

Approved by AICTE
Affiliated to Rajasthan Technical University, Kota
Recognized by UGC under Section 2(f) of the UGC Act, 1956

1.2.1 Number of Add on/ Certificate/
value added programs offered during the
last five years
(Add-on courses Institute Level
Brochures- Session 2017-18)

ISI-6, RIICO Institutional Area, Sitapura, Jaipur-302022 (Rajasthan)

• Phone: +91-9829255102, +91-9414728922 • E-mail: principal.pce@poornima.org

• Website: www.pce.poornima.org



# POORNIMA COLLEGE OF ENGINEERING

Affiliated to RTU, Kota • Approved by AICTE & UGC under 2(f) • Accredited by NBA



# Brochure of Add-On Courses

**SESSION 2017-18** 











# **TABLEOFCONTENTS**

Section	Section	Pag
No.		eNo
	TERMS & CONDITIONS FOR COURSE	3
	ENROLMENT	3
	LIST OF ADD-ONCOURSES	4
1	CAMPUS LEVEL COURSES	5
1.1	IBM SOFTWARE LAB FOR EMERGING TECHNOLOGIES	6
1.1.1	Application Development And Deployment For Cloud Using IBM Bluemix	8
1.1.2	Learning Business Intelligence Using IBMCognos	10
1.1.3	IoT Application Development And Deployment Using IBM Bluemix	12
2	SPOKEN TUTORIAL COURSES	14
2.1	SpokenTutorial-PHP & MYSQL	15
2.2	SpokenTutorial- CPP	16
3	QEEE COURSES	17
3.1	QEEE Course - Memory and IO - Advanced Computer Architecture	17
3.2	QEEECourse - StorageManagement- Operating Systems	17
3.3	QEEECourse- Object Oriented Concepts-Classes and Data Abstraction-Operator Overloading-Inheritance	18
3.4	QEEE Course Linear Data Structures and Applications - Data Structures and Algorithms	18
4	DEPARTMENT LEVEL COURSES	19
4.1	DEPARTMENT OF CIVIL ENGINEERING	20
4.1.1	RevitArchitecture	20-21
4.1.2	AutoCAD	21-22
4.1.3	STADD PRO	22-23
4.2	DEPARTMENT OF COMPUTER ENGINEERING	24
4.2.1	Advanced Java	24-26
4.2.2	Python Programming	27-29
4.2.3	Mobile Application Development	30-32
4.2.4	Cisco Certified Network Administrator	32-36
4.2.5	Programming In Hadoop	36-38
4.2.6	DataScience With Python	39-42
4.3	DEPARTMENT OF ELECTRICAL ENGINEERING	42
4.3.1	Understanding Of BasicElectricalSystem	43
4.3.2	SmartGrid: Integration, Energy Storage And System Operations	43-44
4.3.3	Overview Of Photovoltaic Systems	44-45
4.3.4	Introduction To PV System And Its Applications In Power Engineering	45-46
4.4	DEPARTMENT OF ELECTRONICS&COMMUNICATION ENGINEERING	47
4.4.1	Etching & Designing	47-48
4.4.2	NI Multisim Basics: Schematic Capture And Simulation	49-50
4.4.3	Introduction of Technical Writing Skills	50-51
7.7.5	Introduction of Technical Withing Shalls	30 31
4.4.4	Basics of Programming Languages	51-54
4.5	DEPARTMENT OF INFORMATION TECHNOLOGY	54
4.5.1	Web Development	<i>54-57</i>
4.5.2	Automation Testing	57-60
	Using Selenium	
4.6	DEPARTMENT OF MECHANICAL ENGINEERING	60
4.6.1	ANSYS	60-63
4.7	DEPARTMENT OF I YEAR	64
4.7.1	Project Based Learning	64-65
4.7.2	Logical Reasoning and Technical Skill Development	ú6-67
4.7.3	Advanced C Programming	07-69



# LIST OF ADD-ON COURSES OFFERED TERMS AND CONDITIONS FOR ADD-ON COURSE ENROLMENT

- 1. One Department Course and one Campus Course has to be compulsorily selected by every student for every session.
- 2. Course enrolment form has to be duly filled and submitted by the declared due date to the Tutor office, failing in which registration will not be accepted.
- 3. All Courses are free of cost, unless specified explicitly.
- 4. There is a mandatory attendance criteria for each course as specified in the brochure for achieving the certification.
- 5. In general a course will be conducted only after receiving a minimum 50 enrolment applications.
- 6. In case of any conflict or ambiguity the decision taken by the Head of the Department / IQACwill be considered standing and final.
- 7. In case of any unfair means used in Certification examination by an attendee, the courseregistration will be immediately cancelled.
- 8. Certification examination will not be re-conducted in any circumstances.
- 9. Department may issue additional instructions and criteria for their respective courses.
- 10. For Additional courses from QEEE and Spoken Tutorials, students may have to explicitlycontact department coordinators, for registering them formally on AICTE website.

Or. Mahesh Bundel

Director
Poornima College of Engineerin
ISI-6, RIICO Institutional Area



	T ===========		
NAME OF COURSE	COURSE CODE		
CAMPUS LEVEL COURSES	7.0		
IBM SOFTWARE LAB FOR EMERGING TECHNOLOGI			
Application Development And Deployment For Cloud Using IBM Bluemix	AOC-CP-IBM-BLU		
Learning Business Intelligence Using IBM Cognos	AOC-CP-IBM-COG		
IoT Application Development And Deployment Using IBM Bluemix	AOC-CP-IBM-IOT		
SPOKEN TUTORIAL COURSES	LOC CD CDT DUD		
Spoken Tutorial-PHP & MYSQL	AOC-CP-SPT-PHP		
Spoken Tutorial- CPP	AOC-CP-SPT-CPP		
QEEE COURSES	AOC DED EE OEEE		
QEEE Course - Memory and IO - Advanced Computer Architecture	AOC DEP IT OFFEI		
QEEECourse - StorageManagement- Operating Systems	AOC DEP IT OFFE?		
QEEECourse- Object Oriented Concepts-Classes and Data Abstraction-Operator Overloading-Inheritance	AOC-DEP-IT-QEEE2		
QEEE Course Linear Data Structures and Applications - Data Structures and Algorithms	AOC-DEP-IT-QEEE3		
DEPARTMENT LEVEL COURSES			
DEPARTMENT OF CIVIL ENGINEERING			
Revit Architecture	AOC-DEP-CIV-REV		
AutoCAD	AOC-DEP-CIV-CAD		
STADD PRO	AOC-DEP-CIV-SPRO		
DEPARTMENT OF COMPUTER ENGINEERING			
Advanced Java	AOC-DEP-CSE-ADJ		
Python Programming	AOC-DEP-CSE-PPG		
Mobile Application Development	AOC-DEP-CSE-MAD		
Cisco Certified Network Administrator	AOC-DEP-CSE-CNA		
Programming In Hadoop	AOC-DEP-CSE-HDP		
Data Science With Python	AOC-DEP-CSE-DSP		
DEPARTMENT OF ELECTRICAL ENGINEERING			
Understanding Of Basic Electrical System	AOC-DEP-EE-BES		
SmartGrid: Integration, Energy Storage And System Operations	AOC-DEP-EE-SGS		
Overview Of Photovoltaic Systems	AOC-DEP-EE-PVS		
Introduction To PVSystem And Its Applications In Power Engineering	AOC-DEP-EE-PVA		
DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERS			
Etching & Designing	AOC-DEP-ECE-ETC		
	AOC-DEP-ECE-SIM		
NI Multisim Basics: Schematic Capture And Simulation			
Introduction of Technical Writing Skills	AOC-DEP-ECE-TWS		
Basics of Programming Languages	AOC-DEP-ECE-BPL		
DEPARTMENT OF INFORMATION TECHNOLOGY			
Web Development	AOC-DEP-IT-WEB		
Automation Testing Using Selenium	AOC-DEP-IT-SEL		
DEPARTMENT OF MECHANICAL ENGINEERING			
ANSYS	AOC-DEP-ME-SYS		
DEPARTMENT OF FIRST YEAR			
Project Based Learning	AOC-DEP-FY-PBL		
Logical Reasoning and Technical Skill Development	AOC-DEP-FY-LRTS		
Advanced C Programming	AOC-DEP-FY-ACP		



# **SECTION-1**

# CAMPUS LEVEL COURSES



# 1.1 IBM Software Lab for Emerging Technologies (IBMCareer EducationProgram)

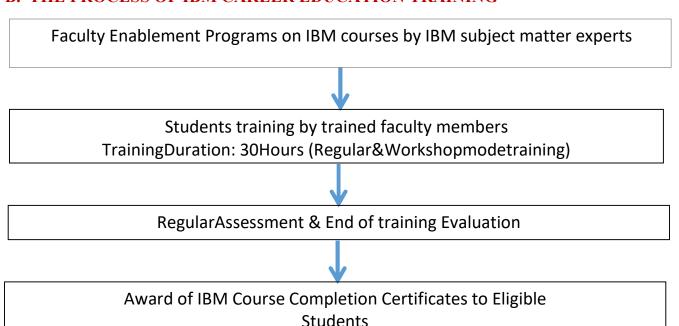
# A. INTRODUCTION

Poornima College of Engineering signed a MoU with IBM under its Career Education Program inMay-2017 to develop required industry needed skills in students on emerging areas of the following IBM software technologies/ courses.

S.No.	CourseName	CourseCode
1	Application Developmentand Deployment for Cloudusing	AOC-CP-IBM-BLU
	IBM Bluemix	
2	Learning Business Intelligence using IBM Cognos BI	AOC-CP-IBM-COG
3	IoT Application Development and Deployment using	AOC-CP-IBM-IOT
	IBMBlueMix	

IBM and PCE, acknowledge the need for IBM Software skills, in the IT education and trainingsector. The objective is to have a number of graduating professionals skilled on IBM Software. Under this MoU, both IBM Career Education and PCE are keen to cooperate in a way that shall benefit PCE students pursuing a career in the industry. As part of the MOU, the Faculty Enablement Programs were conducted by IBM subject matter experts in June-2017 and December-2017 to train the faculty members on above mentioned three IBM courses. The trainings on above three IBM courses will be imparted to the students by the trained faculty members in workshop mode or on weekly basis along with regular academics. Thestudy material for the training will be provided by the IBM. Each IBM course requires at least 30 Hours training which is divided into basic and advancedmodules.

# B. THE PROCESS OF IBM CAREER EDUCATION TRAINING





# C. NUMBER OF HOUR PER COURSE: 30 HOURS D. ENROLMENT CRITERIA

The duration of the course is 30 hours and will be offered to different branches of students in regular and workshop modes as per the table given below.

Branch/Tech.	IBM BluemixforCloud	IBMCognosforBI	IoT
CSE	2 hours per week classes in regular mode in II&IIIYears	2 hours per week classes in regular mode in II & IIIY ears	Workshop mode
IT	2 hours per week classes in regular mode in II&III Years	2 hours per week classes inregular mode in II & IIIY ears	Workshop mode
EC	2 hours per week classes in regular mode in II&IIIYears	Not Applicable	Workshop mode
EE	Not Applicable	Workshop mode	Workshop mode
ME	Not Applicable	Workshop mode	Workshop mode
Civil	Not Applicable	Workshop mode	Workshop mode

# E. CERTIFICATION CRITERIA

- a. There are two kinds of certificates for participating in IBM programs.
  - i) IBM certificates
  - ii) Poornima certificates (3times in number of IBM certificates)
- b. Certificates will be distributed on merit basis and evaluation will be done on the basis of the following parameters.
  - i) Attendance (minimum75%)
  - ii) End course evaluation (MCQ basedtest)



### F. BRIEF INTRODUCTION ABOUT IBM CAREER EDUCATION COURSES

# 1.1.1 Application Development and Deployment for Cloud using IBM Bluemix (Course (Code: AOC-CP-IBM-BLU)

### 1. Course Overview

IBM Bluemix is IBM's cloud computing platform that offers mobile and web developers access to IBM software for integration, security, transactions, and other key functions, as well as software from business partners.

Built on Cloud Foundry open source technology, Bluemix makes application development easierwith Platform as a Service (PaaS). Bluemix also provides prebuilt Mobile Backend as a Service (MBaaS) capabilities.

The goal is to simplify the delivery of an application by providing services that are ready for immediate use and hosting capabilities to enable internal scale development.

Following are the advantages of IBM Bluemix cloud platform-

- Arrange of services that enable you to build and extend web and mobile apps fast
- Processing power for you to deliver appchanges continuously
- Fit-for-purpose programming models and services
- Manage ability of services and applications
- · Optimized and elastic workloads
- Continuous availability

# 2. CourseOutcomes

# Attheend of the course, student will be able to:

CO	CourseOutcomes
CO1	Develop the cloud services like SAAS and store the huge data on the cloud.
CO2	Create any web application and use the SQL DB as a backend.
CO3	Create different types of language translator like Google translator using Watson through Bluemix
CO4	Create a live chat application using Watson through Bluemix.
CO5	Run the application on the web and monitor via theBluemix user interface, and cloud foundry Command line interface
CO6	Manage the cloud resources i.e.increase and decrease the cloud resources in terms of memory, and
	CPU Utilization
CO7	Control the different home appliance through the mobile.
CO8	Create and run the mobileapplication via Bluemix.



# 3. MAPPING COURSE OUTCOMES WITH PO AND PSO

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	-	3	-	-	-	-	-	-	-	-	-	-
CO2	-	-	3	-	-	-	-	-	-	-	-	-
CO3	-	-	3	-	-	-	-	-	-	-	-	-
CO4	-	-	3	-	-	-	-	-	-	-	-	-
CO5	-	-	-	2	-	-	-	-	-	-	-	-
CO6	-	-	-	3	-	-	-	-	-	-	-	-
CO7	-	-	-	2	-	-	-	-	-	-	-	-
CO8	-	-	3	-	-	-	-	-	-	-	-	-

# 4. Prerequisites of the course

The course is aimed for B. Tech. students of Computer Science/ IT/ EC branches. Basic knowledge of programming including web development is required. The course has a set of primers to help bridge the gaps of cloud computing and programming environments.

# 5. CourseModules andSubModules

	Module-1
Week	SubModule
1	Introduction Cloud Computing (what and why, key characteristics) & IBM Bluemix Basic Components & Cloud Computing Architecture Cloud Computing Services (SAAS, PAAS, IAAS) with Examples of Cloud (Public, Private, Hybrid) with Examples
2	Overview of HTML and use of HTML Tag Createa Resume using HTMLTag
3	Create a Registration form using HTML form tag
4	Overview of JAVA using EclipseIDE with handson Create a dynamic web page using Eclipse IDE
5	Overview of JSP, Servlet in Eclipse IDE with hands on
6	Overview of MySQL with handson Create a Servlet program using database connectivity
7	Createa PHP program using database connectivity
8	Creation of ID on IBM Bluemix and IBM Bluemix Key terminology (Organization, space, region) Connecting smart devices to IBM Cloud Application (on runtime)
9	Creation of first application in Node.JS using cloud foundry using IBMBluemix Creation of first application in Java Liberty using cloudfoundry using IBM Bluemix
10	Creation of first application in php usingcloud foundry using IBM Bluemix Creation of Application using Command Line Interface (CLI) and deploy using IBM Bluemix Cloud
11	Create an application using Eclipse IDE and deploy on IBM Bluemix Cloud.Create an application IBM Bluemix and directed it the application on EclipseIDE
12	Integrating DB (PAAS) in College Admission Project Auto Scaling of college Application project
	Module-2
Week	SubModule
1	Introduction of NodeRed with example, Introduction of IBM Watson and its services
2	Create an odered application to display the helloword
3	Create an odered application to send a message on Mobile, Email and Twitter



### **ADD -ON COURSE BROCHURE 2017-18**

4	Introduction to IOT platform of Bluemix with demo and hands on
5	Introduction IBM Bluemix DataAnalytics Service
6	Create an application to store the image on IBM Cloud using no SQLDB Cloudent
7	Create IBM Watson Services of Watson Chatbot
8	Create IBM Watson Services of Watson Language Translator
9	Create IBM Watson Services of Watson Image Recognition
10	Create IBM Watson Services of Watson Text to Speech
11	Create IBM Watson Services of Watson Speech toText
12	Mobile Application Development using Bluemix (Introduction)

# 1.1.2 Learning Business Intelligence using IBM Cognos BI(Code:AOC-CP-IBM-COG)

# 1. CourseOverview

IBM®Cognos®Business Intelligence is an integrated business intelligence suite that provides a widerange of functionality to help you understand your organization's data.

Everyone in an organization can use IBM Cognos BI to view or createbusiness reports, analyzed at a, and monitor events and metrics so that they can mak effective business decisions.

IBM Cognos BI integrates the following business intelligence activities in one Webbasedsolution.

Module 1: IBM Cognos Insight: Analyze and

ShareModule2: IBM Cognos Business Intelligence

Advance

# 2. CourseOutcomes

# Attheend of thecourse, studentwillbeableto

CO	CourseOutcomes
CO1	Explore information freely, analyze key facts, collaborate to gain alignment with keys take holders and make Decisions for better business out comes
CO2	Access reports, analysis, dashboards, scorecards, planning and budgets, real time information, statistics and manage information for more informed decisions.
CO3	Integrate the results of What If analys is modeling and predictive an alytics into a unified work space to view possible future outcomes alongside currentand historical data
CO4	Work with business intelligence capabilities for the office and desktop, on mobile devices, online and offline.
CO5	Work with scalable and extensible solution that can adapt to the changing needs of IT and the businesswith Flexible deployment options that include the cloud, main frames and data ware housing appliances.

# 3. CourseOutcomes

CO1 - 3	CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO3 3 CO4 2	CO1	-	3	-	-	-	-	-	-	-	-	-	-
CO4 2	CO2	-	-	3	-	-	-	-	-	-	-	-	-
	CO3	-	-	3	-	-	-	-	-	-	-	-	-
CO5 2	CO4	-	-	-	2	-	-	-	-	-	-	-	-
	CO5	-	-	-	2	-	-	-	-	-	-	-	-



# 4. Prerequisites of the course

The course is aimed for B. Tech. students of Computer Science/ IT/ EC and other branches. Basicknowledge of programming and database fundamentals is assumed. To aid the students of differentstreams, the course has a set of primers to help bridge the gaps of programming as well as databaserelatedconcepts.

# 5. CourseModules andSubModules

	Module-1
Week	SubModule
1	IBM Cognos Insight.Use of IBM Cognos Insight.
2	Navigate and ExploreData: IBMCognos-Insight to explore profitability data contained in a.csvfile.
	You will important file and navigate and explore the imported data.
3	Performa Guided import from a file:You want to analyze sales data in the profitability csv file.You
	Will examine the filecontents, and then performa Guided import to map the data according to your
4	needs.
4	Performa Guided import a spreadsheet: You want to examine forecasted sales for various camping,
	Equipment product types through our top two distribution channels. You will import the data
5	from Microsoftexcel spreadsheet formatted in across tab.  Restructuring of Data: Analyze data from different perspective. Insert totals, Calculate
6	Create Visualizations: Identify chart type, Describe chart options Choose an effective chart Choose a
O	Chart type Area charts, Barcharts, Column charts, Linecharts, Piecharts, Point charts.
7	Aggregation of rows and column: create parent child relation in between rows and column.
8	Create calculationincolumn: how to manipulate data in column, multiply, divide, averageetc.
9	Construct a workspace: Improve the appearance of workspaces by applying themes.
10	Constructaworkspace: Organize your workspace with tabs and action buttons.
11	Import from a Relational ODBC sources: You can import relational data using the same guided import
	Used to import data from file.
12	Create a Multi-PageWorkspaces: Design the button, navigation, link one work space with other work
	space.
	Module-2
Week	SubModule
1	IBM CognosBI. Advanced Configuration and Installation.
2	Briefly explained and handon practice on 'How to Install Configuration Manager'.
3	To create Content store, to choose database in content store.
4	To define server name and portnumber and to test the content store. DB2 configuration: To give the
	Path to data sourcein db2 administration command linewindow. Explained the datasource batch file
	execution step and configuration on commandline.
5	Configuration of work space advanced, How to create the data source, How to define the database,
	How to make connection, How to test connection, How to import sourcefile, How to run the source file,
	How To open work space, How to view different reports, chart.
6	Complex chart: combine pie and bar charts in a single presentation.
7	Create a gauge and pie chart report &to show datagraphically and numerically on reportchart.
8	Create a prompt by adding a parameter, cascading prompt & to Add calculations to report.
9	Display prompt selections in report titles & to create multilingual report
10	Create a report with a conditionally rendered column.
11	Drill through from one report to another.
12	Create report using relational data.



