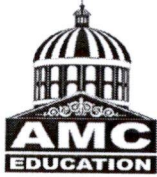


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Summary report and Outcome of Add-On Certificate program

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2016-17

(1) Add-On Course on “ANDROID”



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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Android Course Syllabus

- Why Android? – Openness, Market, Growth & Opportunities
- Android Overview - How it all got started, Potential & Future & Why Android is different (and important)
- Android SDK Introduction – Platforms, Tools & Versions
- Android Architecture
- Main Building Blocks of Android
- Android Installation. Setting up Emulators, Application life cycle.
- Basic Android Application - Say Hello to World
- Designing User Interfaces -
- Understanding the Layouts
- Working with Services
- Understanding Content Providers and need for it
- SQLite Database – Creating a DB, Inserting data and accessing data via sample application
- Creating Menu's, Dialogs and toast messages
- Understanding Android API's and working with sample location API
- Future of Android

Add-on course: ANDROID

Summary

Course Objectives: This course will enable students to

- To facilitate students to understand android SDK
- To help students to gain a basic understanding of Android application development
- To inculcate working knowledge of Android Studio development tool

Course Outcomes: After studying this course, students will be able to

- Understanding the state of mobile application development
- Understanding the need for Android application development
- Understanding the Android Architecture
- Developing the basic Android Application

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(2) Add-On Course on "PLSQL"



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DEPARTMENT OF INFORMATION SCIENCE & ENGINEERING

ADD ON COURSE ON PL/SQL

SUMMARY

The objective of the PL/SQL Add-on Course

1. Develop efficient PL/SQL programs to access Oracle databases
2. Use some of the Oracle supplied PL/SQL packages to generate screen and file outputs
3. Design modular applications using packages
4. Invoke native dynamic SQL to build runtime SQL statements
5. Manage data retrieval with cursors and cursor variables

PL/SQL (procedural language for SQL) is Oracle Corporation's procedural extension for SQL and the oracle relational database. It has high performance and applications written in PL/SQL are fully portable

COURSE OUTCOMES:

- The students learnt the basics of PL/SQL, describe the features and syntax of PL/SQL, programming constructs and conditionally control code flow (loops, Control structures, and explicit cursors), requisites to design applications.
- Exercises and lab sessions were conducted to provide students the opportunity to gain practical hands-on experience.

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(3) Add-On Course on “HTML 5”



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DEPARTMENT OF INFORMATION SCIENCE AND ENGINEERING

2016-2017

Add-On Course on HTML5

SUMMARY

By successfully completing this course, students will be able to: Describe introduction to HTML5 and what basic web design is. Identify how to create a simple web page. Identify how to format your text. Identify adding web links and images. Demonstrate creating tables. Identify forms. Identify adding styles and classes to your web pages. Demonstrate borders, backgrounds, and floating divs. Identify building web page layouts with CSS. Identify adding videos and graphics with html5. Summarize using fonts and effects in HTML5 and CSS3. Describe responsive web design with HTML5 and CSS3. Demonstrate mastery of lesson content at levels of 70% or higher.

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(4)Add-On Course on “PCB Design and Fabrication”

Electronics & Communication Engineering

2016-17

Add-On Course on “PCB Fabrication”

Course Objective :

- The electronics and manufacturing industry with growth demands for skill set of the individual.
- With the competitive market, industrial needs and decreasing demand for work force, it is always advised to learn new things and have certain skill set under sleeves to work in industry.
- This course is designed to train students in Printed Circuit Board design, Drafting and Fabrication.

Course Outcome :

On completion of the Course,

- Students can explore different aspect of Printed Circuit Board Design and fabrication.
- Students can learn various types of PCBs. Schematic Design. entry Rules for Schematic Entry, Component Layout methods
- Placement Rules, Routing Techniques for Single Sided Board.
- Post Processing of design and Fabrication documents.
- After completing this course students can design and fabricate their own PCB for their Project and can also work in PCB Designing and Fabrication area.



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(5)Add-On Course on “Design & Analysis using CAD/CAE”

Add-on course: Design & Analysis using CAD/CAE

Summary

Course Objectives:

This course will enable students to


- Gain a basic knowledge on Computer Aided Design methods and procedures
- Understand the fundamentals of solid modelling
- Understand basic knowledge in finite element analysis procedures

Course outcomes: The students should be able to

- Use parametric 3D CAD software tools in the correct manner for making geometric part models, assemblies and automated drawings of mechanical components and assemblies.
- Use CAD software tools for assembly of mechanism from schematic or component drawing and conduct position/ path/ kinematic / dynamic analysis of a mechanism in motion.
- Evaluate design, analyze and optimize using commercial CAD, CAE software for required mass properties/ stress, deflection / temperature distribution etc. under realistic loading and constraining conditions.
- Redesign in CAD and evaluate a mechanical product by making components in the mechanical workshop for design validation, using measured relevant materials properties.

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(6) Add-On Course on "SMP"


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DEPARTMENT OF CIVIL ENGINEERING

Course Syllabus

Mentoring is a great way to develop talent, with benefits for both parties (mentor and mentee) invested in the relationship. It has existed as an informal learning method for many centuries, in work set-ups and beyond, with an experienced senior often taking on the mantle of guiding a newcomer.

The focus on structured mentoring is a more recent development, as organizations try to create effective frameworks to maximize the benefits of this natural human relationship. Also, as organizations scale and become more geographically dispersed, it is important to have a structure for mentoring to allow for connections across the organization.

An important part of structuring mentoring is making it accessible to all employees. A single mentoring relationship is limited in terms of the scope of impact. Hence, to truly harness its power, there should be several mentoring relationships across the organization, with employees empowered to seek access to mentoring as needed. With that goal in mind, here are seven ways to improve the reach of a mentoring program:

Course Outcomes:

- Clarify Program Outline
- Make Mentoring Topical
- Explore Different Formats
- Allow Self-matching
- Build Mentoring Support Systems
- Recognize Mentors

Add-on course: Student Mentoring Programme

summary

Course objectives: This course will enable students to

- Clarify Program Outline
- Make Mentoring Topical
- Explore Different Formats
- Allow Self-matching
- Build Mentoring Support Systems
- Recognize Mentors


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(7) Add-On Course on "Cype Software"



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DEPARTMENT OF CIVIL ENGINEERING

Course Syllabus

CYPE is a firm that develops and distributes technical software for Architecture, Engineering and Construction professionals.

CYPE's journey began in 1983 with an intense activity in the field of engineering and structural analysis, which motivated the computer development of applications to cover its own needs and those of its clients. The success of these programs led the company to concentrate its activity in the development, commercialization and distribution of technical software.

Course Outcomes:

- Structural design and analysis
- Design and analysis of building services
- Project management and project documents

Add-on course: Student Mentoring Programme summary

Course objectives: This course will enable students to

- Professional version
Operational access to the acquired programs.
- Evaluation version
Free access, brought about for professional wishing to know the features of the software before purchasing it.
- Campus version and temporary license
For use in academics, universities and other learning centers with a limited use period.

