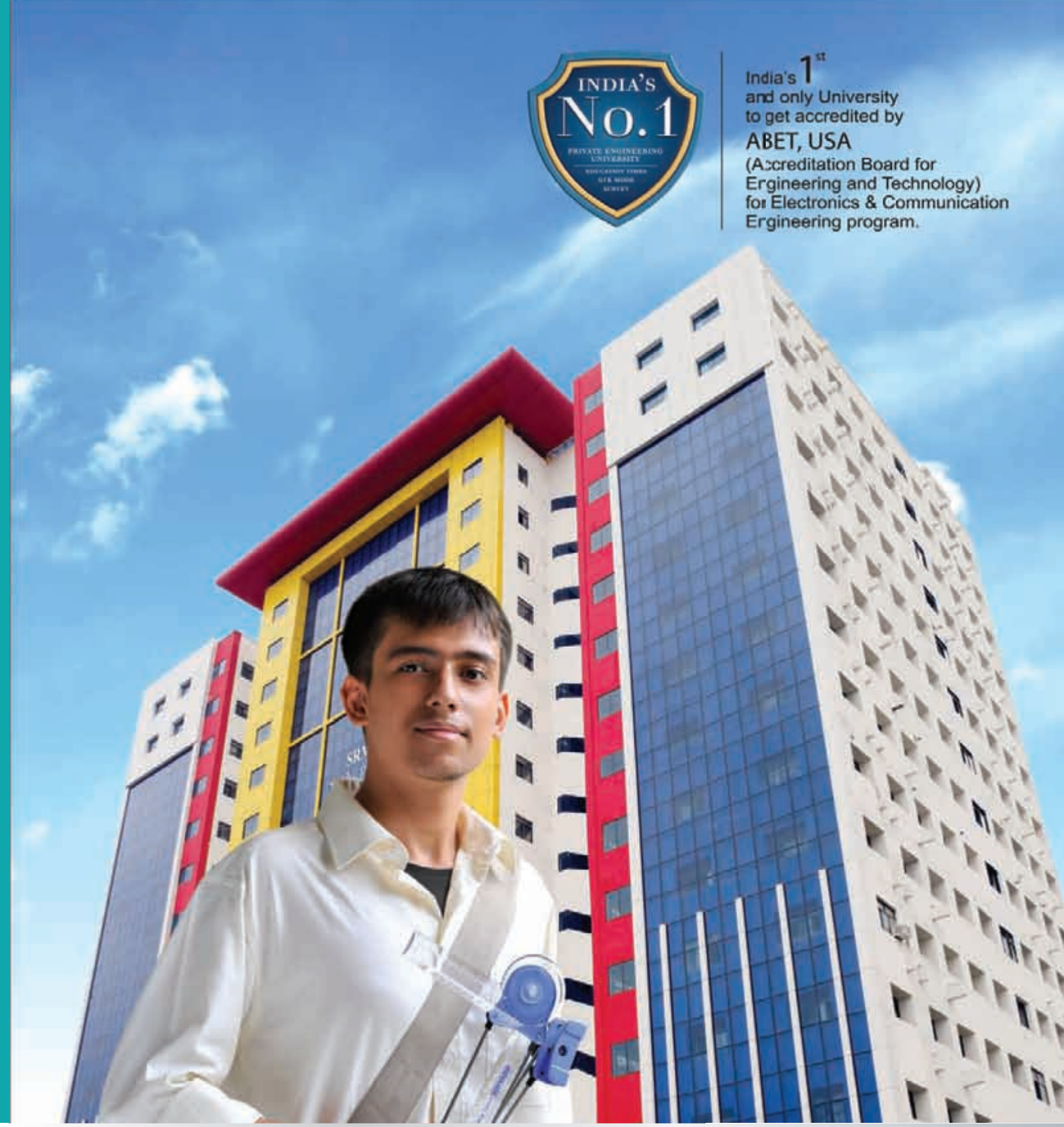

India's 1st and only University to get accredited by ABET, USA (Accreditation Board for Ergineering and Technology) for Electronics & Communication Ergineering program.

For further details contact: THE DIRECTOR (ADMISSIONS), SRM UNIVERSITY,
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Email: dir.admissions@srmuniv.ac.in | Web: www.srmuniv.ac.in

SRM UNIVERSITY
(Under section 3 of UGC Act 1956)

25 years of enlightening lives
SRM UNIVERSITY Since1985

Faculty of Engineering & Technology

SRM UNIVERSITY
(Under section 3 of UGC Act 1956)

Contents

There’s nothing in the world you can’t engineer

Engineering is no longer bound by the traditional image of a man in a safety helmet, notepad in hand. Possibilities abound in every sphere - astrophysical, energy and even biological. At SRM University’s Faculty of Engineering & Technology, you will discover many of these new and exciting aspects and be prepared to master them.

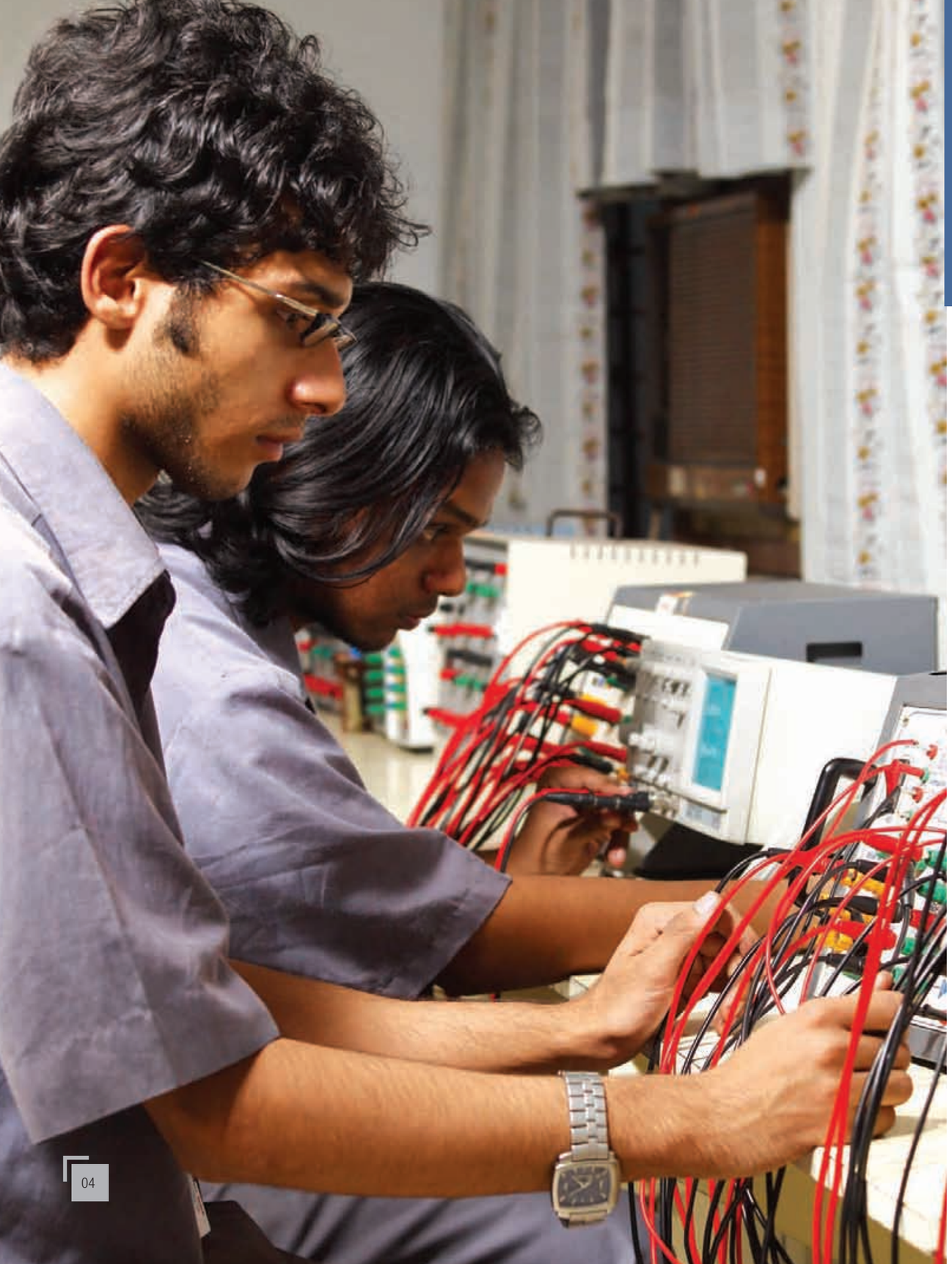
The Faculty of Engineering & Technology

Each department has every resource to conduct both research and instruction independently. Fully functional laboratories, access to the latest equipment and experienced faculty members will enrich your learning experience. The curriculum is updated constantly to include changes around the world.