# 1.1.3 IoT Application Development and Deployment using IBM BlueMix (Code:AOC-CP-IBM-IOT)

# 1.1.3.1 CourseOverview

The Internet of Things (IoT) is the network of physical devices, vehicles, homeappliances, and other items embedded with electronics, software, sensors, actuators, and connectivity which enables these things to connect and exchange data creating opportunities for more direct integration of the physical world into computer-based systems, resulting in efficiency improvements, economic benefits, and reduced human exertions.

Embedded with technology, these devices can communicate and interact over the Internet, and they can be remotely monitored and controlled.

# 2. CourseOutcomes

# Attheend of thecourse, studentwillbeableto

CO	CourseOutcomes
CO1	Setup the Raspberry Pi, Node.js and familiar with working in the Linux environment
CO2	Use Node.js environment to make RaspberryPi blink
CO3	Gain familiarity with the Bluemix IOT services, its UI/ navigation and deploy a Node-REDapplication Bluemix
CO4	Understand devices and gateway registration process and explore the world of sensors in Node-RED environment with RaspberryPi.
CO5	Develop and deploy Node-RED applications as prescribed in the course work on Bluemix
CO6	Function effectively in a team during training/projectwork, prepare and present reports.

# 3. CourseOutcomes

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	-	-	-	-	3	-	-	-	-	-	-	-
CO2	-	-	2	-	3	-	-	-	-	-	-	-
CO3	-	-	-	3	-	-	-	-	-	-	-	-
CO4	-	-	3	-	-	-	-	-	-	-	-	-
CO5	-	-	-	2	-	-	-	-	-	-	-	-
CO6	-	-	3	-	-	-	-	-	-	-	-	-

# 4. Prerequisites of the course

The course is aimed for B. Tech. students of Computer Science/ IT/ EC and other branches. Basicknowledge of programming and electronics fundamentals is required. To aid the students of different streams, the course has a set of primers to help bridge the gaps of hardware concepts as well as programming environments.

# 5. CourseModules andSubModules

	Module-1							
Week	SubModule							
1	*Introduction to the Internet of Things							



- The Internet of Things
- History of IoT
- Advantages of IoT
- Disadvantages of IoT
- Applications of IoT
- The Basics of Sensors & Actuators

# \*IntroductiontoPythonProgramming

- Python Introduction
- Historyof Python
- BasicProgrammingofPython
- Variables, Loops, Input, Functions Programming
- File Handling Programming

# \*Introduction to RaspberryPi3

- Features of Raspberry Pi3
- Installation Basics
- Raspberry Pi3 Board Layout & Architecture
- Pin Configuration of RaspberryPi 3
- GPIO Introduction

**Experiment1: Simple LED Program** 

2 Experiment2: Simple LED Programs with switch. If we press the push button switch the LED should glow otherwise it should remain off.

Experiment 3: if switch is pressed the first time first LED should blink then for the second time second Led should blink and for the third time pressing the switch third should glow. This should bein periodic manner.

## \*Introduction to Sensors & Actuators:

With a recap of contextually essential Electronics, Signals, and Control Systems concepts various popular sensors and actuators such as motion/temperature/light sensors and relays /step per motors will be introduced

# **Experiment3:**

Integrating Temperature Sensors & Reading Environmental Physical Values using Raspberry Pi3.

### **Experiment4:**

Integrating Temperature Sensors & Reading Environmental Physical Values using RaspberryPi3 on cloud.

**Experiment5: Sending Email using Node MCU(ESP8266).** 

**SMTP Server interfacing** 

Creating Program for sending email using gmailid.



# 2. SPOKEN TUTORIAL COURSES

**Introduction of Spoken Tutorial**: Spoken Tutorial is a multi-award winning educational content portal. Here one can learn various Free and Open Source Software all by oneself. Our self-paced, multi-lingual courses ensure that anybody with a computer and a desire for learning, can learn from any place, at any time and in a language of their choice.

**2.1** SpokenTutorial-PHP & MYSQL: PHP or "PHP: Hypertext Preprocessor" is a widely-used Open Source general-purpose scripting language that is especially suited for Web development and can be embedded into HTML. Its syntax draws upon C, Java, and Perl, and is easy to learn. The main goal of the language is to allow web developers to write dynamically generated web pages quickly, but you can do much more with PHP. MySQL is a RDBMS (Relational database management system). We use such a system in order to store, retrieve and manage data related to our applications. Apache is an Open Source web server in wide usage. A web-server is required to host a web-application (webpage) on a remote server and is responsible for processing the request from the client, who wants to access the application (or webpage).

# Objective:

- a) Students will learn about Installing a Webserver with PHP and MySQL (XAMPP).
- **b)** Students will learn about functions of PHP.
- c) Students will learn about the MYSQL connectivity with the PHP.
- **d)** Students will learn about the about how use create, select, insert, update, through connectivity of the PHP and MySQL.

# Course Prerequisite:

The course is aimed for B. Tech. students of Computer Science/ IT/ EC and other branches.

**Enrolled Students:** There are 51 enrolled students of Btech Information Technology of Batch 2015. 50 students got the certificate.

### Module:

i) PHP Basics: Level 1

ii) MYSQL Tutorials: Level 2

iii) PHP Advanced: Level 3



**2.2 Spoken Tutorial- CPP:** C is a general-purpose programming language, initially developed by Dennis Ritchie between 1969 and 1973 at Bell Labs. Its design provides constructs that map efficiently to typical machine instructions. C is one of the most widely used programming language and there are very few computer architectures for which a C compiler does not exist.

C++ is a statically typed, free-form, compiled, general-purpose programming language. It was developed by Bjarne Stroustrup starting in 1979, at Bell Labs. • It adds object-oriented features such as classes, and other enhancements to the C programming language.

# Objective:

- *i)* Students will learn about the basic structure and contructs of C and C++ language.
- *ii)* Students will learn about the structure, pointers, functions in the C and C++ language.
- *iii)* Students will learn about the file handling in the C and C++.

# Course Prerequisite:

The course is aimed for B. Tech. students of Computer Science/ IT/ EC and other branches.

*Enrolled Students:* There are 45 enrolled students of Btech Information Technology of Batch 2016. 42 students got the certificate.

# Module:

- i) Introduction to C and C++
- ii) Basic level
- iii) Intermediate level
- iv) Advanced level

# Web Link for Spoken Tutorial: <a href="https://spoken-tutorial.org/">https://spoken-tutorial.org/</a>

National Mission on Education through Information and Communication Technology (NMEICT) <a href="https://www.sakshat.ac.in">www.sakshat.ac.in</a>

Funded by MHRD, Government of India.



# 1.4 QEEE COURSES

"Quality Enhancement in Engineering Education (QEEE)" is a committee setup by the Department of HigherEducation, MHRD, and Govt.of India with an objective of bringing about comprehensive reforms in Technical Education in the country through IIT Madras. Towards this, the committee rolled out a "Direct-to-Student (D2S)" program which completed its first phase between Jan-April 2014 with about 70 colleges, the second phase (August-November2014) with about 125 colleges and the third phase (Jan-April2015) with about 95 colleges pan India. QEEE is the Direct to Student interactive program with the teacher. Students are to attend these live classes as the lectures are being delivered by the IIT professors. These Live lectures will create an environment in the classroom. Quality Enhancement in Engineering Education (QEEE) program enhances the quality of Indian engineering education and bridges the quantity-quality gap. This pilot project is designed to improve the quality of education delivered to students by making available high –quality pedagogical resources to all students through technology–Direct to Student Program and empowering teachers/educators.

# LiveLectures

- a) A part of (about 1/3<sup>rd</sup> to begin with) of the selected course's lectures **would be delivered live** from the IIT classroom
- b) The schedule of lectures will be predetermined.
- c) The lecture will be brought live to the classroom, with the local faculty playing the role of moderator.
- d) The session will live session as much as possible, with opportunities for sharing and interaction between students and instructor

### **Tutorials**

- a) They are an important supplementale-learning programbuilt on the idea of **peer learning** through pre-planned in formal study circles.
- b) The educational platform enables previously delivered as well as new academic content to be viewed and reviewed by students amongst their peer group with or without the virtual presence of the instructor.

## LiveLabs

- a) This module looks to provide virtualhands-on experience to students on experiments undertaken remotely.
- b) It creates an opportunity to work on are all experiment tailored to suit their syllabus and curriculum.
- c) It provides students and teachers a like, a chance to access quality resources and materials.

# **BridgeCourses**

- a) Curriculum courses aimed at providing additional skills.
- b) It may be implemented as a classroom training program with live intervention by there tutor.
- c) Bridge courses can be done by students at their own time/pace and there may be proctored exams.
- d) Bridge courses make students industry ready and improve employability.

# **ContentDelivery**

a) A set of topics will be identified to be delivered as live classes by IIT faculty.



- b) The topic will be taken for a duration of 6 hours (five hours of content delivery & one hour of the tutorial) each.
- c) The material for each topic will be available ahead of time and accessible by students in a digital course package form.

# Roles and responsibilities of local faculty and students

- a) **LocalFaculty**:Registration of studentst othe course pack, attendance in all the live class sessions, encourage students to take the quiz, encourage students to upload assignment sheets, grade the uploaded assignments, use forum to post queries on topics
- b) **Students:** Increased use of the forum, takes the quiz, answer assignments and upload the assignment sheets in the course pack.

# QEEE Phase - 8 (Odd Semester 2017-18)

# **CourseDetails**

S. No.	Course Mode	QEEECourse	QEEEFaculty	RTUCourse	Course Code	Deptt.	Student Regd.	LocalF aculty	Scheduled Date	Start Time
1	Faculty	Digital SystemDesign- DigitalElectron ics	Prof.Venkte shTG -IITM	DigitalElec tronics	3EC3	ECE	97	Ms. AnilaDhi ngra	3/8/2017	10:00AM
2	Training	Pointers - Programming inC& Data Structures	Prof.Suprati mBiswas- IITB	DataStruc tures& Algorithms	3CS2	CSE	120	Mr. AtulKu marVer ma	7/8/2017	2:00PM
3		Beams- Designof SteelStructures	Prof. S RSatishKuma r -IITM	Design ofSteelSt ructure	7CE3	CIVIL	71	Mr. ShrutiBha rgava	22/08/17 23/08/17 24/08/17	2:00PM
4	QEEE Regular -	Electromagnetic Waves-EMT	Prof. DeepaVenk itesh -IITM	Electro- Magnetic Field Theory	4EC4	ECE	60	Mr.Rajv eerMar wal	24/08/17 28/08/17 30/08/17	10:00am 02:00pm 02:00pm
5	LiveClass	Memory and IO - Adv. ComputerArchit ecture	Prof.Venkte shTG -IITM	Signals andSystem s	5EE5	EE	65	Ms. ShitalR. Shegokar	31/08/17 07/09/17 14/09/17	10:00AM
6		OperatingSyst emsOverview -OS	Prof. SandipChakrab orthy -IITKHG	Strengthof Materials	5IT5	IT	54	Ms. SitaGup ta	11/09/17 12/09/17 13/09/17	10:00AM
7		Basic Conceptsand First Law ofThermodynami cs	Prof.P.M.V. Subbarao - IITD	Engineering Thermo- dynamics	3ME3	ME	60	Dr. ArunKu marBeh ura	03/10/17 04/10/17 05/10/17	10:00AM
8	DataScie nce - Recorded Recorded Linear DataStructure s andApplicatio ns		Prof.Suprati mBiswas- IITB	DataStruc tures& Algorithms	3IT2	ΙΤ	52	Ms.Sh aziaHa que	3 Sessionsa s persuitabi lity	3x2Hour s asper suitability



# ADD -ON COURSE BROCHURE 2017-18

9	Video	Algebra	Prof. GopalSriniv asan -IITB	Engineering Maths-I	103	IYEAR	120	Dr.Awadh eshPande y	3 Sessionsa s	3x2Hour s asper suitability
									persuitabi	
									lity	

# **QEEE Phase – 9 (Even Semester 2017-18) Course Details**

S. No.	QEEECourse	Course Code	QEEEFaculty	Mapped RTUCourse	Deptt.	Sem.	LocalFaculty	Scheduled Date	Time
1	PowerSemiconductorDevicea nd Associated Gate DrivingTechnology - Powerelectronics	AOC-DEP- EE-QEEE	ByProf.KamaleshI ITMadras	AdvancedP owerElectr onics(6EE 4)	EE	VI	Mr.Dharmendra Bansal	18 <sup>th</sup> – 19 <sup>th</sup> Jan 2018	2PM
	Digital Signaling for FadingChannels-WirelessCommunication	AOC-DEP- EC-QEEE	Prof. Arun PachaiKannu IITMadras	WirelessCom munication(7E C4)	ECE	VII	Mr.Rajveer	07 <sup>th</sup> — 9thFeb20 18	10PM
3	Fits and Tolerance- ComputerAidedMachineDra wing.		Prof. Samuel GL IITMadras	Computer AidedMachine Drawing(6ME4)	ME	II	Mr.Amber	27 <sup>th</sup> Feb– 1 <sup>st</sup> March 18 28/02/18	10PM
	Limit State Design ofReinforced Concrete Beams -Design of Reinforced RCCStructures		Prof.AmitShawI ITKharagpur	DesignofConcrete Stucture-I(6CE4)	CE	VI	Mr.Md Tarique	31stJan- 1stFeb 2018	2PM
5	SteamTurbines- ThermalEngineering- 2		Prof.S. R KaleIITDelhi	Steam Engineering(6ME 5)	ME	VI	Mr.Bhavesh	19 <sup>th</sup> — 21 <sup>st</sup> Feb20 18	2PM
6	Storage Management- OperatingSystems	AOC-DEP- IT-QEEE	Prof.Sandeep Chakraborthy IITKharagpur	Information Technology (6IT6)	CS	VI	Mr.Amit Jha	16 <sup>th</sup> – 19 <sup>th</sup> Sep20 18	2PM
	ProcessofManagement- OperatingSystems	AOC-DEP- CSE-QEEE	Prof. ChesterIITM adras	Operating Systems(5CS5)	CS	V	Ms. Sonal Sharma	19 <sup>th</sup> , 23 <sup>rd</sup> and 28 <sup>th</sup> Mar ch	2PM
	Object Oriented Concepts-Classes and Data Abstraction- Operator Overloading- Inheritance	AOC-DEP- IT-QEEE2	Prof. Rupesh Nasre	Object Oriented Programming (3IT4-06)	IT	III	Mr.Amit Jha		2PM

<sup>\*</sup> Contact Respective Department's Local faculty for enrolling in QEEE Course through AICTE Website



# **SECTION-2**

# DEPARTMENT LEVELCOURS ES



# 2.1DEPARTMENT OF CIVIL ENGINEERING

# **LIST OF DEPARTMENT COURSES OFFERED**

S.No.	Course ID	Course Name	No. of	Course Duration	Course Facilitator
			Modules		
1	AOC-DEP-CIV-REV	RevitArchitecture	3	31Hours	Mr.
					MohammedTari
					que
2	AOC-DEP-CIV-CAD	AutoCAD	9	32Hours	Mr.
				(3 hours perweek)	RahulSha
					rma
3	AOC-DEP-CIV-SPRO	Structural Analysis	7	45 Hours	Mr.
		And Designing			Siddharth
		Program			

# 2.1.1 COURSE TITLE: REVIT ARCHITECTURE (COURSECODE: AOC-DEP-CIV-REV)

**1. COURSE DESCRIPTION:** Revit Architecture is software that helps in capturing and analyzing design concepts. Not only this, Revit Architecture accurately maintains the coordinated design datawiththehelp of construction and documentation.

This course aims to make the participants productive by giving them the ability to produce drawings and redefine images of buildings. Also, it will help you navigate userinterface, architectural objects such as floor, walls, roofs, windows, and stairs. Covering the basics of RevitArchitecture, This course will assist in the creation of schematic design through construction documentation.

# 2. COURSE OUTCOMES:

S.No.	CourseOutcomes
CO1	Apply the concept of Revit Architecture and O coordinate all data inputs (including
	CAD) and produce federated project.
CO2	Develop programs using REVITsoftware, architectural and structural drawing using Revit Architecture Software.
CO3	Demonstrate the use of RevitArchitecture for with BIM and CAD specialists working on
	Different elements of a project.
CO4	Design solutions of real-world civil engineering problems using RevitArchitecture.

# 3. MAPPING COURSE OUTCOMES WITH POAND PSO

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

# 4. COURSEPRE-REQUISITES:

Students learn about recent techniques, latest software & innovative outcome based learning to analyze and evaluate the concepts of civilengineering to make his personality competent enough to fulfill the gap between academic and industry.



5. ENROLMENT CRITERIA: Interested Students of IIYear (Civil Engineering)

6. CERTIFICATION CRITERIA: Mandatory Fulfillments of Criteria1 and

Criteria1: 75% Attendance, and

Criteria2: 80% or above marks in Certification Exam

# 7. COURSEOUTLINE:

S.No.	Content	Hours
1	Introductionto Revit	3
2	Basic design tools	6
3	Operating co-ordinate systems	5
4	Basic 2-d design	6
5	Creating parts.	6
6	Dimensioning & drafting of the parts	5

# 2.1.2 COURSE TITLE: AutoCAD (COURSE CODE: AOC-DEP-CIV-CAD)

**1. COURSE DESCRIPTION:** Auto CAD is a computer-aided drafting software program used tocreate blueprints for buildings, bridges, and computer chips, among other things. Generate designideas in any form, turn 2D designs into digital 3D objects and create fully dimensioned drawings to document your designs. This workshop focuses from Basics concepts in the field of designing and increases the imagination power of the students2-d designing is the 1<sup>st</sup> design after making the 2-d view of any element it is necessary to provide the accurate dimension to our parts and finally we make the 3-d view of our element. It is necessary to the students to 1st the 2-d design. It covers introduction of designing, 2-d design, drafting and dimensioning, presenting design sheet and in the final work on some project.

# 2. COURSEOUTCOMES:

S.No.	CourseOutcomes
CO1	To remember the basic commands of autocad 2D &3D.
CO2	To understand the different plans of building like Orthographic projections, Isometric
	Projections
CO3	Apply the typical AutoCADcommands in softwares.
CO4	To preparing the different building plans by using of softwares.

