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M-TECH COURSES

M.TECH IN GEOMECHANICS & STRUCTURES

The curriculum of this programme was developed by veterans of our Department, under University guidance. Foundation design is one of the most challenging fields in Civil Engineering. The nature of soil tends to change from point to point, and it changes with depth. Designing a foundation needs high level of knowledge about soil mechanics and analytical skills. Foundations are the most critical part of any structure. The higher you want to rise, the deeper you have to go and more problems need to be solved for heavier and higher structures. Geotechnical needs are to be integrated well with structural design and architecture to give its due importance. This Postgraduate course will create a Civil Engineer with strong grounding on Geotechnical Engineering and Structural Engineering.

COURSE DETAILS

The students will be specially educated in the following areas during the 4 semesters.

- Applied Mathematics for Civil Engineers
- Theoretical Geomechanics
- Advanced Soil Mechanics
- Advanced Design of Concrete Structures
- Design of Reinforced Concrete Foundations
- Foundation Analysis and Design
- Dynamics of Soil and Design of Machine Foundations
- Advanced Geotechnical and Structural Lab
- Civil Engineering Design Studio
- Electives

INDUSTRY SPECIFIC LABORATORIES AND SOFTWARE

- ADVANCED GEOTECHNICAL LAB
- PLAXIS 3D AND 2D

RESEARCH CORE AREAS

- NUMERICAL MODELLING OF SOIL & FOUNDATIONS - SOIL STABILIZATION USING VARIOUS MATERIALS - SUSTAINABILITY OF GEOSTRUCTURES

M.TECH IN STRUCTURAL ENGINEERING & CONSTRUCTION MANAGEMENT

This course is tailored for Civil Engineers wishing to become Senior Consultant Managers in both structural consulting firms and contracting organisations, and is ideal for Graduate Engineers starting their career in the construction industry. It successfully combines structural design with advanced construction management. The course is supported by an excellent well equipped structural research laboratory, in which high load testing floor facility is available, with loading frame of 50 T and its accessories. Besides, the Design Studio lab is equipped with 35 high end computers with licensed software like SAP, ETABS, Primavera and STAAD.

COURSE DETAILS

The students will be specially educated in the following areas during the 4 semesters.

- Analytical Methods in Engineering
- Theory of Elasticity
- Construction Management
- Advanced Design of Concrete Structures
- Project Planning and Implementation
- Finite Element Analysis
- Theory of Plates & Shells
- Structural Engineering Lab
- Computer Application Lab
- Electives

INDUSTRY SPECIFIC LABORATORIES AND SOFTWARE

- ADVANCED STRUCTURAL RESEARCH LAB WITH A LOADING FRAME OF 50T
- ANSYS WITH UNLIMITED NODES FOR RESEARCH PURPOSE.
- E TABS AND SAP2000 SUPPORTED BY NATIONAL INFORMATION CENTRE OF EARTHQUAKE ENGINEERING OF IIT KANPUR.
- TEKLA STRUCTURES FOR STRUCTURAL DESIGN AND DETAILING

RESEARCH CORE AREAS

- SEISMIC PERFORMANCE OF STRUCTURES - STUDIES IN STRUCTURAL MATERIALS - NUMERICAL MODELLING OF SOIL & FOUNDATIONS

LOADING FRAME OF 50 TONNE

M.TECH IN MACHINE DESIGN

In the era of Automation and Mechanization, newer design & design innovation is promising and relevant considering fast escalating requirement of manufacturing industries. In light of this, Post Graduate Program in Machine Design is designed to equip students for professional careers in Design Industries and Research Organizations. Advanced subjects strengthen the students' knowledge for the efficient designs with optimum material utilization. The program curriculum involves Analysis of Static and Dynamic forces to design machine elements.

COURSE DETAILS

The students will be specially educated in the following areas during the 4 semesters.

- Advanced Engineering Mathematics
- Theory of Vibration
- Advanced Mechanics of Solids
- Design of Power Transmission Elements
- Advanced Measurements Laboratory
- Finite Element Analysis
- Design Engineering
- Advanced Theory of Mechanisms
- Computer Aided Engineering Design
- Electives

INDUSTRY SPECIFIC LABORATORIES AND SOFTWARE

- RESEARCH LAB WITH 3D PRINTER AND WORKSTATIONS
- CAD LAB WITH 100 ANSYS 17.2 LICENSE, SOLIDWORKS 30 LICENSE, AUTOCAD LICENSE & CATIA 30 LICENSE.
- ADVANCED MEASUREMENTS LAB WITH PHOTO ELASTIC BENCH

RESEARCH CORE AREAS

- MICROMACHINING ■ NANOTRIBOLOGY ■ ADVANCED COMPOSITE MATERIALS ■ MULTIPHASE FLOW DYNAMICS ■ INNOVATIVE ENGINEERING DESIGN

M. TECH IN POWER SYSTEMS

The Electrical and Electronics Department launched the M.Tech course in Power Systems in the year 2008 and has a yearly intake of 36 students in two batches. The department is equipped with a fortifying and veteran group of teachers and technical staff with vibrant potential. It is reputed for its excellence in imparting high quality education to post graduate students. This course deals with the state-of-the-art techniques in Power System Analysis, Computer Applications, Optimization, Control, Security, Dynamics and Stability of Power Systems.

