

Department of
Computer Science &
Engineering
And
Allied Branches

R. D. Engineering College, Ghaziabad

Department of Computer Science & Engineering

Date: 30th Sep, 2021

Notice

All the students of CSE III Sem, II year are hereby informed that department is going to run an add on course on Advanced Python from 04 OCT 2021.

This Advanced 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
ADVANCE PYTHON
Add On Course for B.Tech (CSE)
SESSION 2021-22 ODD SEM

Curriculum objectives

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

1. Understanding of advanced Python programming concepts
2. Proficiency in object-oriented programming (OOP)
3. Expertise in data handling and manipulation
4. Mastery of web development with Python
5. Proficiency in machine learning and data science
6. Familiarity with other Python libraries and tools
7. Understanding of Python best practices and code optimization

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 OOP		1	
Module 2: Classes and Objects	1	1	2


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Module 3: Encapsulation	1	1	2
Module 4: Inheritance	1	1	2
Module 5: Polymorphism	1	1	2
Module 6: Advanced Topics in OOP	1	1	2
Module 7: Exception Handling	1	1	2
Module 8: File Input/Output	1	1	2
Module 9: Regular Expressions	1	1	2
Module 10: Debugging	1	1	2
Module 11: Unit Testing	1	1	2
Module 12: GUI Programming with Tkinter	1	1	2
Module 13: Database connectivity with SQLite	1	1	2
Module 14: Web Scrapping	1	1	2
Module 15: Working With JSON	1	1	2
Module 16: Multithreading	1	1	2
Module 17: Networking with Socket	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 OOP

- Overview of OOP
- Benefits of OOP
- Terminology (classes, objects, attributes, methods, encapsulation, inheritance, polymorphism)
- Introduction to Python syntax for OOP

Module 2: Classes and Objects

- Creating classes in Python
- Instantiating objects
- Accessing attributes and methods of objects
- Class and instance variables


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Module 3: Encapsulation



- Public, private, and protected access modifiers
- Encapsulation and information hiding
- Properties and getters/setters

Module 4: Inheritance

- Extending classes with inheritance
- Base and derived classes
- Overriding methods
- Super() function

Module 5: Polymorphism

- Polymorphism and dynamic binding
- Method overriding
- Abstract classes and interfaces
- Duck typing

Module 6: Advanced Topics in OOP

- Multiple inheritance
- Method resolution order
- Mixins and composition
- Diamond problem

Module 7: Exception Handling

- Types of exceptions
- Try-except statements
- Handling multiple exceptions
- Raising exceptions

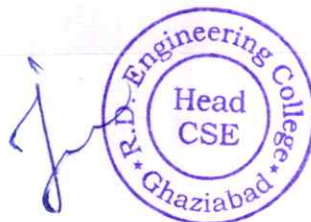
Module 8: File Input/Output

- Reading and writing to files
- File modes
- Text files vs binary files
- Using 'with' statements

Module 9: Regular Expressions

- Regular expression syntax
- Match object
- Search and replace
- Regex in Python

Module 10: Debugging




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- Common debugging techniques
- Debugging tools in Python
- Using pdb module
- Logging

Module 11: Unit Testing

- Introduction to unit testing
- Writing test cases
- Running test cases
- Pytest framework

Module 12: GUI Programming with Tkinter

- Introduction to GUI programming
- Tkinter module
- Creating widgets
- Handling events

Module 13: Database Connectivity with SQLite

- Introduction to databases
- SQLite database
- Connecting to database
- Querying and modifying data

Module 14: Web Scraping with BeautifulSoup

- Introduction to web scraping
- BeautifulSoup module
- Parsing HTML/XML data
- Navigating the parsed data

Module 15: Working with JSON

- Introduction to JSON
- JSON syntax
- Encoding and decoding JSON data
- Using JSON in Python

Module 16: Multithreading

- Introduction to multithreading
- Creating threads
- Synchronizing threads
- Thread pools

Module 17: Networking with Sockets




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- Introduction to networking
- Sockets in Python
- Creating server and client sockets
- Sending and receiving data

Module 18: Minor project

- Participants will work on a final project that applies the concepts learned throughout the course. The project should involve OOP principles and at least one other topic covered in the course (e.g. file I/O, web scraping, multithreading, etc.). Participants will present their projects and receive feedback from the instructor and other participants.


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COURSE OUTCOMES of ADVANCED PYTHON

An advanced Python course builds upon the foundational knowledge acquired in a basic Python course and delves into more sophisticated topics and programming techniques. Here are some common course outcomes for an advanced Python course:

1. **Advanced Data Structures:**

- Explore advanced data structures such as stacks, queues, linked lists, and trees.
- Understand when and how to use these data structures in different scenarios.

2. **Decorators and Generators:**

- Learn the concept of decorators and how they can be used to modify the behaviour of functions.
- Understand generators and their role in creating iterable sequences.

3. **Database Connectivity:**

- Explore database access in Python using libraries like SQLAlchemy or the built-in SQLite module.
- Understand how to connect to and manipulate databases.

4. **Web Development with Flask/Django (Optional):**

- Introduction to web development using popular frameworks like Flask or Django.
- Learn about routing, templates, and building web applications.

5. **Testing and Test-Driven Development (TDD):**

- Understand testing frameworks like **unittest** or **pytest**.
- Learn the principles of Test-Driven Development and how to write effective tests.

6. **Advanced Object-Oriented Programming (OOP):**

- Deepen your understanding of OOP principles and design patterns.
- Explore more complex concepts like abstract classes, interfaces, and multiple inheritance.


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ADVANCED PYTHON Training Schedule			
BATCH-1			
Add On Course for B.Tech (CSE) SECOND YEAR			
Odd Sem. Session 2021-22			
SN	Date	Timings (Theory)	Timings (Lab)
1	04.10.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
2	05.10.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
3	06.10.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
4	07.10.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
5	08.10.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
6	11.10.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
7	12.10.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
8	13.10.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
9	14.10.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM

Seema Luthra

Prof. Seema Luthra
Program Coordinator



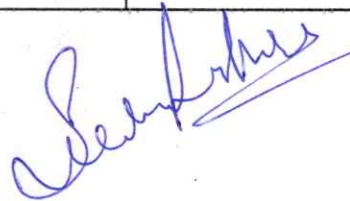
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ADVANCED PYTHON Training Schedule
BATCH-2

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

Odd Sem. Session 2021-22

SN	Date	Timings (Theory)	Timings (Lab)
1	18.10.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
2	19.10.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
3	20.10.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
4	21.10.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
5	22.10.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
6	25.10.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
7	26.10.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
8	27.10.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
9	28.10.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM



Prof. Seema Luthra
Program Coordinator



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R. D. Engineering College, Ghaziabad

Department of Computer Science & Engineering

Date: 06th MAY, 2022

Notice

All the students of CSE IV Sem, II year are hereby informed that department is going to run an add on course on Advanced Python from 09 MAY 2022.

This Advanced 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

R D ENGINEERING COLLEGE, GHAZIABAD
ADVANCED PYTHON
Add On Course for B.Tech (CSE)
SESSION 2021-22 EVEN SEM

Curriculum objectives

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

1. Understanding of advanced Python programming concepts
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Duration

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Delivery methods

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Learning resources

- Lecture materials
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- 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 OOP		1	
Module 2: Classes and Objects	1	1	2


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Module 3: Encapsulation	1	1	2
Module 4: Inheritance	1	1	2
Module 5: Polymorphism	1	1	2
Module 6: Advanced Topics in OOP	1	1	2
Module 7: Exception Handling	1	1	2
Module 8: File Input/Output	1	1	2
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Module 16: Multithreading	1	1	2
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Total Course Time	18	18	36

Module sections

This section lists the module sections in this course.

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- Public, private, and protected access modifiers
- Encapsulation and information hiding
- Properties and getters/setters

Module 4: Inheritance

- Extending classes with inheritance
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- Diamond problem

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- Types of exceptions
- Try-except statements
- Handling multiple exceptions
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Module 8: File Input/Output

- Reading and writing to files
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Module 9: Regular Expressions

- Regular expression syntax
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- Search and replace
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Module 10: Debugging


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- Common debugging techniques
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- Using JSON in Python

Module 16: Multithreading

- Introduction to multithreading
- Creating threads
- Synchronizing threads
- Thread pools

Module 17: Networking with Sockets


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- Introduction to networking
- Sockets in Python
- Creating server and client sockets
- Sending and receiving data

Module 18: Minor project

Participants will work on a final project that applies the concepts learned throughout the course. The project should involve OOP principles and at least one other topic covered in the course (e.g. file I/O, web scraping, multithreading, etc.). Participants will present their projects and receive feedback from the instructor and other participants.


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COURSE OUTCOMES of ADVANCED PYTHON

An advanced Python course builds upon the foundational knowledge acquired in a basic Python course and delves into more sophisticated topics and programming techniques. Here are some common course outcomes for an advanced Python course:

1. Advanced Data Structures:

- Explore advanced data structures such as stacks, queues, linked lists, and trees.
- Understand when and how to use these data structures in different scenarios.

2. Decorators and Generators:

- Learn the concept of decorators and how they can be used to modify the behaviour of functions.
- Understand generators and their role in creating iterable sequences.

3. Database Connectivity:

- Explore database access in Python using libraries like SQLAlchemy or the built-in SQLite module.
- Understand how to connect to and manipulate databases.