Assessment of Student Mentoring Programme

- Using concept maps.
- Using concept tests.
- Assessing group work.

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(8) Add-On Course on "Electrical Safety"

Add-on course: A Course on Electrical Safety

Summary

Course objectives:

1. The student will learn how to inspect and store common tools.
2. The student will demonstrate safe work habits using common hand and power tools for electricians.
3. The student will learn rescue procedures.
4. The students will learn how to administer First Aid/ CPR.
5. The students will learn equipment safety.
6. The student will explain electrical hazards and how to avoid them in the workplace.
7. The student will discuss safety issues concerning lockout/tagout procedures.

Course outcomes: At the end of this course, the students should be able to

- Explain the objectives and precautions of Electrical Safety, effects of Shocks and their Prevention.
- Summarize the Safety aspects during Installation of Plant and Equipment.
- Describe the electrical safety in residential, commercial and agricultural installations.
- Describe the various Electrical Safety in Hazardous Areas, Equipment Earthing and System Neutral Earthing.
- State the electrical systems safety management and IE rules.

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(9) Add-On Course on “Fundamentals of Internet of Things”



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DEPARTMENT OF PHYSICS

Fundamentals of Internet of Things (IoT) Course Syllabus

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

Detailed Course Syllabus:

1. Introduction to IOT Understanding IoT fundamentals
 - IOT Architecture and protocols
 - Various Platforms for IoT
 - Real time Examples of IoT
 - Overview of IoT components and IoT Communication Technologies
 - Challenges in IOT
2. Arduino Simulation Environment
 - Arduino Uno Architecture
 - Setup the IDE, Writing Arduino Software
 - Arduino Libraries
 - Basics of Embedded C programming for Arduino
 - Interfacing LED, push button and buzzer with Arduino
3. Sensor & Actuators with Arduino
 - Overview of Sensors working
 - Analog and Digital Sensors


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- Interfacing of Temperature, Humidity, Motion, Light and Gas Sensor with Arduino
- Interfacing of Actuators with Arduino.
- Interfacing of Relay Switch and Servo Motor with Arduino

Course Outcomes:

After the completion of the course, the students will be able design some IOT based prototype

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(10) Add-On Course on “Pre-Placement Training”

**Add-on course: Pre-Placement
summary**

Course objectives: This course will enable students to

- To look for 100% employment for all students.
- To recognize the core competencies of the students.
- To train the students to meet the expectations of the industry through our Career Development Programmes.
- To build confidence in students and develop right attitude in them and
- To enhance their communication skills.

Course outcomes: The students should be able to

- Enable them to do better career mapping and career planning of their own careers.
- Equip them with life skills to build their future.
- Improve on their personal skills like communication, writing skills, computer literacy etc.
- Develop personality traits like self-confidence, self-awareness, creativity and presentation abilities.

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(11) Add-On Course on “GST Training Program”

**Add-on course: GST
summary**

Course objectives: This course will enable students to

- To learn about majority of Indirect taxes in India.
- To enable the students to learn the concepts indirect tax and GST from the pre-GST period to post- GST period.
- To understand the importance of indirect taxes (GST) in the Indian and global economy and its contribution to the economic development.
- To comprehend the principles of taxations, objectives of taxes and its impact, shifting and incidence process of indirect taxes in the market orientated economy.
- To understand the implications of GST on the taxable capacity consumers, dealers and of the society at large and its changes.

Course outcomes: The students should be able to

- Distinguish the earlier indirect tax system and present indirect tax
- Explain the structure of GST
- Analyze the benefits of GST
- Describe the functions, powers and structure of GST Council and GSTN


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2017-18

(1) Add-On Course on "BIG DATA"



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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Big Data Course Syllabus

BIG DATA INTRODUCTION AND HADOOP ARCHITECTURE

- Why Big Data?
- Introduction to Hadoop
- Hadoop Architecture
- Introduction to Map/Reduce

CLOUD-LAB OVERVIEW

- Understanding HDFS & MapReduce by using the online viewer of CloudLab.
- This is accompanied by Hands-On live demonstration in Hadoop Cluster.

MAPREDUCE FRAMEWORK UNDERSTANDING

- Map Reduce in general
- Solve problems of increasing difficulty using MapReduce

ADVANCE MAPREDUCE AND TESTING

- MapReduce in Java
- Advanced operations using Java in Hadoop MapReduce.

PIG LATIN

- Discussion of PIG Basics
- Dive deep into advanced PIG commands
- Joins

Add-on course: BIG DATA

Summary

Course Objectives: This course will enable students to

- Understand Hadoop Distributed File system and examine MapReduce Programming
- Explore Hadoop tools and manage Hadoop with Ambari
- Appraise the role of Business intelligence and its applications across

Course Outcomes: The students should be able to

- Master the concepts of HDFS and MapReduce framework
- Investigate Hadoop related tools for Big Data Analytics and perform basic Hadoop Administration
- Understand the basics of PIG LATIN


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(2) Add-On Course on "Mobile communication Technologies"



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DEPARTMENT OF INFORMATION SCIENCE & ENGINEERING

Mobile communication Technologies syllabus

Objectives:

1. To make students familiar with fundamentals of mobile communication systems
2. To choose system (TDMA/FDMA/CDMA) according to the complexity, installation cost, speed of transmission, channel properties etc.
3. To identify the requirements of mobile communication as compared to static communication
4. To identify the limitations of 2G and 2.5G wireless mobile communication and use design of 3G and beyond mobile communication systems
5. As a prerequisite for the course in Wireless LAN's.

Outcomes:

1. To make students familiar with various generations of mobile communications
2. To understand the concept of cellular communication
3. To understand the basics of wireless communication
4. Knowledge of GSM mobile communication standard, its architecture, logical channels, advantages and limitations.
5. Knowledge of IS-95 CDMA mobile communication standard, its architecture, logical channels, advantages and limitations.
6. Knowledge of 3G mobile standards and their comparison with 2G technologies.
7. To understand multicarrier communication systems. 8. To differentiate various Wireless LANs.

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(3) Add-On Course on "SQL AND PLSQL"



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DEPARTMENT OF INFORMATION SCIENCE & ENGINEERING

ADD ON COURSE ON PL/SQL

SUMMARY

The objective of the PL/SQL Add-on Course

1. Develop efficient PL/SQL programs to access Oracle databases
2. Use some of the Oracle supplied PL/SQL packages to generate screen and file outputs
3. Design modular applications using packages
4. Invoke native dynamic SQL to build runtime SQL statements
5. Manage data retrieval with cursors and cursor variables

PL/SQL (procedural language for SQL) is Oracle Corporation's procedural extension for SQL and the Oracle relational database. It has high performance and applications written in PL/SQL are fully portable

COURSE OUTCOMES:

- The students learnt the basics of PL/SQL, describe the features and syntax of PL/SQL, programming constructs and conditionally control code flow (loops, control structures, and explicit cursors), requisites to design applications.
- Exercises and lab sessions were conducted to provide students the opportunity to gain practical hands-on experience.