COURSE DETAILS

The students will be specially educated in the following areas during the 4 semesters.

- Applied Mathematics
- Optimisation of Power System Operation
- Computer Applications in Power Systems
- Power Electronic Circuits
- Power System Control and Security
- Flexible Ac Transmission Systems
- Power System Dynamics and Stability
- Power Systems Simulation Lab
- Power Systems Lab
- Electives

INDUSTRY SPECIFIC LABORATORIES AND SOFTWARE

- POWER SYSTEMS LAB WITH MULTI USER LICENSE FOR MATLAB, ORCAD, PSPICE, ETAP, PSCAD AND AUTOCAD.
- POWER ELECTRONICS AND ENERGY RESEARCH (PEER) LAB
- ANSYS RESEARCH LAB   ■   HIGH VOLTAGE LAB

RESEARCH CORE AREAS

- POWER SYSTEMS ■ POWER ELECTRONICS ■ MACHINES AND DRIVE CONTROL SYSTEM ■ EMBEDDED SYSTEM

M.TECH IN VLSI & EMBEDDED SYSTEMS

M.Tech. in VLSI and Embedded Systems is a two year programme offered by the APJ Abdul Kalam Technological University, Kerala. The programme focus on developing hands-on skills in the design and simulation of semiconductor devices and circuits, architecting systems using embedded components. This program aims at preparing electronics engineers to develop knowledge and skills in VLSI design methodology with a systems perspective in order to facilitate the use of computer-aided design tools for the analysis and design of special purpose digital and analog circuits and systems. The programme will train them in EDA Development, Library Design, Analog and Mixed Signal Design, Semiconductor Chip Design, Design and Verification of ICs, FPGA Development and SoC Design.

COURSE DETAILS

The students will be specially educated in the following areas during the 4 semesters.

- VLSI Technology
- Advanced Digital Design
- CMOS VLSI Design
- Design with Arm Microcontrollers
- Analog Integrated Circuits
- Advanced CMOS VLSI
- Embedded Operating Systems & RTOS
- Design Lab I ▪ Design Lab II ▪ Electives

INDUSTRY SPECIFIC LABORATORIES AND SOFTWARE

- CADENCE VLSI FRAMEWORK
- XILINIX VLSI DESIGN SUITE WITH ADVANCED FPGA AND SOC BOARDS,
- XILINX PARTIAL RECONFIGURATION TOOL AND
- ORCAD EDA TOOL

RESEARCH CORE AREAS

▪ VLSI ▪ EMBEDDED SYSTEMS ▪ VLSI SIGNAL PROCESSING ▪ DEVICE MODELLING.

M.TECH IN COMPUTER SCIENCE & SYSTEMS ENGINEERING

Computer Science & Systems Engineering is an emerging field and has endless potential as computers have made entry into every other field of engineering. There is a huge demand for quality systems engineers who can address the complexities connected with different systems in a computing environment. The curriculum for M.Tech Computer Science and Systems Engineering provides students with a solid knowledge to analyze Computing systems and provide solutions to a huge variety of complex engineering problems. This Post Graduate course primarly focuces on covering the fundamentals of Discrete Mathematical Structures, Automata Concepts, Image Processing, Machine Learning, Advanced Software Testing, Software Maintenance & Documentation tools and Big Data Analytics.

COURSE DETAILS

The students will be specially educated in the following areas during the 4 semesters.

- Discrete Structures for Computer Science
- Advanced Algorithmic Concepts
- Automata Theory and Computability
- Distributed Systems and Advanced Computing
- Computer System Design & Architecture
- Computer Aided Software Engineering
- Distributed Systems and Advanced Computing Lab
- Electives

INDUSTRY SPECIFIC LABORATORIES AND SOFTWARE

- INTERACTIVE INTELLIGENCE LAB
- SPEECH AND VISION LAB
- DATABASE & INFORMATION SYSTEMS LAB
- GRAPHICS AND VISION LAB ▪ OPEN SOURCE TECHNOLOGIES LAV
- CLOUD COMPUTING LAB ▪ EMBEDDED SYSTEMS & ROBOTICS LABS

RESEARCH CORE AREAS

▪ CLOUD COMPUTING ▪ DATA MINING ▪ DIGITAL IMAGE PROCESSING ▪ NETWORK SECURITY

M.TECH IN TELECOMMUNICATION ENGINEERING

Telecommunications Engineers are Electronics Engineers who specialize in design and install equipment used for transmitting wired phone, cellular, cable and broadband data. They provide solutions to problems revolving around wireless modes of communication and information transfer.

COURSE DETAILS

The students will be specially educated in the following areas during the 4 semesters.