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- Introduction to web development using popular frameworks like Flask or Django.
- Learn about routing, templates, and building web applications.

5. Testing and Test-Driven Development (TDD):

- Understand testing frameworks like **unittest** or **pytest**.
- Learn the principles of Test-Driven Development and how to write effective tests.

6. Advanced Object-Oriented Programming (OOP):

- Deepen your understanding of OOP principles and design patterns.
- Explore more complex concepts like abstract classes, interfaces, and multiple inheritance.


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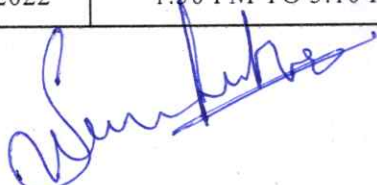


R D Engineering College, Ghaziabad
ADVANCED PYTHON Training Schedule
BATCH-1

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

EVEN Sem. Session 2021-22

SN	Date	Timings (Theory)	Timings (Lab)
1	09.05.2022	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
2	10.05.2022	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
3	11.05.2022	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
4	12.05.2022	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
5	13.05.2022	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
6	16.05.2022	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
7	17.05.2022	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
8	18.05.2022	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
9	19.05.2022	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
10	20.05.2022	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM



Prof. Seema Luthra
Program Coordinator



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R. D. Engineering College, Ghaziabad

Department of Computer Science & Engineering

Date: 01 Sep, 2021

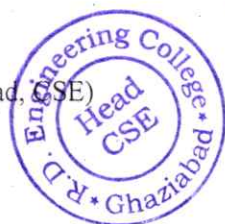
Notice

All the students of CSE V Sem, III year are hereby informed that department is going to run an add on course on Advanced Java from 6th Sep 2021.

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.

(Head, CSE)



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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 2021-22 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

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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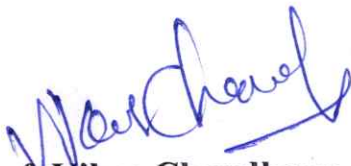
ADVANCED JAVA

BATCH-1

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

Odd Sem. Session 2021-22

SN	Date	Timings (Theory)	Timings (Lab)
1	06.09.2021	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
2	07.09.2021	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
3	08.09.2021	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
4	09.09.2021	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
5	10.09.2021	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
6	13.09.2021	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
7	14.09.2021	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
8	15.09.2021	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
9	16.09.2021	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
10	17.09.2021	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM


Prof. Vikas Chaudhary
Program Coordinator




Director
R.D. Engineering College
Duhai, Ghaziabad

R D Engineering College, Ghaziabad


ADVANCED JAVA

BATCH-2

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

Odd Sem. Session 2021-22

SN	Date	Timings (Theory)	Timings (Lab)
1	20.09.2021	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
2	21.09.2021	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
3	22.09.2021	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
4	23.09.2021	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
5	24.09.2021	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
6	27.09.2021	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
7	28.09.2021	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
8	29.09.2021	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM
9	30.09.2021	09:00 AM TO 10:50 AM	11:00 AM TO 12:50 PM


Prof. Vikas Chaudhary
Program Coordinator




Director
R.D. Engineering College
Duhai, Ghaziabad

R. D. Engineering College, Ghaziabad

Department of Computer Science & Engineering

Date: 01 Sep, 2022

Notice

All the students of CSE VII Sem, IV year are hereby informed that department is going to run an add on course on Cloud Computing with Amazon Web Service (AWS) from 06 Sep 2022.

This AWS Course Syllabus covers in-depth knowledge of cloud computing with Infrastructure as a service(Iaas) and platform as a service(Paas). After completing this course you will also try to start your carrier in AWS field.

All Students are required to attend this course.

(Head, CSE)



CC:

Director

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Departmental Notice Board

Encls:

Syllabus of course

Schedule of course

Course Contents


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AWS

Add On Course for B.Tech (CSE)

SESSION 2021-22 ODD SEM

Curriculum objectives

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

- Define the AWS Cloud
- Explain the AWS pricing philosophy
- Identify the global infrastructure components of AWS
- Describe the security and compliance measures of the AWS Cloud, including AWS Identity and Access Management (IAM)
- Create a virtual private cloud (VPC) by using Amazon Virtual Private Cloud (Amazon VPC)
- Demonstrate when to use Amazon Elastic Compute Cloud (Amazon EC2), AWS Lambda, and AWS Elastic Beanstalk
- Differentiate between Amazon Simple Storage Service (Amazon S3), Amazon Elastic Block Store (Amazon EBS), Amazon Elastic File System (Amazon EFS), and Amazon Simple Storage Service Glacier (Amazon S3 Glacier)
- Demonstrate when to use AWS database services, including Amazon Relational Database Service (Amazon RDS), Amazon DynamoDB, Amazon Redshift, and Amazon Aurora
- Explain the architectural principles of the AWS Cloud
- Explore key concepts related to Elastic Load Balancing, Amazon CloudWatch, and Amazon EC2 Auto Scaling

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.

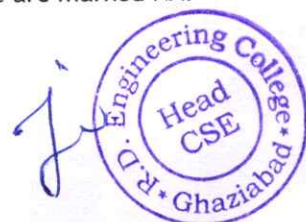
Learning resources

- 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.


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Module Title	Lecture (Hrs)	Activity/Lab/ Demo (Hrs)	Total Module (Hrs)
Course Introduction	1	NA	1
Module 1: Cloud Concepts Overview	1	1	2
Module 2: Cloud Economics and Billing	1	1	2
Module 3: AWS Global Infrastructure Overview	1	1	2
Module 4: Cloud Security	1	2	3
Module 5: Networking and Content Delivery	2	2	4
Module 6: Compute	2	3	5
Module 7: Storage	2	3	5
Module 8: Databases	2	2	4
Module 9: Cloud Architecture	2	2	4
Module 10: Automatic Scaling and Monitoring	2	2	4
Total Course Time	17	19	36

Module sections

This section lists the module sections in this course.

Course Introduction

- Course objectives and overview
- AWS Certification exam information
- AWS documentation

Module 1: Cloud Concepts Overview

- Introduction to cloud computing
- Advantages of the cloud
- Introduction to AWS
- Moving to the AWS Cloud
- Activity: Sample Exam Question
- Knowledge check

Module 2: Cloud Economics and Billing

- Fundamentals of pricing
- Total cost of ownership
- Activity: Simple Monthly Calculator
- Delaware North case study
- AWS Organizations
- AWS billing and cost management
- Billing dashboards
- Technical support models
- Activity: Support Plan Scavenger Hunt
- Activity: Sample Exam Question
- Knowledge check


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Module 3: AWS Global Infrastructure Overview

- AWS global infrastructure
- Demo: AWS global infrastructure
- AWS services and service categories
- Activity: AWS Management Console Click through
- Activity: Sample Exam Question
- Knowledge check

Module 4: Cloud Security

- AWS shared responsibility model
- Activity: AWS Shared Responsibility Model
- AWS IAM
- Demo: AWS IAM Console
- Securing a new AWS account
- Lab: Introduction to AWS IAM
- Securing accounts
- Securing data
- Working to ensure compliance
- Activity: Sample Exam Question
- Knowledge check

Module 5: Networking and Content Delivery

- Networking basics
- Amazon VPC
- VPC networking
- Activity: Label This diagram
- Demo: Amazon VPC Console
- VPC security
- Activity: Design a VPC
- Lab: Build a VPC and Launch a Web Server
- Route 53
- CloudFront
- Activity: Sample Exam Question
- Knowledge check

Module 6: Compute

- Compute services overview
- Amazon EC2 part 1
- Amazon EC2 part 2
- Amazon EC2 part 3
- Demo: Amazon EC2
- Lab: Introduction to Amazon EC2
- Activity: Amazon EC2 Versus Managed Services
- Demo: Amazon EC2 Part Console
- Amazon EC2 cost optimization
- Container services
- Introduction to AWS Lambda
- Activity: AWS Lambda
- Introduction to AWS Elastic Beanstalk
- Activity: AWS Elastic Beanstalk
- Activity: Sample Exam Question
- Knowledge check



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Module 7: Storage

- AWS EBS
- Demo: Amazon Elastic Block Store Console
- Lab: Working with EBS
- AWS S3
- Demo: AWS S3 Console
- AWS EFS
- Demo: AWS EFS Console
- AWS S3 Glacier
- Demo: AWS S3 Glacier Console
- Activity: Storage Technology Selection
- Activity: Sample Exam Question
- Knowledge check

Module 8: Databases

- Amazon RDS
- Demo: Amazon RDS Console
- Lab: Build a Database Server
- Amazon DynamoDB
- Demo: Amazon DynamoDB
- Amazon Redshift
- Amazon Aurora
- Activity: Database case study
- Activity: Sample Exam Question
- Knowledge check

Module 9: Cloud Architecture

- AWS Well-Architected Framework design principles
- Activity: AWS Well-Architected Framework Design Principles
- Operational excellence
- Security
- Reliability
- Performance efficiency
- Cost optimization
- Reliability & high availability
- AWS Trusted Advisor
- Activity: Interpret AWS Trusted Advisor Recommendations
- Activity: Sample Exam Question
- Knowledge check

Module 10: Automatic Scaling and Monitoring

- Elastic Load Balancing
- Activity: Elastic Load Balancing
- Amazon CloudWatch
- Activity: Amazon CloudWatch
- Amazon EC2 auto scaling
- Lab: Scale & Load Balance your Architecture
- Activity: Sample Exam Question
- Knowledge check


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COURSE OUTCOMES
Of
AWS (AMAZON WEB SERVICES)

The course outcomes of an AWS (Amazon Web Services) training program are as under:

1. Gain a comprehensive understanding of various AWS services and their functionalities.
Learn about core services such as EC2 (Elastic Compute Cloud), S3 (Simple Storage Service), RDS (Relational Database Service), and others.
2. Acquire practical, hands-on experience with AWS through labs, projects, and real-world scenarios. Develop skills in deploying, managing, and troubleshooting AWS resources.
3. Learn how to design and architect scalable, cost-effective, and high-performance solutions on AWS. Understand best practices for building reliable and secure applications.
4. Explore AWS security features and best practices for securing AWS resources. Understand how to implement identity and access management (IAM) and other security controls.
5. Gain knowledge of AWS networking concepts and services, including VPCs (Virtual Private Cloud), subnets, route tables, and more. Learn to configure and manage network resources effectively.