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(4) Add-On Course on "MATLAB and DSP Processor "

Electronics & Communication Engineering

2017-18

I. Add-On Course on "MATLAB & DSP PROCESSOR"

Course Objective :

- To introduce MATLAB and use it as a computation and visualization tool in the study of Signals & Systems.
- To expose the applications of MATLAB to signal analysis and system design.
- To perform basic signal processing applications in MATLAB.

Course Outcome :

On completion of the Course,

- Generate various signals using MATLAB and DSP processor
- Implement Linear and circular convolution programs and Frequency Analysis using DFT in MATLAB
- Implement Auto correlation and Cross Correlation using MATLAB
- Design FIR and IIR Filters using MATLAB and DSP Processor
- Analyze the architecture of a DSP Processor and to implement Up-sampling and Down-sampling operation in DSP Processor

(5) Add-On Course on "IoT "

II. Add-On Course on "IOT"

Course Objective :

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

Course Outcome :

On completion of the Course,

- The students will be thorough about the technology behind the IoT and associated technologies.
- The students will be able to use the IoT technologies in practical domains of society.
- The students will be able to gain knowledge about the state of the art methodologies in IoT application domains.]


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(6) Add-On Course on “Heating, Ventilation and Air conditioning ”

Course Objective

The objective of the HVAC Technician study program is to educate the student, with theory and hands on training, to a degree of competency in the heating and air conditioning field, enabling the student to perform the associated skills.

Course outcome

1. Master the concepts about heating and cooling loads of a building and its energy performance
- 2 Design and operate HVAC systems.
- 3 Evaluate the heating and cooling load of a building.
4. Communicate ideas through technical drawings, schematic diagrams and technical reports.


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(7) Add-On Course on "SMP"



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DEPARTMENT OF CIVIL ENGINEERING

Course Syllabus

Mentoring is a great way to develop talent, with benefits for both parties (mentor and mentee) invested in the relationship. It has existed as an informal learning method for many centuries, in work set-ups and beyond, with an experienced senior often taking on the mantle of guiding a newcomer.

The focus on structured mentoring is a more recent development, as organizations try to create effective frameworks to maximize the benefits of this natural human relationship. Also, as organizations scale and become more geographically dispersed, it is important to have a structure for mentoring to allow for connections across the organization.

An important part of structuring mentoring is making it accessible to all employees. A single mentoring relationship is limited in terms of the scope of impact. Hence, to truly harness its power, there should be several mentoring relationships across the organization, with employees empowered to seek access to mentoring as needed. With that goal in mind, here are seven ways to improve the reach of a mentoring program:

Course Outcomes:

- Clarify Program Outline
- Make Mentoring Topical
- Explore Different Formats
- Allow Self-matching
- Build Mentoring Support Systems
- Recognize Mentors

Add-on course: Student Mentoring Programme summary

Course objectives: This course will enable students to

- Clarify Program Outline
- Make Mentoring Topical
- Explore Different Formats
- Allow Self-matching
- Build Mentoring Support Systems
- Recognize Mentors

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(8) Add-On Course on “Cype Software”



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DEPARTMENT OF CIVIL ENGINEERING

Course Syllabus

CYPE is a firm that develops and distributes technical software for Architecture, Engineering and Construction professionals.

CYPE's journey began in 1983 with an intense activity in the field of engineering and structural analysis, which motivated the computer development of applications to cover its own needs and those of its clients. The success of these programs led the company to concentrate its activity in the development, commercialization and distribution of technical software.

Course Outcomes:

- Structural design and analysis
- Design and analysis of building services
- Project management and project documents

Add-on course: Student Mentoring Programme summary

Course objectives: This course will enable students to

- Professional version
Operational access to the acquired programs.
- Evaluation version
Free access, brought about for professional wishing to know the features of the software before purchasing it.
- Campus version and temporary license
For use in academics, universities and other learning centers with a limited use period.

Assessment of Student Mentoring Programme

- Using concept maps.
- Using concept tests.
- Assessing group work.

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(9) Add-On Course on "Electrical Safety"

Add-on course: A Course on Electrical Safety

Summary

Course objectives:

1. The student will learn how to inspect and store common tools.
2. The student will demonstrate safe work habits using common hand and power tools for electricians.
3. The student will learn rescue procedures.
4. The students will learn how to administer First Aid/ CPR.
5. The students will learn equipment safety.
6. The student will explain electrical hazards and how to avoid them in the workplace.
7. The student will discuss safety issues concerning lockout/tagout procedures.

Course outcomes: At the end of this course, the students should be able to

- Explain the objectives and precautions of Electrical Safety, effects of Shocks and their Prevention.
- Summarize the Safety aspects during Installation of Plant and Equipment.
- Describe the electrical safety in residential, commercial and agricultural installations.
- Describe the various Electrical Safety in Hazardous Areas, Equipment Earthing and System Neutral Earthing.
- State the electrical systems safety management and IE rules.

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(10) Add-On Course on “Fundamentals of Internet of Things”



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DEPARTMENT OF PHYSICS

Fundamentals of Internet of Things (IoT) Course Syllabus

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

Detailed Course Syllabus:

1. Introduction to IOT Understanding IoT fundamentals
 - IOT Architecture and protocols
 - Various Platforms for IoT
 - Real time Examples of IoT
 - Overview of IoT components and IoT Communication Technologies
 - Challenges in IOT
2. Arduino Simulation Environment
 - Arduino Uno Architecture
 - Setup the IDE, Writing Arduino Software
 - Arduino Libraries
 - Basics of Embedded C programming for Arduino
 - Interfacing LED, push button and buzzer with Arduino
3. Sensor & Actuators with Arduino
 - Overview of Sensors working
 - Analog and Digital Sensors


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- Interfacing of Temperature, Humidity, Motion, Light and Gas Sensor with Arduino
- Interfacing of Actuators with Arduino.
- Interfacing of Relay Switch and Servo Motor with Arduino

Course Outcomes:

After the completion of the course, the students will be able design some IOT based prototype


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(11) Add-On Course on “Pre-Placement Training”

Add-on course: Pre-Placement summary

Course objectives: This course will enable students to

- To look for 100% employment for all students.
- To recognize the core competencies of the students.
- To train the students to meet the expectations of the industry through our Career Development Programmes.
- To build confidence in students and develop right attitude in them and
- To enhance their communication skills.

Course outcomes: The students should be able to

- Enable them to do better career mapping and career planning of their own careers.
- Equip them with life skills to build their future.
- Improve on their personal skills like communication, writing skills, computer literacy etc.
- Develop personality traits like self-confidence, self-awareness, creativity and presentation abilities.


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(12)Add-On Course on “Entrepreneurship Development Training”

Add-on course: Entrepreneurship Development Course summary

Course objectives: This course will enable students to

- To look for 100% employment for all students.
- To recognize the entrepreneurship competencies of the students.
- To train the students to meet the expectations of the industry through our Entrepreneurship Development Programs.
- To build confidence in students and develop right attitude in them and
- To enhance their entrepreneurship skills.