Outreach

Engineering students have access to global networks and collaborations. Several memorandums of understanding are already in place for research and knowledge sharing as well as student exchange. The unique Active Learning laboratory is the result of one such joint venture that brings an international method of study to all students.

Students have access to every form of information at the central library and the various departmental libraries. They will find inspiration and encouragement on this campus, to pursue research and bring innovative ideas to life.



Faculty of Engineering and Technology

School of Civil Engineering
- Department of Civil Engineering

School of Mechanical Engineering
- Department of Mechanical Engineering
- Department of Automobile Engineering
- Department of Aerospace Engineering
- Department of Mechatronics

School of Electrical and Electronics Engineering
- Department of Electronics and Communication Engineering
- Department of Information and Telecommunication Engineering
- Department of Electrical and Electronics Engineering
- Department of Electronics and Instrumentation Engineering
- Department of Instrumentation and Control Engineering

School of Computer Science and Engineering
- Department of Computer Science and Engineering
- Department of Information Technology

School of Bio Engineering
- Department of Biotechnology
- Department of Biomedical Engineering
- Department of Bioprocess Engineering
- Department of Bioinformatics
- Department of Genetic Engineering
- Department of Food Process Engineering

School of Chemical and Material Technology
- Department of Chemical Engineering
- Department of Nanotechnology
- Department of Nuclear Engineering

School of Architecture and Interior Design

Center for TQM

Nanotechnology Research Center

Faculty of Management

School of Management

Faculty of Science & Humanities

Department of Computer Applications

Degrees Awarded

B. Tech.

- Aerospace Engineering
- Architectural Engineering
- Automobile Engineering
- Bioinformatics
- Biomedical Engineering
- Bioprocess Engineering
- Biotechnology
- Chemical Engineering
- Civil Engineering
- Civil Infrastructure Engineering
- Computer Science and Engineering
- Electrical and Electronics Engineering
- Electronics and Communication Engineering
- Electronics and Instrumentation Engineering
- Food & Process Engineering
- Genetic Engineering
- Geo Informatics
- Information and Telecommunication Engineering
- Information Technology
- Instrumentation and Control Engineering
- Mechanical Engineering
- Mechatronics
- Nanotechnology
- Nuclear Engineering
- Software Engineering

B. Arch.

- Architecture

B. Des.

- Interior Design

M. Tech.

- Biomedical Engineering
- Biotechnology
- Bioinformatics
- Chemical Engineering
- Communication Systems
- Computer Aided Design
- Computer Integrated Manufacturing
- Computer Science and Engineering
- Construction Engineering and Management
- Database Systems
- Embedded System Technology
- Environmental Engineering
- Electronics and Control Engineering
- Food and Nutritional Biotechnology
- Genetic Engineering
- Geo Technical Engineering
- Information Technology
- Information Security and Computer Forensics
- Knowledge Engineering
- Multimedia Technology
- Power Electronics and Drives
- Power Systems
- Remote Sensing and GIS
- Robotics
- Software Engineering
- Solar Energy
- Structural Engineering
- Telecommunication Networks
- VLSI Design
- Water Resources and Management

M. Arch.

- Architectural Design

M.S

- Total Quality Management
- Nanoscience and Nanotechnology

MBA

PGPM

PGPRM

MCA

Ph.D

Department of Civil Engineering

Academics

Undergraduate
B. Tech. (Civil Engineering)
B. Tech. (Civil Infrastructure Engineering)
B. Tech. (Geo Informatics)

Postgraduate
M. Tech. (Structural Engineering)
M. Tech. (Construction Engineering and Management)
M. Tech. (Remote Sensing and GIS)
M. Tech. (Environmental Engineering)
M. Tech. (Water Resources and Management)
M. Tech. (Geo Technical Engineering)

Doctoral
Ph. D

The Department of Civil Engineering pulls out all the stops to create outstanding engineers; with advanced teaching techniques and learning aids for undergraduate students and state-of-the-art research facilities for postgraduate students and doctoral candidates. Students are not only made experts in technical aspects but also in interpersonal skills, a vital ingredient to excel in this fast-paced world.

Academics

Undergraduate
The undergraduate program inspires students to dream big. They gain fluency in mathematics, physics, instrumentation, computers, management and economics – the solid foundation for any successful civil engineer. Students are also trained with practical experience from field visits to industries, dams, irrigation structures and construction sites, etc.

The Geo Informatics course was initiated in order to meet the increasing demand for education and training in the field of remote sensing, space technology and GIS. This program is a combination of Civil Engineering, CSE/IT, and Earth Sciences, and is very popular worldwide. Infrastructure engineering includes various aspects of Civil Engineering, Structural Systems, Transportation, Highway and Irrigation Structures.

Postgraduate
Postgraduate programs include core courses as well as elective, independent study. Students gain training in their field of study through summer internships. Doctoral research areas that are being pursued include concrete technology, structural systems, concrete bridges, soil-structure interaction, modern construction materials, irrigation water management and wetland management.

Faculty
Qualified and experienced faculty members form the department. They specialize in structural, geotechnical, environmental, water resources, transportation, surveying and construction engineering, as well as management, remote sensing and GIS. The faculty members frequently publish books and present papers in international and national conferences.

Cutting-edge laboratories & facilities
Students have access to every facility in the form of 9 well-equipped labs covering 12,000 sq. ft. They are:

• Structures and construction engineering lab • Computer lab • Soil mechanics lab
• Hydraulics and fluid machinery lab • Strength of materials lab • Concrete and highway lab
• Survey lab • Environmental engineering lab • Remote sensing and GIS lab

These labs are equipped with advanced equipment including universal testing machine, tri-axial shear tester, loading frame with accessories, ultrasonic concrete tester, torsion testing machine, vibration equipment and Total Station. The computer centre uses special purpose commercial software packages like GTSTRUDL, STAADPRO, AUTOCAD and PRIMAVERA. The remote sensing and GIS laboratory is

equipped with high-end software and accessories like ArcGIS9.1, MAPInfo, ENVI image processing software/ ERDAS 9.2, mirror stereoscope with stereo pair, 5 satellite data – LISS III, LISS III (PAN + Merged), OCM, SPOT and Landsat ™.

Research & consultancy
The department's projects involve research into innovative interface material, traffic-resistant pavement material, shear strength of high-strength concrete, recycled aggregates, bio-concrete and basalt fibre concrete.

Major events & achievements
- 'A' grade from the National Board of Accreditation for B.Tech. (Civil engineering) and M.Tech. (Structural engineering)
- Interaction with University of Dundee, Scotland to pursue concrete research and for student exchange program. The second batch of students have been sent abroad as part of the program, as the first batch have successfully completed the course
- Under the UK-India Education Research Initiative (UKIERI), a faculty member was invited to attend the International congress held in the University of Dundee, UK
- Collaboration with Queen's University, Canada in a GIS application project
- Hosted an international conference entitled 'Recent Advances in Concrete and Construction Technology'
- Hosted a national conference on 'Theoretical and Experimental Advances in Civil Engineering'
- Continuing education program conducted on 'Special Concretes'
- A team of four final year B.Tech. students secured 8th position in a national competition on 'An Impressive 4-Storey Steel Intensive Residential Building' conducted by INSDAG (Institute for Steel Development and Growth)
- 7 students were sent to study abroad under the Semester Abroad Program
- 2 staff members were selected for training under the Faculty Abroad Program

Industrial connection
- The department maintains cordial ties with several companies including National Highways, Livestock Research Center, Freyssinet, Stewols & Co., Hindustan Lever Limited, Simplex & Co., Saraswathi Precast Prefab, Madhucon Projects and Virgo Polymers
- Experts from industry are regularly invited to present lectures and to interact with students and faculty
- The department is a keen participant in various societies and institutes, such as the Construction Industry Development Council, the Institute for Steel Development and Growth and the Construction Management Society
- An institute industry collaborative project in the use of 'Reborn Concrete' is on the anvil
- M/s. Metechno (India) Ltd. has signed an MOU with SRM for collaborating on staff training, student training and research & development of new products
- A student chapter has been formed for the Indian Concrete Institute

Careers
Many industry representatives visit the campus for recruitment. The campus placement centre provides additional support for securing employment with such companies such as L&T, Technip, Foster-Wheeler, Bechtel & Gammon, MAYHTAS, CCCL & Ltd, Shobha Constructions, Jain Housing Ltd. as well as several MNCs.

SCHOOL OF MECHANICAL ENGINEERING

Department of Mechanical Engineering

Academics

Undergraduate
B. Tech. (Mechanical Engineering)

Postgraduate
M. Tech. (Computer Aided Design–CAD)
M. Tech. (Computer Integrated Manufacturing–CIM)
M. Tech. (Robotics)
M. Tech. (Solar Energy)

Doctoral
Ph. D

Mechanical engineers require a solid understanding of key concepts including mechanics, kinematics, thermodynamics, energy and manufacturing. They use these principles in the design and analysis of automobiles, aircraft, heating and cooling systems, buildings and bridges, industrial equipment & machinery and many more.

