductions
- Video demos
- Example solutions

## Course timing

This table provides the suggested durations for all course activities. Note that the total classroom time for all the modules in this course is 36hours.Items that are not applicable are marked NA.

Module Title	Lecture(Hrs)	Activity/Lab/Demo(Hrs)	Total Module(Hrs)
Course Introduction	1	NA	2
Module1:Introduction to Advanced java		1	
Module2:Multithreading	1	1	2
Module3:Exception Handling	1	1	2
Module4:JAVA IO	1	1	2
Module5:Networking	1	1	2
Module6:Java Database Connectivity(JDBC)	1	1	2
Module7:Advanced JDBC	1	1	2
Module8:Servlets	1	1	2
Module 9:Java Server Pages (JSP)	1	1	2
Module10:Java Beans	1	1	2
Module11:Enterprise Java Beans (EJB)	1	1	2
Module12:Java Persistence API (JPA)	1	1	2
Module13:Spring Framework	1	1	2

Module14:Hibernate	1	1	2
Module15:Web Services	1	1	2
Module16:Security	1	1	2
Module17:Design Patterns	1	1	2
Module18: Final Touch.	1	1	2
Total Course Time	18	18	36

## Module sections

This section lists the module sections in this course.

### Course Introduction

- Course objectives and overview

### Module 1: Introduction to Advanced Java

- Overview of Advanced Java
- Benefits of Advanced Java
- Features of Advanced Java
- Terminology (JVM, JRE, JDK, bytecode, etc.)
- Introduction to Eclipse IDE for Java development

### Module 2: Multithreading

- Introduction to multithreading
- Creating threads
- Thread synchronization
- Thread pools
- Thread safety and atomicity
- Deadlocks and solutions

### Module 3: Exception Handling

- Types of exceptions
- Try-catch statements
- Throwing exceptions
- Checked and unchecked exceptions
- Custom exception handling

### Module 4: Java IO

- Introduction to IO operations
- File IO
- Byte streams vs character streams
- Buffered streams
- Object IO

### Module 5: Networking

- Introduction to networking



  
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- Socket programming in Java
- Client-server communication
- Multithreaded servers
- Remote Method Invocation (RMI)

### **Module 6: Java Database Connectivity (JDBC)**

- Introduction to JDBC
- Connecting to databases
- Executing SQL queries
- Working with result sets
- Batch processing

### **Module 7: Advanced JDBC**

- Prepared Statement vs Statement
- Stored procedures
- Transactions
- Connection pooling
- Data source objects

### **Module 8: Servlets**

- Introduction to servlets
- Servlet lifecycle
- Handling HTTP requests and responses
- Session management
- Filters

### **Module 9: Java Server Pages (JSP)**

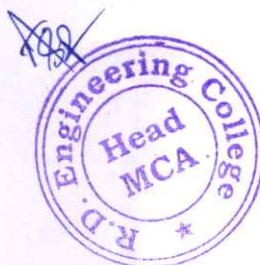
- Introduction to JSP
- JSP lifecycle
- JSP directives and actions
- Implicit objects
- Scriptlets and expressions

### **Module 10: JavaBeans**

- Introduction to JavaBeans
- Properties and methods
- Event handling
- Bound and constrained properties
- Design patterns

### **Module 11: Enterprise JavaBeans (EJB)**

- Introduction to EJB
- Session beans
- Entity beans
- Message-driven beans
- EJB lifecycle



  
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## Module 12: Java Persistence API (JPA)

- Introduction to JPA
- Object-relational mapping (ORM)
- Annotations
- Persistence units
- CRUD operations

## Module 13: Spring Framework

- Introduction to Spring Framework
- Inversion of Control (IoC)
- Dependency Injection (DI)
- Spring MVC
- Spring Data JPA

## Module 14: Hibernate

- Introduction to Hibernate
- Object-relational mapping (ORM)
- Annotations and mapping files
- HQL and criteria queries
- Caching and lazy loading

## Module 15: Web Services

- Introduction to web services
- SOAP vs REST
- Creating SOAP web services in Java
- Creating RESTful web services in Java
- JAX-RS

## Module 16: Security

- Introduction to security
- Authentication and authorization
- Basic authentication
- Digest authentication
- Form-based authentication

## Module 17: Design Patterns

- Introduction to design patterns
- Creational patterns
- Structural patterns
- Behavioral patterns
- Singleton, Factory, Adapter, Observer, Command, and Template Method patterns

## Module 18: Minor Project

- Participants will work on a final project that applies the concepts learned throughout the course. The project should involve Advanced Java principles and at least one other topic covered in the course (e.g. web services, Spring Framework, etc.). Participants



  
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will present their projects and receive feedback from the instructor and other participants.



