

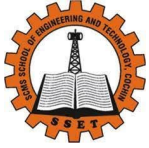
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CRITERIA 1

CURRICULAR ASPECTS

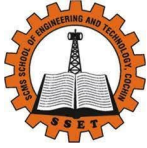
1.2: Academic Flexibility



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1.2.1/1.2.2 Number of Certificate/Value added courses offered and online courses of MOOCs, SWAYAM, NPTEL etc.



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**BROCHURE
AND
COURSE PLAN**



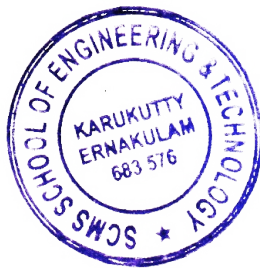
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Add on /Certificate/Value added programs and Online MOOC programs like NPTEL, Swayam

2018-19

| Sl. No | Name of the Add on /Certificate/Value added programs and Online MOOC programs like NPTEL, Swayam | Course code |
|--------|--|-------------|
| 1 | Object Oriented Programming | COP1819S01 |
| 2 | Android application development | CAD1819S02 |
| 3 | Pathway to Engineering Success: Personality Development | CPD1819S03 |
| 4 | Civil Engineering Softwares | CCS1819S04 |
| 5 | Wastewater treatment and Recycling | NPT1819S01 |




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ADD ON COURSE

ON

Object Oriented Programming

CONDUCTED BY

Department of Computer Science and Engineering

Forenoon session: 9:00 am-12:00pm (3 hours)

Afternoon session: 12:30 pm - 3:30 pm (3 hours)

Total: 30 hours (6 hours per day)

Date:

28/1/2019-1/2/2019

Course on Object Oriented Programming

Course duration: 30hours

Course Coordinator: Ms Gayathry S Warriar

Course Description

This course introduces advanced programming skills and focuses on the core concepts of object-oriented programming and design using a high-level language, either Python or Java. Object-oriented programming represents the integration of software components into a large-scale software architecture. Software development in this way represents the next logical step after learning coding fundamentals, allowing for the creation of sprawling programs.

Course Objectives

- To obtain programming skill development.
- To get introduced to concept of functions in java
- To attain the knowledge of various applications of java language in industry.

Course Outcomes

After completing the course, students will be able to:

- To solve the given problems using java language
- Design codes using functions in java
- They got familiarized with various applications in real life and industry.

Assessment Pattern

Two assignments of 15 marks each

Final Assessment exam -50 marks, passed with a minimum of 20 marks

Viva-20 marks

Certificates will be awarded to students who completed the course with a minimum of 40 marks (total score) and a minimum of 20 marks in final exam. Minimum 75% attendance is mandatory to get the certificate.

Syllabus

Module 1 (6 hrs)

- Object Oriented Programming
- Abstraction
- objects and classes
- Encapsulation- Inheritance

Module 2 (6 hrs)

- Inheritance
- Super classes- sub classes
- Protected member
- constructors in sub classes- the Object class

Module 3 (6 hrs)

- Exceptions
- exception hierarchy
- throwing and catching exceptions

Module 4 (6 hrs)

- Multi-threading and multitasking
- Thread life cycle

Module 5 (6 hrs)

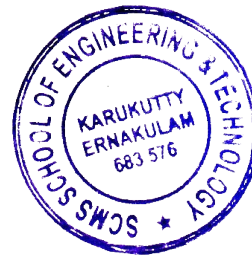
- Basics of event handling



Course Coordinator



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ADD ON COURSE

ON

Android Application Development

CONDUCTED BY

Department of Computer Science and Engineering

Forenoon session: 9:00 am-12:00pm (3 hours)

Afternoon session: 12:30 pm - 3:30 pm (3 hours)

Total: 30 hours (6 hours per day)

Date:

21/2/19, 26/2/19, 27/2/19, 28/2/19, 1/3/19

Add on Course On Android Application Development

Development Course duration: 30hours

Course Coordinator: Ms.Rosebell Paul

Course Description

Android software development is the process by which applications are created for devices running the Android operating system. Google states that "Android apps can be written using Kotlin, Java, and C++ languages" using the Android software development kit (SDK), while using other languages is also possible.

Course Objectives

- To obtain programming android app development.
- To get introduced to concept of functions in app development
- To attain the knowledge of various applications development language in industry.