Academics

Undergraduate

The B.Tech. in Mechanical Engineering is a comprehensive degree program. The goal of the curriculum is to create a flexible undergraduate educational experience in design, mathematics, modeling, computing, management, engineering science, humanities, social sciences and fine arts. Principal study topics include fluid mechanics, thermodynamics & heat transfer, solid mechanics, materials engineering, manufacturing, energy systems, dynamics & control, Computer Aided Design (CAD), Computer Integrated Manufacturing (CIM) and others.

This broad and flexible program allows students to customise their programs to meet their objectives and particular career goals. Traditional students can prepare for technological careers in industry, graduate school or management. The more interdisciplinary students can utilize this program as a launching pad for professional careers in business or public service.

Postgraduate

Graduate study programs in CAD, CIM and Robotics are available in the Department of Mechanical Engineering. These programs prepare students for design positions that require skillful and imaginative solutions to engineering problems in their specialisations. Students in all these programs are provided with good computational knowledge and exposed to mechanical engineering software. All these programs are interdisciplinary.

The department has a team of highly qualified and experienced faculty. Research activities at the department are progressing in the areas of feature based design, assembly planning, optimization/analysis of mechanical systems, alternate fuels for IC engines, air pollution modeling, thermal energy storage, circulating fluidized bed technology, sheet metal forming and materials technology. About 50 research papers have been published in various international and national conferences/journals in the last few years. Three books from the department have also been published. A proposal to set up an “Alternative Energy Research Center” in association with Queen’s University, Canada is at an advanced stage.

Cutting-edge laboratories & facilities

Department of Mechanical Engineering has over 17 laboratories including thermal engineering, heat-transfer, dynamics, metallurgy, metrology, fuels, etc. Modern computingfacilities are available for the students at Computer Aided Design and Computer Integrated Manufacturing Laboratories.

Student have access to:
Mechanical modeling software – CATIA, I-DEAS, Solid works: Finite Element Analysis Software ANSYS, LS-Dyna, NASTRAN
Mechanical simulation software – U-Grip, Virtual NC, QUEST, LS- DYNAFORM
Manufacturing software – SOLIDCAM and CNC

Active learning lab

The Department of Mechanical Engineering established the active learning laboratory in January 2006. Dr. Rohan Abeyaratne, Quentin Berg Professor and Head of Mechanical Engineering, MIT inaugurated this laboratory along the lines of the discovery laboratory at MIT, Boston.

Major events & achievements

The department conducts national and international conferences to share their knowledge obtained through research with other researchers in India and abroad. The International Conference on “Advances in Mechanical Engineering” (ICAME 2006) attracted active participation of 200 delegates from highly reputed universities in 11 different countries.

The department also conducts many student level National Technical Symposia to enhance the students’ technical skills and to update their knowledge of modern developments in engineering and technology. Hands-on design contests are the highlight of these symposia. Mechanical Engineering Association is a forum for students to develop their professional skills. Students are also encouraged to take part in awareness campaigns that have social relevance. Under the Semester Abroad Program, 3 students have been sent to Massachusetts Institute of Technology, USA.

Industrial connection

The department has conducted corporate training programs, industrial consultancy, and funded projects from government bodies. These connections have benefited the students in the form of good placements, well-equipped laboratories and industrial exposure. The participation of industries in curriculum designing has helped the department to keep pace with fast-changing industrial needs. The department benefits from the visiting professor programs of AICTE through which highly experienced senior executives deliver lectures to staff and students.

Career

The program enables the students to take up careers in a broad spectrum of industries. Many of the IT industries too have CAD/CIM divisions, which increases the job potential of mechanical engineers. Around 70% of students are placed in reputed industries, practicing core and allied engineering through campus recruitment. The remaining 30% prefer higher studies in India and abroad.

Department of Automobile Engineering

Modern automotive industries need experts in vehicle design and manufacture. With this in mind, the Department of Automobile Engineering was established in 2004 to train the students in the area of automobile engineering. Since Chennai is the automobile hub of India, with Ford, Hyundai, BMW, Ashok Leyland and others, this course gains significance for those who are passionate about automobiles.

Academics

Undergraduate

The objective of this B.Tech. program in Automobile Engineering is to give students a broad exposure in the design, development and testing of automobiles. Furthermore, the program trains them to meet the technological challenges and diverse needs of the industry and society in various areas of automobile engineering and equips them to excel in a truly competitive industry.

Postgraduate

The MAS (Master of Automotive Systems) program has been introduced in collaboration with the HAN University of Applied Sciences, Netherlands. This course provides students with a good theoretical base, sound practical techniques and skills. It prepares them for specific development and design positions, meeting national and international requirements.

Faculty & research

The department has a team of highly qualified, dedicated and experienced teachers. Research activities are in progress in the areas of alternative fuels, vehicle dynamics and new trends in engine design.

Cutting-edge laboratories & facilities

The department's extensive laboratories and facilities include labs for engine and fuel testing, vehicle testing, diagnostics and reconditioning. In addition, students are encouraged to visit automotive industries frequently to update their knowledge in the latest developments.

Career

With the opening up of R&D and manufacturing plants by global players in various parts of the country and the increase in demand for automotive experts in the domestic and international markets, graduates of automobile engineering have a bright future ahead.

Academics

Undergraduate

B. Tech. (Automobile Engineering)

Doctoral

Ph. D

SCHOOL OF MECHANICAL ENGINEERING

Department of Aerospace Engineering

Aerospace engineering, as popularly quoted, is mechanical engineering done better. Here, engineering design and analysis are more precise using advanced materials. Manufacturing is always through the most advanced technologies that invariably focus on closer tolerances. With the explosive growth in civil aviation, satellite communications and space exploration, the demand for aerospace engineers is simply incalculable.

Academics

Undergraduate

The goal of the B. Tech. program in Aerospace Engineering is to train the students in a broad based manner with equal focus on applications in aircraft engineering, rocket and space technology. The curriculum is designed to impart engineering knowledge in topics such as structural mechanics, aerodynamics, propulsion, and space dynamics. Students can also acquire additional engineering knowledge through electives. The importance of computational-skill enhancement through the development of one's own programs as well as the use of advanced software is stressed throughout.

Postgraduate

M.Tech. and M.S. programs in Aerospace Engineering will soon be introduced at the university. The Ph.D program with specialization in structural mechanics, aerodynamics and propulsion are good doctoral options here for M.Tech. graduates in mechanical engineering or aerospace engineering with a flair for research.

Research

Research efforts are in progress in the areas of boundary layer theory, flow past high-rise and low-rise buildings, and industrial structures. Fuel injection and atomization processes, and computational fluid dynamics in fluidized bed combustion, ramjets, and fuel cells are some of the research topics currently under progress.

Laboratories & facilities

A computational fluid dynamics laboratory with standard software has been established. A subsonic research wind tunnel with hot wire anemometer, pressure scanner and precision manometers is available. A full-fledged aerospace structural mechanics laboratory is under development. The associated laboratories such as CAD Lab, Dynamics Lab, Metrology Lab, and Metallurgy Lab in the sister departments of the school are made available to students.

Industry and Institution connection

A professional development course on Fuel Cell Technology was held in May-June 2007. This course was conducted by the faculty drawn from Queen's University, Canada and other national experts. Engineers from R&D departments of the industries and faculty from engineering colleges were the course participants. Besides that, research proposals in the areas of CFD modeling of ramjets and fuel cells have been sent to sponsoring agencies.

Careers

Graduates in Aerospace Engineering can seek employment in civil aviation, defense R&D laboratories, space research organizations, and CSIR laboratories. Aerospace graduates are also preferred by software industries engaged in engineering-software developments. In addition to these, graduates can enter general fields like management and civil services. Those having a flair for higher education and research can pursue M. Tech. and Ph.D.

Academics

Undergraduate
B. Tech. (Aerospace Engineering)

Doctoral
Ph. D

Department of Mechatronics

The B.Tech. program in Mechatronics is one of the cutting edge programs under the umbrella of the School of Mechanical established in the academic year 2005–2006. The department, apart from the undergraduate and post graduate programs, is engaged in many other activities such as industrial consultancy, industrial training, research, organizing seminars and conferences.

Academics

Undergraduate

The programs offered by the department are interdisciplinary and draws faculty members from mechanical engineering and electrical sciences along with other basic servicing departments.

Faculty & research

The members of faculty have vast industrial experience and are engaged in consultancy. A few faculty members are currently processing their research proposals for submitting to funding agencies. The proposals submitted relate to the current needs of the industry like machine vision and creation of fully automatic manufacturing systems.

Cutting-edge laboratories & facilities

The department has well-developed infrastructure facilities. Besides smart classrooms, the main laboratories include Computer Integrated Manufacturing (CIM), Automation, Mechatronics, Flexible Manufacturing System (FMS) and Robotics.

Major events & achievements

- Plans are in place to host a national conference in the current academic year and guest lectures by experts from industry and research organizations
- The department organizes visits to various industries having mechatronics systems
- In a short span of time, the course has attracted the attention of many talented students
- Under the SAP program 5 students have been sent to different universities like Massachusetts Institute of Technology-USA, University of California-Davis, USA and Kyushu Institute of Technology-Japan.