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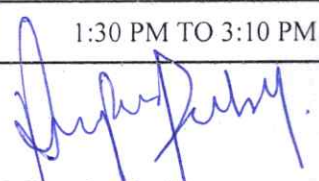
AWS Training Schedule

BATCH-1

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

Odd Sem. Session 2021-22

SN	Date	Timings (Theory)	Timings (Lab)
1	06.09.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
2	07.09.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
3	08.09.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
4	09.09.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
5	10.09.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
6	13.09.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
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8	15.09.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
9	16.09.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
10	17.09.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM


Prof. Pooja Dubey
Program Coordinator




Director
R.D. Engineering College
Duhal, Ghaziabad

R D Engineering College, Ghaziabad

AWS Training Schedule

BATCH-2

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

Odd Sem. Session 2021-22

SN	Date	Timings (Theory)	Timings (Lab)
1	20.09.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
2	21.09.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
3	22.09.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
4	23.09.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
5	24.09.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
6	27.09.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
7	28.09.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
8	29.09.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
9	30.09.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM



Prof. Pooja Dubey
Program Coordinator



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R.D. Engineering College
Duhai, Ghaziabad

Department of
Information
Technology

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Department of Information Technology

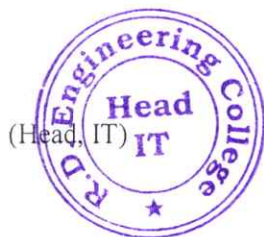
Date: 30th Sep, 2021

Notice

All the students of IT, III Sem, II year are hereby informed that department is going to run an add on course on Advanced Python from 04 OCT 2021.

This Advanced 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
ADVANCED PYTHON
Add On Course for B.Tech (IT)
SESSION 2021-22 ODD SEM

Curriculum objectives

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

1. Understanding of advanced Python programming concepts
2. Proficiency in object-oriented programming (OOP)
3. Expertise in data handling and manipulation
4. Mastery of web development with Python
5. Proficiency in machine learning and data science
6. Familiarity with other Python libraries and tools
7. Understanding of Python best practices and code optimization

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 OOP		1	
Module 2: Classes and Objects	1	1	2


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Head
IT



1

Module 3: Encapsulation	1	1	2
Module 4: Inheritance	1	1	2
Module 5: Polymorphism	1	1	2
Module 6: Advanced Topics in OOP	1	1	2
Module 7: Exception Handling	1	1	2
Module 8: File Input/Output	1	1	2
Module 9: Regular Expressions	1	1	2
Module 10: Debugging	1	1	2
Module 11: Unit Testing	1	1	2
Module 12: GUI Programming with Tkinter	1	1	2
Module 13: Database connectivity with SQLite	1	1	2
Module 14: Web Scrapping	1	1	2
Module 15: Working With JSON	1	1	2
Module 16: Multithreading	1	1	2
Module 17: Networking with Socket	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 OOP

- Overview of OOP
- Benefits of OOP
- Terminology (classes, objects, attributes, methods, encapsulation, inheritance, polymorphism)
- Introduction to Python syntax for OOP

Module 2: Classes and Objects

- Creating classes in Python
- Instantiating objects
- Accessing attributes and methods of objects
- Class and instance variables

Module 3: Encapsulation



- Public, private, and protected access modifiers
- Encapsulation and information hiding
- Properties and getters/setters

Module 4: Inheritance

- Extending classes with inheritance
- Base and derived classes
- Overriding methods
- Super() function

Module 5: Polymorphism

- Polymorphism and dynamic binding
- Method overriding
- Abstract classes and interfaces
- Duck typing

Module 6: Advanced Topics in OOP

- Multiple inheritance
- Method resolution order
- Mixins and composition
- Diamond problem

Module 7: Exception Handling

- Types of exceptions
- Try-except statements
- Handling multiple exceptions
- Raising exceptions

Module 8: File Input/Output

- Reading and writing to files
- File modes
- Text files vs binary files
- Using 'with' statements

Module 9: Regular Expressions

- Regular expression syntax
- Match object
- Search and replace
- Regex in Python

Module 10: Debugging



- Common debugging techniques
- Debugging tools in Python
- Using pdb module
- Logging

Module 11: Unit Testing

- Introduction to unit testing
- Writing test cases
- Running test cases
- Pytest framework

Module 12: GUI Programming with Tkinter

- Introduction to GUI programming
- Tkinter module
- Creating widgets
- Handling events

Module 13: Database Connectivity with SQLite

- Introduction to databases
- SQLite database
- Connecting to database
- Querying and modifying data

Module 14: Web Scraping with BeautifulSoup

- Introduction to web scraping
- BeautifulSoup module
- Parsing HTML/XML data
- Navigating the parsed data

Module 15: Working with JSON

- Introduction to JSON
- JSON syntax
- Encoding and decoding JSON data
- Using JSON in Python

Module 16: Multithreading

- Introduction to multithreading
- Creating threads
- Synchronizing threads
- Thread pools

Module 17: Networking with Sockets




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Duhai, Ghaziabad

- Introduction to networking
- Sockets in Python
- Creating server and client sockets
- Sending and receiving data

Module 18: Minor project

- Participants will work on a final project that applies the concepts learned throughout the course. The project should involve OOP principles and at least one other topic covered in the course (e.g. file I/O, web scraping, multithreading, etc.). Participants will present their projects and receive feedback from the instructor and other participants.




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COURSE OUTCOMES of ADVANCED PYTHON

An advanced Python course builds upon the foundational knowledge acquired in a basic Python course and delves into more sophisticated topics and programming techniques. Here are some common course outcomes for an advanced Python course:

1. **Advanced Data Structures:**

- Explore advanced data structures such as stacks, queues, linked lists, and trees.
- Understand when and how to use these data structures in different scenarios.

2. **Decorators and Generators:**

- Learn the concept of decorators and how they can be used to modify the behaviour of functions.
- Understand generators and their role in creating iterable sequences.

3. **Database Connectivity:**

- Explore database access in Python using libraries like SQLAlchemy or the built-in SQLite module.
- Understand how to connect to and manipulate databases.

4. **Web Development with Flask/Django (Optional):**

- Introduction to web development using popular frameworks like Flask or Django.
- Learn about routing, templates, and building web applications.

5. **Testing and Test-Driven Development (TDD):**

- Understand testing frameworks like **unittest** or **pytest**.
- Learn the principles of Test-Driven Development and how to write effective tests.

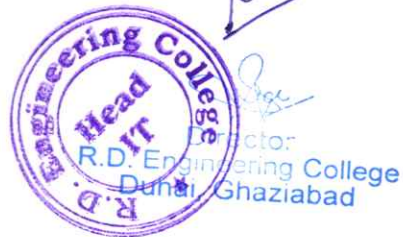
6. **Advanced Object-Oriented Programming (OOP):**

- Deepen your understanding of OOP principles and design patterns.
- Explore more complex concepts like abstract classes, interfaces, and multiple inheritance.



R D Engineering College, Ghaziabad			
ADVANCED PYTHON Training Schedule			
BATCH-1			
Add On Course for B.Tech (IT) SECOND YEAR			
Odd Sem. Session 2021-22			
SN	Date	Timings (Theory)	Timings (Lab)
1	04.10.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
2	05.10.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
3	06.10.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
4	07.10.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
5	08.10.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
6	11.10.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
7	12.10.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
8	13.10.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
9	14.10.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM


Prof. Seema Luthra
Program Coordinator



R. D. Engineering College, Ghaziabad

Department of Information Technology

Date: 15 Sep, 2021

Notice

All the students of IT, V Sem, III year are hereby informed that department is going to run an add on course on Advanced Java from 20th Sep 2021.

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.

(Head, IT)  
Director
R.D. Engineering College
Duhai, Ghaziabad

CC:

Director

IQAC

Departmental Notice Board

Encls:

Syllabus of course

Schedule of course

Course Contents

R D ENGINEERING COLLEGE, GHAZIABAD

ADVANCED JAVA

Add On Course for B.Tech (IT)

SESSION 2021-22 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.