# 3. MAPPINGCOURSEOUTCOMESWITHPOAND PSO

(	CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO	<b>PSO</b>	PSO
														1	2	3
(	C <b>O</b> 1	3	2	1	-	-	-	-	-	-	-	-	1	3	-	-
(	C <b>O2</b>	2	-	3	-	-	-	-	-	-	-	-	-	-	2	-
	C <b>O3</b>	-	-	3	2	-	-	-	-	-	-	-	-	-	-	3
(	C <b>O</b> 4	-	-	-	-	-	3	-	-	-	-	-	-	-	2	-

# 4. COURSEPRE-REQUISITES:

Students learn about recent techniques, latest software & innovative outcome based learning to analyze and evaluate the concepts of civil engineering to make his personality competent enough to fulfill the gap between academic and industry.

# 5. ENROLMENT CRITERIA: Interested Students of III Year (CivilEngineering)



# 6. CERTIFICATION CRITERIA: Mandatory Fulfillments of Criteria 1 and

2Criteria1:75% Attendance, and

Criteria2:80% orabove marksin Certification Exam

### 7. COURSEOUTLINE:

S.No.	Content	Hours
1	IntroductiontoAutocad	3
2	Basicdesigntools.	4
3	Operatingco-ordinatesystems.	3
4	Basic2-d design.	3
5	Creatingparts.	3
6	Dimensioning&drafting of theparts	6
7	Overviewofisometricview	4
7	Designofparts inisometricview	6

# 2.1.3COURSE TITLE: Structural Analysis and Design (COURSE CODE:AOC-DEP-CIV-SPRO)

1. **COURSE DESCRIPTION:** STAAD is the abbreviation for Structural Analysis and Design. STAAD Pro is one of the popular software that is used for analyzing & amp; designing structures like - buildings, towers, bridges, industrial, transportation and utility structures. Designs may include any building structures like tunnels, culverts, bridges, piles, petrochemical plants; and building materials liketimber, concrete, steel, cold-formed steel, and aluminum. STAAD or STAAD Pro was developedby Research Engineers International at Yorba Linda, CA in 1997. To get rid of the boring & amp; time-consuming manual procedures Structural Engineers started using automated softwareSTAAD Prois one of the most widely-used software for developing and analyzing the designsof various structures, such as petrochemical plants, tunnels, bridges etc. STAAD Pro® v8i, thethe latest version, allows civil engineering individuals to analyze structural designs in terms offactors like force, load, displacements etc. STAAD Pro® v8i online training builds expertise inusing the software at a professional level in domains, including construction companies, government agencies, architecture firms etc. Participants are equipped with various softwarefunctionalities like model generation and editing; loading analysis; concrete designing etc. The STAAD Pro® v8i software training also offers proficiency in using the seismology; report generation; and steel and foundation design features. After completing the STAAD training, individuals can work as Structure Designers, Project Managers, Building Analysts, Quality Analysts, Bridge, Designers etc.

# 2. COURSE OUTCOMES:

S. No.	Course Outcomes									
CO1	Γο remember the basic commands of STADD Pro.									
CO2	To understand the different plans of building like Orthographic projections, Isometric									
	Projections									
CO3	Apply the typical STADD Pro commands in software.									
CO4	To Analyze the different Structural Component by using of STADD Pro software									



# 3. MAPPING COURSE OUTCOMES WITH PO AND PSO

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	1	-	-	-	3	2	-		ı	-	3	-	-
CO2	2	-	3	-	-	-	2	-		-	-	-	-	2	-
CO3	-	-	3	2	-	-	-	-		-	-	-	-	-	3
CO4	-	-	3	-	-	2	-	-						2	-

# 4. COURSE PRE-REQUISITES:

Students learn about recent techniques, latest software & innovative outcome based learning to analyze and evaluate the concepts of civil engineering to make his personality competent enough to fulfill the gap between academic and industry.

# 5. ENROLMENT CRITERIA: Interested Students of IV Year (Civil Engineering)

# 6. CERTIFICATION CRITERIA: Mandatory Fulfillments of Criteria 1 and 2 Criteria 1: 80% Attendance

Criteria 2: 80% or above marks in Certification Exam

Sn.	Course	Content	Hours	Coordinator
1	STADD Pro	Introduction to STADD Pro	4	Mr. SIDDHARTH
2		Analysis using STADD	5	Mr. SIDDHARTH
3		Assigning property	6	Mr. SIDDHARTH
4		Applying loading	5	Mr. SIDDHARTH
5		Analyzing and designing structure	4	Mr. SIDDHARTH
6		Quantity takeoff	7	Mr. SIDDHARTH
7		Result Analysis	7	Mr. SIDDHARTH
		ASSESSMENT		
8	Mock Test	MCQ paper	2	RESPECTIVE FACULTY
9	Group Discussion	Group discussion on general and current issues.	2	Ms. PRIYANKA SHARDA Mr. BALWAN
10	Personal Interview	Personal interview of each student on topics discussed in modules	3	Ms. PRIYANKA SHARDA Mr. BALWAN



# 2.2 DEPARTMENT OF COMPUTER ENGINEERING

# LIST OF DEPARTMENT COURSES OFFERED

S.No.	CourseID	CourseName	No. ofMo dules	CourseDu ration	Enrolme ntCriter ia	Certificatio nCriteria	CourseFacil itator
2.2.1	AOC-DEP-CSE- ADJ	Advance JAVA	12	36Hours	IIYear	1. 75%Attn. 2. 60% Cert.Exam	Mr.Atul KumarVerma
2.2.2	AOC-DEP-CSE- PPG	PythonProgra mming	12	36Hours	IIYear	1. 75%Attn. 2. 70% Cert.Exam	Mr.Lovle enKumar
2.2.3	AOC-DEP-CSE- MAD	Mobile Application Development	12	36Hours	III Year	1. 75%Attn. 2. 70% Cert.Exam	Ms. Richa Mehra
2.2.4	AOC-DEP-CSE- CNA	Cisco Certified Network Administrator	12	36Hours (3 hoursper week)	III Year	1. 75%Attn. 2. 40% Cert.Exam	Dr.SunilGupta
2.2.5	AOC-DEP-CSE- HDP	Programming in Hadoop	12	36Hours	IV Year	1. 75%Attn. 2. 75% Cert.Exam	Moh. Naved Anjum
2.2.6	AOC-DEP-CSE- DSP	Data Science with Python	12	35Hours	IV Year	1. 75%Attn. 2. 70% Cert.Exam	Mr Sumit Kumar

# 2.2.1 COURSE TITLE: ADVANCED JAVA (COURSECODE:AOC-DEP-CSE-ADJ)

**1. COURSE DESCRIPTION:** This course develops programming ability of students to createdynamic web applications using server side technology with Java Database Connectivity. Students can learn network ing and remote method invocation using Java API. Different Java frame works like Spring, Java Server Faces and Hibernate will increase ability of students in webapplication development.

# 2. COURSEOUTCOMES:

S.No.	CourseOutcomes
CO1	Apply the knowledge of J2EE architecture, MVC Architecture.
CO2	Summarize Multi-tier Application, Various Network Protocol
CO3	Distinguish Web Server, Web Container and Application Server, Serialization,
	Internationalization, naming services and JNDI.
CO4	Gain the knowledge of Server Side programing by implementing Servlet and JSP. Understand
	and Write the deployment descriptor and enterprise application deployment.
CO5	Design and Develop various application by Integrating any of Servlets, JSPs, Swing and Applet
	Using Database, RMI, Spring, Hibernate by analyzing requirements and evaluating existing



system

# 3. MAPPING COURSE OUTCOMES WITH PO AND PSO

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO	PSO	PSO
													1	2	3
CO1	-	3	-	-	-	-	-	-	-	-	-	-	3	-	-
CO2	-	-	3	-	-	-	-	-	-	-	-	-	-	2	-
CO3	-	-	-	3	-	-	-	-	-	-	-	-	3	-	-
CO4	-	-	-	-	3		-	-	-	-	-	-	-	3	-
CO5	-	-	-	-	-	3	-	-	-	-	-	-	3	-	-

# 4. COURSE PRE-REQUISITES:

Students should already be comfortable using a basic understanding of the Java language, understanding of software development, understanding of the software development life cycle and basic skills with at least one other programming language like C, C++ are desirable.

# 5. ENROLMENTCRITERIA: Interested Students of II Year (All Branches)

# 6. CERTIFICATIONCRITERIA: Mandatory Fulfilmentof Criteria 1 and 2

Criteria1:75% Attendance, and

Criteria2:60% orabove marksin Certification Exam

# 7. WEEK-WISECOURSEOUTLINE:

WEEK-WISEC	MODULE-WISECONTENTS
- 1 1	
WEEK-1	MODULE-1:J2EE Introduction
(3Hours)	o Java Platform, J2EE Architecture Types
	<ul> <li>Explore Java EE Containers</li> </ul>
	<ul> <li>Types of Servers in J2EE Application</li> </ul>
WEEK- 2	MODULE-1:Web Development
(3hours)	HTTP Protocols and API
	<ul> <li>Processing in Web Application, Web Application Structure</li> </ul>
	<ul> <li>Web Containers and Web Architecture Models</li> </ul>
WEEK-3	MODULE -3:Advance Networking
(3hours)	<ul> <li>Networking Basics, Introduction of Socket</li> </ul>
	<ul> <li>Types of Socket, Socket API, TCP/IP client sockets</li> </ul>
	RMI Architecture, Client Server Application using RMI
WEEK-4	MODULE-4:JDBC Programming-I
(3hours)	o JDBC Architecture, Types of JDBC Drivers, Introductionto
(Silvuis)	o be the income, i pes of be entres, indicate home
(Shours)	major JDBC Classesand Interface
(Shours)	
(Shours)	major JDBC Classesand Interface
(Shours)	<ul><li>major JDBC Classesand Interface</li><li>Creating simple JDBC Application,</li></ul>
(Shours)	major JDBC Classesand Interface      Creating simple JDBC Application,      Types of Statement (Statement Interface, Prepared Statement, Callable Statement)
(Shours)	<ul> <li>major JDBC Classesand Interface</li> <li>Creating simple JDBC Application,</li> <li>Types of Statement (Statement Interface, Prepared Statement, Callable Statement)</li> <li>Exploring Result Set Operations, Batch Updates in JDBC</li> </ul>
(Shours)	major JDBC Classesand Interface  Creating simple JDBC Application,  Types of Statement (Statement Interface, Prepared Statement, Callable Statement)  Exploring Result Set Operations, Batch Updates in JDBC
WEEK- 5	<ul> <li>major JDBC Classesand Interface</li> <li>Creating simple JDBC Application,</li> <li>Types of Statement (Statement Interface, Prepared Statement, Callable Statement)</li> <li>Exploring Result Set Operations, Batch Updates in JDBC</li> <li>Creating CRUD Application, Using Rowsets Objects Managing Database Transaction</li> </ul>
WEEK- 5	major JDBC Classesand Interface  Creating simple JDBC Application,  Types of Statement (Statement Interface, Prepared Statement, Callable Statement)  Exploring Result Set Operations, Batch Updates in JDBC  Creating CRUD Application, Using Rowsets Objects Managing Database Transaction  MODULE-5: JDBC Programming-II
	<ul> <li>major JDBC Classesand Interface</li> <li>Creating simple JDBC Application,</li> <li>Types of Statement (Statement Interface, Prepared Statement, Callable Statement)</li> <li>Exploring Result Set Operations, Batch Updates in JDBC</li> <li>Creating CRUD Application, Using Rowsets Objects Managing Database Transaction</li> <li>MODULE-5: JDBC Programming-II</li> <li>Exploring Result Set Operations, Batch Updates in JDBC</li> </ul>
WEEK- 5	major JDBC Classesand Interface  Creating simple JDBC Application,  Types of Statement (Statement Interface, Prepared Statement, Callable Statement)  Exploring Result Set Operations, Batch Updates in JDBC  Creating CRUD Application, Using Rowsets Objects Managing Database Transaction  MODULE-5: JDBC Programming-II



WEEK-6	MODULE –6:Servlet API and Overview-I
(3hours)	
	<ul> <li>Servlet Introduction, ServletLifeCycle, TypesofServlet,</li> </ul>
	Servlet ConfigurationwithDeploymentDescriptor
	<ul> <li>Working with Servlet Context and Servlet Config Object,</li> </ul>
	Attributes in Servelt
	o Response and Redirection using Request Dispacher and
	usingsend Redirect Method
	<ul> <li>Filter API, Manipulating Responses using Filter API,</li> </ul>
	SessionTracking: usingCookies
	<ul> <li>HTTPSession, HiddenFormFields and URL Rewriting</li> </ul>
	Types of Servlet Event: Context Level and Session Level.
WEEK-7	MODULE -7:Servlet API and Overview-II
(3Hours)	o Filter API, Manipulating Responses using FilterAPI,
	SessionTracking: usingCookies
	o HTTP Session, Hidden Form Fields and URL Rewriting
	<ul> <li>Types of Servlet Event: Context Level and Session Level.</li> </ul>
WEEK-8	MODULE -8: JavaServer Pages
(3hours)	o Introduction to JSP, Comparis on with Servlet,
	JSPArchitecture
	<ul> <li>JSP Life Cycle, JSP Scripting Elements, JSP Directives</li> </ul>
	<ul> <li>JSP Action, JSP Implicit Objects, JSP Expression Language</li> </ul>
	<ul> <li>JSP Standard Tag Libraries</li> </ul>
	<ul> <li>JSP Custom Tag, JSP Session Management, JSP</li> </ul>
	ExceptionHandling
	JSP CRUD Application.
WEEK- 9	MODULE –9:Hibernate
(3Hours)	o Introduction to Hibernate, Exploring Architecture of Hibernate
	o O/R Mapping with Hibernate
	<ul> <li>Hibernate Annotation, Hibernate Query Language</li> </ul>
	<ul> <li>CRUD Operation using Hibernate API.</li> </ul>
WEEK-10	MODULE-10:Java Web Frameworks: SpringMVC
(3hours)	<ul> <li>Spring Introduction, SpringArchitecture</li> </ul>
	<ul> <li>Spring MVC Module, LifeCycle of Bean Factory</li> </ul>
	<ul> <li>Explore: Constructor Injection, Dependency</li> </ul>
	<ul> <li>Injection, InnerBeans, AliasesinBean, BeanScopes</li> </ul>
	<ul> <li>Spring Annotations, Spring AOP Module</li> </ul>
	<ul> <li>Spring DAO, Database Transaction Management</li> </ul>
	<ul> <li>CRUD Operation using DAO and SpringAPI.</li> </ul>
WEEK- 11	<b>MODULE-11:Java Server Faces</b>
(3hours)	<ul> <li>Features of JSF, JSPArchitecture</li> </ul>
	<ul> <li>JSF request processing Lifecycle</li> </ul>
	<ul> <li>JSF Elements, JSF Expression Language</li> </ul>
	<ul> <li>JSF Standard Component, JSF Facelets Tag</li> </ul>
	o JSF Convertor Tag, JSF ValidationTag
	o JSF DatabaseAccess, JSFPrimeFaces.
WEEK- 12	MODULE-12:
(3hours)	1. CERTIFCATION EXAMINATION 2. CLOSING AND WALED COOPER CEDEMONY
	2. CLOSING AND VALEDICTORY CEREMONY



# 2.2.2COURSE TITLE: PYTHON PROGRAMMING (COURSE CODE:AOC-DEP-CSE-PPG)

1. COURSE DESCRIPTION: Python is a popular general-purpose programming language. It is used in machine learning, web development, desktop applications, and many other fields. Fortunately for beginners, Python has a simple, easy-to-use syntax. This makes Python a great language to learn for beginners. This Python training course leads students from the basics of writing and running Python scripts to more advanced features such as file operations, regular expressions, working with binary data, and using the extensive functionality of Python modules. Extra emphasis is placed on features unique to Python, such as tuples, arrayslices, and output formatting.

### 2. COURSEOUTCOMES:

S.No.	CourseOutcomes
CO1	Apply the programming constructs like variables, datastructures and controlflow
	structures
CO2	Develop programs using file handling, Object orientedparadigms, GUIcontrols
CO3	Demonstrate the use of exception handling, different libraries and database connectivity
CO4	UsePython IDEs like IDLE, Spyder, and PyCharm to develop programs
CO5	Design solutions of real-world computational problems using Python programs

## 3. MAPPINGCOURSEOUTCOMESWITHPOAND PSO

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO	PSO	PSO
													1	2	3
CO1	-	3	-	-	-	-	-	-	-	-	-	-	3	-	-
CO2	-	-	3	-	-	-	-	-	-	-	-	-	-	2	-
CO3	-	-	-	3	-	-	-	-	-	-	-	-	3	-	2
CO4	-	-	-	-	3		-	-	-	-	-	-	-	3	-
CO5	-	-	-	-	-	3	-	-	-	-	-	-	3	2	-

# 4. COURSEPRE-REQUISITES:

Students should already be comfortable using the operating system like Linux or Windows on which they will be running Python. While not mandatory, basic skills with at least one other programming language likeC, C++ are desirable.

5. ENROLMENTCRITERIA: Interested Students of II Year (AllBranches)

# 6. CERTIFICATION CRITERIA: Mandatory Fulfilment of Criteria 1 and

2Criteria1:75% Attendance, and

Criteria2:70% orabove marksin Certification Exam

# 7. WEEK-WISECOURSEOUTLINE:

WEEK	MODULE-WISECONTENTS
WEEK-1	MODULE-1:AnOverview of Python
(3Hours)	• What is Python?
	<ul> <li>Interpreted languages</li> </ul>
	<ul> <li>Advantages and disadvantages</li> </ul>
	<ul> <li>Downloading and installing</li> </ul>
	<ul> <li>Which version of Python</li> </ul>
	<ul> <li>Where to find documentation</li> </ul>



	MODULE-2:The Python Environment
	<ul> <li>Structure of a Python script</li> </ul>
	<ul> <li>Using the interpreter interactively</li> </ul>
	Running standalone scripts under Unix and Windows
WEEK- 2	MODULE-3:Getting Started
(3hours)	<ul> <li>Using variables</li> </ul>
	o String types: normal, raw and Unicode
	String operators and expressions
	Math operators and expressions
	Writing to the screen
	o Command line parameters
	Reading from the keyboard
WEEK-3	MODULE-4:FlowControl
(3hours)	About flow control
	<ul> <li>Indenting is significant</li> </ul>
	o The if and elif statements
	o while loops
	o Using lists
	<ul> <li>Using the for statement</li> </ul>
	o The range() function
WEEK-4	MODULE –5:ArrayTypes
(3hours)	o List operations
	o List methods
	<ul> <li>Strings are special kinds of lists</li> </ul>
	o Tuples
WEEK-5	MODULE –6: Working with Files
(3hours)	o TextfileI/Ooverview
	Opening a text file
	o Reading text files
	o Raw (binary) data
WEEK (	Writing to atext file
WEEK- 6	MODULE-7:Dictionaries and Sets
(3hours)	o Dictionary overview
	o Creating dictionaries
	o Dictionaryfunctions
	o Fetching keys or values
	o Testing for existence of elements
	<ul><li>Deleting elements</li><li>Sets And Frozen Sets</li></ul>
	MODULE-8:Functions
	Syntax of function and definition     Formal parameters
	<ul><li>Formal parameters</li><li>Global versus local variables</li></ul>
	D
	Passing parameters and returning values



	MODAN F. O. O I
WEEK-7	MODULE-9: Sorting
(3hours)	o The sorted() function
	o Alternate keys
	o Multiple keys
	o Lambda functions
	MODULE-10:Errors and Exception Handling
	<ul> <li>Dealing with syntax errors</li> </ul>
	o Exceptions
	<ul> <li>Handling exceptions with try/except</li> </ul>
	Cleaningup with finally
WEEK-8	MODULE-11: Modules and Packages
(3hours)	O What is a module?
	<ul> <li>The import statement</li> </ul>
	<ul> <li>Function aliases</li> </ul>
	o Packages
WEEK-9	MODULE-12:Regular Expressions
(3hours)	o REObjects
	o Pattern matching
	<ul> <li>Parsing data</li> </ul>
	<ul> <li>Sub expressions</li> </ul>
	<ul> <li>Complex substitutions</li> </ul>
	<ul> <li>REtips and tricks</li> </ul>
WEEK-10	MODULE-13: Highlights of the Standard Library
(3Hours)	<ul> <li>Working with theoperatingsystem</li> </ul>
	<ul> <li>Grabbing webpages</li> </ul>
	<ul> <li>Sending email</li> </ul>
	<ul> <li>Math and random</li> </ul>
	<ul> <li>Accessing dates and times with date time</li> </ul>
	<ul> <li>Working with compressed files</li> </ul>
	0
WEEK-11	MODULE-14:An Introduction to Python Classes
(3Hours)	<ul> <li>AboutO-Oprogramming</li> </ul>
	o Definingclasses
	o Constructors
	<ul> <li>Instance methods</li> </ul>
	<ul> <li>Instance data</li> </ul>
	Class methods and data
	Destructors
WEEK-12	3. CERTIFCATI ON EXAMINATION
	4. CLOSING AND VALEDICTORY CEREMONY



# 2.2.3 COURSETITLE: MOBILE APPLICATION DEVELOPMENT (COURSECODE:AOC-DEP-CSE-MAD)

1. COURSE DESCRIPTION: The Mobile Application Development course focuses on development of applications related to mobile and wireless computing platforms. The main emphasis of this course is placed on the tools, processes and frameworks, which are required to develop applications for emerging and current computing devices. This course will empower you in appluilding concepts or in making software for smartphones and digital assistants most commonly for android and ios. You will learn all stages of the software development lifecycle from commencement through to implementation and testing.