Industrial connections

Some of the faculty members have considerable industrial experience. They continue to interact with the local industries on key issues. Further, some of the issues are converted into formal consultancy projects, and such projects are under progress.

Career

Modern machines in industry do not belong exclusively to any one branch of engineering, as they are interdisciplinary in nature. The graduates passing out of the program will have a better future and career growth in such interdisciplinary sectors. The students have bright job prospects in the automobile manufacturing, engineering and electronics industries.

Academics

Undergraduate

B. Tech. (Mechatronics)

Doctoral

Ph. D

Department of Electronics & Communication Engineering (ECE)

Academics

Undergraduate

B. Tech. (Electronics and Communication Engineering)

Postgraduate

M. Tech. (Embedded System Technology)

M. Tech. (VLSI Design)

M. Tech. (Communication Systems)

Doctoral

Ph. D

Electronics and Communication Engineering (ECE) is a swiftly advancing field, with new ideas emerging every other second. From mobile phones to fiber optics and remote sensing, there are exciting avenues to explore and create. The ECE department at SRM University prepares students for careers in this constantly evolving discipline.

Academics

Undergraduate

Students pursuing a B.Tech. in ECE have a full and flexible undergraduate curriculum. Numerous streams can be tailored to fit every individual's interests, skills and career goals. Students prepare for technological careers in industry, academia or management.

Postgraduate

Postgraduate study in ECE prepares students for leadership roles in research, development and design positions that require skillful and imaginative engineering solutions. The department offers several postgraduate degrees in the latest advanced technology.

Faculty

Most faculty members are accomplished doctorates and postgraduates with considerable research and academic experience. An American professor served as a visiting faculty in our department. Many are industry-savvy professionals. The department has specialists from the fields of device electronics, signal processing, microwave & optical engineering, wireless communication, embedded systems and VLSI design.

Research & consultancy

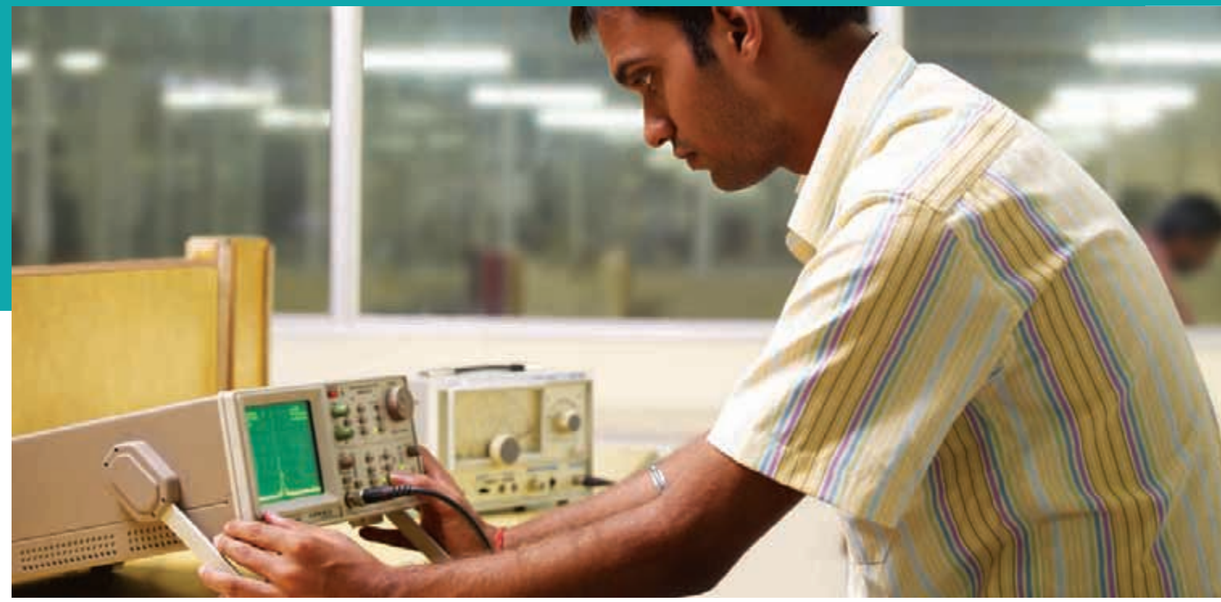
Interdisciplinary research, a system-level approach and close ties with industry combine to yield up-to-date research. The department has received large funds from AICTE for research in the area of biomedical instrumentation for the project 'Non-invasive optical imaging for tissue characterization'. The department also received government funding for upgrading its fiber optic, DSP and VLSI laboratories.

Strong ties with industry complement these top-notch research opportunities. Through research center-industry liaison programs and departmental advisory boards, faculty and students can work towards future technologies.

Cutting-edge laboratories & facilities

The ECE Department has 14 laboratories that include DSP, microprocessor, communication, optical, VLSI and embedded systems. The labs offer opportunities for students to work on a wide range of advanced software packages that include:

• MATLAB, Simulink, Toolboxes (Communication, Signal Processing, Image Processing) Blocksets (Communication, DSP, Fuzzy, Wavelet CDMA basic reference) • Modelsim5.4C • Leonardo Spectrum Level 3 • Xilinx ISE 6.1 • Real Time Kernel • Trioz Tech Real Time OS for Linux •Trioz Tech Real Time OS for 8051 and 68HC1 1 • NIOS Processor development environment • Synopsis (ASIC Tool) • Intellisuite MEMS Tools • OrCAD 16.2 design suite.



Major events and achievements

The ECE Department holds national and international conferences that function like informal think tanks. Faculty and students benefit from guest lectures on the latest innovations in both established and emerging fields. Professional associations, such as the ECE association and the IEEE student chapter, prove valuable for information gathering and networking. Students are also sponsored to attend conferences abroad.

Few students with the help of their guide have presented papers in international conferences held in USA and Malaysia. Two more students walked away with the prestigious Young Engineer Fellowships from IIT, Chennai and IISc, Bangalore. One faculty member, who won the 'Career Award for Young Teachers' a few years before; was awarded 'ISTE Periyar Award for Best Engineering College Teacher 2008' by Indian Society for Technical Education (ISTE). The Department has also acquired funds from the university to carry out several pilot projects.

Academic interactions: Abroad

Through the Semester Abroad Program, students have been sent to reputed international universities like MIT-USA, University of California at Davis-USA, University of Wisconsin-USA, Lille Catholic University-France and University of Western Australia-Australia. The head of the department along with a professor visited University of California at Davis and other foreign universities to understand international academic processes and procedures, for incorporation in the department.

Industrial connection

The department works closely with several reputed ECE industries and organizations. These relationships aid joint research, funded projects and provide the opportunity to master executive-style communication. This department conducts part-time B.Tech. program for NOKIA company executives. Memorandum of Understanding (MOU) has been signed with Centre for Electronics Engineering Research Institute (CEERI), Taramani to work together in industrial projects as well as for academic interactions. The university is also planning to launch a nano/mini satellite. In this mission our department is actively involved and works closely with Indian Space Research Organisation officials. The ECE Corporate Advisory Board includes top executives from IBM, Intel, Texas Instruments, Accenture, Flextronics and Analog Devices.

Careers

The ECE Department prepares students to pursue leadership, technical, and management positions in a variety of industries. Students have obtained prestigious placements at leading companies such as Intel, Texas Instruments, Infosys, TCS, Keane, Mindtree, Wipro, Cognizant Technologies and Tata Elxsi. A few pursue their higher studies in prestigious institutions abroad as well as in India.

SCHOOL OF ELECTRICAL & ELECTRONICS ENGINEERING

Department of Information & Telecommunication Engineering

The landscape of Telecommunication is changing rapidly and currently undergoing tremendous growth. From ordering a pizza over a hotline to high tech radar on a jet, we see telecommunications making wonders. The convergence of IT and telecommunications technology promises innovative products and services that will revolutionize life and work. Telecommunication engineers are much in demand since a nation's hopes of development rests on their shoulders.

Resources

Students are given some of the best facilities in the country. They have several labs that are specifically designed for telecommunication research. The labs are outfitted with the latest hardware and software. These labs have equipment that allows students to understand electronics, optical & microwave, mobile, wireless and RF communication systems.

Academics

Undergraduate

The B.Tech. Information & Telecommunication Engineering program has been formulated to give students a firm grounding in the principles of telecommunications technology. Students are in the hands of experienced faculty, who are from various areas of specialization like electronics, Information theory, digital signal processing, microwave & optical engineering, mobile/wireless communications, wireless information networks and software programming for telecommunications (Java, .NET & Symbian OS).

Post Graduate

The M. Tech. Telecommunication Networks program has been introduced from the academic year 2010 -2011, to cater to the requirement of students who want to specialize in this branch of telecommunication.