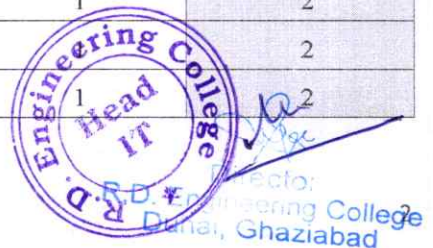
Learning resources

- 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		2
Module 9: Java Server Pages (JSP)	1	1	2



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



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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
- 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

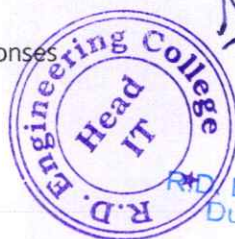
- Introduction to servlets
- Servlet lifecycle
- Handling HTTP requests and responses
- Session management
- Filters

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

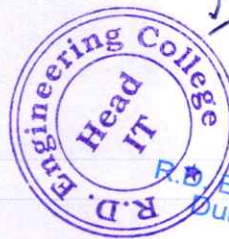
- Introduction to web services
- SOAP vs REST
- Creating SOAP web services in Java
- Creating RESTful web services in Java
- JAX-RS

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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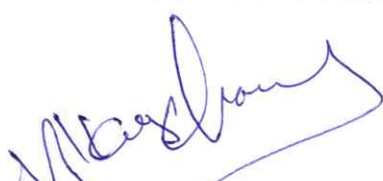
ADVANCED JAVA

BATCH-1

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

Odd Sem. Session 2021-22

SN	Date	Timings (Theory)	Timings (Lab)
1	20.09.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
2	21.09.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
3	22.09.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
4	23.09.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
5	24.09.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
6	27.09.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
7	28.09.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
8	29.09.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
9	30.09.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
10	01.10.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM


Prof. Vikas Chaudhary
Program Coordinator


Director
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R. D. Engineering College, Ghaziabad

Department of Information Technology

Date: 15 Sep, 2021

Notice

All the students of IT VII Sem, IV year are hereby informed that department is going to run an add on course on Cloud Computing with Amazon Web Service (AWS) from 20 Sep 2021.

This AWS Course Syllabus covers in-depth knowledge of cloud computing with Infrastructure as a service(IaaS) and platform as a service(Paas). After completing this course you will also try to start your carrier in AWS field.

All Students are required to attend this course.

(Head, IT)



CC:

Director


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IQAC R.D. Engineering College
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Departmental Notice Board

Encls:

Syllabus of course

Schedule of course

Course Contents

R D ENGINEERING COLLEGE, GHAZIABAD

ADVANCED JAVA

Add On Course for B.Tech (IT)

SESSION 2021-22 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 lifetime.

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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
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- 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.

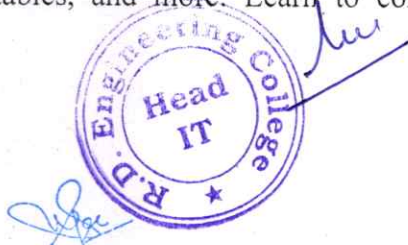

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COURSE OUTCOMES
Of
AWS (AMAZON WEB SERVICES)

The course outcomes of an AWS (Amazon Web Services) training program are as under:

1. Gain a comprehensive understanding of various AWS services and their functionalities.
Learn about core services such as EC2 (Elastic Compute Cloud), S3 (Simple Storage Service), RDS (Relational Database Service), and others.
2. Acquire practical, hands-on experience with AWS through labs, projects, and real-world scenarios. Develop skills in deploying, managing, and troubleshooting AWS resources.
3. Learn how to design and architect scalable, cost-effective, and high-performance solutions on AWS. Understand best practices for building reliable and secure applications.
4. Explore AWS security features and best practices for securing AWS resources. Understand how to implement identity and access management (IAM) and other security controls.
5. Gain knowledge of AWS networking concepts and services, including VPCs (Virtual Private Cloud), subnets, route tables, and more. Learn to configure and manage network resources effectively.



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ADVANCED PYTHON Training Schedule			
BATCH-1			
Add On Course for B.Tech (IT) SECOND YEAR			
Odd Sem. Session 2021-22			
SN	Date	Timings (Theory)	Timings (Lab)
1	18.10.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
2	19.10.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
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8	27.10.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
9	28.10.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM

Prof. Seema Luthra
Program Coordinator



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**Department of
Electronics and
Communication
Engineering**



R. D. Engineering College, Ghaziabad

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

Date: 6th Sep, 2021

Notice

Add on Course-PCB Design

From: Program Coordinator

To: All the ECE 2nd year Students(3rd 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 18th Sep 2021.

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.

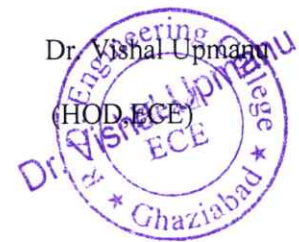
All Students are required to attend this course.

Mr.Prabhash Singh

(Program Coordinator)

Dr. Vishal Upmannu

(HOD, ECE)



CC:

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

PCB Design

Session 2021-22

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 _____

2 Hrs


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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


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- 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


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Topic 5: Lab practice and designing concepts

Starting the PCB designing	2 Hrs
<ul style="list-style-type: none">• 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
<ul style="list-style-type: none">• Introduction to Auto routing• Setting up Rules• Defining Constraints• Auto router Setup	
PCB Designing Practice	2 Hrs
<ul style="list-style-type: none">• 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
<ul style="list-style-type: none">• 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
<ul style="list-style-type: none">• 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
R.D. Engineering College
Duhai, 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 2021-22

SN	Date	Timings (Theory)	Timings (Lab)
1	18-09-2021	09:00AM - 11:00AM	11:00AM - 01:00PM
2	25-09-2021	09:00AM - 11:00AM	11:00AM - 01:00PM
3	08-10-2021	09:00AM - 11:00AM	11:00AM - 01:00PM
4	15-10-2021	09:00AM - 11:00AM	11:00AM - 01:00PM
5	22-10-2021	09:00AM - 11:00AM	11:00AM - 01:00PM
6	29-10-2021	09:00AM - 11:00AM	11:00AM - 01:00PM
7	05-10-2021	09:00AM - 11:00AM	11:00AM - 01:00PM
8	12-11-2021	09:00AM - 11:00AM	11:00AM - 01:00PM
9	19-11-2021	09:00AM - 11:00AM	11:00AM - 01:00PM
10	26-11-2021	09:00AM - 11:00AM	11:00AM - 01:00PM



Mr. Prabhash Singh
Program Coordinator



Director
R.D. Engineering College
Duhai, Ghaziabad





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

Date: 6th Sep, 2021

Notice

Add on Course-IoT

From: Program Coordinator

To: All the ECE 3rd year Students(5th 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 18th Sep 2021.

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)

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

CC:

Director

Dean Academics

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

IoT

Session 2021-22

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


Director
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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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Duhai, Ghaziabad



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

IoT

Session 2021-22

SN	Date	Timings (Theory)	Timings (Lab)
1	18-09-2021	09:00AM - 11:00AM	11:00AM - 01:00PM
2	25-09-2021	09:00AM - 11:00AM	11:00AM - 01:00PM
3	08-10-2021	09:00AM - 11:00AM	11:00AM - 01:00PM
4	15-10-2021	09:00AM - 11:00AM	11:00AM - 01:00PM
5	22-10-2021	09:00AM - 11:00AM	11:00AM - 01:00PM
6	29-10-2021	09:00AM - 11:00AM	11:00AM - 01:00PM
7	05-11-2021	09:00AM - 11:00AM	11:00AM - 01:00PM
8	12-11-2021	09:00AM - 11:00AM	11:00AM - 01:00PM
9	19-11-2021	09:00AM - 11:00AM	11:00AM - 01:00PM
10	26-11-2021	09:00AM - 11:00AM	11:00AM - 01:00PM



Mr. Prabhash Singh
Program Coordinator



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Duhai, Ghaziabad





R. D. Engineering College, Ghaziabad

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Date: 6th Sep, 2021

Notice

Add on Course- Advanced Excel

From: Program Coordinator

To: All the ECE 4th year Students(7th 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 18th Sep 2021.


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.

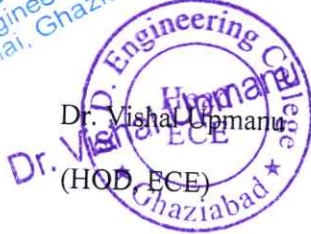
All Students are required to attend this course.

Dr. Vishal Upmanu

Dr. Vishal Upmanu

(Program Coordinator)


Director
R.D. Engineering College
Duhai, Ghaziabad


Dr. Vishal Upmanu
ECE
(HOD, ECE)

CC:

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

Advanced Excel

Session 2021-22

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.