Course Outcomes

After completing the course, students will be able to reach the best possible chance to reach any career goals you set. Once you get started, within no time, you'll land your dream job, have that promotion, or create a successful business of your own in the field of Android

Syllabus

Module 1 (6 hrs)

- Open Handset Alliance
- Use Android for mobile app development
- Android Marketplaces
- Android Development Environment setup

Module 2 (6 hrs)

- Linux Kernel
- Libraries

Assessment Pattern

Two assignments of 15 marks each

Final Assessment exam -50 marks, passed with a minimum of 20 marks

Viva-20 marks

Certificates will be awarded to students who completed the course with a minimum of 40 marks (total score) and a minimum of 20 marks in final exam. Minimum 75% attendance is mandatory to get the certificate.

- Android Runtime
- Application Framework

Module 3 (6 hrs)

- Fundamental Android UI Design
- Introducing Layouts
- Creating new Layouts
- Drawable Resources

Module 4 (6 hrs)

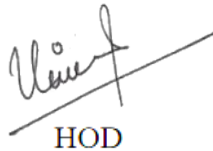
- Creating a splash screen
- Android Activity Lifecycle,

Module 5 (6 hrs)


- SQLite: Open Helper and create database
- Threads running on UI thread (runOnUiThread)
- Worker thread
- Handlers & Runnable
- AsyncTask (in detail)
- Examples



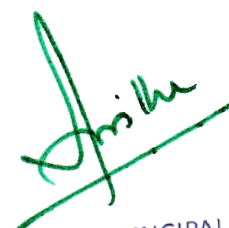
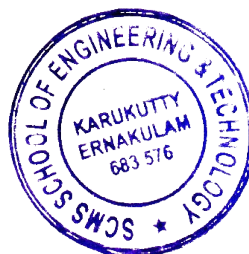
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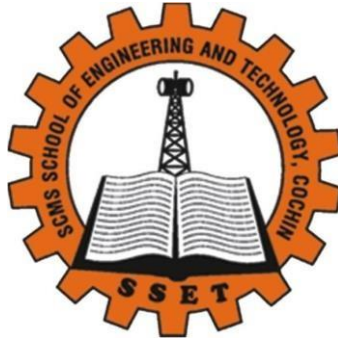
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VALUE ADDED COURSE

ON

Pathway to Engineering Success: Personality Development

CONDUCTED BY

**BASIC SCIENCES AND HUMANITIES DEPARTMENT AND
PLACEMENT CELL SCMS SCHOOL OF ENGINEERING AND
TECHNOLOGY**

Forenoon session: 9:00 am-12:00pm (3 hours)

Afternoon session: 1:00 pm - 4:00 pm (3 hours)

Course dates :1/8/18, 29/8/18, 3/9/18, 4/9/18 and
13/9/18

Total: 30 hours (6 hours per day)

Pathway to Engineering Success: Personality Development

Course Objectives

- To develop leadership qualities and apply them in engineering contexts.
- To improve emotional intelligence and self-awareness.
- To create a personal development plan for ongoing growth.

Course Outcomes

After completing the course, students will be able to

- Demonstrate effective communication and interpersonal skills.
- Work collaboratively in diverse teams and understand the value of teamwork.
- Understand ethical principles and their importance in engineering practice.

Syllabus

Module 1 – 6 hours

Introduction to Personality Development -The importance of personality development in engineering, Assessing personal strengths and weaknesses.

Module 2 – 6 hours

Teamwork and Collaboration - Characteristics of effective teams, Team dynamics and conflict resolution.
Leadership Development - Leadership styles and qualities

Module 3 – 6 hours

Quantitative Aptitude - Logical Reasoning -Verbal reasoning

Module 4 – 6 hours

Time Management and Goal Setting – Time management techniques, Setting SMART goals, Creating a personal development plan

Module 5 – 6 hours

Effective Communication Skills – Verbal and non-verbal communication, Public speaking and presentation skills, Confidence building techniques – Mock Interviews

Assessment Pattern

Two assignments of 15 marks each

Final Assessment exam -50 marks, passed with a minimum of 20 marks

Viva-20 marks

Certificates will be awarded to students who completed the course with a minimum of 40 marks (total score) and a minimum of 20 marks in final exam. Minimum 75% attendance is mandatory to get the certificate.

Course summary

The value added course was organized by Basic Sciences and Humanities department and Placement cell on 1/8/18,29/8/18,3/9/18, 4/9/18 and 13/9/18 and 331 of students successfully completed the course.