Research & consultancy

Both the faculty and the doctoral scholars actively involve themselves in research projects. The department has received funds from government agencies for research. With close tie-ups with the industry, students have no trouble getting the relevant data they need for carrying out their projects. Recently, the TCE department started research activities under 'RADMIC – Radio Communications & Millimeter-wave Research Centre' in collaboration with Dr. Vladimir A Labay from the University of Gonzaga, USA to address the emerging and future ubiquitous broadband wireless networks utilizing millimeter radiowave technology.

Activities & achievements

The students and faculty take part in national/international conferences as well as workshops and seminars in their areas of interest. This gives them a valuable insight into global trends and advances in the telecommunications field.

The telecommunication engineering department initiated TEA (Telecommunication Engineers Association). The TEA will provide a platform for the students to develop skills across the horizon through exposure in extracurricular activities and interaction among intra and inter-college/university students; and help students to gain technical knowledge particularly in the field of telecommunications by conducting various events like National-level Symposia (TELETARANG), guest lectures on specialised topics and workshops on MATLAB & PSPICE etc.

Careers

There are opportunities galore in information and telecommunication sectors. Students can build a career in mobile/wireless communications/networks, information technology, satellite communications, cable networks, and communication devices development etc. And, those with a flair for higher education can pursue ME/M.Tech./M.S. and Ph.D Engineers are in demand in public and private sectors and the real thrust in recent times has been in the information and telecommunications arena. In previous years, more than 80% of the students were placed in reputed IT & telecom companies through campus recruitment.

Academics

Undergraduate
B. Tech. (Information & Telecommunication Engineering)

Postgraduate
M. Tech. (Telecommunication Networks)

Doctoral
Ph. D

Department of Electrical & Electronics Engineering (EEE)

Academics

Undergraduate

B. Tech. (Electrical and Electronics Engineering)

Postgraduate

M. Tech. (Power Electronics and Drives)

M. Tech. (Power Systems)

Doctoral

Ph. D

Electrical and Electronics Engineering is a continuously evolving subject. As technology has advanced, so have the challenges facing the modern engineer. EEE is a subject that naturally partners with other disciplines to open whole new engineering avenues. Examples include Mechatronics – with Mechanical Engineering, Bio-medical Sciences-with Medicine and Avionics-with Aeronautics. The EEE Department at SRM University prepares students using new-age information and computer- intensive technologies.

Academics

Undergraduate

The B.Tech. degree program is designed to achieve a balance between depth of knowledge acquired through specialization and breadth of knowledge gained through exploration. The undergraduate degree courses offered by the department provide a comprehensive foundation in the core topics of EEE coupled with an area of specialization relevant to emerging engineering challenges. The curriculum has been designed to create professional electrical and electronic engineers, who can serve in the fields of core electrical engineering, information and communication systems, and other related fields.

Postgraduate

In EEE, there is growing awareness that the future training and education of electrical engineers in the industry needs to be in the area of highly efficient, industry-relevant skills formation. Hence, the postgraduate programs in power electronics & drives and in power systems were evolved.

Faculty

The faculty is a rich blend of personnel with industrial and professional experience. The dedicated staff members have sound knowledge in emerging areas like embedded systems, power electronics applications in power systems, expert systems, etc. The breadth and depth of the research interests of the academic staff ensures a high standard of lecture courses and provides excellent opportunities for challenging and stimulating final year projects. Individual lecturers supplement their delivery using blackboards, overhead projectors and video projection. In order to give students a chance to experience an international teaching perspective, an American professor has joined the faculty.

Cutting-edge laboratories & facilities

The EEE Department has 8 laboratories with modern equipment supported by special purpose software packages like ETAP, MATLAB, Orcad, Multisim, PSIM and Magnet. Students enjoy working in project laboratories to gain hands-on experience and expertise.

Research & consultancy

The research division covers various aspects of electrical engineering. There is an active and growing area of research in the field of power electronics & drives, power apparatus and systems, whilst collaborating with each other and a variety of industrial partners. The research group focuses on power electronic devices and integrated circuits, and their uses in various applications. Other major research strands include FACTS and their integration in power systems, integrated design of electrical machines and drives and electromagnetic modelling.

Major events & achievements

The EEE Department holds several international and national level conferences, seminars and workshops. These provide a platform for the staff and students to share the views and experience among industrialists, fellow researchers and academicians in the emerging areas of electrical engineering. In collaboration with NEC-Japan, a series of projects were executed in the area of microcontrollers.

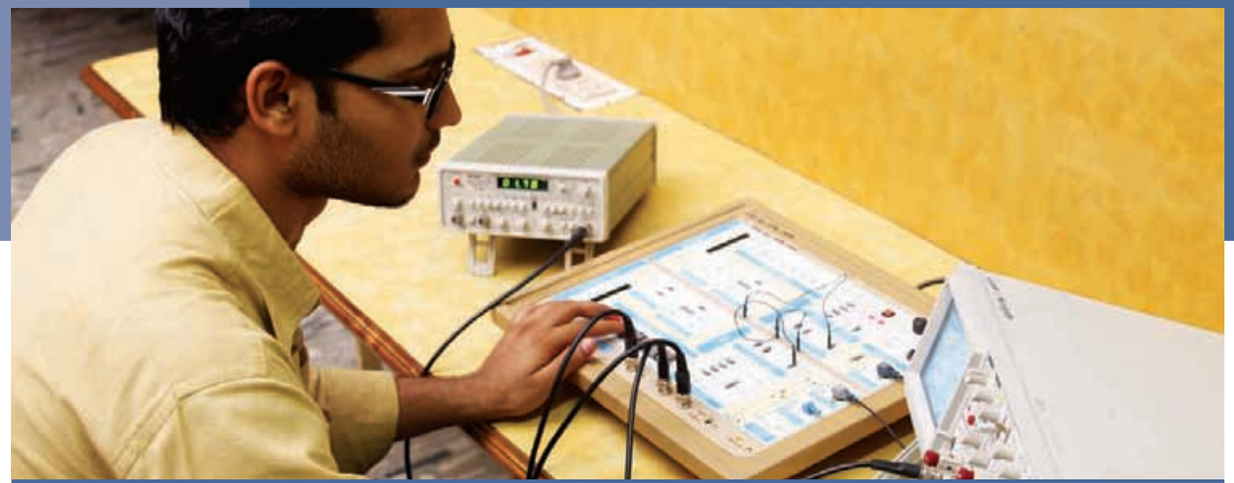
Under the Semester Abroad Program, 4 students have been sent to universities like Massachusetts Institute of Technology-USA, University of Wisconsin-USA, Lille Catholic University-France and Technical University, Chemnitz-Germany.

Industrial connect

EEE Department interacts and liaises with well-reputed industries to facilitate funded projects, research and consultancy in the chosen areas. Avant-Garde Engineers Consultants (p) Ltd, Barry Wehmiller International Resources Pvt Ltd. (BWIR), Hivelm, Areva T & D, TCE, BHEL and Arcastyle Control are among them. The Corporate Advisory Board includes top executives from leading industries and government organizations such as State Electricity Board, Larsen & Toubro, Siemens, Bharat Heavy Electricals Ltd, Atomic Research Centre, etc and periodically reviews the curriculum.

Careers

Graduates of the university consistently appear as the first choice of employers. Studying EEE will lead to potential careers in the areas of Research & Development (R&D), design, systems analysis, installation and commissioning, process engineering, control and maintenance, manufacturing, quality assurance and testing, information technology, programming, consultancy, management and software engineering.



Department of Electronics & Instrumentation Engineering (EIE)

Electronics & Instrumentation Engineers carry out the task of measuring, research, installing, developing, testing, maintaining and designing various instruments used in the industry. With computer aided processes and automation techniques, these engineers formulate ways to control these systems. To put it crisply, they aim to 'measure the world accurately and to control it precisely'.

Academics

Undergraduate

B. Tech. (Electronics & Instrumentation Engineering)

Doctoral

Ph. D

Undergraduate

This program combines academic and motor skills necessary to carve out a path in the field of measurement, electronics and understanding of complex processes. The highlight of this program is the dual-purpose approach of learning key concepts and engaging in practical experience. The students are trained to plan, design, install, operate, service and maintain complex instruments and at the same time ensure the highest quality.

Faculty

The department consists of a good number of faculty members, who have experience in teaching, industry and research. They are an experienced and energetic team of experts in fields like Embedded Systems, Device Electronics, Signal processing, VLSI Design, Power electronics and Drives and DSP Controllers.

Cutting-edge laboratories & facilities

Students have access to outstanding laboratories like: Devices lab, Circuits lab, Microprocessors and Micro Controllers lab, Digital lab, Embedded System lab, VLSI lab, Signal Processing lab, DSP Controllers and Virtual Instrumentation lab. The department is equipped with CITECT SCADA, ABB, GE Fanuc, SIEMENS PLCs and its applications, MATLAB, NI Lab VIEW, Micro Electro Mechanical System (MEMS), Intellisuite, COMSOL, MEMS Pro, Distributed Control System (DCS) various types of process plants etc., which are used for modeling, analysis and design of instrumentation and control system.