Course outcomes: The students should be able to

- Show keen interest and orientation towards entrepreneurship, entrepreneurial opportunity to setup a business and to think creatively.
- Learn about the various business models and B-Plans across Business sectors.
- Able to understand the importance of marketing and different forms of businesses.
- Become aware about various sources of funding and institutions supporting entrepreneurs.
- Awareness about legal aspects and ways to protect the ideas.
- To understand how to start a company and to know how to protect their ideas.

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2018-19

(1) Add-On Course on “AI/ML”



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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Artificial Intelligence Course Syllabus

- Introduction to Artificial Intelligence
- Understand various components of Artificial Intelligence
- AI Algorithm
- Applications of AI
- Introduction to Machine Learning
- Fundamentals of Python
- ML Algorithms
- Natural Language Processing
- Experience Voice Assistants and Understand their working
- Image Processing
- Combining Image Processing with ML
- Live Projects

Add-on course: ARTIFICIAL INTELLIGENCE

Summary

Course objectives: This course will enable students to

- Identify the problems where AI is required and the different methods available
- Compare and contrast different AI techniques available
- Define and explain learning algorithms

Course outcomes: The students should be able to

- Identify the AI based problems
- Apply techniques to solve the AI problems
- Define learning and explain various learning techniques
- Discuss on expert systems

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(2) Add-On Course on “Internet of Things”



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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Internet of Things Course Syllabus

What is IoT, Genesis of IoT, IoT and Digitization, Smart Objects: The “Things” in IoT, Sensors, Actuators, and Smart Objects, Sensor 10 Hours

Networks, Connecting Smart Objects, Communications Criteria, IoT Access Technologies.

Data and Analytics for IoT, An Introduction to Data Analytics for IoT, Machine Learning, Big Data Analytics Tools and Technology, Edge Streaming Analytics/

IoT Physical Devices and Endpoints - Arduino UNO: Introduction to Arduino, Arduino 10 Hours

UNO, Installing the Software, Fundamentals of Arduino Programming.

IoT Physical Devices and Endpoints – RaspberryPi: Introduction to RaspberryPi, About the

RaspberryPi Board: Hardware Layout, Operating Systems on RaspberryPi, Configuring RaspberryPi

Programming RaspberryPi with Python, Wireless Temperature Monitoring System Using Pi, DS18B20 Temperature Sensor, Connecting Raspberry Pi via SSH

Accessing Temperature from DS18B20 sensors, Remote access to RaspberryPi, Smart and Connected Cities, An IoT Strategy for Smarter Cities, Smart City IoT Architecture.

Add-on course: IOT

Summary

Course Objectives: This course will enable students to

- This course will enable students to
- Assess the genesis and impact of IoT applications, architectures in real world.
- Illustrate diverse methods of deploying smart objects and connect them to network.
- Compare different Application protocols for IoT.
- Infer the role of Data Analytics and Security in IoT.
- Identify sensor technologies for sensing real world entities and understand the role of IoT in various domains of Industry..

Course Outcomes: The students should be able to

After studying this course, students will be able to

- Interpret the impact and challenges posed by IoT networks leading to new architectural models.
- Compare and contrast the deployment of smart objects and the technologies to connect them to

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(3) Add-On Course on "NS2NS3"

Add-on course: NS2NS3

Summary

Course objectives: This course will enable students to

- Demonstrate operation of network and its management commands
- Simulate and demonstrate the performance of GSM and CDMA
- Implement data link layer and transport layer protocols
- To write a simulation program using Network Simulator 2 (NS2) or NS3.
- Students will get hands-on experiences and in-depth knowledge as of how different wired and wireless ad hoc routing protocols work.
- Comparing simulation results of major ad hoc routing protocols.

Course outcomes: The students should be able to

- Analyze and Compare various networking protocols.
- Implement, analyze and evaluate networking protocols in NS2 / NS3
- Implement the network based messaging application and understand the impact of network parameters on performance
- Gain in-depth understanding on the network design concepts and protocols of wireless ad hoc networks.

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(4) Add-On Course on "Python"

Python Objectives

The learning objectives of this course are:

- To understand why Python is a useful scripting language for developers.
- To learn how to design and program Python applications.
- To learn how to use lists, tuples, and dictionaries in Python programs.
- To learn how to identify Python object types.
- To learn how to use indexing and slicing to access data in Python programs.

Python Fundamentals

Fundamentals of Python Programming2.

Introduction to python programming

- High level, interpreted language
- Object-oriented • General purpose
- Web development (like: Django and Bottle),
- Scientific and mathematical computing (Orange, SciPy, NumPy)
- Desktop graphical user Interfaces (Pygame, Panda3D). 3.

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(5)Add-On Course on “IoT application using Raspberry pi and Arduino ”

Electronics & Communication Engineering

2018-19

I. Add-On Course on “IOT APPLICATION USING RASPERRY PI & ARDUINO”

Course Objective :

- Explore the hardware and software tools (Python and Embedded C, HTML)
- IoT Platform and IO Configuration
- Interactive web applications
- Networking of Raspberry Pi

Course Outcome :

- On completion of the Course,
- Accessing Digital sensor via wifi with HTML Web server using ESP866
 - Build your computer using Raspberry Pi platform
 - Setup IoT connectivity using a remote desktop
 - Develop and test an IoT weather monitoring station

(6)Add-On Course on “Python Application Programming ”

II. Add-On Course on “PYTHON APPLICATION PROGRAMMING”

Course Objective :

- To acquire programming skills in core Python.
To acquire Object Oriented Skills in Python
To develop the skill of designing Graphical user Interfaces in Python
To develop the ability to write database applications in Python

Course Outcome :

On completion of the Course,

1. Explain basic principles of Python programming language
2. Implement object oriented concepts
3. Implement database and GUI applications.


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(7)Add-On Course on “Heating, Ventilation and Air Conditioning”

Course Objective

The objective of the HVAC Technician study program is to educate the student, with theory and hands on training, to a degree of competency in the heating and air conditioning field, enabling the student to perform the associated skills.

Course outcome

- 1.Master the concepts about heating and cooling loads of a building and its energy performance
- 2 Design and operate HVAC systems.
- 3 Evaluate the heating and cooling load of a building.
4. Communicate ideas through technical drawings, schematic diagrams and technical reports.


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(8) Add-On Course on "MATLAB SIMULINK"

Electrical & Electronics Engineering

2018-19

Add-On Course on "A Course on MATLAB - SIMULINK"

Add-on course: A Course on MATLAB - SIMULINK

Summary

Course objectives: This course will enable students to

- To Impart the Knowledge to the students with MATLAB SIMULINK software.
- To provide a working introduction to the MATLAB SIMULINK technical computing environment.
- To introduce students the use of a high-level Simulation package.

Course outcomes: At the end of this course, the students should be able to

- Identify tools available in MATLAB.
- Identify the role of MATLAB in the simulation software field.
- Understand the design concepts of various fields using MATLAB
- Able to simulate electrical circuits using MATLAB SIMULINK.
- Design and to simulate their own circuits.