# 2. COURSE OUTCOMES

S.No.	Course Outcomes
CO1	Students will be able to apply various concepts of mobile programming that make it
	distinctive from programming for other platforms
CO2	Students will be able to analyze GUI applications, use built-inwidgets and components
CO3	Students will be able to design the mobile applications for the android operating system
	that use basic and advanced phone features
CO4	Create a sophisticated mobile interface using the rapid prototyping techniques

# 3. MAPPING COURSE OUTCOMES WITH PO AND PSO

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO	PO12	PSO	PSO	PSO
											11		1	2	3
CO1	3	-	-	-	-	-	-	-	-	-	-	-	3	-	-
CO2	-	3	-	-	-	-	-	-	-	-	-	-	-	2	-
CO3	-	-	3	-	-	-	-	-	-	-	-	-	3	-	2
CO4	-	-	-	3	-		-	-	-	-	-	-	-	3	-

# 4. COURSE PRE-REQUISITES:

Students should already be comfortable using the operating system like Linux or Windows onwhich they will be running Android Studio. While not mandatory, basic skills with at least one other programming language like C++, Java are desirable.

5. ENROLMENT CRITERIA: Interested Students of III Year (AllBranches)

# 6. CERTIFICATION CRITERIA: Mandatory Fulfilment of

1. Criteria1

2 Criteria1:75% Attendance, and

Criteria2:70% orabove marksin Certification Exam

# 7. WEEK-WISE COURSE OUTLINE:

WEEK	MODULE-WISE CONTENTS
WEEK-1	MODULE-1:An Overview of MobileApplication
(3Hours)	O What is Mobile Application?
	<ul> <li>Interpreted languages</li> </ul>
	<ul> <li>Advantages and disadvantages</li> </ul>
	<ul> <li>Downloading and installing</li> </ul>
	<ul> <li>Which version of Android Studio</li> </ul>
	<ul> <li>Where to find documentation</li> </ul>
WEEK- 2	MODULE-2: Introduction to Android



(3hours)	The Android Platform
(Shours)	The Android Platform     Android SDK
	O Eclipse Installation  Lindowstanding Anatomy of Android Analisation
	<ul> <li>Understanding Anatomy of Android Application</li> <li>Android Manifestfile</li> </ul>
WEEL 2	-
WEEK- 3	MODULE-3: Android Resources
(3hours)	Android terminologies     Anglication Contact
	Application Context     Application Context
	Android Manifest File and its common settings
	Math and random     Using Lutant Filter
	O Using Intent Filter
	Working with different types of resources     Managing Application resources in a hierarchy.
WEEK A	Managing Application resources in a hierarchy
WEEK-4	MODULE-4:Common Android APIs
(3Hours)	Android Data and Storage APIs
	Managing data usingSqlite
	O Sharing Data between Applications with Content Providers
	Android Networking APIs
	o Android Web APIs
	Android Telephony APIs
WEEK-5	MODULE-5: Android Threads&Coroutines
(3Hours)	What is Android Thread?
	Structured concurrency
	Scope of Coroutines
	Co routine Dispatcher
	Exception Handling using Coroutines
WEEK-6	MODULE-6: User Interactions
(3hours)	Text Editing
	Number Formatters
	o Delegation
	O Multi channel and Multimodial UIs
	MODULE-7: Advanced UIInteractions – View Controllers
	SettingUp View Controllers
	o Tab Bar Controller
	Loaded and Appearing Views     Interacting with View Controllers
WEEK-7	o Interacting with View Controllers
	MODULE-9: Graphics and Camera
(3hours)	O Displaying images
	Animation Effects with Images     Saving on Image
	Saving an Image     Derformance and Multithreading
	<ul><li>Performance and Multithreading</li><li>Graphics and UI Performance</li></ul>
WEEK 0	
WEEK-8	MODULE-10:Swift programming
(3hours)	A SimpleUser Interface     Design Structures
	o Decision Structures
	<ul><li>Loops</li><li>Functions</li></ul>
	O Classes, Structures, and Arrays



WEEK-9	MODULE-8: More about Swift
(3Hours)	o Enumerations and Switch
	<ul> <li>Using Apple Documentation</li> </ul>
	o Two page Apps, and UIN av
WEEK-10	MODULE-11:Xcode IDE
(3Hours)	Code and resources
	o Libraries
	Standard Editor
	Assistant Editor
	Assist Catalog
	Asset Management
	o Project Navigator
	o Various Inspector
WEEK-11	MODULE-12:Platforms and Additional Issues
(3Hours)	O Development Process
	Architecture, Design, Technology Selection
	Mobile App Development Hurdles
	o Testing
WEEK-12	5. CERTIFCATION EXAMINATION
(3Hours)	6. CLOSING AND VALEDICTORY CEREMONY

2.2.4 COURSE TITLE: CISCO CERTIFIED NETWORK ADMINISTRATOR (COURSECODE: AOC-DEP-CSE-CNA)

1. COURSE DESCRIPTION: CCNA introduces the architecture, structure, functions, components, and models of the Internet and other computer networks. The principles and structure of IP addressing and the fundamentals of Ethernet concepts, media, and operations are introduced to provide a foundation for the curriculum. By the end of the course, students will be able to build simple LANs, perform basic configurations for routers and switches, and implement IP addressing schemes, Licensing/CertificationAgency: Cisco Corporation.

# 2. COURSE OUTCOMES:

S.No.	CourseOutcomes
CO1	Identification of network fundamentals
CO2	Identification and configuration of LAN switching technologies
CO3	Description, implementation and verification of IP routing technologies
CO4	Identification and configuration of WAN technologies
CO5	Identification and configuration of infrastructure services.

# 3. MAPPINGCOURSEOUTCOMESWITHPOAND PSO

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO	PSO	PSO
													1	2	3
CO1	3	-	-	-	-	-	-	-	-	-	-	-	3	-	-
CO2	-	3	-	-	-	-	-	-	-	-	-	-	-	2	-
CO3	-	-	3	-	-	-	-	-	-	-	-	-	3	-	2
CO4	-	-	-	3	-	-	-	-	-	-	-	-	-	3	-
CO5	-	-	-	-	3	-	-	-	-	-	-	-	3	2	-



# 4. COURSEPRE-REQUISITES:

Students should already be to possess a minimum of one year of experience working with Cisco solutions. In addition, a basic understanding of IPaddressing and network fundamentals is recommended to ensure success in CCNA training.

# 5. ENROLMENT CRITERIA: Interested Students of IIYear (AllBranches)

# 6. CERTIFICATION CRITERIA: Mandatory Fulfilment of Criteria 1 and

2Criteria1:75% Attendance, and

Criteria2:40%orabovemarksin CertificationExam

# 7. WEEK-WISE COURSE OUTLINE:

	COURSE OUTLINE:
WEEK	MODULE-WISE CONTENTS
WEEK-1	MODULE-1:Introduction to Networking
(3Hours)	o The Internet
	<ul> <li>Requirements for Internet connection</li> </ul>
	o PCbasics
	<ul> <li>Network interface card</li> </ul>
	<ul> <li>NIC and modem installation</li> </ul>
	<ul> <li>High-speed and dialup connectivity</li> </ul>
	<ul> <li>TCP/IPdescription and configuration</li> </ul>
	<ul> <li>Testing connectivity with Ping</li> </ul>
	<ul> <li>Web browser and plug-Ins</li> </ul>
	<ul> <li>Troubleshooting Internet connection problems</li> </ul>
	MODULE-2:Networking Fundamentals
	o Data networks
	<ul> <li>Network history</li> </ul>
	<ul> <li>Networking devices</li> </ul>
	<ul> <li>Network topology</li> </ul>
	<ul> <li>Network protocols</li> </ul>
	o LANs/WANs
	<ul> <li>Metropolitan-are a networks</li> </ul>
	<ul> <li>Storage-area networks</li> </ul>
	<ul> <li>Virtual private networks</li> </ul>
	o Benefits of VPNs
	Intranets and extranets
WEEK- 2	MODULE -3:Networking Media
(3hours)	<ul> <li>Wireless LAN organizations and standards</li> </ul>
	<ul> <li>Wireless devices and topologies</li> </ul>
	<ul> <li>How wireless LANs communicate</li> </ul>
	<ul> <li>Authentication and association</li> </ul>
	Theradiowave/micro wave spectrum
	<ul> <li>Signals and noise on a WLAN</li> </ul>
	Wireless security
WEEK-3	MODULE – 4: Cable Testing
(3hours)	o Waves
	o Sinewaves
	o Squarewaves
	<ul> <li>Exponents and logarithms</li> </ul>



	o Decibels
	O Viewing signals in time and frequency
	Analog and digital signals in time and frequency  Nation in time and frequency
	<ul><li>Noise in time and frequency</li><li>Bandwidth</li></ul>
TELEBRA A	
WEEK-4	MODULE – 5: CablingLANs and WANs
(3hours)	LAN physicallayer
	Ethernet in thecampus
	Ethernet media and connector requirements
	<ul> <li>UTP implementation</li> </ul>
	o Repeaters
	○ Hubs
	o Wireless
	○ Bridges
	o Switches
	<ul><li>Host connectivity(NIC)</li></ul>
	o Peer-to-peer
	o Client-server
	<ul> <li>Building hubbed and switched work groups</li> </ul>
WEEK-5	MODULE-6:Ethernet Fundamentals
(3hours)	<ul> <li>Introduction to Ethernet</li> </ul>
	<ul> <li>IEEE Ethernet naming rules</li> </ul>
	<ul> <li>Ethernet and the OSI model</li> </ul>
	o Naming
	o Framing in general
	<ul> <li>Ethernet frame structure</li> </ul>
	<ul> <li>Ethernet frame fields</li> </ul>
WEEK- 6	MODULE-7:Ethernet Operation
(3hours)	Media Access Control
	<ul> <li>MAC rules and collision detection/backoff</li> </ul>
	o Ethernet timing
	<ul> <li>Interframe Spacing and Backoff</li> </ul>
	o Error Handling
	o Types of collisions
	o Ethernet errors
	<ul> <li>Ethernet errors: FCS and beyond</li> </ul>
	<ul> <li>Ethernet auto-negotiation</li> </ul>
	<ul> <li>Link Establishment and full/half duplex</li> </ul>
WEEK-7	MODULE-8:Ethernet Technologies
(3Hours)	o 10 Mbps Ethernet
,	o 10BASE5/10BASE2/10BASE-T
	o 10BASE-T wiring and architecture
	o 100Mbps Ethernet
	o 100BASE-TX/100 BASE-FX
	o Fast Ethernet architecture
	<ul> <li>Network and protocol analysis software</li> </ul>
WEEK-8	MODULE-9:Ethernet Switching
(3Hours)	oEthernet Switching
(Silvuis)	OLINGING SWITCHING



1	701.11.
	o L2 bridging
	o L2 switching
	<ul> <li>Switch operation</li> </ul>
	o Latency
	o Switch modes
	<ul> <li>Spanning Tree Protocol</li> </ul>
WEEK-9	MODULE-10: TCP/IPProtocolSuiteandIPAddressing
(3Hours)	o Introductionto TCP/IP
	<ul> <li>History and future of TCP/IP</li> </ul>
	Application layer
	Transport layer
	± •
	Internet layer     Network aggregatower
	Network access layer     Comparing the OSIsovenlever and the TCP/IP four lever
	<ul> <li>Comparing the OSIsevenlayer and the TCP/IP four layer models</li> </ul>
	o Internet architecture
	<ul> <li>Internet Addresses</li> </ul>
	o IPaddressing
	<ul> <li>Decimal and binary conversion review</li> </ul>
	o IPv4 addressing
	o Address class higher-orderbits; Class A,B,C, D, and E
	Reserved IP addresses
	<ul> <li>Public/private IP addresses</li> </ul>
	<ul> <li>Introduction to subnetting</li> </ul>
	o IPv4 vs.IPv6
WEEK-10	MODULE-11: Routing Fundamentals and Subnets
(3Hours)	o Routed Protocol
	<ul> <li>Routable/routed protocols</li> </ul>
	o IP as a routed protocol
	<ul> <li>IP as a routed protocol</li> <li>Packet propagation and switching with arouter</li> </ul>
	<ul> <li>Packet propagation and switching with arouter</li> </ul>
	<ul> <li>Packet propagation and switching with arouter</li> <li>Internet Protocol (IP)</li> </ul>
	<ul> <li>Packet propagation and switching with arouter</li> <li>Internet Protocol (IP)</li> <li>Anatomy of an IPpacket</li> </ul>
	<ul> <li>Packet propagation and switching with arouter</li> <li>Internet Protocol (IP)</li> <li>Anatomy of an IPpacket</li> <li>IP Routing Protocols</li> </ul>
	<ul> <li>Packet propagation and switching with arouter</li> <li>Internet Protocol (IP)</li> <li>Anatomy of an IPpacket</li> <li>IP Routing Protocols</li> <li>Routing overview</li> </ul>
	<ul> <li>Packet propagation and switching with arouter</li> <li>Internet Protocol (IP)</li> <li>Anatomy of an IPpacket</li> <li>IP Routing Protocols</li> <li>Routing overview</li> <li>Routing versus switching</li> </ul>
	<ul> <li>Packet propagation and switching with arouter</li> <li>Internet Protocol (IP)</li> <li>Anatomy of an IPpacket</li> <li>IP Routing Protocols</li> <li>Routing overview</li> </ul>
	<ul> <li>Packet propagation and switching with arouter</li> <li>Internet Protocol (IP)</li> <li>Anatomy of an IPpacket</li> <li>IP Routing Protocols</li> <li>Routing overview</li> <li>Routing versus switching</li> <li>Routed versus routing</li> <li>Path determination</li> </ul>
	<ul> <li>Packet propagation and switching with arouter</li> <li>Internet Protocol (IP)</li> <li>Anatomy of an IPpacket</li> <li>IP Routing Protocols</li> <li>Routing overview</li> <li>Routing versus switching</li> <li>Routed versus routing</li> <li>Path determination</li> <li>Routing tables</li> </ul>
	<ul> <li>Packet propagation and switching with arouter</li> <li>Internet Protocol (IP)</li> <li>Anatomy of an IPpacket</li> <li>IP Routing Protocols</li> <li>Routing overview</li> <li>Routing versus switching</li> <li>Routed versus routing</li> <li>Path determination</li> </ul>
	<ul> <li>Packet propagation and switching with arouter</li> <li>Internet Protocol (IP)</li> <li>Anatomy of an IPpacket</li> <li>IP Routing Protocols</li> <li>Routing overview</li> <li>Routing versus switching</li> <li>Routed versus routing</li> <li>Path determination</li> <li>Routing tables</li> <li>Routing algorithms and metrics</li> </ul>
	<ul> <li>Packet propagation and switching with arouter</li> <li>Internet Protocol (IP)</li> <li>Anatomy of an IPpacket</li> <li>IP Routing Protocols</li> <li>Routing overview</li> <li>Routing versus switching</li> <li>Routed versus routing</li> <li>Path determination</li> <li>Routing tables</li> <li>Routing algorithms and metrics</li> <li>IGP and EGP</li> </ul>
	<ul> <li>Packet propagation and switching with arouter</li> <li>Internet Protocol (IP)</li> <li>Anatomy of an IPpacket</li> <li>IP Routing Protocols</li> <li>Routing overview</li> <li>Routing versus switching</li> <li>Routed versus routing</li> <li>Path determination</li> <li>Routing tables</li> <li>Routing algorithms and metrics</li> <li>IGP and EGP</li> <li>Link-state and distance vector</li> </ul>
	<ul> <li>Packet propagation and switching with arouter</li> <li>Internet Protocol (IP)</li> <li>Anatomy of an IPpacket</li> <li>IP Routing Protocols</li> <li>Routing overview</li> <li>Routing versus switching</li> <li>Routed versus routing</li> <li>Path determination</li> <li>Routing tables</li> <li>Routing algorithms and metrics</li> <li>IGP and EGP</li> <li>Link-state and distance vector</li> <li>Routing protocols</li> </ul>
	<ul> <li>Packet propagation and switching with arouter</li> <li>Internet Protocol (IP)</li> <li>Anatomy of an IPpacket</li> <li>IP Routing Protocols</li> <li>Routing overview</li> <li>Routing versus switching</li> <li>Routed versus routing</li> <li>Path determination</li> <li>Routing tables</li> <li>Routing algorithms and metrics</li> <li>IGP and EGP</li> <li>Link-state and distance vector</li> <li>Routing protocols</li> <li>Mechanics of Subnetting</li> </ul>
	<ul> <li>Packet propagation and switching with arouter</li> <li>Internet Protocol (IP)</li> <li>Anatomy of an IPpacket</li> <li>IP Routing Protocols</li> <li>Routing overview</li> <li>Routing versus switching</li> <li>Routed versus routing</li> <li>Path determination</li> <li>Routing tables</li> <li>Routing algorithms and metrics</li> <li>IGP and EGP</li> <li>Link-state and distance vector</li> <li>Routing protocols</li> <li>Mechanics of Subnetting</li> <li>Classes of network IP addresses</li> </ul>
	<ul> <li>Packet propagation and switching with arouter</li> <li>Internet Protocol (IP)</li> <li>Anatomy of an IPpacket</li> <li>IP Routing Protocols</li> <li>Routing overview</li> <li>Routing versus switching</li> <li>Routed versus routing</li> <li>Path determination</li> <li>Routing tables</li> <li>Routing algorithms and metrics</li> <li>IGP and EGP</li> <li>Link-state and distance vector</li> <li>Routing protocols</li> <li>Mechanics of Subnetting</li> <li>Classes of network IP addresses</li> <li>Introductionto and reason for subnetting</li> </ul>



	oThelogical ANDing process							
WEEK-11	MODULE-12:TCP/IP Transport and Application Layer							
(3Hours)	o TCP/IPTransport Layer							
	o Transport layer functions							
	o Flow control							
	<ul> <li>Session establishment, maintenance, and termination</li> </ul>							
	o 3-wayhandshake							
	o Windowing							
	Acknowledgement							
	<ul> <li>TCP(TransmissionControlProtocol)</li> </ul>							
	o UDP(UserDatagramProtocol)							
	o TCP and UDP portnumbers							
	o DNS							
	o FTP							
	o HTTP							
	o SMTP							
	o SNMP							
	o Telnet							
WEEK-12	7. CERTIFCATION EXAMINATION							
(3Hours)	8. CLOSING AND VALEDICTORY CEREMONY							

# 2.2.5 COURSE TITLE: PROGRAMMING IN HADOOP (COURSE CODE: AOC-DEP-CSE-HDP)

# 1. COURSE DESCRIPTION:

- Fundamentals of Hadoop and YARN and write applications using them
- HDFS, MapReduce, Hive, Pig, Sqoop, Flume and Zoo Keeper
- Spark, Spark SQL, Streaming, DataFrame, RDD, GraphXandMLlibwritingSparkapplications
- Working with Avro data formats
- Practicing real-life projects using Hadoop and Apache Spark

# 2. COURSE OUTCOMES:

S.No.	Course Outcomes
CO1	Apply the concepts of BigData and Hadoop ecosystem.
CO2	Ability to analyze the Hadoop distributed filesystem (HDFS) for storing big data files
CO3	Develop Leverage Hadoop as a reliable, scalable MapReduceframework.
CO4	Develop MapReduceprograms and implementing HBase.
CO5	Implement Hive and Pigscripts.