Library

Students have access to an exclusive department library consisting of books, proceedings of workshop/ seminars, national and international journals, students' project reports and laboratory manuals.

Major events & achievements

- DOKINCE: A National-Level Symposium on Instrumentation and Control organized every 2 years
- NCECA: A National Conference on Electronics and Instrumentation conducted once in 2 years
- Short-Term Training Programs are conducted twice in a year
- The faculty members publish books, and present papers in International and national conferences and deliver special lectures
- This department is associated with the ISA (International Society of Automation) and ISOI (Instrument Society of India)
- A final-year project titled "Design and Implementation of Digital Dash Board" was selected for the prestigious ISTE National Award
- Under the Semester Abroad Program, Mr. Kunwar Chauwan was sent to Birmingham City University, UK

Research

A research coordination committee chaired by the Head of the Department, along with two faculty members coordinates academic research in the department.

Industrial training

Students are encouraged to undergo industrial training during the course of their academic program in order to instil within them a thirst for the practical implementation of the various concepts they have learnt. The EIE Association arranges industrial visits, technical seminars and workshops. The department also organizes personality development programs to increase their job readiness.

Careers

Upon completion of the degree, students will be prepared for careers in companies that manufacture and apply instrumentation equipment for power plants, VLSI and embedded systems, robotics, aerospace and various other automation industries.

Department of Instrumentation & Control Engineering (ICE)

Academics

Undergraduate

B. Tech. (Instrumentation and Control Engineering)

Postgraduate

M. Tech. (Electronics and Control Engineering)

Doctoral

Ph. D

It is the task of instrumentation and control engineers to research, design, install, develop, test and maintain instruments, electronics and computer control systems that are used in the process industry. With the help of automation techniques and computer-aided processes, they formulate ways to control these systems. Their prime focus is to ensure that the processes operate efficiently and safely. The department of ICE prepares students who seek to enter this stream by providing them with intricate knowledge on managing and controlling instruments.

Academics

Undergraduate

This program enriches the students with theoretical and practical skills that are required in different spheres of instrumentation and control industries. It enables students to pursue a career in the measurement and control of complex industrial & electrical processes. Modules of this program train the student to plan, design, install, operate, control and maintain complex systems that produce materials of high quality.

Postgraduate

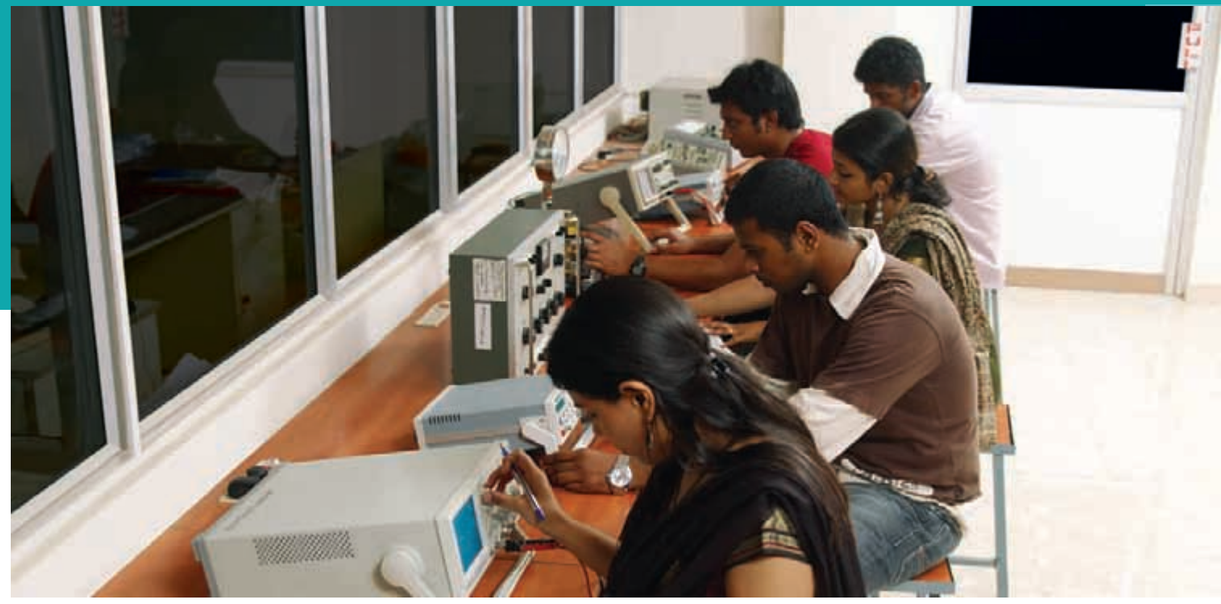
With the Instrumentation and control sector experiencing major technological advancements in recent years, the program is directly relevant to the needs of any type of industry. It aims at developing academic and professional excellence for fresh graduates as well as practicing engineers who wish to enhance their knowledge and skills in the fields of Instrumentation and control systems.

Faculty

The department consists of a good number of faculty members, who have experience in teaching, industry and research. The department has members, strong experience in instrumentation and in process control field which allows meeting the specific needs of the students to be qualified for job.

Laboratories

The department has the following laboratories, viz. process control lab, measurements and transducers lab, circuits and devices lab, microprocessors and microcontrollers lab, virtual instrumentation lab, digital & analog circuits lab. The department is equipped with CITECT SCADA, ABB, GE Fanuc, SIEMENS PLCs and its applications, MATLAB, NI Lab VIEW, Micro Electro Mechanical System (MEMS), Intellisuite, COMSOL, MEMS Pro, Distributed Control System (DCS) various types of process plants etc., which are used for modeling, analysis and design of instrumentation and control system.



Department library

To supplement the resources in the central library, there is an exclusive department library consisting of books, proceedings of workshop/ seminars, national and international journals, students' project reports, laboratory manuals, etc.

Major events & achievements

- DOKINCE – A National-Level Students Symposium on Instrumentation and Control is organized every 2 years
- NCECA – A National conference on Electronics, Control and Automation is one such event conducted once in 2 years
- Two short-term training programs are conducted every year
- The faculty members of the department publish books, present papers in International and National conferences and deliver special lectures
- This department is associated with the ISA (Instrumentation Society of Automation), an International professional body and ISOI (Instrument Society of India)
- A final year project titled 'Design and Implementation of Digital Dash Board' was selected for ISTE National Award during the year 2008
- Under the Semester Abroad Program, 2 students have been sent to the University of Wisconsin-USA. A staff member was also sponsored by SRM University to visit the University of California, Davis for training under the Faculty Abroad Program

Research

A research coordination committee chaired by the Head of Department, and comprising two faculty members, coordinates academic research in the department.

Industrial training

Students are encouraged to undergo industrial training during their courses of study. The ICE association arranges industrial visits, technical seminars and workshops. The department also organizes development programs to enhance the overall personality of the students to meet industrial requirements.

Career

Students will be prepared for careers with industry that manufacture and apply instrumentation and control engineering equipment including power generation companies, petroleum refining industry, aerospace industries, healthcare firms, chemical firms, environmental monitoring and control companies, waste water treatment plants and plastic industries etc.

Department of Computer Science & Engineering (CSE)

Academics

Undergraduate

B. Tech. (Computer Science & Engineering)

B. Tech. (Software Engineering)

Postgraduate

M. Tech. (Computer Science & Engineering)

M. Tech. (Software Engineering)

M. Tech. (Knowledge Engineering)

Doctoral

Ph. D

The future of computing and IT systems begin here. The department's mission is to advance, evolve and enhance computer science and computing engineering fundamentals to build the intellectual capital of research and students. The CSE Department endeavours to be an important regional, national, and international resource centre for the development of computing, IT systems and applications. This is a period of exciting growth and opportunity, propelled by the top ranking it achieved recently. CSE has a vibrant student body of about 1,200 undergraduate and 200 postgraduate students and a stellar faculty of professors and lecturers.

Academics

Undergraduate

The B.Tech. in CSE is a broad and flexible degree program with the curriculum specifically designed to reflect the depth and breadth of computer science. To further enhance the quality of the programs, the department has entered into an academic collaboration with Carnegie Mellon University, Pittsburg, USA.

Postgraduate

The postgraduate program prepares scholars to become leaders in knowledge-driven professions by providing a learning environment strongly focused on collaborative, interdisciplinary research. Students learn to reach across traditional academic boundaries to seek the knowledge and resources needed to solve important technological problems. The educational experience helps students choose from a number of challenging paths to reach their goal of a degree in a particular discipline. Apart from the M.Tech. program in CSE, a second program in software engineering and knowledge engineering is also offered.

Faculty

The department has a well-qualified and experienced faculty who are specialists in the areas of databases, wireless networks, artificial intelligence, operating systems and programming languages etc. There is also a sizable number of senior faculty members with over 15 years of experience in the stream.