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(9) Add-On Course on "SMP"



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DEPARTMENT OF CIVIL ENGINEERING

Course Syllabus

Mentoring is a great way to develop talent, with benefits for both parties (mentor and mentee) invested in the relationship. It has existed as an informal learning method for many centuries, in work set-ups and beyond, with an experienced senior often taking on the mantle of guiding a newcomer.

The focus on structured mentoring is a more recent development, as organizations try to create effective frameworks to maximize the benefits of this natural human relationship. Also, as organizations scale and become more geographically dispersed, it is important to have a structure for mentoring to allow for connections across the organization.

An important part of structuring mentoring is making it accessible to all employees. A single mentoring relationship is limited in terms of the scope of impact. Hence, to truly harness its power, there should be several mentoring relationships across the organization, with employees empowered to seek access to mentoring as needed. With that goal in mind, here are seven ways to improve the reach of a mentoring program:

Course Outcomes:

- Clarify Program Outline
- Make Mentoring Topical
- Explore Different Formats
- Allow Self-matching
- Build Mentoring Support Systems
- Recognize Mentors

Add-on course: Student Mentoring Programme summary

Course objectives: This course will enable students to

- Clarify Program Outline
- Make Mentoring Topical
- Explore Different Formats
- Allow Self-matching
- Build Mentoring Support Systems
- Recognize Mentors

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(10) Add-On Course on “Cype Software”



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Course Syllabus

CYPE is a firm that develops and distributes technical software for Architecture, Engineering and Construction professionals.

CYPE's journey began in 1983 with an intense activity in the field of engineering and structural analysis, which motivated the computer development of applications to cover its own needs and those of its clients. The success of these programs led the company to concentrate its activity in the development, commercialization and distribution of technical software.

Course Outcomes:

- Structural design and analysis
- Design and analysis of building services
- Project management and project documents

Add-on course: Student Mentoring Programme summary

Course objectives: This course will enable students to

- Professional version
Operational access to the acquired programs.
- Evaluation version
Free access, brought about for professional wishing to know the features of the software before purchasing it.
- Campus version and temporary license
For use in academics, universities and other learning centers with a limited use period.

Assessment of Student Mentoring Programme

- Using concept maps.
- Using concept tests.
- Assessing group work.

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(11) Add-On Course on “Fundamentals of Internet of Things”



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DEPARTMENT OF PHYSICS

Fundamentals of Internet of Things (IoT) Course Syllabus

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

Detailed Course Syllabus:

1. Introduction to IOT Understanding IoT fundamentals
 - IOT Architecture and protocols
 - Various Platforms for IoT
 - Real time Examples of IoT
 - Overview of IoT components and IoT Communication Technologies
 - Challenges in IOT
2. Arduino Simulation Environment
 - Arduino Uno Architecture
 - Setup the IDE, Writing Arduino Software
 - Arduino Libraries
 - Basics of Embedded C programming for Arduino
 - Interfacing LED, push button and buzzer with Arduino
3. Sensor & Actuators with Arduino
 - Overview of Sensors working
 - Analog and Digital Sensors

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- Interfacing of Temperature, Humidity, Motion, Light and Gas Sensor with Arduino
- Interfacing of Actuators with Arduino.
- Interfacing of Relay Switch and Servo Motor with Arduino

Course Outcomes:

After the completion of the course, the students will be able design some IOT based prototype

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(12) Add-On Course on “Pre-Placement Training”

Add-on course: Pre-Placement summary

Course objectives: This course will enable students to

- To look for 100% employment for all students.
- To recognize the core competencies of the students.
- To train the students to meet the expectations of the industry through our Career Development Programmes.
- To build confidence in students and develop right attitude in them and
- To enhance their communication skills.

Course outcomes: The students should be able to

- Enable them to do better career mapping and career planning of their own careers.
- Equip them with life skills to build their future.
- Improve on their personal skills like communication, writing skills, computer literacy etc.
- Develop personality traits like self-confidence, self-awareness, creativity and presentation abilities.

Assessment:

1. Choose the correct sentence – They will rebuild the entire block.
 - a) The entire block is being rebuilt.
 - b) The block may be rebuilt entirely.
 - c) The entire block will have to be rebuilt.
 - d) The entire block will be rebuilt.

Answer: d) The entire block will be rebuilt.


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(13) Add-On Course on “Communication Skills Training”

**Add-on course: Communication Skills Training
Summary**

Course objectives: This course will enable students to

- To look for 100% employment for all students.
- To achieve better language skills both written and oral.
- To train the students to meet the expectations of the industry by improving on their communication skills.
- To build confidence in students and develop right attitude in them and
- To enhance their communication skills.

Course outcomes: The students should be able to

- Enable them to do better career mapping and career planning of their own careers.
- Equip them with life skills to build their future.
- Improve on their personal skills like communication, writing skills, computer literacy etc.
- Develop personality traits like self-confidence, self-awareness, creativity and presentation abilities.

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2019-20

(1) Add-On Course on "AI/ML"



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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Artificial Intelligence Course Syllabus

- Introduction to Artificial Intelligence
- Understand various components of Artificial Intelligence
- AI Algorithm
- Applications of AI
- Introduction to Machine Learning
- Fundamentals of Python
- ML Algorithms
- Natural Language Processing
- Experience Voice Assistants and Understand their working
- Image Processing
- Combining Image Processing with ML
- Live Projects

Add-on course: ARTIFICIAL INTELLIGENCE

Summary

Course objectives: This course will enable students to

- Identify the problems where AI is required and the different methods available
- Compare and contrast different AI techniques available
- Define and explain learning algorithms

Course outcomes: The students should be able to

- Identify the AI based problems
- Apply techniques to solve the AI problems
- Define learning and explain various learning techniques
- Discuss on expert systems

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(2) Add-On Course on “Internet of Things”



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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Internet of Things Course Syllabus

What is IoT, Genesis of IoT, IoT and Digitization, Smart Objects: The “Things” in IoT, Sensors, Actuators, and Smart Objects, Sensor 10 Hours

Networks, Connecting Smart Objects, Communications Criteria, IoT Access Technologies.

Data and Analytics for IoT, An Introduction to Data Analytics for IoT, Machine Learning, Big Data Analytics Tools and Technology, Edge Streaming Analytics

IoT Physical Devices and Endpoints - Arduino UNO: Introduction to Arduino, Arduino 10 Hours

UNO, Installing the Software, Fundamentals of Arduino Programming.