# 3. MAPPING COURSE OUTCOMES WITH PO AND PSO



CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	-	3	-	-	-	-	-	-	-	-	-	-	2	-	-
CO2	-	-	2	-	-	-	-	-	-	-	-	-	-	2	-
CO3	-	-	-	3	-	-	-	-	-	-	-	-	3	-	-
CO4	-	-	-	-	2		-	-	-	-	-	-	-	2	-
CO5	-	-	-	-	-	3	-	-	-	-	-	-	3	2	-

# 4. COURSE PRE-REQUISITES:

To learn the core concepts of big data and hadoop ecosystem, the two important skills that professionals must know are —Java and Linux. Enterprise folks who have not previously worked with either of these can still get ahead in the hadoop main stream by just getting their hands dirty on some basic knowledge of Java and Linux.

# 5. ENROLMENT CRITERIA: Interested Students of IV Year (AllBranches)

# 6. CERTIFICATION CRITERIA: Mandatory Fulfilment of Criteria 1 and

2Criteria1: 75% Attendance, and

Criteria2:75% orabove marksin Certification Exam

#### 7. WEEK-WISECOURSEOUTLINE:

WEEK	MODULE-WISECONTENTS									
WEEK-1	MODULE -1: Installation and Setup Hadoop									
(3Hours)	<ul> <li>The architecture of Hadoopcluster</li> </ul>									
	O What is High Availability and Federation?									
	How to setup aproduction cluster?  Various shall appropriate in Hada an									
	O Various shell commands in Hadoop									
	<ul> <li>Understanding configuration files in Hadoop</li> </ul>									
	o Installing a single node cluster with Cloudera Manager									
	<ul> <li>Understanding Spark, Scala, Sqoop, Pig, and Flume</li> </ul>									
WEEK- 2	MODULE – 2: - Introduction to Big Data Hadoop and									
(3hours)	Understanding HDFS and MapReduce									
	o Introducing BigData and Hadoop									
	Where does Hadoop fit in?									
	Two important Hadoop ecosystem components,									
	namely, MapReduce and HDFS.									
WEEK-3	o MODULE -3:-Deep Divein MapReduce									
(3hours)	<ul> <li>Learningthe working mechanism of MapReduce</li> </ul>									
	<ul> <li>Understanding the mapping and reducing stages in MR</li> </ul>									
	O Various terminologies inMR like Input Format, Output									
	Format, Practitioners, Combiners, Shuffle, and Sort.									
WEEK- 4	MODULE – 4:-Introduction to Hive									
(3hours)	Introducing Hadoop Hive									
(Shours)	Detailed architecture of Hive									
	<ul> <li>Detailed architecture of Hive</li> <li>Comparing Hive with Pig and RDBMS</li> </ul>									
	<ul> <li>Working with Hive QueryLanguage</li> </ul>									
	o Creation of a database, table, group by and other clauses									



WEEK-5	MODULE-5:Advanced Hive and Impala
(3hours)	o Indexingin Hive
	o Theap Side Join in Hive
	Workingwith complex data types
	TheHiveuser-defined functions
	<ul> <li>IntroductiontoImpala</li> </ul>
	ComparingHive with Impala
WEEK C	
WEEK-6	MODULE-6:-Introduction to Pig
(3hours)	Apache Pig introduction and its various features
	O Various data types and schema in Hive
	o The available functions in Pig, Hive Bags, Tuples and Fields
	Working with Pig in MapReduce and local mode
	Loading of data
WEEK-7	MODULE-7:Flume,SqoopandHBase
(3Hours)	<ul> <li>Apache Sqoop introduction.</li> </ul>
	<ul> <li>Importing and exporting data.</li> </ul>
	<ul> <li>Performance improvement with Sqoop</li> </ul>
	o Sqoop limitation.
	<ul> <li>Introduction to Flume</li> </ul>
	Understanding the architecture of Flume
	MODULE-8: Writing Spark Applications Using Scala
WEEK-8	<ul> <li>UsingScala forwriting ApacheSpark applications</li> </ul>
(3Hours)	Detailed studyof Scala
	o The need for Scala
	<ul> <li>The concept to fobject-oriented programming</li> </ul>
	Executing the Scala code
WEEK-9	MODULE-9:Sparkf ramework
(3Hours)	<ul> <li>Detailed Apache Spark and its various features</li> </ul>
	o Comparing with Hadoop
	<ul> <li>Various Spark components</li> </ul>
	Combining HDFS with Spark and Scalding
WEEK-10	MODULE-10:RDD in Spark
(3Hours)	<ul> <li>Understanding the Spark RDD operations</li> </ul>
	<ul> <li>Comparison of Spark with MapReduce</li> </ul>
	• What is a Spark transformation?
	Loading data in Spark
WEEK-11	Module-11:Data Frames and Spark SQL
(3Hours)	The detailed SparkSQL
	o The significance of SQL in Spark for working with
	structured data processing.
	o Spark SQLJSON support
	<ul> <li>Working with XMLdata and parquetfiles</li> </ul>
	o CreatingHiveContext
WEEK- 12	9. CERTIFCATION EXAMINATION
(3Hours)	10. CLOSING AND VALEDICTORY CEREMONY



# 2.2.6 COURSE TITLE: DATA SCIENCE WITH PYTHON (COURSE CODE: AOC-DEP-CSE-DSP)

1. COURSE DESCRIPTION: This course will introduce the learner to the basics of the python programming environment, including fundamental python programming techniques such as lambdas, reading and manipulating csv files, and the numpy library. The course will introduce datamanipulation and cleaning techniques using the popular python pandas data science library and introduce the abstraction of the Series and Data Frame as the central data structures for data analysis, along with tutorials on how to use functions such as groupby, merge, and pivot tables effectively. By the end of this course, students will be able to take tabular data, clean it, manipulate it, and runbasicinferential statistical analyses.

#### 2. COURSE OUTCOMES:

S.No.	CourseOutcomes
CO1	Apply the programming constructs like variables, datastructures and control flow structures
CO2	Develop programs using file handling, Object oriented paradigms, GUI controls
CO3	Demonstrate the use of pandas library, the main methods for Data Frames.
CO4	Use Python IDEs like IDLE, Spyder, and PyCharmto develop programs
CO5	Design solutions of real-world data science problems using Python programs

#### 3. MAPPING COURSE OUTCOMES WITH POAND PSO

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	-	3	-	-	-	-	-	-	-	-	-	-	3	-	-
CO2	-	-	3	-	-	-	-	-	-	-	-	-	-	2	-
CO3	-	-	-	3	-	-	-	-	-	-	-	-	3	-	2
CO4	-	-	-	-	3		-	-	-	-	-	-	-	3	-
CO5	-	-	-	-	-	3	-	-	-	-	-	-	3	2	-



# 4. COURSE PRE-REQUISITES:

Students should already be comfortable using the operating system like Linux or Windows onwhich they will be running Python. While not mandatory, basic skills with at least one otherprogramminglanguage likeC, C++ aredesirable.

# 5. ENROLMENT CRITERIA: Interested Students of IV Year(CSE Branch)

# 6. CERTIFICATION CRITERIA: Mandatory Fulfilment of Criteria 1 and

2Criteria1:75% Attendance, and

Criteria2:70% orabove marksin Certification Exam

# 7. WEEK-WISE COURSE OUTLINE:

	COURSE OUTLINE:
WEEK	MODULE-WISE CONTENTS
WEEK-1	MODULE-1:An Overview of Python
(3Hours)	o What is Python?
	o Interpreted languages
	<ul> <li>Advantages and disadvantages</li> </ul>
	<ul> <li>Downloading and installing</li> </ul>
	<ul> <li>Whichversion of Python</li> </ul>
	Whereto find documentation
WEEK- 2	MODULE-2: The Python Environment
(3hours)	Structure of a Python script
	Using the interpreter interactively
	Runningstandalone scripts under Unix and Windows
	Using variables
	<ul> <li>Stringtypes:normal, raw andUnicode</li> </ul>
	Stringoperators and expressions
	Math operators and expressions
	Writing to the screen
	o Command line parameters
	Reading from the keyboard
	About flow control
	o Indenting is significant
	The if and elif statements
	o while loops
	o Using lists
	Using the forstatement
	o The range()function
WEEK-3	MODULE-3:Getting Started
(3hours)	• Using variables
(Shours)	<ul><li>String types:normal, raw andUnicode</li></ul>
	<ul> <li>String types:normal, raw and officede</li> <li>String operators and expressions</li> </ul>
	<ul> <li>Math operators and expressions</li> </ul>
	<ul><li>Writing to the screen</li></ul>
	<ul> <li>Command line parameters</li> </ul>
	Reading from the keyboard
	List operations
	O Dist operations



	1' 4 1 1
	o listmethods
	Strings are special kinds of  liststyples
	liststuples
TEXTED EXT. 4	ArrayTypes
WEEK-4	MODULE-4:Flow Control
(3hours)	About flow control
	o Indenting is significant
	o The if and elif statements
	o while loops
	O Using lists
	O Using the for
	statement The range
	function
	Dictionaries and Sets
	o Dictionary overview
	o Creating dictionaries
	o Dictionary functions
	o Fetching keys or values
	Testing for existence of elements
	o Deleting elements
	Sets And Frozen Sets
	Functions
	Syntax of function definition
	o Formal parameters
	Global versus local variables
WEEL 5	O Passing parameters and returning values
WEEK-5	MODULE-9:Python DataFramesI
(3hours)	<ul> <li>Analysis, selection, and visualization techniques with Pandas Data Frames</li> </ul>
	O Extracting and transforming Data Frames
	MODULE-10:PythonData FramesII  O Advanced indexing
	$\varepsilon$
	Rearranging and reshaping data Multiple keys
WEEK-6	MODULE-11:Modules and Packages
(3hours)	O What is a module?
	<ul> <li>The import statement</li> </ul>
	<ul> <li>Function aliases</li> </ul>
	o Packages
	MODULE-12:RegularExpressions
	o REObjects
	o Pattern matching
	o Parsing data
	<ul> <li>Sub expressions</li> </ul>
	<ul> <li>Complex substitutions</li> </ul>
	REtips and tricks
WEEK-7	MODULE-7:Dictionaries and Sets
(3Hours)	Dictionary overview
	<ul> <li>Creating dictionaries</li> </ul>
	<ul> <li>Dictionary functions</li> </ul>



	T 1							
	<ul> <li>Fetching keys or values</li> </ul>							
	Testing for existence of elements							
	Deleting elements							
	<ul> <li>Sets And Frozen Sets</li> </ul>							
	Importing Data in Python							
	o Import data into Python from flat filessuchas .txtand.csv							
	o Import data into Python from files native to other software							
	such as Excel spread sheets, Stata, SAS, and MATLAB							
	files							
	o Importing Data in Python from files from relational databases							
	suc has SQLite and PostgreSQL							
WEEK-8	MODULE-8: Functions							
(3Hours)	<ul> <li>Syntax of function definition</li> </ul>							
	<ul> <li>Formal parameters</li> </ul>							
	Global versus local variables							
WEEK9	MODULE-9 Importing Data in Python							
(3Hours)	<ul> <li>Import data into Python from flat files such as.txtand.csv</li> </ul>							
	o Import data into Python from files native to other software							
	such as Excel spreadsheets, Stata, SAS, and MATLAB							
	files Importing Data in Python from files from relational							
THE PART OF	databases							
WEEK10	MODULE-10							
(3Hours)	<ul> <li>Creating Pig and Hive UDF in Python</li> </ul>							
	Deploying Python for Map Reduce programming							
WEEK11	MODULE-11							
(3Hours)	Environment for scientific programming in Python							
	<ul> <li>Jupiter Notebook as an environment for scientific</li> </ul>							
	programming in Python, its structure and							
	features.							
WEEK12	Passing parameters and returning values							
(3Hours)	1. CERTIFCATION EXAMINATION							
(	2. CLOSING AND VALEDICTORY CEREMONY							

# 2.3 DEPARTMENT OF ELECTRICAL ENGINEERING

S.No.	CourseCode	CourseName	No. ofModul	CourseD uration	CourseFacilitator
			es		
1.	AOC-DEP-EE-	Understanding Of Basic	4	35 Hours	Mr. Dharmendra Bansal
	BES	Electrical System			Mr. Bhuvan Singh
2	AOC-DEP-EE-	Smart Grid: Integration,	4	35 Hours	Mr. Asif Iqbal
	SGS	Energy Storage And			Mr. Udit Mamodia
		System Operations			
3	AOC-DEP-EE-	Overview Of	5	35 Hours	Ms. Ankita Bhatia
	PVS	Photovoltaic			Mr. Anil Singh

		Systems			Mr. Gaurav Srivastava Mr. Deepak Sharma Mr. Manish Sharma
4	AOC-DEP-EE- PVA	Introduction To PvSystem And Its Applications In	5	42 Hours	Mr. Gaurav Srivastava Mr. Kushaldeep Sharma
	IVA	Power Engineering			wii. Kushaideep Sharma

# 2.3.1 Understanding of Basic Electrical System (AOC-DEP-EE-BES)

1. Course Summary: This is a basic course for anyone who wants to know more about the all-importantelectricitythatbringsthepowertorunmodernlife. Eventhough electrical wiring appears complic ated we have simplified things for you by using simple wiring diagrams which clearly illustrates all the basic components of electrical wiring - starting with incoming supply, consumerpanel, wiring components, wiring different circuits like radial, ring, parallel, single phase, threephase and so on. We have also gone into the selection of conductor sizes and circuit breakers, distribution of load between phases and the application and wiring of Residual Current Devices (GFCIs). As abonus section adetailed wiringillustrationofasampleapartment is provided.

#### 2. CourseOutcomes:

Studentswill beable to:

- 1. Perform Electrical Wiring at Various Sites.
- 2. Perform MaintenanceWork at Various Sites.
- 3. Understand Earth Resistance testing and importance.
- 4. Identify the cable sizes and perform cable jointing.

#### 3. CourseOutline:

Module	Contents	Hours							
1	Introduction to Electrical WiringSystems:								
	Cleatwiring, Woodencasing and capping wiring, CTS or TRS or PVC sheath								
	wiring, Lead shea the dormetal sheathed wiring, Condu it wiring. The National								
	Electrical Code (NEC) for wirecolor.								
2	HouseWiringinstallationsPractice:	8							
	Two way switch-wiring, Lodgewiring/godownwiring, The at rewiring/master								
	switch wiring, Hospital wiring/room wiring, 3 phase wiring, Fans, Tubelight,								
	Heater, calling bell fixing etc.								
3	Testing procedure of voltage current / Importance of Earthling: Testing procedure of voltage current power MCB and busbars, Earthling Connection—Different Earthing systems, Measures and precautions for Electrical Systems, Safely handling Tools & Equipment, Fires in electrical Circuits&Precautions	10							
4	HandOn Practice for Wiring System: Student has to design and submitminimum two wiring system as discussed in	10							
	module two using their skills.								

# 2.3.2 Smart Grid: Integration, Energy Storage And SystemOperations (AOC-DEP-EE-SGS)

1. CourseSummary: This course mainly focus on background and fundamental building blocks of smart grid with stringent emphasis on practical applications in the existing power system



network. This course provides overview of smart grid and its potential in different types of power sectors suc has power generation, transmission and distribution in Metro, Urban/Semi urban and remote locations of India. This also emphasizes on renewable energy source integration in present grids as well as in micro and nano grids as part of the course and explores its issues in operation, analysis, management, control, protection and monitoring. In addition to it, this further provides detailed utility level analysis in terms of energy management, network analysis and operation of renewable based smart grids.

#### 2. CourseOutcomes:

Students will be able to

- 1. Explain the smart grids components and architecture.
- 2. Describe different measuring methods and sensors used in smart grid.
- 3. Interpret the role of batteries and energy storages.
- 4. Apply responsive design various renewable energy Technologies.

#### 3. CertificationCriteria:

Minimum Attendance-75%

Minimum70% marks in Certification Exam

4. CourseDuration:35Hours

#### 5. CourseOutline:

Module	Contents	Hours
1	Introduction to Smart Grid-I, Introduction to SmartGrid-II, Architecture of Smart Grid System, Standards for Smart Grid System, Elements and	7
	Technologies of Smart Grid System	
	Elements and Technologies of Smart Grid System- II, Distributed Generation	8
2	Resources-I, Distributed Generation Resources-II, Distributed Generation	
	Resources-III, Distributed Generation Resources-IV	
	Simulation and Case study of AC Micro grid, Simulation and Case studyof	10
3	DCMicrogrid, Simulationand CaseStudy of AC-DCHybrid Microgrid,	
	Demand side management of SmartGrid	
	Energy Management, Design of Smart grid and Practical Smart Grid case	10
4	study-I, Design of Smart grid and Practical Smart Grid case study-II,	
	SystemAnalysisofAC/DC Smart Grid, Conclusions	

# 2.3.3 Overview Of Photovoltaic Systems (AOC-DEP-EE-PVS)

1. CourseSummary: This course mainly focus on background and fundamental building block so fa photovoltaic (PV) system. Photovoltaic (PV) system is composed of one or more solar panelscombined with an inverter and other electrical and mechanical hardware that use energy from theSun to generate electricity. PV systems can vary greatly in size from small rooftop or portablesystems to massive utility-scale generation plants. Photovoltaic power generation system (PVsystem)isadevicewhichchangesthesolarpowerintotheelectricitybysolarcellsandtheprincipleofthe solarcellsistheuseofsemiconductormaterialselectronicscharacteristicsofP-Vconversion.PV system



and its application is a profound research project, facing the 21st century, which gathersthe utilization of green renewable energy, improve the ecological environment, ameliorate people's living conditions as integral whole will be of great benefits to economy, politics, coupled withsociety, and also contains rich academic studies value and the basic theory issues

#### 2. Course Outcomes:

#### Studentswill beable to

- 1. Learnaboutgovt.policiesforPhotovoltaicSystemsinIndia.
- 2. Learnabouttheelement used (Powercircuits, battery, charger& motoretc.) in PhotovoltaicSystems.
- 3. Understand the Basic Photovoltaic Systems.
- 4. Learn futuretrends in Photovoltaic Systems.
- 3. Certification Criteria: Minimum 50% marks in Certification Exam and 75% attendance

# 4. CoursePrerequisite:

- 1. Basic knowledge of fundamentals of PhotovoltaicSystems
- 2. Idea of batteries and circuit types with Photovoltaic Systems & their applications.