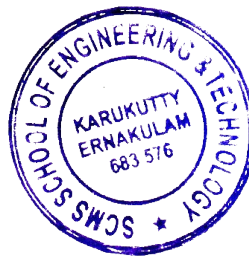
Course Coordinator

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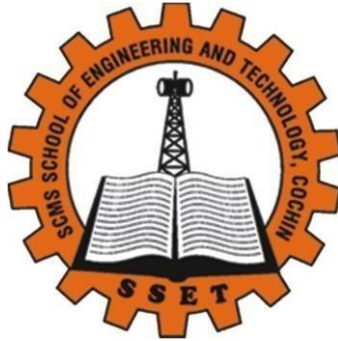
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ADD ON COURSE

ON

CIVIL ENGINEERING SOFTWARES

CONDUCTED BY

DEPARTMENT OF CIVIL ENGINEERING

Forenoon session: 9:00 am-12:00pm (3 hours)

Course Date:

Afternoon session: 12:30 pm - 3:30 pm (3 hours)

18-2-2019 to 22-2-2019

Total: 30 hours (6 hours per day)

ADD ON COURSE: “CIVIL ENGINEERING SOFTWARES”

Course duration: 30hrs

Course Coordinator: Ms. Devi Sreenivas

Course Description

A 30 hrs add on course on Civil Engineering softwares was organized by Civil Engineering Department on 18th February 2019 to 22nd February 2019. The course aims to the familiarization of Civil Engineering Softwares like BIOWIN, ETABS, PLAXIS, ABACUS, MATLAB, etc. which will help the students to improve the software skills and helps to do the project work effectively. The contents of this course was designed to meet the gap in curriculum.

Course Objectives:

To familiarize with the softwares used to solve Civil Engineering issues.

Course Outcome:

At the end of this course, you will be able to create awareness about the

- Advanced Microsoft Office Skills in Excel, Word, PowerPoint, Outlook, Teams and Access
- Structural engineering softwares Etabs and Abacus
- Environmental Engineering softwares like BIOWIN, GIS, LCA, etc.
- Geotechnical Engineering Softwares like Plaxis and Geo slope
- Transportation Engineering related softwares like IITPave and Truckmaker

Syllabus:

Course Content:

Module 1

Microsoft Office Skills in Excel, Word, PowerPoint, Outlook, Teams and Access

Module 2

Familiarization of Structural Engineering Softwares

- ETABS
- ABAQUS

Module 3

Familiarization of Environmental Engineering Softwares

- BIOWIN
- GIS
- LCA

Module 4

Familiarization of Geotechnical Engineering Softwares

- PLAXIS
- GEO-SLOPE

Module 5

Familiarization of Geotechnical Engineering Softwares

- IITPave
- TruckMaker

Assessment Pattern

Two assignments of 15 marks each

Final Assessment exam -50 marks, passed with a minimum of 20 marks

Viva-20 marks

Certificates will be awarded to students who completed the course with a minimum of 40 marks (total score) and a minimum of 20 marks in final exam. Minimum 75% attendance is mandatory to get the certificate.



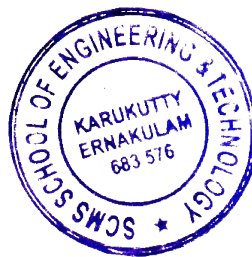
Coordinator



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WASTEWATER TREATMENT AND RECYCLING

PROF. MANOJ KUMAR TIWARI

Department of Civil Engineering
IIT Kharagpur

INTENDED AUDIENCE : The course will be beneficial for B.Tech/M.Tech/B.Sc/M.Sc/Research Scholars/Faculty members from different institutions. In addition, we will strongly encourage engineers/professionals working in any area related to waste management should consider taking advantage from this unique application orientated course. Regulators (SPCB, CPCB and MOEF professionals) and policy makers will also benefit from this course.