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RaspberryPi Board: Hardware Layout, Operating Systems on RaspberryPi, Configuring RaspberryPi

Programming RaspberryPi with Python, Wireless Temperature Monitoring System Using Pi, DS18B20 Temperature Sensor, Connecting Raspberry Pi via SSH

Accessing Temperature from DS18B20 sensors, Remote access to RaspberryPi, Smart and Connected Cities, An IoT Strategy for Smarter Cities, Smart City IoT Architecture,

Add-on course: IOT

Summary

Course Objectives: This course will enable students to

- This course will enable students to
- Assess the genesis and impact of IoT applications, architectures in real world.
- Illustrate diverse methods of deploying smart objects and connect them to network.
- Compare different Application protocols for IoT.
- Infer the role of Data Analytics and Security in IoT.
- Identify sensor technologies for sensing real world entities and understand the role of IoT in various domains of Industry..

Course Outcomes: The students should be able to

After studying this course, students will be able to

- Interpret the impact and challenges posed by IoT networks leading to new architectural models.
- Compare and contrast the deployment of smart objects and the technologies to connect them to


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(3) Add-On Course on “R Programming”



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DEPARTMENT OF INFORMATION SCIENCE & ENGINEERING

ADD ON COURSE ON R PROGRAMMING

11-11-2019- 15-11-2019

The objective of the R Programming Add-on Course

1. Master the use of the R and R Studio interactive environment
2. Expand R by installing R packages
3. Understand the different data types in R
4. Apply R programming in machine learning domain

R Programming language is open for students and targets people who have no experience in computer programming. Students will become familiar with R and achieve the ability to use R to solve their particular data analysis needs after finishing the course.

Summary

The students learnt the basics of R, describe the features and syntax of R, programming constructs and conditionally control code flow (loops, Control structures etc) requisites to design applications.

Exercises and lab sessions were conducted to provide students the opportunity to gain practical hands-on experience.


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(4)Add-On Course on “Python”

Python Objectives

The learning objectives of this course are:

- To understand why Python is a useful scripting language for developers.
- To learn how to design and program Python applications.
- To learn how to use lists, tuples, and dictionaries in Python programs.
- To learn how to identify Python object types.
- To learn how to use indexing and slicing to access data in Python programs.

Python Fundamentals

Fundamentals of Python Programming2.

Introduction to python programming

- High level, interpreted language
- Object-oriented • General purpose
- Web development (like: Django and Bottle),
- Scientific and mathematical computing (Orange, SciPy, NumPy)
- Desktop graphical user Interfaces (Pygame, Panda3D). 3.



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(5) Add-On Course on “Python Application Programming”

II. Add-On Course on “PYTHON APPLICATION PROGRAMMING”

Course Objective :

- To acquire programming skills in core Python.
- To acquire Object Oriented Skills in Python
- To develop the skill of designing Graphical user Interfaces in Python
- To develop the ability to write database applications in Python

Course Outcome :

On completion of the Course,

1. Explain basic principles of Python programming language
2. Implement object oriented concepts
3. Implement database and GUI applications.

(6) Add-On Course on “Developing Soft skills and Personality”

Electronics & Communication Engineering

2019-20

I. Add-On Course on “DEVELOPING SOFTSKILLS AND PERSONALITY”

Course Objective :

- To encourage the all round development of students by focusing on soft skills.
- To make the engineering students aware of the importance, the role and the content of soft skills through instruction, knowledge acquisition, demonstration and practice.
- To develop and nurture the soft skills of the students through individual and group activities.
- To expose students to right attitudinal and behavioral aspects and to build the same through activities

Course Outcome :

On completion of the Course,

- Effectively communicate through verbal/oral communication and improve the listening skills
- Write precise briefs or reports and technical documents
- Actively participate in group discussion / meetings / interviews and prepare & deliver presentations .
- Become more effective individual through goal/target setting, self motivation and practicing creative thinking.
- Function effectively in multi-disciplinary and heterogeneous teams through the knowledge of team work, Inter-personal relationships, conflict management and leadership quality.


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(7) Add-On Course on “Automotive technologies”



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DEPARTMENT OF MECHANICAL ENGINEERING

Automotive Technologies Course Syllabus

Syllabus

Courses under this program:

Electric and Conventional Vehicles working, performance and energy consumption study

Road Traffic Safety in Automotive Engineering

Design and build Hybrid Vehicles by combining both electric motors and combustion engines

Course outcome

- Understand the working of electric and conventional powertrains and analyze their performance and energy consumption.
- Understand the fundamentals of passive and active safety in automotive engineering.
- Design hybrid powertrains which meet the needs of modern vehicles, by combining the strengths of both electric motors and combustion engines.

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(8) Add-On Course on “Product design and development”



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DEPARTMENT OF MECHANICAL ENGINEERING

Product design and development Course Syllabus

Introduction to product design and development, Product life-cycle, Product design, Product design steps and product analysis

Value engineering concepts, Case study on value engineering

Quality function deployment, Ergonomics in product design

Design guidelines for different processes, Rapid prototyping processes.

Course Objective

It has been established worldwide that the most successful economies are based on innovation and creativity led entrepreneurship. The government is focusing on putting concerted efforts to produce job creators. The course on Product Design and Development is conceptualized and planned in such a way that it helps both job creators as well as job seekers.

Course outcome

Acquaint the students with the practical knowledge regarding conceptualization, design and development of a new product.

Industry Products are being conceptualized, designed and developed in order to satisfy the human needs and requirements.

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(9) Add-On Course on “MATLAB SIMULINK”

Electrical & Electronics Engineering

2019-20

Add-On Course on “A Course on MATLAB - SIMULINK”

Add-on course: A Course on MATLAB - SIMULINK

Summary

Course objectives: This course will enable students to

- To Impart the Knowledge to the students with MATLAB SIMULINK software.
- To provide a working introduction to the MATLAB SIMULINK technical computing environment.
- To introduce students the use of a high-level Simulation package.

Course outcomes: At the end of this course, the students should be able to

- Identify tools available in MATLAB.
- Identify the role of MATLAB in the simulation software field.
- Understand the design concepts of various fields using MATLAB
- Able to simulate electrical circuits using MATLAB SIMULINK.
- Design and to simulate their own circuits.


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(10) Add-On Course on “SMP”



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DEPARTMENT OF CIVIL ENGINEERING

Course Objectives

Mentoring is a great way to develop talent, with benefits for both parties (mentor and mentee) invested in the relationship. It has existed as an informal learning method for many centuries, in work set-ups and beyond, with an experienced senior often taking on the mantle of guiding a newcomer.

The focus on structured mentoring is a more recent development, as organizations try to create effective frameworks to maximize the benefits of this natural human relationship. Also, as organizations scale and become more geographically dispersed, it is important to have a structure for mentoring to allow for connections across the organization.

An important part of structuring mentoring is making it accessible to all employees. A single mentoring relationship is limited in terms of the scope of impact. Hence, to truly harness its power, there should be several mentoring relationships across the organization, with employees empowered to seek access to mentoring as needed. With that goal in mind, here are seven ways to improve the reach of a mentoring program:

Course Outcomes:

- Clarify Program Outline
- Make Mentoring Topical
- Explore Different Formats
- Allow Self-matching
- Build Mentoring Support Systems
- Recognize Mentors

Add-on course: Student Mentoring Programme summary

Course objectives: This course will enable students to

- Clarify Program Outline
- Make Mentoring Topical
- Explore Different Formats
- Allow Self-matching
- Build Mentoring Support Systems
- Recognize Mentors

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(11) Add-On Course on “Cype Software”



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DEPARTMENT OF CIVIL ENGINEERING

Course Syllabus

CYPE is a firm that develops and distributes technical software for Architecture, Engineering and Construction professionals.