- Topic 1** Excel Introduction, Customizing Excel and using basic functions **1 Hrs**
- An overview of the screen, navigation and basic spreadsheet concepts
 - Various selection techniques
 - Shortcut Keys
 - Customizing the Ribbon • Using and Customizing AutoCorrect
 - Changing Excel's Default Options
 - Using Functions – Sum, Average, Max, Min, Count, Counta
 - Absolute, Mixed and Relative Referencing
- Topic 2** Formatting and Proofing **1 Hrs**
- Currency Format, Format Painter
 - Formatting Dates
 - Custom and Special Formats
 - Formatting Cells with Number formats, Font formats, Alignment, Borders
 - Basic conditional formatting
- Topic 3** Hands on Practice _____ **2 Hrs**
Mathematical Functions and Protecting Excel **1 Hrs**
- SumIf, SumIfs, CountIf, CountIfs, AverageIf, AverageIfs, Nested IF, IFERROR Statement, AND, OR, NOT
 - File Level Protection
 - Workbook, Worksheet Protection
- Topic 4** Text Functions and Date and Time Functions **1 Hrs**
- Upper, Lower, Proper
 - Left, Mid, Right
 - Trim, Len, Exact
 - Concatenate
 - Find, Substitute
 - Today, Now
 - Day, Month, Year
 - Date, Date if, DateAdd
 - EOMonth, Weekday
- Topic 5** Hands on Practice _____ **2 Hrs**
Advanced Paste Special Techniques in Excel 2013 / 2016 & 365 **3 Hrs**
- Paste Formulas, Paste Formats
 - Paste Validations
 - Transpose Tables
 - New Charts – Tree map & Waterfall
 - Sunburst, Box and whisker Charts
 - Combo Charts – Secondary Axis


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


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Topic 11 Hands on Practice _____ **3 Hrs**
 Charts and slicers and Excel Dashboard **2 Hrs**

- Various Charts i.e. Bar Charts / Pie Charts / Line Charts
- Using SLICERS, Filter data with Slicers
- Manage Primary and Secondary Axis
- Adding Tables and Charts to Dashboard
- Adding Dynamic Contents to Dashboard

Topic 12 Hands on Practice _____ **2 Hrs**
 VBA Macro **3 Hrs**

Introduction to VBA

- What Is VBA? What Can You Do with VBA?
- Recording a Macro
- Procedure and functions in VBA

Variables in VBA

- What is Variables?
- Using Non-Declared Variables
- Variable Data Types
- Using Const variables

Message Box and Input box Functions

- Customizing Msgboxes and Input box
- Reading Cell Values into Messages
- Various Button Groups in VBA

If and select statements

- Simple If, Elseif Statements
- Defining select case statements

Looping in VBA

- Introduction to Loops and its Types
- The Basic Do and For Loop
- Exiting from a Loop
- Advanced Loop Examples

Mail Functions – VBA

- Using Outlook Namespace
- Outlook Configurations, MAPI
- Worksheet / Workbook Operations
- Merge Worksheets using Macro
- Merge multiple excel files into one sheet
- Split worksheets using VBA filters
- Worksheet copiers

Hands on Practice _____ **4 Hrs**

Therory Hours	Lab Hours	Total
20 hours	20 Hours	40 Hours



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Dr. Vishal Upmanu
 Program Coordinator



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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Schedule-Add On Course for B.Tech ECE-VII sem

Advanced Excel
Session 2021-22

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Dr. Vishal Upmanu
Program Coordinator



Department of
Mechanical
Engineering



AICTE ID: 1-3548321

College Code: 231

R. D. ENGINEERING COLLEGE

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under the aegis of IQAC

Date...03 Sep 2021

Department of Mechanical Engineering

Notice

All the students of ME III Sem, 2nd year are hereby informed that department is going to run an add on course on AUTO CAD from 18th Sep 2021.

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 Pathwa
(Head, ME)

CC:

Director

IQAC

Departmental Notice Board

Encls:

Syllabus of course

Schedule of course

Course Contents


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R D Engineering College, Ghaziabad
Auto CAD
Add On Course for B. Tech (ME, III Sem) Session 2021-22
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.

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
- Exploring what Settings and Elements are saved with Templates

7: Organizing Your Drawing with Layers

- Layer States
- Properties by Layer
-


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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 PalettesDynamic
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 TabUsing
- 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
Duhai, Ghaziabad



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

COURSE OUTCOME (2021-22)

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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AUTO CAD TRAINING SCHEDULE

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

Session 2021-22

SN	Date	Day	Timings (Theory/ Lab)
1	18-09-2021	SAT	09:00AM - 11:00AM(Introductory Session)
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3	09-10-2021	SAT	09:00AM - 12:00PM
4	16-10-2021	SAT	09:00AM - 12:00PM
5	23-10-2021	SAT	09:00AM - 12:00PM
6	30-10-2021	SAT	09:00AM - 12:00PM
7	06-11-2021	SAT	09:00AM - 12:00PM
8	13-11-2021	SAT	09:00AM - 12:00PM
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Prof. Sanjay Paliwal
Head ME




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R.D. Engineering College
Duhai, Ghaziabad



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under the aegis of IQAC

Date...03 Sep 2021

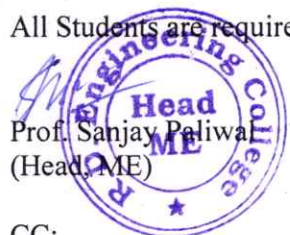
Department of Mechanical Engineering

Notice

All the students of ME V Sem, 3rd year are hereby informed that department is going to run an add on course on SOLID WORKS from 18th Sep 2021.

This SOLID WORK 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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Departmental Notice Board

Encls:
Syllabus of course
Schedule of course
Course Contents


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ME 3RD 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 (2021-22)

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)

Session 2021-22

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11	04-12-2021	SAT	10:00 AM - 1.00 PM

Prof. Sanjay Paliwal
Head ME



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Duhai, Ghaziabad



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Date: 3rd Sep, 2021

Notice

Add on Course- Advanced Excel

From: Program Coordinator

To: All the ME 4th year Students(7th 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 15th Sep 2021.

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

Advanced Excel

Session 2021-22

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.

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Topic 2	Formatting and Proofing <ul style="list-style-type: none">• Currency Format, Format Painter• Formatting Dates• Custom and Special Formats• Formatting Cells with Number formats, Font formats, Alignment, Borders• Basic conditional formatting	1 Hrs
Topic 3	Hands on Practice _____ Mathematical Functions and Protecting Excel <ul style="list-style-type: none">• SumIf, SumIfs CountIf, CountIfs Averagelf, AverageIfs, Nested IF, IFERROR Statement, AND, OR, NOT• File Level Protection• Workbook, Worksheet Protection	2 Hrs 1 Hrs
Topic 4	Text Functions and Date and Time Functions <ul style="list-style-type: none">• Upper, Lower, Proper• Left, Mid, Right• Trim, Len, Exact• Concatenate• Find, Substitute• Today, Now• Day, Month, Year• Date, Date if, DateAdd• EOMonth, Weekday	1 Hrs
Topic 5	Hands on Practice _____ Advanced Paste Special Techniques in Excel 2013 / 2016 & 365 <ul style="list-style-type: none">• Paste Formulas, Paste Formats• Paste Validations• Transpose Tables• New Charts – Tree map & Waterfall• Sunburst, Box and whisker Charts	2 Hrs 3 Hrs


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	Hands on Practice _____	2 Hrs
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	Hands on Practice _____	2 Hrs
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Topic 9	Lookup Functions <ul style="list-style-type: none"> • Vlookup / HLookup • Index and Match • Creating Smooth User Interface Using Lookup • Nested VLookup • Reverse Lookup using Choose Function • Worksheet linking using Indirect • Vlookup with Helper Column 	1 Hrs
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	<ul style="list-style-type: none"> • Array with if, len and mid functions formulas. • Advanced Use of formulas with Array. 	3 Hrs
Topic 11	Hands on Practice _____ Charts and slicers and Excel Dashboard <ul style="list-style-type: none"> • Various Charts i.e. Bar Charts / Pie Charts / Line Charts • Using SLICERS, Filter data with Slicers • Manage Primary and Secondary Axis • Adding Tables and Charts to Dashboard • Adding Dynamic Contents to Dashboard 	2 Hrs
Topic 12	Hands on Practice _____ VBA Macro <ul style="list-style-type: none"> • Introduction to VBA <ul style="list-style-type: none"> • What Is VBA? What Can You Do with VBA? • Recording a Macro • Procedure and functions in VBA • Variables in VBA <ul style="list-style-type: none"> • What is Variables? • Using Non-Declared Variables • Variable Data Types • Using Const variables • Message Box and Input box Functions <ul style="list-style-type: none"> • Customizing Msgboxes and Input box • Reading Cell Values into Messages • Various Button Groups in VBA • If and select statements <ul style="list-style-type: none"> • Simple If, Elseif Statements • Defining select case statements • Looping in VBA <ul style="list-style-type: none"> • Introduction to Loops and its Types • The Basic Do and For Loop • Exiting from a Loop • Advanced Loop Examples • Mail Functions – VBA <ul style="list-style-type: none"> • Using Outlook Namespace • Outlook Configurations, MAPI • Worksheet / Workbook Operations • Merge Worksheets using Macro • Merge multiple excel files into one sheet • Split worksheets using VBA filters • Worksheet copiers 	2 Hrs 3 Hrs
	Hands on Practice _____	4 Hrs

Therory Hours	Lab Hours	Total
20 hours	20 Hours	40 Hours

Dr. Vishal Upmanu

Mr. Vishal Upmanu
Program Coordinator



Director
R.D. Engineering College
Duhai, Ghaziabad



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

COURSE OUTCOME (2021-22)

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 2021-22

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4	05-10-2021	09:00AM - 11:00AM	11:00AM - 01:00PM
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7	26-10-2021	09:00AM - 11:00AM	11:00AM - 01:00PM
8	02-11-2021	09:00AM - 11:00AM	11:00AM - 01:00PM
9	09-11-2021	09:00AM - 11:00AM	11:00AM - 01:00PM
10	16-11-2021	09:00AM - 11:00AM	11:00AM - 01:00PM

Dr. Vishal Upmanu
Mr. Vishal Upmanu
Program Coordinator




Director
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Duhai, Ghaziabad

Department of Civil Engineering



R. D. ENGINEERING COLLEGE, GHAZIABAD
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Date: 7th Sep, 2021

NOTICE

ADD ON COURSE- CAD

From: Program Coordinator

To: All the CE 2nd year Students(3rd 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 18th Sep 2021.