PRE-REQUISITES : Environmental Sciences, Introduction to Environmental Engineering

INDUSTRIES APPLICABLE TO : Larsen and Turbo, Tata Group of Industries, Ramky Group of Industries, IF&LS Environment

COURSE OUTLINE :

This course has emphasises on Integrated Solid Waste Management aspects within the broad subject area of Integrated Waste Management for a Smart City. The issues of Municipal Solid Waste (MSW) management, Construction and Demolition (C&D) Waste and Electronic Waste Management will be covered in this course. The topics will include: generation rates and waste composition; Integrated waste management issues, collection, recovery, reuse, recycling, energy-from-waste, and landfilling; Biological treatment of the organic waste fraction - direct land application, composting, and anaerobic digestion. The environmental impact of waste management and its relationship on the big picture sustainable development and smart city development will be discussed. A major focus of this course will be the role of MSW management within the various initiatives of the Govt. of India including: Swachh Bharat Mission, Smart Cities as well as Make in India. The challenges of waste management for smart cities will also be discussed taking case studies from the first list of 20 smart cities identified in the first phase for this program. This will be followed by overview of the Construction and Demolition (C&D) Waste and Electronic Waste (E-Waste) management issues in India in general and for the smart cities in particular. The new rules with respect of C&D Waste and E-Waste Management will be covered. The challenges of managing these waste streams effectively will be discussed.

ABOUT INSTRUCTOR :

Prof. Manoj Kumar Tiwari [Ph.D. (IIT Kanpur)] is a Civil Engg. graduate with specialization in Environmental Engg. and holds expertise in water and wastewater treatment, water distribution systems, water pricing, and contaminant fate and transport. He is a recipient of prestigious Fulbright Fellowship. Dr. Tiwari has co-authored several papers in apex international journals, and has presented his research in various top ranked conferences across the globe. Dr. Tiwari has over 8 years of teaching experience with both UG as well as PG level courses. He has designed several new courses at IIT Kharagpur for Master's programme in Water Engineering and Management.

COURSE PLAN :

Week 1 : Introduction: General outline; Introduction to wastewater; Various sources and types of wastewater; Need of wastewater management; Concept of wastewater treatment and recycling

Week 2 : Wastewater Generation and Characteristics: Wastewater generation and quantity estimation; Water quality parameters and standards (COD, BOD, DO, Solids, Nutrients, metals and emerging contaminants); Sources specific wastewater physical and chemical characteristics

Week 3 : Natural Attenuation of Pollutants in Wastewater: Concept of natural attenuation; Wastewater discharge in rivers; Attenuation of pollutants on land application.

Week 4 : Treatment Philosophy: Objectives of wastewater treatment; Concept of mass balance; kinetics and equilibrium processes; Reactors tanks; Continuously mixed tank

reactors; Plug-flow reactors Introduction to primary, secondary and tertiary treatment;

Week 5 : Preliminary and Primary Treatment Processes: Screening; Grit removal; Equalization tank; Sedimentation theory; Rectangular and circular sedimentation tanks

Week 6 : Secondary Treatment Processes: Biological treatment of wastewater; Microbial ecology and growth kinetics; Types of microorganisms; Aerobic and anaerobic processes; Suspended and attached growth systems; Activated sludge process; Tricking filters and Rotating biological contactors

Week 7 : Secondary Treatment Processes - Anaerobic: Anaerobic treatment; Anaerobic decomposition of organic matter; Fluidized bed systems; Upflow anaerobic sludge blanket systems; Biogas production and collection; other reactor configurations

Week 8 : Sludge Management: The quantity and characteristics of sewage sludge; Sludge dewatering, drying, and thickening; Sludge digestion; Aerobic and anaerobic sludge stabilization; Composting

Week 9 : Tertiary (Advanced) Treatment Processes: Need and Objectives of advanced treatment; Nutrient (N and P) removal; Chemical treatment processes; Advanced oxidation processes; Adsorption and Ion-exchange; Membrane processes

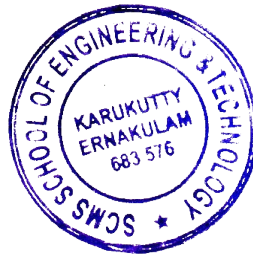
Week 10 : Current Treatment Approaches: Conventional systems; Integrated treatment systems; Advanced reactor configurations; SBR, MBR and MBBR; Application and case studies

Week 11 : Wastewater Recycling: Scope and demands; Types and stages of recycling; Recycling requirements; Designated reuse criteria; centralized vs decentralized recycling systems.

Week 12 : Technology Selection and Decision Making: Research trends in wastewater treatment and recycling; Choice modelling and decision making; Risks and challenges; Socio-economic perspectives; Case studies

Assessment Pattern for certificate courses

A learner will pass and be certified only if Average assignment score (out of 100) \geq 40 AND Final exam score (out of 100) \geq 40.




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