CYPE's journey began in 1983 with an intense activity in the field of engineering and structural analysis, which motivated the computer development of applications to cover its own needs and those of its clients. The success of these programs led the company to concentrate its activity in the development, commercialization and distribution of technical software.

Course Outcomes:

- Structural design and analysis
- Design and analysis of building services
- Project management and project documents

Add-on course: Student Mentoring Programme summary

Course objectives: This course will enable students to

- Professional version
Operational access to the acquired programs.
- Evaluation version
Free access, brought about for professional wishing to know the features of the software before purchasing it.
- Campus version and temporary license
For use in academics, universities and other learning centers with a limited use period.

Assessment of Student Mentoring Programme

- Using concept maps.
- Using concept tests.
- Assessing group work.

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(12) Add-On Course on “Fundamentals of Internet of Things”



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DEPARTMENT OF PHYSICS

Fundamentals of Internet of Things (IoT) Course Syllabus

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

Detailed Course Syllabus:

1. Introduction to IOT Understanding IoT fundamentals
 - IOT Architecture and protocols
 - Various Platforms for IoT
 - Real time Examples of IoT
 - Overview of IoT components and IoT Communication Technologies
 - Challenges in IOT
2. Arduino Simulation Environment
 - Arduino Uno Architecture
 - Setup the IDE, Writing Arduino Software
 - Arduino Libraries
 - Basics of Embedded C programming for Arduino
 - Interfacing LED, push button and buzzer with Arduino
3. Sensor & Actuators with Arduino
 - Overview of Sensors working
 - Analog and Digital Sensors

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- Interfacing of Temperature, Humidity, Motion, Light and Gas Sensor with Arduino
- Interfacing of Actuators with Arduino.
- Interfacing of Relay Switch and Servo Motor with Arduino

Course Outcomes:

After the completion of the course, the students will be able design some IOT based prototype

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(13) Add-On Course on “Soft Skills”

Add-on course: Soft Skills

Summary

Course objectives: This course will enable students to

- Aims to increase learner's computer knowledge and unique soft skills to develop attributes that enhance an individual's interactions.
- The objective of the programme is to inculcate potential skills in the learners to prepare them to deal with the external world in a collaborative manner.
- Communicate effectively, take initiative, solve problems, and demonstrate a positive work ethic to hold a good impression and positive impact.

Course outcomes: The students should be able to

- To enhance Soft skills are Communication skills, Body language and Etiquette, Group discussion skills, Interview skills, Presentation skills, and Emotional Intelligence, Time Management Skills, Preparation of CV, and Life skills.
- To enhance IT skills like the basic principles of a computer, the operating system like Microsoft Word, Excel and Power Point, social and ethical issues around the Internet, and Management Information System.


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(14) Add-On Course on “Pre-Placement Training”

**Add-on course: Pre-Placement
summary**

Course objectives: This course will enable students to

- To look for 100% employment for all students.
- To recognize the core competencies of the students.
- To train the students to meet the expectations of the industry through our Career Development Programmes.
- To build confidence in students and develop right attitude in them and
- To enhance their communication skills.

Course outcomes: The students should be able to

- Enable them to do better career mapping and career planning of their own careers.
- Equip them with life skills to build their future.
- Improve on their personal skills like communication, writing skills, computer literacy etc.
- Develop personality traits like self-confidence, self-awareness, creativity and presentation abilities.

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2020-21

(1) Add-On Course on "BluePrism"

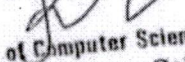
Add-on course: BLUEPRISM


Summary

Course Objectives: This course will enable students to

- All about automated testing and the fundamentals of Blue Prism
 - To create your own test suites using the Blue Prism user Interface and other tools and techniques
 - How to manage your projects and project items
 - The core features of Blue Prism along with its advantages and other tools available
- Course Outcomes:** The students should be able to

- Get familiar with the tools for routine processes development.
- To create a project that will be useful for organisation.
- To learn the basic concepts of blueprism and RPA.


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(2)Add-On Course on “Bootstrap 4.0 & Introduction to Bootstrap v5.0”

Bootstrap 4.0 & Introduction to Bootstrap v5.0 objectives:

Being a tool for creating front-end design, it consists of a series of HTML- and CSS-based design templates for different components of a website or application such as forms, buttons, navigation, modals, typography and other interface components with helpful JavaScript extensions.

Outcomes:

1. Start building dynamic pages.
2. Understand the major benefits of bootstrap 4 and 5.0.
3. Understand the difference between bootstrap 4 and bootstrap 5.
4. Be familiar with bootstrap 5's new elements and attributes.
5. Work with audio and video in bootstrap.

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(3) Add-On Course on “R Programming”



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DEPARTMENT OF INFORMATION SCIENCE & ENGINEERING

ADD ON COURSE ON R PROGRAMMING

11-11-2019- 15-11-2019

The objective of the R Programming Add-on Course

1. Master the use of the R and R Studio interactive environment
2. Expand R by installing R packages
3. Understand the different data types in R
4. Apply R programming in machine learning domain

R Programming language is open for students and targets people who have no experience in computer programming. Students will become familiar with R and achieve the ability to use R to solve their particular data analysis needs after finishing the course.

Summary

The students learnt the basics of R, describe the features and syntax of R, programming constructs and conditionally control code flow (loops, Control structures etc) requisites to design applications.

Exercises and lab sessions were conducted to provide students the opportunity to gain practical hands-on experience.

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(4) Add-On Course on “Python and Machine Learning ”

II. Add-On Course on “PYTHON & MACHINE LEARNING”

Course Objective :

- To acquire programming skills in core Python.
- To acquire Object Oriented Skills in Python
- To develop the skill of designing Graphical user Interfaces in Python
- To develop the ability to write database applications in Python

Course Outcome :

On completion of the Course,

1. Explain basic principles of Python programming language
2. Implement object oriented concepts
3. Implement database and GUI applications.

(5) Add-On Course on “Arduino Programming”

Electronics & Communication Engineering

2020-21

I. Add-On Course on “ARDUINO PROGRAMMING”

Course Objective :

- To provide knowledge of different Smart System applications.
- To familiarize students with Arduino as IDE, programming language & platform.
- To provide knowledge of Arduino boards and basic components.
- Develop skills to design and implement various smart system application.

Course Outcome :

On completion of the Course,

- Understand the value and importance of learning a coding language;
- Be able to write a simple program in C++ with GNU Compiler;
- Transform a physical input into a digital input and analyze it;
- Work to complete customizable full Arduino project autonomously, from the beginning to the end;

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(6) Add-On Course on “Electric vehicle design”

Electric Vehicle Design Course Syllabus

Basics of Electric Vehicles: Electrical vehicles and their impact on CO₂ and other exhaust emissions. Infrastructure required for electrical vehicles including charging, maintenance and repair.