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:

Director

Dean Academics

IQAC

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R.D. Engineering College
Duhai, Ghaziabad

R D ENGINEERING COLLEGE, GHAZIABAD
CAD TRAINING SYLLABUS
ADD ON COURSE FOR B.TECH (CE)-III SEM
SESSION 2021-22
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 2021-22

TOPIC 1	CONTENT	INDEX
	Introduction	1 HRS
	Intro	
	User Interface	
	Command Description	
	Use of Mouse	
	Use of keyboard	
	Various Features	
	Civil vs Mechanical	
	Use in Industry	
	LAB	1 HR
Topic 2	Fundamentals1 HRS	
	Line	
	Co-ordinate System	
	Absolute	
	Relative Rectangular	
	Relative Polar	
	Pick point Method	
	Zoom & Erase	
	LAB	1 HRS
Topic 3	Understanding Circle	1 HRS
	Line	
	Co-ordinate System	
	Absolute	
	Relative Rectangular	
	Relative Polar	
	Pick point Method	
	Zoom & Erase	
	LAB	1 HRS


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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	1 HRS
	LAB	1 HRS
Topic 20	LIVE PROJECT	3 HRS

Theory Hours	Lab Hours	Total
18 hours	22 Hours	40Hours

Anirudh Kumar
 Mr. Anirudh Kumar
 Program Coordinator



[Signature]
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Department of Civil Engineering

COURSE OUTCOME – ETABS / AUTOCAD / MSP

ETABS (Extended Three-Dimensional Analysis of Building Systems):

1. Understanding Structural Analysis
2. Building Modeling
3. Load Analysis and Design
4. Interpretation of Results
5. Seismic Analysis

AutoCAD (Computer-Aided Design):

1. 2D Drafting
2. Visualization and Rendering
3. Drawing Management
4. Customization and Automation

MSP (Microsoft Project):

1. Project Planning
2. Resource Management
3. Critical Path Analysis
4. Project Tracking and Reporting
5. Project Communication



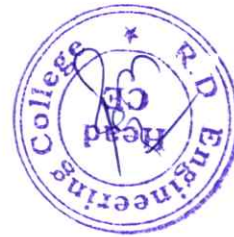

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R D ENGINEERING COLLEGE
CAD
ADD ON COURSE FOR B.TECH - CE-III SEM
SESSION 2021-22

SN	Date	Timings (Theory)	Timings (Lab)
1	18-09-2021	09:00AM - 11:00AM	11:00AM - 01:00PM
2	25-09-2021	09:00AM - 11:00AM	11:00AM - 01:00PM
3	08-10-2021	09:00AM - 11:00AM	11:00AM - 01:00PM
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8	12-11-2021	09:00AM - 11:00AM	11:00AM - 01:00PM
9	19-11-2021	09:00AM - 11:00AM	11:00AM - 01:00PM
10	26-11-2021	09:00AM - 11:00AM	11:00AM - 01:00PM

Anirudh Kumar

Mr. Anirudh Kumar
Program Coordinator



[Signature]
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: 7th Sep, 2021

NOTICE

ADD ON COURSE- REVIT/STADDPRO

From: Program Coordinator

To: All the CE 3rd year Students(5th 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 18th Sep 2021.

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.


Mr. Dharmendra Kumar

(Program Coordinator)


Dr. Pankaj Kumar Singh

(HOD.CE)

CC:

Director

Dean Academics

IQAC

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Director
R.D. Engineering College
Duhai, Ghaziabad



R D ENGINEERING COLLEGE, GHAZIABAD
REVIT/STADDPRO TRAINING SYLLABUS
ADD ON COURSE FOR B.TECH (CE)-V SEM
SESSION 2021-22
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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Duhai, Ghaziabad

REVIT TRAINING SYLLABUS
ADD ON COURSE FOR B.TECH (CE)-V SEM
SESSION 2021-22

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	LIVE PROJECT (LAB)	3 HRS


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STADD TRAINING SYLLABUS
ADD ON COURSE FOR B.TECH (CE)-V SEM
SESSION 2021-22

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

Lab

1 HRS

Topic 5

Steel Design

1 HRS

Introduction

Steel Frame Structure Design

Overhead Transmission Line Towers Design.

Steel Structure design with Pushover Analysis

Lab

1 HRS

Topic 6

Foundation Designs

1 HRS

Isolate, Combined, Strip, Mat and Pile Cap

Report Generation and Plotting

Lab

1 HRS

Topic 7

LIVE PROJECT (LAB)

3 HRS

Theory Hours	Lab Hours	Total
17 hours	23 Hours	40Hours


Mr. Dharmendra Kumar
Program Coordinator




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Department of Civil Engineering

COURSE OUTCOME – ETABS / AUTOCAD / MSP

ETABS (Extended Three-Dimensional Analysis of Building Systems):

1. Understanding Structural Analysis
2. Building Modeling
3. Load Analysis and Design
4. Interpretation of Results
5. Seismic Analysis

AutoCAD (Computer-Aided Design):

1. 2D Drafting
2. Visualization and Rendering
3. Drawing Management
4. Customization and Automation

MSP (Microsoft Project):


1. Project Planning
2. Resource Management
3. Critical Path Analysis
4. Project Tracking and Reporting
5. Project Communication




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R D ENGINEERING COLLEGE
REVIT/STADDPRO
ADD ON COURSE FOR B.TECH - CE-V SEM
SESSION 2021-22

SN	Date	Timings (Theory)	Timings (Lab)
1	18-09-2021	09:00AM - 11:00AM	11:00AM - 01:00PM
2	25-09-2021	09:00AM - 11:00AM	11:00AM - 01:00PM
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Mr. 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: 7th Sep, 2021

NOTICE

ADD ON COURSE-ETABS/AUTOCAD/MSP


From: Program Coordinator


To: All the CE 4th year Students(7th 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 18th Sep 2021.

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

IQAC

Departmental Notice Board


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R.D. Engineering College
Duhai, Ghaziabad

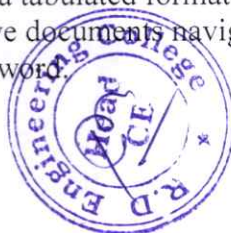


R D ENGINEERING COLLEGE, GHAZIABAD
ETABS/AUTOCAD/MSP TRAINING SYLLABUS
ADD ON COURSE FOR B.TECH (CE)-V SEM
SESSION 2021-22
SYLLABUS & FEATURES

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.



[Signature]
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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.

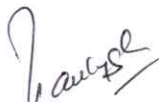



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R D ENGINEERING COLLEGE, GHAZIABAD
ETABS/AUTOCAD/MSP TRAINING SYLLABUS
ADD ON COURSE FOR B.TECH (CE)-VII SEM
SESSION 2021-22

Topic 1		Modeling of Building Structure	1 Hrs
	Lab		2 Hrs
Topic 2		Object Editing tools	1 Hrs
	Lab		2 Hrs
Topic 3		Property specification	2 Hrs
	Lab		2 Hrs
Topic 4		Loads & load combination	2 Hrs
	Lab		2 Hrs
Topic 5		Analysis of Building System	3 Hrs
	Lab		4 Hrs
Topic 6		Concrete Frame Design	2 Hrs
	Lab		3 Hrs
Topic 7		Shear Wall Design	2 Hrs
	Lab		3 Hrs
Topic 8		Steel Frame Design	2 Hrs
	Lab		3 Hrs
Topic 9		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
 R.D. Engineering College
 Duhai, Ghaziabad



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Department of Civil Engineering

COURSE OUTCOME – ETABS / AUTOCAD / MSP

ETABS (Extended Three-Dimensional Analysis of Building Systems):

1. Understanding Structural Analysis
2. Building Modeling
3. Load Analysis and Design
4. Interpretation of Results
5. Seismic Analysis

AutoCAD (Computer-Aided Design):

1. 2D Drafting
2. Visualization and Rendering
3. Drawing Management
4. Customization and Automation

MSP (Microsoft Project):


1. Project Planning
2. Resource Management
3. Critical Path Analysis
4. Project Tracking and Reporting
5. Project Communication




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Duhai, Ghaziabad

R D ENGINEERING COLLEGE
ETABS/AUTOCAD/MSP
ADD ON COURSE FOR B.TECH - CE-VII SEM
SESSION 2021-22

SN	Date	Timings (Theory)	Timings (Lab)
1	18-09-2021	09:00AM - 11:00AM	11:00AM - 01:00PM
2	25-09-2021	09:00AM - 11:00AM	11:00AM - 01:00PM
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Dr. Pankaj Kumar Singh
Program Coordinator




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Duhai, Ghaziabad

Department of MBA



R. D. Engineering College, Ghaziabad

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Date: 02/10/2021

Notice

Add on Course-PDP

From: Program Coordinator

To: All the MBA IST Year Students (Ist sem)

All the students of MBA IST Year (I Sem) are hereby informed that department is going to run an add on course on PDP from 16/10/2021.