#### **5. CourseDuration:**35Hours

#### 6. CourseOutline:

Module	Contents	Hours
1	Over View of Photovoltaic Systems in India&Govt.Policies	7
2	Element used (Power circuits, battery, charger&motoretc.)inPV Systems	7
3	Working of electric components of Photovoltaic Systems	11
4	Analysis and designof basicPhotov oltaicSystemscircuit	7
5	Future Prospects of Photovoltaic Systems	3

# 2.3.4 Introduction To PVSystem And ItsApplicationsIn PowerEngineering(AOC-DEP-EE-PVA)

Course Summary: This course specialization entails how to estimate and optimize the poweroutput of a solar power plant. PV System is an industry standard solar PV design tool. As software, it allows the user to simulate the energy output, detailed losses, analyze near shadings, carry outfinancial analysis, probability reports, horizon profile and generate many more outputs that helpsolar designers in understanding the overall performance of a solar power plant. During the course students will simulate the potential performance of a powerplant, after specifying information such as the location, metro data, components to be used, arrangement, and budgets. The main results tobe derived from PV System reports are the total energy production, performance ratio, specific energy and the gains/losses involved in the simulation. The final report produced from a PV System simulation plays a key role in the proposal to be submitted to potential clients and investors in order to understand thebank ability of the solar PV project.

#### 1. Course Outcomes:

- 1. Design and professional sales proposal of solar plant using PVSyst software
- 2. Add science, mathematics & art behind solar PV system design
- 3. Use the knowledge of losses, 3D modeling and near shading analys.
- 4. Apply responsive design for grid-connected PV Syst simulations of up to 1-2MW



2. CertificationCriteria: Minimum70% marksin CertificationExamand75% Attendance

3. CourseDuration: 42Hours

# 4. CourseOutline:

Module	Contents	Hours						
1	Introduction to solar energy system and the main components, Know about PV Solar Module, Technical Specification, Best Module selection							
	,Introduce with uptodate ModuleTechnology, Technical Parameters of PV Module							
2	Principle of solar panel works, the types of the PV modules and the panels datasheet, Inverter Datasheet and MPPT technology, shading effect and the by pass diodes, difference between Galvanized steel and Aluminum structures and the temperature effect according to structuretype, Circuit Breakers used In the solar system	7						
3	Site survey, benefits of doing site survey in the design stage, install the PVsystem in simple way	7						
4	Introduction to Sketch Up and the main tools and how we can use it, Introduction to PVSYST and its focus on ON GRID solar system, principle of pricing PV system in the companies and the market, Technical & Financial Reports and you understand how can make solarplant.	7						
5	ProjectDevelopment	7						



# 2.4DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

# LIST OF DEPARTMENT COURSES OFFERED IN THE SESSION

S.No.	CourseCode	CourseName	No. ofModul es	CourseDu ration	CourseFacilitator
1.	AOC-DEP-ECE-ETC	Etching & Designing	6	30 Hours	Ms. Manisha Kumawat & Mr. Tarun Mishra
2	AOC-DEP-ECE-SIM	NI Multisim Basics: Schematic Capture And Simulation	6	30 Hours	Mr. Ajmeet &Mr.Rajveer
3	AOC-DEP-EE-TWS	Introduction of Technical Writing Skills	6	30 Hours	Dr. GarimaMathur
4	AOC-DEP-EC-BPL	Basics of Programming Languages	14	35 Hours	Mr. Durgesh Kumar

# 2.4.1 ETCHING & DESIGNING (AOC-DEP-ECE-ETC)

**1. COURSE DESCRIPTION:** A printed circuit board (PCB) mechanically supports and electrically connects electronic components using conductive tracks, pads and other features etched from copper sheets laminated onto a non-conductive substrate. Components — capacitors, resistors or active devices — are generally soldered on the PCB.

Today, many of our daily appliances and equipment use electronics, sensors and sophisticated computer technologies. Circuit Designing & PCB Designing is an integral part of any Electronic Gadget or Robotics. If you know how to design any circuit & logic behind it then you can do any innovation with your creative ideas.

#### 2. COURSE OUTCOMES:

S. No.	Course Outcomes
CO1	Determine appropriate components to make circuits.
CO2	Interpret test results and measurements on electric circuits
CO3	Analyze the fabrication processes of printed circuit boards.
CO4	Apply the software and hardware for PCB Design
CO5	Evaluate an electronic printed circuit board for a specific application using industry
	standard software.

# 3. MAPPING COURSE OUTCOMES WITH PO AND PSO

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	2	-	-	-	ı	ı	ı	ľ	ľ	1	3	2	1
CO2	3	3	3	-	-	-	-	-	-	-	-	1	3	2	1
CO3	3	3	3	3	-	-	-	-	-	-	-	1	3	2	1

CO4	3	3	3	-		ı	ı	-	-	-	1	3	2	1
CO5	3	3	3	3	3	-	-	-	-	-	1	3	2	1

# 4. COURSE PREREQUISITES:

There are no prerequisites. Anyone interested, can join this workshop.

- ${\bf 5.~ENROLMENT~CRITERIA:~Interested~Students~of~II~Year.}$
- 6. CERTIFICATION CRITERIA: Mandatory 80% Attendance

# 7. WEEK-WISE COURSE OUTLINE:

WEEK	MODULE-WISE CONTENTS
WEEK – 1	MODULE – 1: Session I: Introduction to Basic Electronics
(5 Hours)	Basic Electronics Components
(6 110 41 5)	Resistor (Ohms Law, Voltage & Current)
	Capacitors
	Diode
	Integrated Circuit
	LEDs
	Transistor
	Breadboard
	Printed Circuit Board (PCB)
	Practical Use of Electronics Components like Resistor, Capacitor & Diode.
WEEK – 2	MODULE – 2: Session II: Introduction to Circuit Designing (My First Circuit)
(5 hours)	Introduction
	Breadboard Description
WEEK-3	MODULE – 3: Hands on Session
(5 hours)	Circuit 1: Multi Level Water Tank Full Alert
	Circuit 2: Clap Controlled ON & OFF Circuit
WEEK-4	MODULE – 4: PCB Designing
(5 hours)	PCB Design Software Installation Express PCB/Tina/Eagle.
	Introduction to PCB Design
	Understanding Board Layouts & Tools
	Schematic Editor Basics Schematic Capture PCB
	Compiling/Building the Project
	Project: Multi Level Water Tank Full Alert / Clap Controlled ON & OFF Circuit
MARINE E	PCB Design Printing
WEEK – 5	MODULE-5: PCB Etching & Drilling
(5 hours)	Printing Circuit on PCB
	PCB Etching Deilling Heles on BCB for Common ants
WEEL	Drilling Holes on PCB for Components  MODULE (Components Soldwing)
WEEK – 6	MODULE-6:Components Soldering
(5 hours)	
WEEK - 7	CLOSING AND VALEDICTORY CEREMONY



# 2.4.2NI MULTISIM BASICS: SCHEMATIC CAPTURE AND SIMULATION (AOC-DEP-ECE-SIM)

1. COURSE DESCRIPTION: To develop and produce electronic and electric circuits requiresmany skills. The advent of computers has also touched the area of design and drawing of electronic circuits. Hence it will be beneficial to learn to take computer aid in drawing, designing and enhancing the quality of electronic circuits. This course intends to help the participants to use the knowledgeof computer software for preparing drawings and conducting analysis of electrical circuits. He/shewillalsobeabletodrawanddesignelectronic circuits. The course also aims to develop the skills to build and test electrical circuits, analog & digital electronic circuits using Multisim software on acomputer. It will also be beneficial if the participants are aware about other software's being currently used fordrawing, drafting and designing of electronic circuits. These skills are required to develop prototype designs, printed circuit board design, electronic maintenance and trouble shooting in theindustry.

#### 2. COURSEOUTCOMES:

S.No.	CourseOutcomes
CO1	Explain the Multisim user interface
CO2	Apply modular design with subcircuits, hierarchical blocks or multipage designs.
CO3	Create custom components.
CO4	Simulate MCU projects along with SPICE
CO5	Transfery our design to PCB layout software

#### 3. MAPPINGCOURSEOUTCOMESWITHPOAND PSO

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO	PO	PSO	PSO	PSO
											11	12	1	2	3
CO1	-	3	-	-	-	-	-	-	-	-	-	-	3	-	-
CO2	-	-	3	-	-	-	-	-	-	-	-	-	-	2	-
CO3	-	-	-	3	-	-	-	-	-	-	-	-	3	-	2
CO4	-	-	-	-	3		-	-	-	-	-	-	-	3	
CO5	-	-	-	-	-	3	-	-	-	-	-	-	3	2	-

# 4. COURSEPREREQUISITES:

Basic knowledge of Electronics Circuit, Digital Electronics, Analog Electronics.

- 5. ENROLMENT CRITERIA: Interested Students of II Year.
- 6. CERTIFICATION CRITERIA: Mandatory 80% Attendance
- 7. WEEK-WISE COURSE OUTLINE:



WEEK	MODULE-WISECONTENTS
WEEK-1	MODULE-1: Computer aided electrical and electronics drawing, Overview of
(5Hours)	analog&digital modulesof Multisim software.
WEEK- 2	MODULE-2:Understand the Multisim user interface. Use Multisim to capture
(5hours)	Circuit schematics, building& testing ananalog circuit, analog instruments.
WEEK-3	MODULE-3:Use interactives imulation to check your design,Use virtual
(5hours)	Instruments and analyses, building & testing a digital circuit, digital instruments.
WEEK-4	MODULE-4: Apply modular design with subcircuits, hierarchical blocks or
(5hours)	Multipage designs, Blocks or multipage designs.
WEEK-5	MODULE-5: Create custom title blocks, Properly document our circuit designs,
(5hours)	Work with design variants, Create custom components
WEEK- 6	MODULE-6: Overview of similar software.
(5hours)	
WEEK-7	CLOSING AND VALEDICTORY CEREMONY

# 2.4.3 Introduction of Technical Writing Skills (AOC-DEP-ECE-TWS)

**1. COURSE DESCRIPTION:** We noticed most of the scholars looking for a number of queries regarding scientific writing of Research paper, Assignment. Scientific writing is a necessary skill that repetitive practice of reading, writing, and revising must learn. Scientific writing can take many forms such as project reports or dissertation or scientificarticles in an academic journal. This course is intended to impart researchers with basic skills in writing.

# 2. COURSEOUTCOMES:

S.No.	CourseOutcomes
CO1	Explainthebasicsofprogrammingconstructslikevariables, data structures and numeric keys,
	command setc.
CO2	Apply the skill of usinghigh-quality typesetting system, for publication of research
	papers, thesis and book chapter
CO3	Write various types of formulae, equations, matricesetc.
CO4	UsingLaTeX and Zotero Create Tables, Graphics and Pictures Lists, Arrays and
	Bibliography
CO5	Create Slides with Beamers and posters.

#### 3. MAPPING COURSE OUT COMES WITH PO AND PSO

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO	PO	PSO	PSO	PSO
											11	12	1	2	3
CO1	3-		-	-	-	-	-	-	-	-	-	-	3		-
CO <sub>2</sub>	3	3	3	3	3	-	-	-	-	-	-	-	3	2	2
CO3	3	3	-		-	-	-	-	-	-	-	-	3	-	
CO4	2	2	3	3	3		-	-	-	-	-	-	3	3	3
CO5	2	2	3	3	3	3	-	-	-	-	-	1	3	3	3

# 4. COURSEPRE-REQUISITES: Knowledge of MS-Word



#### 5. ENROLMENT CRITERIA: Interested Students of III and IV Year

#### 6. CERTIFICATIONCRITERIA: Mandatory Fulfillment of Criteria1

Criteria1: 80% Attendance, and 60% Marks in Quiz

#### 7. WEEK-WISECOURSEOUTLINE:

WEEK	MODULE-WISECONTENTS
WEEK-1	MODULE-1:Introduction:Writing for a scientific journal Manuscript
(5Hours)	Writing Military Applications
WEEK- 2	MODULE-2:GettingStarted-Introduction to Latex and TexStudio
(5hours)	
WEEK-3	MODULE -3:Hands-onLatex(Exercise)
(5hours)	
WEEK-4	MODULE-4:GettingStarted -ReferenceManagement:Zotero
(5hours)	
WEEK-5	MODULE - 5: ReferenceManagement:Zotero-Hands-on
(5hours)	
WEEK- 6	MODULE – 6: Introduction to Overleaf and Hands-on session
(5hours)	
WEEK-7	CLOSING AND VALEDICTORY CEREMONY

# 2.4.4 Basics of Programming Languages (AOC-DEP-ECE-BPL)

**1. COURSE DESCRIPTION:** Python is a popular general-purpose programming language. It is used in machine learning, web development, desktop applications, and many other fields. Fortunately for beginners, Python has a simple, easy-to-use syntax. This makes Python a great language to learn for beginners. This Python training course leads students from the basics of writing and running Python scripts to more advanced features such as file operations, regular expressions, working with binary data, and using the extensive functionality of Python modules. Extra emphasis is placed on features unique to Python, such as tuples, array slices, and output formatting.

#### 2. COURSE OUTCOMES:

S. No.	Course Outcomes
CO1	Apply the programming constructs like variables, data structures and control flow
	structures
CO2	Develop programs using file handling, Object oriented paradigms, GUI controls
CO3	Demonstrate the use of exception handling, different libraries and database
	connectivity
CO4	Use Python IDEs like IDLE, Spyder, and PyCharm to develop programs
CO5	Design solutions of real-world computational problems using Python programs

#### 3. MAPPING COURSE OUTCOMES WITH PO AND PSO



CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO	PSO	PSO
													1	2	3
CO1	-	3	-	-	-	-	-	-	-	-	-	-	3	-	-
CO2	-	-	3	-	-	-	-	-	-	-	-	-	-	2	-
CO3	-	ı	-	3	ı	ı	ı	-	ı	-	ı	ı	3	-	2
CO4	-	-	_	-	3		-	-	-	-	-	-	-	3	-
CO5	-	-	-	-	-	3	-	-	-	-	-	-	3	2	-

# **4. COURSE PREREQUISITES:**

Students should already be comfortable using the operating system like Linux or Windows on which they will be running Python. While not mandatory, basic skills with at least one other programming language like C, C++ are desirable.

5. ENROLMENT CRITERIA: Interested Students of III Year and IV Year

6. CERTIFICATION CRITERIA: Mandatory Fulfillment of Criteria 1

Criteria 1: 80% Attendance

# 7. WEEK-WISE COURSE OUTLINE:

WEEK	MODULE-WISE CONTENTS											
WEEK – 1	MODULE – 1: An Overview of Python											
(5 Hours)	• What is Python?											
	Interpreted languages											
	Advantages and disadvantages											
	Downloading and installing											
	Which version of Python											
	Where to find documentation											
	MODULE – 2: The Python Environment											
	Structure of a Python script											
	Using the interpreter interactively											
	Running standalone scripts under Unix and Windows											
WEEK – 2	MODULE – 3: Getting Started											
(5 hours)	Using variables											
	String types: normal, raw and Unicode											
	String operators and expressions											
	Math operators and expressions											
	Writing to the screen											
	Command line parameters											
	Reading from the keyboard											
	MODULE – 4: Flow Control											
	About flow control											
	Indenting is significant											
	The if and elif statements											
	while loops											
	Using lists											
	Using the for statement											
	The range () function											
WEEK-3	MODULE – 5: Array Types											
(5 hours)	• list operations											
	• list methods											



bound	ADD –ON COURSE BROCHURE 2017
	Strings are special kinds of lists
	• tuples
	MODULE – 6: Working with Files
	Text file I/O overview
	Opening a text file
	Reading text files
	Raw (binary) data
	Writing to a text file
WEEK – 4	MODULE-7: Dictionaries and Sets
(5 hours)	Dictionary overview
	Creating dictionaries
	Dictionary functions
	Fetching keys or values
	Testing for existence of elements
	Deleting elements
	Sets And Frozen Sets
	MODULE-8: Functions
	Syntax of function definition
	Formal parameters
	Global versus local variables
	Passing parameters and returning values
WEEK - 5	MODULE-9: Sorting
(5 hours)	• The sorted() function
(6 110 1115)	Alternate keys
	Multiple keys
	Lambda functions
	MODULE-10: Errors and Exception Handling
	Dealing with syntax errors
	• Exceptions
	Handling exceptions with try/except
	Cleaning up with finally
WEEK - 6	MODULE-11: Modules and Packages
(5 hours)	• What is a module?
(e nours)	The import statement
	Function aliases
	Packages
	MODULE-12: Regular Expressions
	• RE Objects
	Pattern matching
	Parsing data
	• Subexpressions
	Complex substitutions
	RE tips and tricks
WEEK 5	-
WEEK-7	MODULE-13: Highlights of the Standard Library
(5 Hours)	Working with the operating system  Could be a good.
	• Grabbing web pages
	Sending email  mothers described as a few sending email  mothers de
	• math and random
ı	Accessing dates and times with datetime  We drive with a suppose 1.51.
	Working with compressed files



	MODULE-14: An Introduction to Python Classes
	About o-o programming
	Defining classes
	Constructors
	Instance methods
	Instance data
	Class methods and data
	Destructors
WEEK - 8	1. CLOSING AND VALEDICTORY CEREMONY

# 2.5DEPARTMENT OF INFORMATION TECHNOLOGY

# LIST OF DEPARTMENT COURSES OFFERED IN THE SESSION

S.No.	CourseCode	CourseName	No. ofModul	CourseDur ation	CourseFacilitator
1	AOC-DEP-IT-WEB	Web Development	14	35 Hours	Ms.Seeta Gupta
2.	AOC-DEP-IT-SEL	Automation Testing Using Selenium	11	30 Hours	Mr.Shirish Nagar

# 2.5.1 WebDevelopment (COURSECODE:AOC-DEP-IT-WEB)

- **1. COURSE DESCRIPTION:** The term "**Web Development**" refers to the process ofdesigning, developing, and maintainingwebsites. Webdesign, webpublishing, webdevelopment, and databasemanagement are all included. It is the building of an internet-based application, such as a website. The word Web Development is made up of two words, that is:
  - Web: It referstowebsites, web pagesor any thing that works over the internet.
  - Development:Building the application from scratch. Web Development can be classified into two Ways:
  - **Front end Development**: The part of a website that the user interacts directly is termed asfront end. It is also referred to as the 'client side' of the application. It includes HTML, CSS,JavaScriptand Bootstrap
  - **BackendDevelopment**: Back end is the server side of a website. It is the part of the website that users cannot see and interact. It is the portion of software that does not come in directcontact with the users. It is used to store and arrange data. It includes PhP, Python, Java, and Node.jsetc.

#### 2. COURSEOUTCOMES:

S.No.	CourseOutcomes
CO1	Use different functions, variables, syntax and different technical tools for building
	anyapplication
CO2	Applythe knowledgeofwebtechnologyindevelopingwebapplications.

CO3	Develop solution to problems using appropriate method, technologies, framework, and webservices.
CO4	Implement small to large scale project to provide live solution in web application development fields.