  
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## **ADVANCED JAVA TRAINING COURSE OUTCOME**

Understand the concepts related to Java Technology be able to put into use the advanced features of the Java language to build and compile robust enterprise grade applications Explore and understand use of Java Server Programming.

Provide a sound foundation to the students on the concepts, precepts and practices, in a field that is of immense concern to the industry and business Create dynamic web pages, using Servlets and JSP Make a reusable software component, using Java Bean Design and develop GUI applications using Swings Students learn skills to develop real time applications.

  
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## ADVANCED JAVA Training Schedule

Add On Course for MCA II YEAR IV SEM

**EVEN Sem. Session 2018-19**

SN	Date	Timings (Theory)	Timings (Lab)
1	28.01.2019	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
2	29.01.2019	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
3	30.01.2019	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
4	31.01.2019	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
5	01.02.2019	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
6	04.02.2019	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
7	05.02.2019	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
8	06.02.2019	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
9	07.02.2019	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
10	08.02.2019	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM



**Program Coordinator**



**Director**  
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# R. D. Engineering College, Ghaziabad

## Department of Master of Computer Application

Date: 4 SEP, 2018

### Notice

All the students of MCA V Sem, III year are hereby informed that department is going to run an add on course on Core Python from 10 Sep 2018.

This Core Python Course Syllabus is designed to bridge the curriculum and industry gap. After completing the course you will be able to do some basic project to enhance your skills.

All Students are required to attend this course.

Prof. Ashutosh Pradhan

(Head, MCA)



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Syllabus of course

Schedule of course

Course Contents

  
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**CORE PYTHON**

Add On Course for MCA  
SESSION 2018-19 ODD SEM

### Curriculum objectives

Up on completion of this course, students will be able to do the following:

- Understanding of core Python programming concepts
- Proficiency in object-oriented programming (OOP)
- Expertise in file handling and manipulation
- Mastery of web development with Python
- Proficiency in machine learning and data science
- Familiarity with other Python libraries and tools
- Understanding of Python best practices and code optimization

### Duration

Approximately 36 hours, when delivered synchronously by educator .Detailed timings are provided below. Actual delivery times will vary from class to class and depending on the delivery format.

### Delivery methods

This course can be delivered in person with synchronous lectures or with digital training models that students can complete independently.

### Learning resources

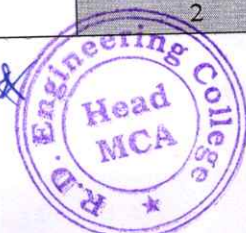
- Lecture materials
- Online multiple-choice knowledge checks
- Lab exercises
- Digital training(optional)
- Video introductions
- Video demos
- Example solutions

### Course timing

This table provides the suggested durations for all course activities. Note that the total classroom time for all the modules in this course is 36 hours. Items that are not applicable are marked NA.

Module Title	Lecture(Hrs)	Activity/Lab/De mo(Hrs)	Total Module(Hrs)
Course Introduction	1	NA	2
Module1: An Introduction to Python		1	
Module2: Beginning Python Basics	1	1	2
Module3: Python Program Flow	1	1	2
Module4: Functions& Modules	1	1	2

  
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Module5: Exceptions Handling	1	1	2
Module6: File Handling	1	1	2
Module7: Classes In Python	1	1	2
Module8: Generators and iterators	1	1	2
Module 9: Data Structures	1	1	2
Module10: Collections	1	1	2
Module11: Writing GUIs in Python (Tkinter)	1	1	2
Module12: Python SQL Database Access	1	1	2
Module13: Network Programming	1	1	2
Module14: Date and Time	1	1	2
Module15: Few more topics in-detailed	1	1	2
Module16: Regular Expression	1	1	2
Module17: Threads ESSENTIAL	1	1	2
Module18: Accessing API ESSENTIAL	1	1	2
Total Course Time	18	18	36

## Module sections

This section lists the module sections in this course.