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. Gautav 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,
8. **Week 8:** Carl Jung 's contribution to personality development theory.
9. **Week 9:** Stress Management: Introduction, Causes, stress management techniques,


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10.Week 10: Time management: Importance of time management, Techniques of time management, Time management styles.

Personality Development Programme

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

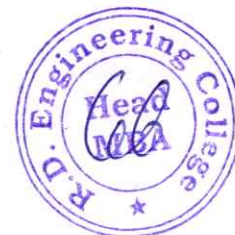
- Presentation Skills
- Communication Skills
- Interpersonal Skills
- Work Place Etiquette
- Meeting / Telephone / Group Etiquette
- Body Language
- Self Confidence
- Positive Attitude
- Conversation English
- Pronunciations
- Story narrations, Verb Patterns
- Speech fluency
- Self Motivation
- Confidence 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 Hours	Total
(20+20) Hours	40 Hours


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Mr. Sarthak Tyagi

Program Coordinator



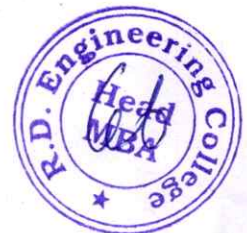
R D Engineering College, Ghaziabad
ADVANCE EXCEL
Add On Course for MBA (Ist Sem) Session 2021-22

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 IST Year I Sem

PDP

Session 2021-22

SN	Date	Timings (Theory)	Timings (Lab)
1	16/10/2021	10:00AM - 12:00PM	02:00PM - 04:00PM
2	23/10/2021	10:00AM - 12:00PM	02:00PM - 04:00PM
3	30/10/2021	10:00AM - 12:00PM	02:00PM - 04:00PM
4	13/11/2021	10:00AM - 12:00PM	02:00PM - 04:00PM
5	20/11/2021	10:00AM - 12:00PM	02:00PM - 04:00PM
6	27/11/2021	10:00AM - 12:00PM	02:00PM - 04:00PM
7	04/12/2021	10:00AM - 12:00PM	02:00PM - 04:00PM
8	11/12/2021	10:00AM - 12:00PM	02:00PM - 04:00PM
9	17/12/2021	10:00AM - 12:00PM	02:00PM - 04:00PM
10	18/12/2021	10:00AM - 12:00PM	02:00PM - 04:00PM

Sartha

Mr. Sarthak Tyagi
Program Coordinator

[Signature]

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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: 20th Sep, 2021

Notice

Add on Course- Advanced Excel

From: Program Coordinator

To: All the MBA 2nd year Students(3rd 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 25th Sep 2021.

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

Dean Academics

IQAC

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Syllabus- Add On Course for MBA– III Sem

Advanced Excel

Session 2021-22

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.

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


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




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ADVANCE EXCEL
Add On Course for MBA (III Sem) Session 2021-22

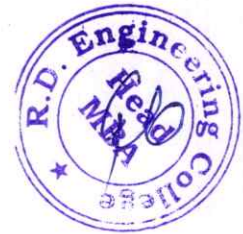
ADVANCE EXCEL COURSE OUTCOME AFTER COMPLETION

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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R.D.ENGINEERING COLLEGE, GHAZIABAD

Schedule-Add On Course for MBA-III sem

Advanced Excel

Session 2021-22

SN	Date	Timings (Theory)	Timings (Lab)
1	25/09/2021	10:00AM - 12:00PM	02:00PM - 04:00PM
2	09/10/2021	10:00AM - 12:00PM	02:00PM - 04:00PM
3	16/10/2021	10:00AM - 12:00PM	02:00PM - 04:00PM
4	23/10/2021	10:00AM - 12:00PM	02:00PM - 04:00PM
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7	27/11/2021	10:00AM - 12:00PM	02:00PM - 04:00PM
8	04/12/2021	10:00AM - 12:00PM	02:00PM - 04:00PM



Dr. Vishal Upmanu
Program Coordinator


Director
R.D. Engineering College
Duhai, Ghaziabad

Department of MCA

R. D. Engineering College, Ghaziabad

Department of Master of Computer Application

Date: 5th May, 2022

Notice

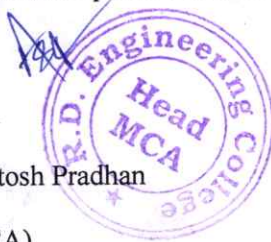
All the students of MCA II Sem, I year are hereby informed that department is going to run an add on course on Core Java 9th MAY 2022.

This Core 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)



CC:

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Syllabus of course

Schedule of course

Course Contents


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R D ENGINEERING COLLEGE, GHAZIABAD

CORE JAVA

Add On Course for MCA

SESSION 2021-22

Curriculum objectives

1. To understand the basic concepts and fundamentals of platform independent object oriented language.
2. To demonstrate skills in writing programs using exception handling techniques and multithreading.
3. To understand streams and efficient user interface design techniques.

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

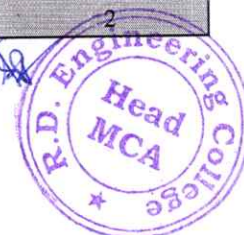
- Lecture materials
- Online multiple-choice knowledge checks
- Lab exercises
- Digital training (optional)
- Video introductions
- Video demos
- Example solutions

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: Basics of Java		1	
Module 2: Class, Object, and Types of classes	1	1	2
Module 3: Packages in Java	1	1	2
Module 4: Data types in Java	1	1	2
Module 5: Variables, Constants, and Literals	1	1	2
Module 6: Methods in Java	1	1	2


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Module 7: Constructor in Java	1	1	2
Module 8: Modifiers in Java	1	1	2
Module 9: Static Keyword	1	1	2
Module 10: Final Keyword	1	1	2
Module 11: Inner Class in Java	1	1	2
Module 12: Super and this Keyword	1	1	2
Module 13: OOPs concepts	1	1	2
Module 14: Encapsulation	1	1	2
Module 15: Inheritance	1	1	2
Module 16: Polymorphism	1	1	2
Module 17: Abstraction	1	1	2
Module 18: Interface in Java	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. Basics of Java

- What is Java?
- History and Features of Java
- C++ vs Java
- Hello Java Program
- Internal How to set the path?
- JDK, JRE, and JVM (Java Virtual Machine)
- JVM Memory Management
- Internal details of JVM
- Unicode System, Operators, Keywords, and Control Statements like if-else, switch, For loop, while loop, etc.

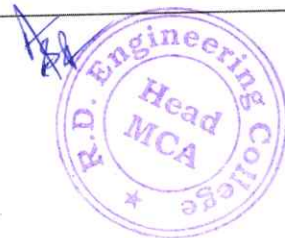
Module 2. Class, Object, and Types of classes

- Naming convention of Java
- Classes, Objects, and Features. It explains how to declare a class, how to create an object in Java.
- Object declaration and initialization
- Life cycle of an object
- Anonymous object in Java Class and Objects in Java with Realtime Example

Module 3. Packages in Java

- How to declare package in a company project


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- Package naming conventions
- Sub packages
- Types of packages such as user-defined packages, built-in packages
- Importing packages in Java Packages in Java with Example Programs

Module 4. Data types in Java

- Data types in Java
- Primitive data types
- Non-primitive data types
- Memory allocation of primitive and non-primitive data types, etc. Data types in Java

Module 5. Variables, Constants, and Literals

- Variable declaration & initialization
- Naming convention
- Types of variables such as local variables, instance variables, and static variables
- Scope and memory allocation of variables. Variables in Java | Types of Variables

Module 6. Methods in Java

- Use of method in Java
- Method declaration, method signature
- Types of methods in Java: predefined method, user-defined methods: instance method, static method
- Calling of method
- Java main method
- Return type in Java Methods | Declaration & Method Signature

Module 7. Constructor in Java

- What is Constructor in Java?
- Types of constructors: Default and Parameterized constructors
- Java constructor overloading
- Constructor chaining in java
- Copy constructor in Java

Module 8. Modifiers in Java

- What is Access modifier and Non-access modifier in Java?
- Types of access modifiers like private, default, protected, and public
- Types of Non-access modifiers like abstract, final, native, static, Strictfp, synchronized modifier, transient, volatile.

Module 9. Static Keyword

- What is Static keyword?
- Static variable
- Static method
- Static block, Instance block
- Static Nested Class in Java
- Difference between static variable and instance variable, static method and instance method, static block, and instance block.


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Module 10. Final Keyword

- Final keyword
- Final variable
- Final method
- Final class.

Module 11. Inner Class in Java

- What is Inner class in Java?, Properties of inner class, Instantiating inner class.
- Types of inner class in Java: Normal inner class, Method local inner class, Anonymous inner class, and Static nested class.

Module 12. Super and this Keyword

- Super keyword
- Calling of superclass instance variable
- Superclass constructor
- Superclass method.
- The second section deals with
- This keyword
- Calling of current class constructor, and method.

Module 13. OOPs concepts

- Object-oriented programming system (OOPs). In the OOPs concept, you will learn class, object, encapsulation, inheritance, polymorphism, and abstraction. All topics are very important for interview purposes.