- Applied Linear Algebra
- Random Processes and Applications
- Advanced Digital Communication
- Advanced Digital Signal Processing
- Estimation and Detection Theory
- Antenna Theory and Design
- Wireless Communication and Networks
- Telecommunication Lab I
- Telecommunication Lab II

INDUSTRY SPECIFIC LABORATORIES AND SOFTWARE

- MATLAB WITH COMPLETE TOOL BOX SUPPORT,
- ANSYS CAMPUS WIDE LICENSE,
- XILINIX VLSI DESIGN SUITE WITH ADVANCED FPGA AND SOC BOARDS AND
- ORCAD EDA TOOL

RESEARCH CORE AREAS

- ANTENNA DESIGN - TELECOM RESOURCE MANAGEMENT - ESTIMATION AND DETECTION TECHNIQUES - TELECOMMUNICATION NETWORK PROTOCOLS - DIGITAL COMMUNICATION SYSTEM DESIGN

M.TECH IN ROBOTICS AND AUTOMATION [INTER DISCIPLINARY]

Robotics, an exuberant field, Integrates Mechanical, Electrical, Electronics, Control Engineering, Computer Science, Technology, Mathematics and Science. Immerse yourself in the most sought after discipline of the current scenario. The job prospects in this sector are immense in India and abroad. The branches are restricted to three disciplines. 1. ME 2. EEE 3. ECE

COURSE DETAILS

The students will be specially educated in the following areas during the 4 semesters.

- Advanced Mathematics & Optimization Techniques
- Robotic System Configuration
- Fluid Power Automation
- Measurements and Sensors for Automation
- Industrial Automation
- Programmable Logic Control and Computer Numerical Control
- Control, Programming and Calibrations of Robots
- Automation Lab
- Robotics Lab

INDUSTRY SPECIFIC LABORATORIES AND SOFTWARE

- LABVIEW ACADEMY
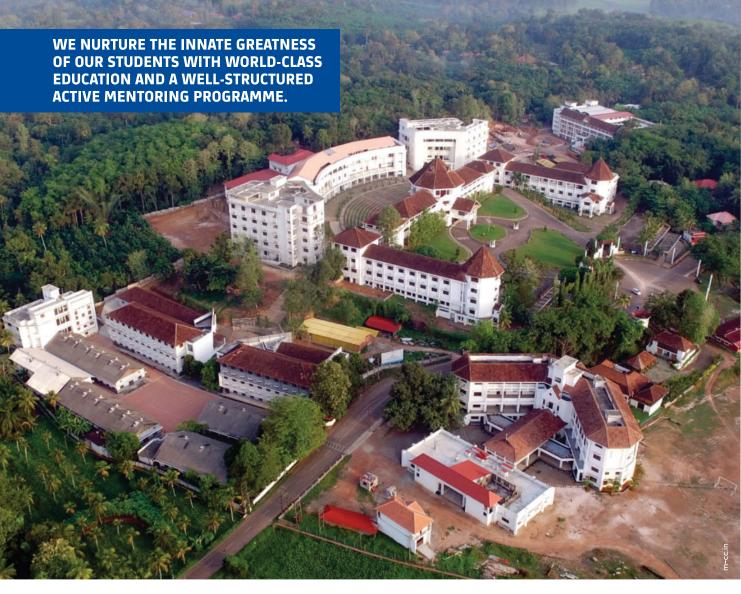- ROBOTICS LAB
- PROCESS CONTROL AND AUTOMATION LAB

RESEARCH CORE AREAS

- ARTIFICIAL INTELLIGENCE - VIRTUAL REALITY, ROBOTICS

M.Tech SCHOLARSHIP SCHEMES

CRITERIA	ALUMNI WITH CGPA 6.5-7.0	ALUMNI WITH CGPA 7.0 – 7.5	ALUMNI WITH CGPA ABOVE 7.5	ANY STUDENT WITH CGPA ABOVE 7.5	WORKED IN REPUTED MNC	FUNDED PROJECTS DONE / SCI OR THOMSON REUTERS INDEXED JOURNAL PAPER	GATE QUALIFIED	NATIONAL LEVEL AWARDS RECOGNITION- COLLEGE LEVEL	STATE LEVEL AWARDS RECOGNITION COLLEGE LEVEL
AMOUNT	Rs. 20,000	Rs. 25,000	Rs. 30,000	Rs. 20,000	Rs. 10,000	Rs. 10,000	Rs. 15,000	Rs. 10,000	Rs. 5,000

NOTE: THE SCHOLARSHIP GIVEN TO A STUDENT IS LIMITED TO A MAXIMUM OF RS.35,000. NOTE: COURSE WISE LIMIT FOR SCHOLARSHIP IS APPLICABLE.

WE NURTURE THE INNATE GREATNESS OF OUR STUDENTS WITH WORLD-CLASS EDUCATION AND A WELL-STRUCTURED ACTIVE MENTORING PROGRAMME.

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SAINTGITS COLLEGE OF
ENGINEERING

Campus
Kottukulam Hills,
Pathamuttom P.O.,
Kottayam-686 532, Kerala, India
Tel / Fax :- +91 - 481- 2436169 /
2436170
www.saintgits.org

Admissions
Admissions Officer,
Saintgits Corporate Office, III Floor,
Unity Buildings, K. K. Road, Kottayam, Kerala.,
Tel / Fax : +91 481 2584330/2300365
Mob : 098959 03278, 081297 02585
E mail : corporateoffice@saintgits.org

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