Hybrid vehicle principles: Serial, Parallel, Electrical, Hydraulic.

Basics of electric motors: induction motors, synchronous motors, torque production characteristics. Electrical motor topologies and operations principles: radial, axial and transversal flux motors. Torque production and characteristics of induction, permanent magnet and reluctance motors.

Variable frequency supply, Electrical converters, Switching and control. The embedded design of the converters. Sensors and Actuators, Electronic engine control system.

The most common battery chemistries. The principles of the fuel cell operation. The energy storage system integrations and safety aspects.

Review of existing design of Electric Vehicles, Electrical vehicle design, performance, operation, and charging. Electrical vehicle design and Performance assessment.

Course Objective:

Acquaint the learner with knowledge on electric vehicle basics, design and working.

Course Outcome:

Student will be able to design and develop electric / hybrid vehicle.

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(7) Add-On Course on “3D Printing Technology”

Course Objectives

The student will be able to

- To gain knowledge and skills related to 3D printing technologies.
- To learn the selection of material, equipment and development of a product for Industry 4.0 environment.
- To understand the various software tools, process and techniques for digital manufacturing.
- To apply these techniques into various applications.

Course Outcomes

After completion of this course, the students will be able to:

- Develop CAD models for 3D printing.
- Import and Export CAD data and generate .stl file.
- Select a specific material for the given application.
- Select a 3D printing process for an application.
- Produce a product using 3D Printing or Additive Manufacturing (AM).

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(8)Add-On Course on “MATLAB SIMULINK”

Electrical & Electronics Engineering

2020-21

Add-On Course on “A Course on MATLAB - SIMULINK”

Add-on course: A Course on MATLAB - SIMULINK

Summary

Course objectives: This course will enable students to

- To Impart the Knowledge to the students with MATLAB SIMULINK software.
- To provide a working introduction to the MATLAB SIMULINK technical computing environment.
- To introduce students the use of a high-level Simulation package.

Course outcomes: At the end of this course, the students should be able to

- Identify tools available in MATLAB.
- Identify the role of MATLAB in the simulation software field.
- Understand the design concepts of various fields using MATLAB
- Able to simulate electrical circuits using MATLAB SIMULINK.
- Design and to simulate their own circuits.

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(9) Add-On Course on "SMP"



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DEPARTMENT OF CIVIL ENGINEERING

Course Syllabus

Mentoring is a great way to develop talent, with benefits for both parties (mentor and mentee) invested in the relationship. It has existed as an informal learning method for many centuries, in work set-ups and beyond, with an experienced senior often taking on the mantle of guiding a newcomer.

The focus on structured mentoring is a more recent development, as organizations try to create effective frameworks to maximize the benefits of this natural human relationship. Also, as organizations scale and become more geographically dispersed, it is important to have a structure for mentoring to allow for connections across the organization.

An important part of structuring mentoring is making it accessible to all employees. A single mentoring relationship is limited in terms of the scope of impact. Hence, to truly harness its power, there should be several mentoring relationships across the organization, with employees empowered to seek access to mentoring as needed. With that goal in mind, here are seven ways to improve the reach of a mentoring program:

Course Outcomes:

- Clarify Program Outline
- Make Mentoring Topical
- Explore Different Formats
- Allow Self-matching
- Build Mentoring Support Systems
- Recognize Mentors

Add-on course: Student Mentoring Programme summary

Course objectives: This course will enable students to

- Clarify Program Outline
- Make Mentoring Topical
- Explore Different Formats
- Allow Self-matching
- Build Mentoring Support Systems
- Recognize Mentors

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(10) Add-On Course on “Cype Software”



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DEPARTMENT OF CIVIL ENGINEERING

Course Syllabus

CYPE is a firm that develops and distributes technical software for Architecture, Engineering and Construction professionals.

CYPE's journey began in 1983 with an intense activity in the field of engineering and structural analysis, which motivated the computer development of applications to cover its own needs and those of its clients. The success of these programs led the company to concentrate its activity in the development, commercialization and distribution of technical software.

Course Outcomes:

- Structural design and analysis
- Design and analysis of building services
- Project management and project documents

Add-on course: Student Mentoring Programme summary

Course objectives: This course will enable students to

- Professional version
Operational access to the acquired programs.
- Evaluation version
Free access, brought about for professional wishing to know the features of the software before purchasing it.
- Campus version and temporary license
For use in academics, universities and other learning centers with a limited use period.

Assessment of Student Mentoring Programme

- Using concept maps.
- Using concept tests.
- Assessing group work.

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(11) Add-On Course on “Fundamentals of Internet of Things”



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DEPARTMENT OF PHYSICS

Fundamentals of Internet of Things (IoT) Course Syllabus

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

Detailed Course Syllabus:

1. Introduction to IOT Understanding IoT fundamentals
 - IOT Architecture and protocols
 - Various Platforms for IoT
 - Real time Examples of IoT
 - Overview of IoT components and IoT Communication Technologies
 - Challenges in IOT
2. Arduino Simulation Environment
 - Arduino Uno Architecture
 - Setup the IDE, Writing Arduino Software
 - Arduino Libraries
 - Basics of Embedded C programming for Arduino
 - Interfacing LED, push button and buzzer with Arduino
3. Sensor & Actuators with Arduino
 - Overview of Sensors working
 - Analog and Digital Sensors

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- Interfacing of Temperature, Humidity, Motion, Light and Gas Sensor with Arduino
- Interfacing of Actuators with Arduino.
- Interfacing of Relay Switch and Servo Motor with Arduino

Course Outcomes:

After the completion of the course, the students will be able design some IOT based prototype

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(12) Add-On Course on "Pre-Placement Training"

Add-on course: Pre-Placement summary

Course objectives: This course will enable students to

- To look for 100% employment for all students.
- To recognize the core competencies of the students.
- To train the students to meet the expectations of the industry through our Career Development Programmes.
- To build confidence in students and develop right attitude in them and
- To enhance their communication skills.

Course outcomes: The students should be able to

- Enable them to do better career mapping and career planning of their own careers.
- Equip them with life skills to build their future.
- Improve on their personal skills like communication, writing skills, computer literacy etc.
- Develop personality traits like self-confidence, self-awareness, creativity and presentation abilities.

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(13) Add-On Course on “Personality Development”

Add-on course: Pre-Placement

summary

Course objectives: This course will enable students to

- To look for 100% employment for all students.
- To recognize the core competencies of the students.
- To train the students to meet the expectations of the industry through our Career Development Programmes.
- To build confidence in students and develop right attitude in them and
- To enhance their communication skills.

Course outcomes: The students should be able to

- Enable them to do better career mapping and career planning of their own careers.
- Equip them with life skills to build their future.
- Improve on their personal skills like communication, writing skills, computer literacy etc.
- Develop personality traits like self-confidence, self-awareness, creativity and presentation abilities.

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