Module 14. Encapsulation

- Encapsulation in Java
- How to achieve Encapsulation
- Data hiding
- Tightly encapsulated class
- Getter and setter method in Java
- Naming convention of getter and setter method

Module 15. Inheritance

- Inheritance in Java
- Is-A Relationship
- Aggregation and Composition (HAS-A)
- Types of inheritance: Single level, Multilevel, Hierarchical, Multiple, and Hybrid inheritance.

Module 16. Polymorphism

- Polymorphism in Java,
- Types of polymorphism: Compile-time polymorphism and Run-time polymorphism
- Static and Dynamic Binding
- Method overloading
- Method overriding
- Rules of method overloading and method overriding, various example programs related to rules of overloading and


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- overriding.
- Covariant Return type

Module 17. Abstraction

- Abstraction in Java
- Abstract class
- Abstract method
- Interface in Java
- Nested interface, rules, and example programs.

Module 18. Interface in Java

- Introduction interface
- Nested interface
- Rules, and example programs.


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CORE JAVA TRAINING COURSE OUTCOME

After successful completion of the course, the students are able to

- 1) Use the syntax and semantics of java programming language and basic concepts of OOP.
- 2) Develop reusable programs using the concepts of inheritance, polymorphism, interfaces and packages.
- 3) Apply the concepts of Multithreading and Exception handling to develop efficient and error free codes.
- 4) Design event driven GUI and web related applications which mimic the real word scenarios.


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CORE JAVA Schedule

Add On Course for MCA FIRST YEAR

EVEN Sem. Session 2021-22

SN	Date	Timings (Theory)	Timings (Lab)
1	09.05.2022	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
2	10.05.2022	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
3	11.05.2022	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
4	12.05.2022	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
5	13.05.2022	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
6	16.05.2022	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
7	17.05.2022	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
8	18.05.2022	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
9	19.05.2022	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
10	20.05.2022	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM

G. Sena

Program Coordinator



[Signature]

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Duhai, Ghaziabad

R. D. Engineering College, Ghaziabad

Department of Master of Computer Application


Date: 01 Sep, 2021

Notice

All the students of MCA III Sem, II year are hereby informed that department is going to run an add on course on Cloud Computing with Amazon Web Service (AWS) from 6TH Sep 2021.

This AWS Course Syllabus covers in-depth knowledge of cloud computing with Infrastructure as a service (IaaS) and platform as a service (PaaS). After completing this course you will also try to start your carrier in AWS field.

All Students are required to attend this course.


Prof. Ashutosh Pradhan
(Head, CSE)



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Syllabus of course

Schedule of course

Course Contents


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R D ENGINEERING COLLEGE, GHAZIABAD
AWS TRAINING
Add On Course for MCA
SESSION 2021-22 ODD SEM

Curriculum objectives

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

- Define the AWS Cloud
- Explain the AWS pricing philosophy
- Identify the global infrastructure components of AWS
- Describe the security and compliance measures of the AWS Cloud, including AWS Identity and Access Management (IAM)
- Create a virtual private cloud (VPC) by using Amazon Virtual Private Cloud (Amazon VPC)
- Demonstrate when to use Amazon Elastic Compute Cloud (Amazon EC2), AWS Lambda, and AWS Elastic Beanstalk
- Differentiate between Amazon Simple Storage Service (Amazon S3), Amazon Elastic Block Store (Amazon EBS), Amazon Elastic File System (Amazon EFS), and Amazon Simple Storage Service Glacier (Amazon S3 Glacier)
- Demonstrate when to use AWS database services, including Amazon Relational Database Service (Amazon RDS), Amazon DynamoDB, Amazon Redshift, and Amazon Aurora
- Explain the architectural principles of the AWS Cloud
- Explore key concepts related to Elastic Load Balancing, Amazon CloudWatch, and Amazon EC2 Auto Scaling

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.

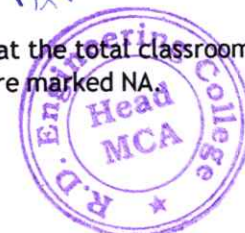
Learning resources

- 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.


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Module Title	Lecture (Hrs)	Activity/Lab/ Demo (Hrs)	Total Module (Hrs)
Course Introduction	1	NA	1
Module 1: Cloud Concepts Overview	1	1	2
Module 2: Cloud Economics and Billing	1	1	2
Module 3: AWS Global Infrastructure Overview	1	1	2
Module 4: Cloud Security	1	2	3
Module 5: Networking and Content Delivery	2	2	4
Module 6: Compute	2	3	5
Module 7: Storage	2	3	5
Module 8: Databases	2	2	4
Module 9: Cloud Architecture	2	2	4
Module 10: Automatic Scaling and Monitoring	2	2	4
Total Course Time	17	19	36

Module sections

This section lists the module sections in this course.

Course Introduction

- Course objectives and overview
- AWS Certification exam information
- AWS documentation

Module 1: Cloud Concepts Overview

- Introduction to cloud computing
- Advantages of the cloud
- Introduction to AWS
- Moving to the AWS Cloud
- Activity: Sample Exam Question
- Knowledge check

Module 2: Cloud Economics and Billing

- Fundamentals of pricing
- Total cost of ownership
- Activity: Simple Monthly Calculator
- Delaware North case study
- AWS Organizations
- AWS billing and cost management
- Billing dashboards
- Technical support models
- Activity: Support Plan Scavenger Hunt
- Activity: Sample Exam Question
- Knowledge check


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Module 3: AWS Global Infrastructure Overview

- AWS global infrastructure
- Demo: AWS global infrastructure
- AWS services and service categories
- Activity: AWS Management Console Click through
- Activity: Sample Exam Question
- Knowledge check

Module 4: Cloud Security

- AWS shared responsibility model
- Activity: AWS Shared Responsibility Model
- AWS IAM
- Demo: AWS IAM Console
- Securing a new AWS account
- Lab: Introduction to AWS IAM
- Securing accounts
- Securing data
- Working to ensure compliance
- Activity: Sample Exam Question
- Knowledge check

Module 5: Networking and Content Delivery

- Networking basics
- Amazon VPC
- VPC networking
- Activity: Label This diagram
- Demo: Amazon VPC Console
- VPC security
- Activity: Design a VPC
- Lab: Build a VPC and Launch a Web Server
- Route 53
- CloudFront
- Activity: Sample Exam Question
- Knowledge check

Module 6: Compute

- Compute services overview
- Amazon EC2 part 1
- Amazon EC2 part 2
- Amazon EC2 part 3
- Demo: Amazon EC2
- Lab: Introduction to Amazon EC2
- Activity: Amazon EC2 Versus Managed Services
- Demo: Amazon EC2 Part Console
- Amazon EC2 cost optimization
- Container services
- Introduction to AWS Lambda
- Activity: AWS Lambda
- Introduction to AWS Elastic Beanstalk
- Activity: AWS Elastic Beanstalk
- Activity: Sample Exam Question
- Knowledge check




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Module 7: Storage

- AWS EBS
- Demo: Amazon Elastic Block Store Console
- Lab: Working with EBS
- AWS S3
- Demo: AWS S3 Console
- AWS EFS
- Demo: AWS EFS Console
- AWS S3 Glacier
- Demo: AWS S3 Glacier Console
- Activity: Storage Technology Selection
- Activity: Sample Exam Question
- Knowledge check

Module 8: Databases

- Amazon RDS
- Demo: Amazon RDS Console
- Lab: Build a Database Server
- Amazon DynamoDB
- Demo: Amazon DynamoDB
- Amazon Redshift
- Amazon Aurora
- Activity: Database case study
- Activity: Sample Exam Question
- Knowledge check

Module 9: Cloud Architecture

- AWS Well-Architected Framework design principles
- Activity: AWS Well-Architected Framework Design Principles
- Operational excellence
- Security
- Reliability
- Performance efficiency
- Cost optimization
- Reliability & high availability
- AWS Trusted Advisor
- Activity: Interpret AWS Trusted Advisor Recommendations
- Activity: Sample Exam Question
- Knowledge check

Module 10: Automatic Scaling and Monitoring

- Elastic Load Balancing
- Activity: Elastic Load Balancing
- Amazon CloudWatch
- Activity: Amazon CloudWatch
- Amazon EC2 auto scaling
- Lab: Scale & Load Balance your Architecture
- Activity: Sample Exam Question
- Knowledge check




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AWS TRAINING COURSE OUTCOME

The outcomes of an AWS (Amazon Web Services) training course can vary depending on the specific focus, level, and duration of the course. However, in general, participants in AWS training courses can expect to achieve the following outcomes:

Participants will gain a comprehensive understanding of various AWS services, including compute, storage, databases, machine learning, networking, security, and more. AWS training courses are designed to prepare participants for AWS certification exams. These certifications validate the individual's expertise in specific AWS technologies and are recognized by employers. Participants will gain insights into cost management strategies, including how to optimize resource usage to control costs effectively. This includes understanding AWS pricing models and tools for cost monitoring.


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AWS Training Schedule

Add On Course for MCA 2nd YEAR

Odd Sem. Session 2021-22

SN	Date	Timings (Theory)	Timings (Lab)
1	06.09.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
2	07.09.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
3	08.09.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
4	09.09.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
5	10.09.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
6	13.09.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
7	14.09.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
8	15.09.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
9	16.09.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM
10	17.09.2021	1:30 PM TO 3:10 PM	3:10 PM TO 4:50 PM


Program Coordinator




Director
R.D. Engineering College
Duhai, Ghaziabad