Research & consultancy

The research areas the department focuses on include: pattern recognition, neural networks, wireless and mobile data mining and image processing. A project entitled "SRM-PURA" (Providing Urban amenities for Rural Areas) - IT-enabled services for villages, aims to create a network of multi-purpose community information centre in the campus, linking around 15 villages.

There are around 12 part-time Ph.D scholars in the department and 16 research groups comprising soft computing, database, data warehousing & mining, software engineering & testing, wireless & mobile

distributed system, network & network security, and wireless sensor networks.

Cutting-edge laboratories & facilities

The department provides extensive computing resources for research and education. This includes more than 350 high-performance computers in the range of Linux, Windows, SUN and Apple workstations and a good number of laptop systems. In addition to a general purpose file server, the department maintains two specialized servers for database clients and Linux based workstations. Department network communications have a fiber optic backbone, offering 20 Mbps connectivity to the commodity internet and provides intranet within the Tech Park, which hosts 12 laboratories. The department has wireless internet connectivity via a campus-wide 802.11b network. There is a separate department library with 1,000 books, manuals, project reports and lectures on CD Rom.

Major events & achievements

- The department has conducted a national conference on Current Trends in Computer Technology and another on Computer Vision AI & Robotics
- A national-level student symposium named 'Seventh Sense' received wide publicity and response
- Plans are in place to conduct an International conference on "Advances & Emerging Trends in Computing Technologies" by June 2010
- Six students were sponsored to attend and present papers in international conferences held at Korea, Austin (USA), San Diego (USA), New Zealand and Muscat
- Students and faculty have published international papers in countries like Germany, Spain and Italy
- One of the students is a SUN Certified Java Programmer
- The faculty is involved in a satellite project in collaboration with ISRO and a Community Medicine project with Queens University
- The department received a grant from the Institution of Engineers for the project on "Non-invasive Brain Computer Interfacing"
- Under the Semester Abroad Program, 10 students have been sent to universities like Massachusetts Institute of Technology-USA, Carnegie Mellon University-USA, University of California-Davis USA, University of Wisconsin-USA and University of Western Australia-Australia

Industrial connection

The department works closely with several related industries of repute. These relationships facilitate joint research, funded projects, and the opportunity to learn the latest technologies. Experts from industries and leading institutions are invited every fortnight for technical lectures under the association activities. The Corporate Advisory Board includes senior executives from IBM, Microsoft, Wipro, Infosys and CISCO, who facilitate internships, projects and curriculum updation. The students are sent on industrial visits to companies and they also undergo in-plant training at industries.

Careers

CSE effectively prepares students to pursue leadership, technical, and management positions in a variety of industries. Students have obtained successful placements at leading companies like IBM, Infosys, Wipro, Cognizant, TCS, Satyam, Microsoft etc. Some of the alumni are successful entrepreneurs abroad.

SCHOOL OF COMPUTER SCIENCE & ENGINEERING

Department of Information Technology

Academics

Undergraduate

B. Tech. (Information Technology)

Postgraduate

M. Tech. (Information Technology)

M. Tech. (Information Security & Computer Forensics)

M. Tech. (Multimedia Technology)

M. Tech. (Database Systems)

Doctoral

Ph. D

The Web has changed the way the world looks at information. The expanding role of IT in business, science, government, social structures and personal lives is obvious in the current generation. As an academic discipline, IT focuses on meeting the needs of users within an organizational and societal context through the selection, creation, application, integration and administration of computing technologies.

Academics

Undergraduate

The B.Tech. in IT provides graduates with the skills and knowledge to take on appropriate professional positions upon graduation and grow into leadership positions or pursue graduate studies and research in the field. The program design is such that the graduate develops a practical understanding of the technology. The five pillars that make the IT curriculum are programming languages, web technologies, networking technologies, information management and cybernetics.

Postgraduate

The M.Tech. program enables graduates to have a broad technical understanding of current and emerging technologies in the IT field, a familiarity with systems engineering concepts, and a solid foundation in the technological basis of the Internet. They will also have a firm grasp of current and future effects of the convergence of computer systems and telecommunication systems technologies. Electives offered include grid computing, soft computing and computer forensics. The department offers M.Tech in four streams – Information Technology, Information Security and Computer Forensics, Database Systems, and Multimedia Technologies.

Faculty

The IT Department has sufficient faculty members whose areas of expertise and research include network security, mobile computing, computer algorithms, embedded systems, biocomputing and semantic web.

Research & consultancy

Research in the department focuses on creating and evaluating innovative learning experiences inspired by educational principles and technical progress. The approach is to use technology to help mediate a constructive dialogue between the learner, instructor and subject matter. Researchers focus on the management of IT, IT-enabled enterprises, technology-intensive user environments, and the increasingly global nature of IT use and production. As information security is one among the strongest research areas of the faculty, the IT Department has proposed to start a research center in the field of Information Assurance and Security.

Cutting-edge laboratories & facilities

The classrooms and the computing facilities in the IT Department provide an ergo-assistive work-study environment for students, faculty and researchers. High-end servers, powerful desktops and mobile computers with different operating systems – UNIX, LINUX, Windows and Mac OS, enable them to achieve their tasks with ease. The department has to its credit, 8 laboratories (Networking, Multimedia, OS, Solaris, .NET, Oracle WDP, Forensics, Data Warehousing and Data Mining), totaling over 300 systems with 10 servers.

Major events & achievements

Towards the goal of improving research activities in the field of information security, the department organized an International Conference on Information Security and Computer Forensics (ISCF-2006). In June 2010, the department plans to organize an International Conference on 'the Advancements and Emerging Trends in Computing Technologies'. Other achievements include:

- Easing the university administration process by continually automating many of their functions with indigenously developed software
- Organized short-term training programs in .NET technologies in 2007 and 2009
- Conducted 'CRESIDA 2K9' – a student symposium where technical papers were presented by students from all over India, in 2009
- Conducted a workshop on 'Computer Forensics' in collaboration with CERT, India, in 2008
- Training faculty from different universities on Cryptology and Network Security, and .NET Technologies with sponsorship from UGC in 2006
- Under the Semester Abroad Program (SAP), two students studied for a semester at the University of Wisconsin, USA

Industrial connections

The department has entered into pacts with the MS IT Academy of Microsoft Corporation and Oracle WDP of the Oracle Corporation. Through these, both the faculty and students have access to a variety of training programs leading to internationally recognized and sought after certifications. The Corporate Advisory Board includes top executives from IBM, Infosys, CSC, Wipro, Mahindra, Satyam and L&T.

Careers

Students get opportunities to serve in many top-notch IT companies like IBM, Yahoo, Microsoft, Oracle, Infosys, Wipro, TCS, and CTS (certified SEI CMM Level 5 organizations) through the campus recruitment process. The trend of a sizeable number of graduates travelling to USA, Canada, UK, Australia and Singapore for MS programs is increasing.

Department of Biotechnology

This center for excellence in biotechnology research is involved in projects that span the gamut of the field, from computational biology at the molecular level to modelling the effects of technology and regulatory change on marketing of bio products. The department deals with the latest developments in the fields of pharmaceutical, bio-pharmaceutical, and drug discovery sectors, healthcare, diagnostic and therapeutics, plant and animal sciences, and environmental sectors.

Academics

Undergraduate

The major focus of the B.Tech. program is in bridging bio-sciences and bio-engineering. Multiple paths have been embedded in the design of the curriculum. The main objective is to create a flexible educational experience comprising biosciences credentials like microbiology and immunology, biochemistry, molecular biology & genetic engineering, plant and animal cell & tissue culture, genomics and proteomics, IPR and bioethics and bioengineering like bioprocess technology, down stream processing, unit operations along with chemical engineering, mathematics and basic engineering subjects. The highlight of the syllabus is the practical knowledge that students gain through in-plant training, projects, and educational tours.

Postgraduate

This advanced course covers biology, agriculture, natural resources, and related sciences and is designed to suit both manufacturing, and R&D programs. Students are given strong insights into both theoretical and practical aspects of individual courses/subjects. Additionally, short-term research programs are undertaken towards the end of the course.

Faculty

The faculty, carefully chosen from different disciplines of biotechnology, is the strength of the department. Core faculty oversee the curriculum and instruction. Many hold advanced academic degrees and are actively employed in research. The faculty participate in training and development activities that update their knowledge in the current developments and promote advanced research activities in the department.

Cutting-edge laboratories and facilities

The department has independent laboratories, equipped with state-of-the-art equipment for microbiology and immunology, biochemistry, molecular biology, and genetic engineering, plant cell and tissue culture, animal cell culture, bioprocess technology and downstream processing. Unit operations, instrumentation labs, preparation labs and special facilities such as walk-in cold room, walk-in incubators, media preparation lab, photography lab, computer lab and are available for teaching and research activities. The department has acquired essential and advanced equipment like large fermentors, lyophilizer, gel documentation system, PCR and thermal cyclers, refrigerated centrifuges and basic equipment like electrophoretic systems, CO2 incubators, inverted microscopes, phase contrast microscope, deep

Academics

Undergraduate

B. Tech. (Biotechnology)

Postgraduate

M. Tech. (Biotechnology)

Doctoral

Ph. D

freezers, ultrasonic cell disintegrators, UV-Visible spectrophotometers, hybridization oven etc, besides minimal infrastructure facilities in all laboratories, for teaching and research activities.