### Course Introduction

- Course objectives and overview

### Module 1: An Introduction to Python

- What can Python do?
- Why Python?
- Good to know
- Python Syntax compared to other programming languages
- Python Install



  
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### Module 2: Beginning Python Basics

- The print statement
- Comments
- Python Data Structures & Data Types
- String Operations in Python
- Simple Input & Output
- Simple Output Formatting
- Operators in python

### Module 3: Python Program Flow

- Indentation
- The If statement and its' related statement

- An example with if and it's related statement
- The while loop
- The for loop
- The range statement
- Break &Continue
- Assert
- Examples for looping

#### **Module 4: Functions& Modules**

- Create your own functions
- Functions Parameters
- Variable Arguments
- Scope of a Function
- Function Documentations
- Lambda Functions& map
- n Exercise with functions
- Create a Module
- Standard Modules

#### **Module 5: Exceptions Handling**

- Errors
- Exception handling with try
- handling Multiple Exceptions
- Writing your own Exception

#### **Module 6: File Handling**

- File handling Modes
- Reading Files
- Writing& Appending to Files
- Handling File Exceptions
- The with statement

#### **Module 7: Classes In Python**

- New Style Classes
- Creating Classes
- Instance Methods
- Inheritance
- Polymorphism
- Exception Classes & Custom Exceptions

#### **Module 8: Generators and iterators**

- Iterators
- Generators
- The Functions any and all
- With Statement
- Data Compression



  
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## Module 9: Data Structures

- List Comprehensions
- Nested List Comprehensions
- Dictionary Comprehensions
- Functions
- Default Parameters
- Variable Arguments
- Specialized Sorts

## Module 10: Collections

- namedtuple()
- deque
- ChainMap
- Counter
- OrderedDict
- defaultdict
- UserDict
- UserList
- UserString

## Module 11: Writing GUIs in Python (Tkinter)

- Introduction
- Components and Events
- An Example GUI
- The root Component
- Adding a Button
- Entry Widgets
- Text Widgets
- Check buttons

## Module 12: Python SQL Database Access

- Introduction
- Installation
- DB Connection
- Creating DB Table
- INSERT, READ, UPDATE, DELETE operations
- COMMIT & ROLLBACK operation
- handling Errors

## Module 13: Network Programming

- Introduction
- A Daytime Server
- Clients and Servers
- The Client Program
- The Server Program

## Module 14: Date and Time

- sleep



  
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- Program execution time
- more methods on date/time

### **Module 15: Few more topics in-detailed**

- Filter
- Map
- Reduce
- Decorators
- Frozen set
- Collections

### **Module 16: Regular Expression**

- Split
- Working with special characters, date, emails
- Quantifiers
- Match and find all
- character sequence and substitute
- Search method

### **Module 17: Threads ESSENTIAL**

- Class and threads
- Multi-threading
- Synchronization
- Threads Life cycle
- use cases

### **Module 18: Accessing API ESSENTIAL**

- Introduction
- Facebook Messenger
- Openweather

### **Module 19: DJANGO**

- Django Overview
- Django Installation
- Creating a Project
- Usage of Project in depth Discussion
- Creating an Application
- Understanding Folder Structure
- Creating a Hello World Page
- Database and Views
- Static Files and Forms
- API and Security



  
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## CORE PYTHON TRAINING

### COURSE OUTCOME

1. Build basic programs using fundamental programming constructs like variables, conditional logic, looping, and functions
2. Work with user input to create fun and interactive programs.
3. Create simple games with images, animations, and audio using our custom beginner-friendly programming library, Wizardlib.

  
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## CORE PYTHON SCHEDULE

Add On Course for MCA III YEAR V SEM

Odd Sem. Session 2018-19

SN	Date	Timings (Theory)	Timings (Lab)
1	10.09.2018	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
2	11.09.2018	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
3	12.09.2018	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
4	13.09.2018	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
5	14.09.2018	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
6	17.09.2018	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
7	18.09.2018	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
8	19.09.2018	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
9	20.09.2018	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
10	21.09.2018	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM



**Program Coordinator**



  
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