# 3. MAPPINGCOURSEOUTCOMESWITHPOAND PSO

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	-	-	3	-	-	-	-	-	-	-	-	-	3	-	-
CO2	-	-	3	-	-	-	-	-	-	-	-	-	2	-	-
CO3	-	-	-	2	-	-	-	-	-	-	-	-	2	-	-
CO4	-	-	2	-	-	-	-	-	-	-	-	-	2	-	-
CO5	-	-	3	-	-	-	-	-	-	-	-	-	3	-	-

# 4. COURSEPRE-REQUISITES:

There are no prerequisites for learningWeb development. While not mandatory, basicskills with at least one other programming languagelikeC, C++are desirable.

# 5. ENROLMENTCRITERIA: Interested Students of IIYear

# 6. CERTIFICATION CRITERIA: Mandatory Fulfilment of Criteria 1 and

2Criteria1:75%Attendanceand

Criteria2:70% orabove marksin CertificationExam

# 7. WEEK-WISE COURSEOUTLINE:

WEEK	MODULE-WISECONTENTS								
WEEK- 1	MODULE-1:Introduction of Web Technologies								
(3Hours)	<ul> <li>Introduction of web technologies</li> <li>Careers in webtechnologies</li> <li>Client and Server scripting languages</li> <li>Difference b/wa Web Designer and Web Developer</li> <li>Types of Websites (Static and DynamicWebsites)</li> <li>MODULE-2:Html Introduction</li> <li>What is Markup language?</li> <li>Basic structure of Html</li> <li>What are Html Elements?</li> <li>What are Html Attributes?</li> </ul>								
WEEK- 2	MODULE-3:Html Structured and MediaTags								
(3hours)	o TableTag,Div Tag,Frames,HeaderTags								
	o Paragraph, spans, pretags								
	<ul> <li>Anchor Links, Imagetags, Iframetags</li> </ul>								



WEEK-3	MODULE-4:WorkingwithForms
(3hours)	o FormTag,PostandGetMethod
(0 == 0 == 0)	Text Input, TextArea, Checkbox, Image InputandRadio
	o Select Option, Option Group, File Upload and Hidden Fields
	SubmitButton, ResetButton, Relation b/w Html
	FormandPHP
	Create a LiveWebsite Form
WEEK- 4	MODULE -5:Introduction of CSS
(3hours)	<ul> <li>Introduction of CSS</li> </ul>
	o Types of Style Sheets, Inline, InternalandExternalCSS
	CSS for Website Layout and Print Layout
	MODULE-6:CSS Properties
	<ul> <li>TypeProperties, FontProperties</li> </ul>
	<ul> <li>BlockProperties, BoxModelProperties</li> </ul>
	o ListProperties, BorderProperties
	<ul> <li>PositioningProperties, Properties Useful in Real-time</li> </ul>
	Designing
WEEK-5	MODULE-7:JavaScript
(3hours)	<ul> <li>Introduction of JavaScript</li> </ul>
	Introduction of Client Side Scripting
	o Java Script Introduction, Java Script Syntax
	External JavaScript, Basics of Java Script
	o Java Script Comments, Variable, Global Variable
	o JavaScript DataTypes,Operators, IfStatement
WEEK (	o JavaScript Switch,Loop,Function
WEEK-6	MODULE-8: PHP and Mysql  o Introduction of PHP
(3hours)	1 - 7
	<ul><li> What is php?Install Php,PhpExample</li><li> Phpecho and Print, Php\$ and\$\$</li></ul>
	<ul> <li>Php variable and constant</li> </ul>
WEEK- 7	MODULE-9:Basicsof PHP
(3hours)	• Php comments, Php datatypes
	<ul><li>Php operators, Php ifelse, Switch</li></ul>
	<ul> <li>Phpfor loop, while and do while loop</li> </ul>
	o PhpBreak
WEEK-8	MODULE-10:PHP Functions and Arrays
(3hours)	o Php functions
	<ul> <li>Examples of Functions</li> </ul>
	o Php Array
	Examples of Arrays
WEEK-9	MODULE-11:PHP Form, include and StateManagement
(3hours)	GetandPost,Php Include,PhpRequire
(	<ul><li>PhpCookie, Php Session</li></ul>
	<ul><li>PhpFileUpload</li></ul>
	- 1F



WEEK- 10	MODULE-12: PHP MySql											
(3hours)	Mysql connect.Mysql CreateDatabase											
	Mysql CreateTable, Mysql Select											
	Mysql Insert, Mysql Update											
	o Mysql Delete, Order By											
	o Mysql Where											
WEEK-11	1. CERTIFCATION EXAMINATION											
	2. CLOSING AND VALEDICTORY CEREMONY											

# 2.5.2-AutomationTesting using Selenium(COURSECODE:AOC-DEP-IT-SEL)

**1. COURSE DESCRIPTION:** Selenium is an open-source and a portable automated softwaretesting tool for testing web applications. It has capabilities to operate across different browsers and operating systems. Selenium is not just a single tool but a set of tools that helps testers to automateweb-based applications more efficiently. Selenium supports a variety of programming languagesthrough the use of drivers specific to each language. Languages supported by Selenium include C#, Java, Perl, PHP, Python and Ruby.SeleniumWeb driver is most popular with Java and C#. Selenium can be used to automate functional tests and can be integrated with automation test tools suc has Maven, Jenkins & Docker to achieve continuous testing.

#### 2. COURSE OUTCOMES:

S.No.	Course Outcomes
CO1	Understand the need and usage of software tools required for manual and automated testing.
CO2	Identify various software testing problems, and solve these problems by designing and selecting
	Softwaretest models, criteria, strategies, and methods.
CO3	Designand conduct a software test process for a software testing project.
CO4	Analyze the performance of different websites using Selenium
CO5	GenerateTest sequences and compare using Selenium tool for different websites.

# 3. MAPPINGCOURSEOUTCOMESWITHPOAND PSO

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	-	-	-	-	-	-	-	-	-	-	-	3	-	-
CO2	-	-	3	-	-	-	-	-	-	-	-	-	-	2	-
CO3	-	-	-	3	-	-	-	-	-	-	-	-	-	-	2
CO4	-	-	-	-	3		-	-	-	-	-	-	-	3	-
CO5	-	-	-	-	3	-	-	-	-	-	-	-	3	2	-

# 4. COURSEPRE-REQUISITES:

Students should have basic understanding of Java or any other object-oriented programming language. Inaddition, students should have prio rknowledge of software testing techniques like automation testing, functional testing, etc.

#### 5. ENROLMENT CRITERIA: Interested Students of IV Year

# 6. CERTIFICATION CRITERIA: Mandatory Fulfilment of Criteria1 and 2

Criteria1: 75% Attendance, and

Criteria2: 70% or above marks in Certification Exam



# 7. WEEK-WISECOURSEOUTLINE:

	COURSEOUTLINE:									
WEEK	MODULE-WISECONTENTS									
WEEK-1	MODULE -1:AnOverview ofTesting									
(3Hours)	o Whatistesting?									
	o TypeofSoftwaretesting									
	o Manualtesting									
	➤ WhiteBox Testing									
	➤ BlackBoxTesting									
	➤ GrayBoxTesting									
	o AutomationTesting									
	o SoftwareTestingPrinciples									
	> Testingshowsthe presence of defects									
	<ul> <li>ExhaustiveTestingisnot possible</li> </ul>									
	➤ EarlyTesting									
	➤ DefectClustering									
	PesticideParadox									
	> Testingis contextdependent									
	<ul><li>Absence Error Fallacy</li></ul>									
WEEK- 2	MODULE –2:SettingupEclipse									
(3Hours)	Downloadand installjava									
	o DownloadandstartEclipse									
	DownloadandconfigureWebDriverjavaclient									
	<ul> <li>Setupaproject</li> </ul>									
	o Createpackages									
	CreateaFirst Javatestcase									
	<ul> <li>ImportWebDriverSourcefile</li> </ul>									
WEEK-3	MODULE -3:AnOverview of Selenium									
(3Hours)	What is Selenium?									
	<ul> <li>Selenium BasicTerminology</li> </ul>									
	<ul> <li>Selenium Features</li> </ul>									
	o Selenium vs QTP									
	Selenium Limitations									
	SeleniumTool Suite									
	Selenium IDE									
	Selenium Remote Control									
	➤ Web Driver									
	<ul><li>Selenium Grid</li></ul>									



WEEK 4	MODULE 4. Colonium Interneted Development
WEEK-4	MODULE – 4: Selenium Integrated Development
(3Hours)	Environment(IDE)  O Selenium IDE Download
	Selenium IDE Download     Selenium IDE Installation
	Selenium IDE installation     Selenium IDE-Features
	MODULE – 5:Selenium IDE-First TestCase
	• Recording
	o PlayingBack
	<ul><li>Savingthe testsuite</li></ul>
	Login Test
	o Raw (binary) data
	<ul><li> Raw (officially) data</li><li> Writing to atext file</li></ul>
WEEK-5	MODULE-6:Selenium IDE-Commands
(3Hours)	TypesofSeleniumCommands
(Silours)	o Actions
	o Accessors
	o Assertions
	<ul> <li>Creating Test Cases Manually</li> </ul>
	o Insert Commands
WEEK (	
WEEK- 6	MODULE-7:Web Driver Interface
(3Hours)	Architecture of Web Driver     Was Driver Interference
	Web Driver Interface     Web Element Interface
	Web Element Interface  Leave thing Fireface/Cooking the services
WEDIZ #	Launching Firefox/ Google chrome browser
WEEK-7	MODULE-8:Browser &Navigation Commands
(3Hours)	O Howto Open aURL  NoviforDe position  NoviforDe position  Output  Description  Output  Desc
	VerifyPagetitle     Strategy to get the Page Source
	<ul><li>Strategy to get the Page Source</li><li>Difference between Close &amp;Quit</li></ul>
	W ON CONTRACT
	<ul><li>Ways toNavigate Back &amp; Forward</li><li>How to Refresh Page</li></ul>
	<ul> <li>Another way of Navigating to specific Page</li> </ul>
WEEK-8	MODULE-9:Web Element Commands
(3Hours)	O Difference between Find Element & Find Elements
(Cirours)	Enter & Clear text from Input field
	How Click action works differently on different elements
	Managing Input fields, Buttons&Links
WEEK-9	MODULE-10:Advanced Commands
(3Hours)	<ul> <li>Finding all links on the Page</li> </ul>
	Strategyto check dead links on thepage
	Extracting More than one object from a page
	ExtractingObjects from a specific area of a webpage
	o Check if element is Present, Displayed, Enabled or Selected
WEELZ 10	• •
WEEK-10	MODULE-11:Locators
(3Hours)	<ul><li>What arelocators</li><li>HTML Basics</li></ul>
	<ul><li>HTML language tags and attributes</li><li>ID, Name, Xpath, CSSetc</li></ul>
	o in, maine, Apain, Coocie



	<ul> <li>Difference between Absolute &amp; Complete Xpath</li> </ul>									
	Finding your first element									
	<ul> <li>Web Element Commands</li> </ul>									
WEEK-11	1. CERTIFCATION EXAMINATION									
	2. CLOSING AND VALEDICTORY CEREMONY									

# 2.6 DEPARTMENT OF MECHANICAL ENGINEERING

# LIST OF DEPARTMENT COURSES OFFERED IN TH ESESSION

S.No.	CourseCode	CourseName	No. ofModul	CourseDura tion	CourseFacilitator
			es		
1	AOC-DEP-ME-SYS	ANSYS	11	33Hours	Mr. Sanjay Kumawat

# 2.6.1-ANSYS (COURSECODE:AOC-DEP-ME-SYS)

1. COURSE DESCRIPTION:- A course on ANSYS (FEM) Lab is an integral part of MechanicalEngineering curriculum. Companies are gradually replacing testing verification, conceptualizationand physical prototyping with simulation, as it reduces turnaround time and cost, while providing adetailed insight into design. Additional variants of products can easily be made by modifying the original CAD models, and their working can be tested under various circumstances using simulation. Predicting the performance of a component by simulating changes is something that can be done up front and in real-time, which is where simulators are seen gaining importance.

ANSYS Mechanical Enterprise is the flagship mechanical engineering software solution that usesfinite element analysis (FEA) for structural analysis using the ANSYS Mechanical interface. Itcovers an enormous range of applications and comes complete with everything you need from geometry preparation to optimization and all the steps in between. We can use in Projects and further research work for thesocietyneeds.

ANSYS Workbench Mechanical Introductory course is suitable for new or occasional ANSYSMechanical users, as well as for students or novices in structural engineering. This course teachesthebasics of using AnsysMechanical to perform finite element analysis (FEA).

#### 2. COURSEOUTCOMES:

S.No.	CourseOutcomes
CO1	Discuss the basic features of an analysis package.
CO2	Demonstrate the deflection of beams subjected to point, uniformly distributed and varying



	loads
CO3	Use the modern tools to formulate and solve problems of bars, truss, beams, and plate to find stress with different loading conditions.
CO4	Applying basic principle to solve and demonstrate 1D and 2D heat transfer with conduction and convection boundary conditions.

# 3. MAPPING COURSE OUTCOMES WITH PO AND PSO

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	-	-	-	-	-	-	-	-	-	-	2	-	3	2
CO2	-	3	•	ı	•	-	-	•	ı	-	ı	2	-	3	2
CO <sub>3</sub>	-	ı	•	ı	3	-	-	•	ı	-	ı	2	-	3	2
CO4	-	ı	•	3	•	-	-	•	ı	-	ı	2	-	3	2
CO5	3	ı	•	ı	•	-	-	ı	ı	-	ı	2	-	3	2

# 4. COURSEPRE-REQUISITES:

- 1. Knowledge of Sketching in Software like Auto CAD and Basics of FEM
- 2. Knowledge of Subjects like, Mechanics of Solids, Heat Transfer and Vibration Engineering. As in previous semesters, Subjects like, Mechanics of Solids, Heat Transfer and Vibration Engineering as per the Curriculum. Basics of ANSYS has been taught in the previous semester.
- 3. Fundamental knowledge of computers is required.
- 4. Good Knowledge base in Design and Modeling.

# 5. ENROLMENTCRITERIA: Students of III Year(6th Semester)

# 6. CERTIFICATION CRITERIA: Mandatory Fulfilment of Criteria 1 and

2Criteria1:75% Attendance, and

Criteria2:70% orabove marksin Certification Exam

#### 7. WEEK-WISECOURSEOUTLINE:

WEEK	MODULE-WISE CONTENTS								
WEEK-1	MODULE-1:An Overview of FEA (Finite Element Analsys)								
(3Hours)	<ul> <li>Introduction to Finite Element Analysis</li> </ul>								
	BasicMechanical terminology								
	<ul> <li>Different Types of Numeric Methods &amp; Applications</li> </ul>								
	<ul> <li>History of Finite Element Method</li> </ul>								
	o Today's Scenario & Future of FEA								
	<ul> <li>Theoretical FEM Procedure to solve Engineering Problems</li> </ul>								
	<ul> <li>Types of Modules in ANSYS</li> </ul>								
	Structural, Model & Thermal Analysis								
	Classification of materials								
	<ul> <li>Demo of working on ANSYS Software</li> </ul>								



WEEK- 2	MODULE-2:Getting Started
(3hours)	Accessing ANSYS & Understanding GUI
(01101115)	Utility Menu
	Working on a Project
	Manipulating Model
	Standard Toolbar
	Command InputWindow
	o Riser/Hide Icon
	<ul> <li>Mouse handling</li> </ul>
	o ANSYS ToolBar
	<ul> <li>User Prompt Information &amp; Current Settings</li> </ul>
	ANSYS MainMenu
	o Units&Work Plane
	<ul> <li>ANSYS WorkbenchDatabase and Fileformat</li> </ul>
	Practice for the GUIWorking
WEEK-3	MODULE-3:ANSYS Engineering Data Manager
(3hours)	Introductionto ANSYS Engineering data Manager
	Adding custom Material to ANSYS EngineeringData
	Accessing Engineering Material Libraries present in
	ANSYSworkbench
	Howto apply defined material to the project.      Note: 1.5 ANSWS
	Practice session to define Material in ANSYS  Livita in ANSYS Weetle and
	O Units in ANSYS Workbench
	Changing the unit system
WEEK-4	MODULE-4:Sketching and Part Modeling in Design Modeler
(3hours)	oIntroduction to Modeling
	Introduction to Design Modeler Window
	<ul> <li>Introduction to Design Modeler Window</li> <li>Tool bars in Design Modeler</li> </ul>
	<ul> <li>Tool bars in Design Modeler</li> </ul>
	<ul> <li>Tool bars in Design Modeler</li> <li>Sketching in Design Modeler</li> <li>Coordinate system</li> <li>Work Plane</li> </ul>
	<ul> <li>Tool bars in Design Modeler</li> <li>Sketching in Design Modeler</li> <li>Coordinate system</li> <li>Work Plane</li> <li>Methods of Solid Modelling</li> </ul>
	<ul> <li>Tool bars in Design Modeler</li> <li>Sketching in Design Modeler</li> <li>Coordinate system</li> <li>Work Plane</li> <li>Methods of Solid Modelling</li> <li>1D, 2D And 3DModeling (2D &amp; 3D Space)</li> </ul>
	<ul> <li>Tool bars in Design Modeler</li> <li>Sketching in Design Modeler</li> <li>Coordinate system</li> <li>Work Plane</li> <li>Methods of Solid Modelling</li> <li>1D, 2D And 3DModeling (2D &amp; 3D Space)</li> <li>Sketching Practice of, Plate, PlatewithHole.</li> </ul>
WEEK- 5	<ul> <li>Tool bars in Design Modeler</li> <li>Sketching in Design Modeler</li> <li>Coordinate system</li> <li>Work Plane</li> <li>Methods of Solid Modelling</li> <li>1D, 2D And 3DModeling (2D &amp; 3D Space)</li> <li>Sketching Practice of, Plate, PlatewithHole.</li> </ul> MODULE-5:Sketching & Modelling Practice
WEEK- 5 (3hours)	<ul> <li>Tool bars in Design Modeler</li> <li>Sketching in Design Modeler</li> <li>Coordinate system</li> <li>Work Plane</li> <li>Methods of Solid Modelling</li> <li>1D, 2D And 3DModeling (2D &amp; 3D Space)</li> <li>Sketching Practice of, Plate, PlatewithHole.</li> </ul> MODULE-5:Sketching & Modelling Practice <ul> <li>Sketching Practice of, Plate, Plate with Hole, Rectangular Bar,</li> </ul>
	<ul> <li>Tool bars in Design Modeler</li> <li>Sketching in Design Modeler</li> <li>Coordinate system</li> <li>Work Plane</li> <li>Methods of Solid Modelling</li> <li>1D, 2D And 3DModeling (2D &amp; 3D Space)</li> <li>Sketching Practice of, Plate, PlatewithHole.</li> </ul> MODULE-5:Sketching & Modelling Practice <ul> <li>Sketching Practice of, Plate, Plate with Hole, Rectangular Bar, Circular Bar</li> </ul>
	<ul> <li>Tool bars in Design Modeler</li> <li>Sketching in Design Modeler</li> <li>Coordinate system</li> <li>Work Plane</li> <li>Methods of Solid Modelling</li> <li>1D, 2D And 3DModeling (2D &amp; 3D Space)</li> <li>Sketching Practice of, Plate, PlatewithHole.</li> </ul> MODULE-5:Sketching & Modelling Practice <ul> <li>Sketching Practice of, Plate, Plate with Hole, Rectangular Bar,</li> </ul>
(3hours)	<ul> <li>Tool bars in Design Modeler</li> <li>Sketching in Design Modeler</li> <li>Coordinate system</li> <li>Work Plane</li> <li>Methods of Solid Modelling</li> <li>1D, 2D And 3DModeling (2D &amp; 3D Space)</li> <li>Sketching Practice of, Plate, PlatewithHole.</li> <li>MODULE-5:Sketching &amp; Modelling Practice</li> <li>Sketching Practice of, Plate, Plate with Hole, Rectangular Bar, Circular Bar</li> <li>Symmetric Modelling, Axis Symmetric Modelling</li> </ul>
(3hours) WEEK- 6	<ul> <li>Tool bars in Design Modeler</li> <li>Sketching in Design Modeler</li> <li>Coordinate system</li> <li>Work Plane</li> <li>Methods of Solid Modelling</li> <li>1D, 2D And 3DModeling (2D &amp; 3D Space)</li> <li>Sketching Practice of, Plate, PlatewithHole.</li> <li>MODULE-5:Sketching &amp; Modelling Practice</li> <li>Sketching Practice of, Plate, Plate with Hole, Rectangular Bar, Circular Bar</li> <li>Symmetric Modelling, Axis Symmetric Modelling</li> <li>MODULE-6:Design Modular</li> </ul>
(3hours)	<ul> <li>Tool bars in Design Modeler</li> <li>Sketching in Design Modeler</li> <li>Coordinate system</li> <li>Work Plane</li> <li>Methods of Solid Modelling</li> <li>1D, 2D And 3DModeling (2D &amp; 3D Space)</li> <li>Sketching Practice of, Plate, PlatewithHole.</li> <li>MODULE-5:Sketching &amp; Modelling Practice</li> <li>Sketching Practice of, Plate, Plate with Hole, Rectangular Bar, Circular Bar</li> <li>Symmetric Modelling, Axis Symmetric Modelling</li> </ul>
(3hours) WEEK- 6	<ul> <li>Tool bars in Design Modeler</li> <li>Sketching in Design Modeler</li> <li>Coordinate system</li> <li>Work Plane</li> <li>Methods of Solid Modelling</li> <li>1D, 2D And 3DModeling (2D &amp; 3D Space)</li> <li>Sketching Practice of, Plate, PlatewithHole.</li> <li>MODULE-5:Sketching &amp; Modelling Practice</li> <li>Sketching Practice of, Plate, Plate with Hole, Rectangular Bar, Circular Bar</li> <li>Symmetric Modelling, Axis Symmetric Modelling</li> <li>MODULE-6:Design Modular</li> <li>Modificationin Model &amp; Changes</li> </ul>
(3hours) WEEK- 6	<ul> <li>Tool bars in Design Modeler</li> <li>Sketching in Design Modeler</li> <li>Coordinate system</li> <li>Work Plane</li> <li>Methods of Solid Modelling</li> <li>1D, 2D And 3DModeling (2D &amp; 3D Space)</li> <li>Sketching Practice of, Plate, PlatewithHole.</li> <li>MODULE-5:Sketching &amp; Modelling Practice</li> <li>Sketching Practice of, Plate, Plate with Hole, Rectangular Bar, Circular Bar</li> <li>Symmetric Modelling, Axis Symmetric Modelling</li> <li>MODULE-6:Design Modular</li> <li>Modificationin Model &amp; Changes</li> <li>Fundamentals of Mechanical Stress Simulation</li> </ul>
(3hours) WEEK- 6	<ul> <li>Tool bars in Design Modeler</li> <li>Sketching in Design Modeler</li> <li>Coordinate system</li> <li>Work Plane</li> <li>Methods of Solid Modelling</li> <li>1D, 2D And 3DModeling (2D &amp; 3D Space)</li> <li>Sketching Practice of, Plate, PlatewithHole.</li> <li>MODULE-5:Sketching &amp; Modelling Practice</li> <li>Sketching Practice of, Plate, Plate with Hole, Rectangular Bar, Circular Bar</li> <li>Symmetric Modelling, Axis Symmetric Modelling</li> <li>MODULE-6:Design Modular</li> <li>Modificationin Model &amp; Changes</li> <li>Fundamentals of Mechanical Stress Simulation</li> <li>Pre-processing</li> </ul>
(3hours) WEEK- 6	<ul> <li>Tool bars in Design Modeler</li> <li>Sketching in Design Modeler</li> <li>Coordinate system</li> <li>Work Plane</li> <li>Methods of Solid Modelling</li> <li>1D, 2D And 3DModeling (2D &amp; 3D Space)</li> <li>Sketching Practice of, Plate, PlatewithHole.</li> <li>MODULE-5:Sketching &amp; Modelling Practice</li> <li>Sketching Practice of, Plate, Plate with Hole, Rectangular Bar, Circular Bar</li> <li>Symmetric Modelling, Axis Symmetric Modelling</li> <li>MODULE-6:Design Modular</li> <li>Modificationin Model &amp; Changes</li> <li>Fundamentals of Mechanical Stress Simulation</li> <li>Pre-processing</li> <li>Meshing</li> </ul>
WEEK-6 (3hours)	<ul> <li>Tool bars in Design Modeler</li> <li>Sketching in Design Modeler</li> <li>Coordinate system</li> <li>Work Plane</li> <li>Methods of Solid Modelling</li> <li>1D, 2D And 3DModeling (2D &amp; 3D Space)</li> <li>Sketching Practice of, Plate, PlatewithHole.</li> <li>MODULE-5:Sketching &amp; Modelling Practice</li> <li>Sketching Practice of, Plate, Plate with Hole, Rectangular Bar, Circular Bar</li> <li>Symmetric Modelling, Axis Symmetric Modelling</li> <li>MODULE-6:Design Modular</li> <li>Modificationin Model &amp; Changes</li> <li>Fundamentals of Mechanical Stress Simulation</li> <li>Pre-processing</li> <li>Meshing</li> <li>Applying Material to the design</li> </ul>
(3hours)  WEEK-6 (3hours)  WEEK-7	<ul> <li>Tool bars in Design Modeler</li> <li>Sketching in Design Modeler</li> <li>Coordinate system</li> <li>Work Plane</li> <li>Methods of Solid Modelling</li> <li>1D, 2D And 3DModeling (2D &amp; 3D Space)</li> <li>Sketching Practice of, Plate, PlatewithHole.</li> <li>MODULE-5:Sketching &amp; Modelling Practice</li> <li>Sketching Practice of, Plate, Plate with Hole, Rectangular Bar, Circular Bar</li> <li>Symmetric Modelling, Axis Symmetric Modelling</li> <li>MODULE-6:Design Modular</li> <li>Modificationin Model &amp; Changes</li> <li>Fundamentals of Mechanical Stress Simulation</li> <li>Pre-processing</li> <li>Meshing</li> <li>Applying Material to the design</li> <li>MODULE-7:Static Structural Module</li> </ul>



WEEK-8	MODULE-8: Modal(VibrationalAnalysis)
(3Hours)	<ul> <li>Modal Analysis of Simply Supported Beam</li> </ul>
	<ul> <li>Modal Analysis of Cantilever Beam</li> </ul>
WEEK-9	MODULE-9:Post Processing&Working
(3Hours)	<ul> <li>Post-processing &amp; Results</li> </ul>
	<ul> <li>Fundamentals of Structural Nonlinearities</li> </ul>
	<ul> <li>Nonlinear Structural Analysis</li> </ul>
WEEK-10	MODULE-10:Practice Session
(3Hours)	<ul> <li>Analysis of Block with compressive &amp; Tensile load</li> </ul>
	<ul> <li>Analysis of Plate with hole for tensile load</li> </ul>
	<ul> <li>Analysis of Step Barwith Compressive Load</li> </ul>
WEEK-11	11. CERTIFCATION EXAMINATION
(2Hours)	12. CLOSING AND VALEDICTORY CEREMONY



# DEPARTMEN TOF FIRST YEAR

# LIST OF DEPARTMENT COURSES OFFERED IN THE SESSION

S.N o.	CourseI D	CourseName	No. of Modules	Course Duration	Enrolment Criteria (for all courses)	Certification Criteria (for all courses)	Course Facilitator
1	AOC-DEP- FY-PBL	Project Based Learning	08	32 Hours	IYear	. 75%Attn. . 50%Cert. Exam	Dr. PeeyushVat
2	AOC-DEP- FY-LRTS	Logical Reasoning and Technical Skill Development	20	60 Hours	IYear	. 75%Attn. . 50%Cert. Exam	Mr.Kuldee pSharma
3	AOC-DEP- FY-ACP	Advanced CProgramming	10	30 Hours	IYear	. 75%Attn. . 60%Cert. Exam	Mr. Sanjay Kumar Gupta

# 2.7.1-ProjectBasedLearning (COURSE CODE:AOC-DEP-FY-PBL)

**1. COURSE DESCRIPTION:** With respect to Project based Learning and skill Program for the students of Poornima College of Engineering, B.Tech. (1<sup>st</sup>year), Poornima College of Engineering offers Program on Technical and skill development' to upgrade the knowledge and soft skill so the students to develop their personality and prepare them for various industrial requirements.

#### 2. Course Outcomes:

S.No.	CourseOutcomes
CO1	Students will be able to have knowledge about various electronics components
CO2	Students will be able to analyze selection of sensors and motors
CO3	Students will be able to develop their software collaborating with hardware programming skills.
CO4	Students will be able to Design various types of Real world projects

# 3. MAPPING COURSE OUT COMES WITH POS AND PSOS:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3			-	2	-	-	-	•	-	•	-	-	-	-
CO2	-	3	1	-	2	-	-	-	-	-	-	1	-	-	-
CO3	2	-	-	-	-	-	-	2	2	-	-	3	-	-	-
CO4	3	3	-	2	3	1	1	-	2	-	-	3	-	-	-

- **4. COURSE PRE REQUISITIES:** Participant must be a student of B.Tech.1<sup>st</sup> year at Poornima college of Engineering.
- **5. ENROLMENT CRITERIA**: Participant must be a student of B.Tech.1<sup>st</sup> year at Poornima College of Engineering.



- 6. EVALUATION CRITERIA: Project demonstrations, Quiz7. CERTIFICATIONCRITERIA: (i) 75% attendance(ii) Atleast 50% marks in quiz.

# 8. WEEK-WISECOURSEOUTLINE:

WEEK	MODULE-WISECONTENTS
Week1	Introduction
	History of Electrical and Electronic Component
	Various Electrical and Electronic Components
	Howto use Electrical and Electronic Components
Week2	Introduction of node mcu
	Historyof node mcu
	Types of node mcu
	Selection of node mcu
Week3	ESP8266 Specifics
	Settingup the Arduino IDE for using the ESP8266
	Network protocols
	Setting up aWi-Fi connection
Week4	Setting up a simple web server
	Wire lessly controlling your RGB lighting
	Development boards with a USB interface
	Basics of making a Hyper Text Transfer Protocol (HTTP)request
Week5	Introduction of Sensor
	Various Basic IndustrialSensors-IR-AnalogSensor
	IR Digital Sensor Color IR _TSOP Sensor , Light Sensor,Sound Sensor, DTMF Module
	Basic working Technique of Sensor
Week6	Introduction of Electrical Machine
	DC Motor
	Stepper Motor
	Servo Motor
Week7	Various programming Languages
	Selection of programming Language
	Need of Flow Diagram
	How to write First "LED BLINKING" Code in Embedded C
Week8	Intelligent home locking system.
	Intelligent water level management system.
	Home automation using RFID.
	Real time clock-based home automation.
	Intelligent Automatic Irrigation System



# 2.7.2-Logical Reasoning and Technical Skill Development (COURSE CODE: AOC-DEP-FY-LRTS

**1. COURSE DESCRIPTION:** With respect to Project based Learning and skill Program for the students of Poornima College of Engineering, B.Tech. (1<sup>st</sup>year), Poornima College of Engineering offers Program on Technical and skill development to upgrade the knowledge and soft skill so the students to develop their personality and prepare them for various industrial requirements.

#### 2. Course Outcomes:

S.No.	Course Outcomes
CO1	Students will be able to have knowledge about number system, quadratic equation, percentage,
	simple interest, compound interest, probability, permutation-combination and Vedic
	Mathematics.
CO2	Students will be able to analyze and solve the problems related to syllogism, patterns, and
	Puzzles.
CO3	Students will be able to develop their soft skills like communication skill (both speaking skill and
	writing skill). They will study about basic rules of English grammar to improve their
	Communication.
CO4	Students will be able to improve their reasoning and logical thinkingand also apply shortcut
	Tricks to solve the problems fast.
CO5	Students will be able to interpret the data and evaluate the outcomes based on it

#### 3. MAPPING COURSE OUT COMES WITH POS AND PSOS:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	-	-	-	-	-	-		-	-	-	-	-	-
CO2	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-
CO3	-	-	-	-	-	-	-	2	2	3	-	3	-	-	-
CO4	-	-	-	2	-	-	-	-	-	-	-	3	-	-	-
CO5	-	3	-	-	-	-	-	-	-	-	-	2	-	-	-

- **4. COURSEPRE REQUISITIES:** Participant must be a student of B.Tech.1<sup>st</sup> year at Poornima college of Engineering.
- **5. ENROLMENT CRITERIA**: Participant must be a student of B.Tech.1<sup>st</sup> year at Poornima College of Engineering.
- 6. EVALUATION CRITERIA: Quiz
- 7. CERTIFICATION CRITERIA: (i) 75% attendance (ii) Atleast 50% marks in quiz.
- 8. WEEK-WISE COURSE OUTLINE:

MODULE/ WEEK	MODULE-WISECONTENTS
1	Awareness about different Competitive Exams SWOT Analysis: Self Awareness
2	Basic Calculation & Simplification: Addition & Subtraction, Divisible & Multiplication, Square & Cuberoot
3	Ice Breaking Session : Self-Introduction, Team Building and Group Dynamics, Vocabulary Building

4	NumberSystem:Numbers, HCF&LCM, Cyclicity, Algebraic Formulae
5	PublicSpeaking, Word & Sentence Formation, BasicUsage of Grammar, Environmental Awareness
6	Ratio & Proportion: Types & Problems
7	Time Management & GoalSetting, Stress Management, Assertiveness
8	Creative & Analytical skills, Language Skills, Basic Usage of Grammar
9	Percentage & Partnership: Explanation & Conditions
10	Social & Business Etiquettes-Dealingin Social & Business Environment
11	Profit & Loss:Basic Formulae & Problems
12	Time & Work: Conditions, Pipes&Cisterns, Concept of Efficiency, Problems
13	Letter Writing, Business Comm. E-mail Etiquettes, Telephonic Etiquettes
14	Inter & Intra Personal Skills, Group Communication
15	Leadership Skills, Pro-activeness, News Paper Reading
16	Time, Speed & Distance: UnitsofMeasurements, Cases or Conditions, Boat and Streams, Problems
17	Listening with Understanding, MemoryEnhancement, Resume & CV Writing
18	Video / CaseStudyAnalysis, Article/Film/BookReview
19	Logistics: Analogy, Coding/decoding, Venn Diagrams, Seating Arrangements, Syllogism
20	Interview Skills, Personal Grooming

# 2.7.3-Advanced C Programming (COURSECODE: AOC-DEP-FY-ACP)

1. COURSE DESCRIPTION: A 60 hour Advanced C Language Programming course in which basic C skills of the students is taken to the next level and help them obtain mastery of the language by enabling them to understand advanced concepts of the C programming language. Students can master the art of problem-solving in programming using efficient, proven methods. This program has been organized for the students to develop their skill and for sustainability of the students in the current competitive market.

#### 2. COURSE OUTCOMES:

S.No.	CourseOutcomes
CO1	Understand the basic concepts of C programming
CO2	Design and develop various programming problems using C programming concepts.
CO3	Implement advance C programming concepts like function, pointer, structure, union and file
	handling.
CO4	Develop the project using concept of advance and datastructure



#### 5. MAPPINGCOURSEOUTCOMESWITHPOAND PSO

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-
CO3	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-
CO4	-	-	-	-	-		-	-	-	-	3	2	-	-	-
															ł

**6. COURSE PRE-REQUISITES:** Students should already be comfortable using the operating system like Linux or Windows. While not mandatory, basic skills with at least one other programming language like C or C++ desirable.

7. ENROLMENT CRITERIA: Interested Students of IYear (All Branches)

8. CERTIFICATION CRITERIA: Mandatory Fulfilment of Criteria 1 and

2Criteria1:75% Attendance, and

Criteria2:60% or above marks in Certification Exam

#### 9. WEEK-WISE COURSE OUTLINE:

Day No./ Module	Торіс
	Introduction to Linux and gcc
1.	C program execution steps
	C Tokens and Data Types
Introduction to C Programming	Keywords, Variable, Identifiers and Constants
	Signed and Unsigned Concept
	Exceed the limit and MOD function
	Hands on practice on various types of programs.
	Input/Output Functions
	Introduction to C operators
	Expression Evaluation
	Concept of short circuit in Logical Operator
2.	Bitwise Operators
	Misc Operators
C Operators	Operator Precedence and Associativity
	More about Bitwise Operators
	Hands on practice on various types of programs.
	Decision Making & Selection Statements
3.	If statement
	Switch case statement
Control Statements	More about Switch case statement
	Decision Making and Looping
	Nested loop
	Jump Statements
	Hands on practice on various types of programs.
	Function Introduction
4.	Storage Classes
	Static members
Function	Function and pointers
	Recursion and Call stack
	Multifile Program and Project File



	Hands on practice on various types of programs.
	Introduction to Array and Strings
5.	Variable length array
	Array of string
Array and String	Concept of sprintf and sscanf function
	Insertion and Deletion in an Array
	Hands on practice on various types of programs.
	Pointers and Dynamic Array
6.	Malloc, calloc, realloc and free function
	Chain of pointers
Pointers	Dangling pointer
	Concept of Void pointer
	Hands on practice on various types of programs.
	Introduction of Stack Data Structure
•	Array Representation of Stack
Stack	Push, Pop, Peek Operations
Glack	Hands on practice on various types of programs.
	Introduction to Queue Data Structure
8.	Terminology used in Queue
	Insertion and deletion in Queue
Queue	Introduction to Circular Queue
	Introduction to Priority Queue
	Hands on practice on various types of programs.
	Introduction to Structure
9.	Structure padding and packing
	Passing structure as an argument
Structure	Pointer to structure
	Introduction to Union
	Self referential structure
	Hands on practice on various types of programs.
10.	Introduction to Linked List
10.	Linked List representation
Linked List	Traversing, insertion, deletion and searching in Linked List
Limod List	Hands on practice on various types of programs.





Affiliated to RTU, Kota • Approved by AICTE & UGC under 2(f) • Accredited by NBA

# **SESSION2017-18**

# **ADD-ON COURSE ENROLMENT FORM**

Date of Issue

Note:			25/05/2017Last Date of Submission to Tutor:02/06/2017							
2. Provid		Wrong details m	us Course has to be nay affect the proce				which student			
I,			_Registration No_,	am a student of B	.Tech.	Depar	tmentof_			
			_,PCE, Jaipur. I have read and understood terms and conditions							
for enrol	ling in an Add-on	Course offered b	by the Institution an	nd /or Department	, as me	ntione	ed in the Add-	on		
Course I	Brochure circulated	l on 25 <sup>th</sup> May20	17. Accordingly, I	choose the follow	ving co	ourses	for this session	on		
2017-18										
S.No.	Type of Course	Course Code	Course Name		Selection (Mark a Tick)					
1	Campus							ı		
2	Campus							1		
3	Department							1		
4	Department							1		
I further	state that I shall co	mplete the reau	irement of 80% atte	endance stipulated	l for th	e cou	rse			
Place:		1 1		1						
Date:										
					` •		e of the Studer	ıt)		
••••••			FOR OFFICE US					••••		
Remarks	by Head of Depar	tment								
Date.										
Signatur	e of Head of Depar	tment								

Note: Please check the course code, title of the course, enrollment number and other details.