Research & consultancy

Research is coordinated with other departments, national and international industries and R&D institutions to develop expertise in molecular biology, metabolic engineering, protein engineering, microbiology, biochemistry, immunology, biotransformations, biodegradation, plant biotechnology, animal biotechnology, marine biotechnology, enzyme technology, bio-separations, biosensors, instrumentation, bioinformatics, computational biotechnology, medical biotechnology, bioprocess engineering, pharmaceutical biotechnology, biomedical engineering, tissue engineering, biofuels and alternate energy.

Major events & achievements

- Shabir Dhamani, a final year B.Tech., student won the first prize in a national level entrepreneurship competition held at IIT, Chennai
- Ms. Preethi has been selected as a staff of L&T, Baroda for her final year research work on “Generation of bioelectricity from waste water using microbial fuel cells”
- Ms. Aayushi Uberoi received a fellowship from the Indian Academy of Sciences, Bangalore and completed a project on “Cloning of PvTARAg 55 antigen in E.Coli“ at AIIMS, New Delhi
- The department tops the list in the placement percentage at SRM University
- Under the Semester Abroad Program 5 students have been sent to universities like Massachusetts Institute of Technology, USA; University of California – Davis, USA; Massachusetts Institute of Medicine (Josh Laboratory), USA; and Umeå University, Sweden
- Mr. Ankit Bakshi directed a movie “Leaves of Grass” that was screened at the Mumbai International Film Festival
- Mr. Shan Narayanan represented India in the World Cyber Games held in South Korea

Industrial connection

The department has a record of sorts when it comes to linking up with the industry in terms of student projects and training with highly recognized corporates/institutes like Biocon, Bangalore; Santha Biotech, Hyderabad; Reliance Life Sciences, Mumbai; Tamil Nadu Agricultural University, Coimbatore; University of Madras, Chennai; Central Leather Research Institute, Chennai; Cancer Research Institute, Chennai; MS Swaminathan Research Foundation, Chennai; Tuberculosis Research Center, Chennai; Tamil Nadu Veterinary and Animal Sciences University, Chennai; Medopharm, Chennai; Reddy’s Lab, Hyderabad; NIOT, Chennai; Bharat Biotech, Chennai; Jain Institute, Bangalore; SPIC, Cuddalore; Kalinga Plant Resource Center, Bhuvaneshwar; GeoMarine Biotechnologies limited, Chennai; M.S. University, Baroda; Madurai Kamaraj University, Madurai; and Anna University, Chennai.

Careers

Students are prepared for entry-level work in the bioscience industry in the areas of R&D, production, clinical testing, and diagnostic work. Potential employers include biotechnology and pharmaceutical companies, as well as laboratories in hospitals, government, universities, horticultural industries, conservation organizations, food and drink manufacturers, water industry, agricultural industry and law enforcement.

Department of Biomedical Engineering

Biomedical Engineering is an application of all classical engineering principles to solve clinical problems in medicine and surgery. Biomedical engineers work with other healthcare professionals as members of a team. Employment opportunities for biomedical engineers exist in the industry, government organizations, universities, medical schools and hospitals.

The department was established in the year 2004 with active clinical/industry partnership in association with our sister institution, SRM Medical College Hospital and Research Institute, Kattankulathur. Since then, the department has been actively engaged in diversified research and teaching. Students have access to advanced research facilities owing to our MOU with Indira Gandhi Centre for Atomic Research (IGCAR), Kalpakkam and Bharat Scans, Chennai. Its main objective is to provide a knowledge-based, timely, cost effective and high quality service to clinicians in a professional and responsible manner in order to improve and enhance patient care by supporting all aspects of care-related technology.

Academics

This program combines the academic & practical exposure required to pursue a career in the bio-medical field. Modules of this program train the student to plan, design, install, operate, and maintain complex systems that help medical practitioners in the diagnosis and treatment of various diseases.

Faculty

The department has a good number of experienced faculty members with an aptitude for research. They are well versed with current trends and technologies in the industry. Their sound technical knowledge helps in guiding students in recent advances in biomedical engineering.

Research

A research coordination committee chaired by the Head of the Department, along with two faculty members coordinates academic research. Twelve counsellors guide the students in both UG and PG programs. Further, with the support of our honoured Vice-chancellor, students have carried out Innovative Projects (IOP) in the major thrust areas of biomedical engineering. The major research areas are listed as follows:

- Biosensors/biochips • Medical image processing • Bio-signal processing
- Bone densitometry & osteoporosis • Micro-Electro Mechanical System (MEMS)
- Bio-medical applications using virtual instrumentation Lab View software
- Medical thermography

Laboratories

Students will become familiar with several labs outfitted with all facilities over the course of their studies:

- Diagnostic and therapeutic equipments lab
- Medical image processing lab

Academics

Undergraduate

B. Tech. (Biomedical Engineering)

Postgraduate

M. Tech. (Biomedical Engineering)

Doctoral

Ph. D

- Biosignal processing lab
- Virtual instrumentation lab
- Human physiology lab
- Virtual human anatomy & physiology lab

Students also gain valuable experience in several medical areas with the resources of the sister institution, the SRM Medical College & Research Centre, Kattankulathur. They will be trained in utilizing diagnostic, therapeutic, surgical, life support equipment, bio monitoring systems as well as various portable and laboratory equipment.

Department library

To supplement the resource in the Central Library, there is an exclusive department library consisting of books, proceeding of workshop/seminars, national and international journals, students' project reports and laboratory manuals.

Major events & achievements

- Recently the department conducted a National Symposium entitled "Advanced Medical Imaging 2009". Renowned resource persons from various streams of biomedical engineering across India participated
- A National Workshop on "Medical Thermography" is proposed to be conducted in the year 2010 in association with Indira Gandhi Centre for Atomic Research (IGCAR), Kalpakkam
- A few students have been sent to the University of California - Davis, USA, as part of the Semester Abroad Program

International relations

An association with University Hospital of Wales and Cardiff University, United Kingdom (UK) and Penn State University, United State of America (USA) for dual-degree program as well as research and development (R&D) activities is on the horizon.

Industrial training

Students are encouraged to undertake industrial training during the course of their study. Eminent resource persons from industrial units and institutions of higher learning are periodically invited to give guest lectures on current topics of interest. The department also has an active clinical/industry partnership program that builds rapport with industry sources and focuses on maintaining contact with them. These contacts ensure students have no trouble when they seek practical exposure.

Career

According to the recent survey in IEEE's Spectrum Magazine, "Biomedical Engineering is one of the best areas to work in". Biomedical engineers are expected to have employment growth that is much faster than the average for all other occupations. "The aging of people and the focus on health issues will drive demand for better medical devices and equipment designed by biomedical engineer". The students can look forward to many exciting careers in manufacturing units of medical equipment, medical R&D institutions, hospitals, and pharmaceutical companies.

Department of Bioprocess Engineering

Academics

Undergraduate

B. Tech. (Bioprocess Engineering)

Doctoral

Ph. D

Bioprocess engineering concentrates on applying chemical engineering principles to natural biological processes to develop innovative technologies for a sustainable future. The development of biologically based fuels would be one possible career path a bioprocess engineer could pursue.

This specialization focuses on areas within the food industry, pharmaceutical industry, petrochemical industry, waste treatment, pollution control systems and metallurgical processing. The overall aim of this program is to combine modern molecular biology, advanced modeling and fundamental chemical engineering principles with the design of novel bioprocesses for applications in fields of biotechnology, such as bio-transformations, biopharmaceuticals, waste water treatment, mammalian cell cultures, stem cell bioprocessing and tissue engineering.

The courses

The degree schemes are amongst the broadest-based process engineering courses available and our graduates have an exceptionally wide choice of future career opportunities. The courses reflect modern concepts of engineering education and training, incorporating both communication and management skills together with a significant design element, all developed in close collaboration with industry.

Course description

The course aims to build on graduate-level education in either a life science, chemistry or chemical engineering discipline for specialized training or refocusing of previous knowledge. Specifically, this course is concerned with the use and application of bioprocessing skills and expertise to understand, develop and design processes for the manufacture of biotechnology products.

The main aims of the department are to enable the students to:

- Develop detailed knowledge and skills to deal with diverse and complex processes and products that exist in biomanufacturing and an essential understanding of the range of technology and techniques available to support this activity
- Develop a critical understanding of the relationships and interactions between the various components in a bioprocess system to achieve the overall goal of successful biomanufacturing
- Develop and use a significant range of science and engineering skills, techniques and practices in biomanufacturing
- Critically review existing practice and develop original and creative solutions to problems within the sector
- Communicate and work effectively with peers and academic staff in a variety of tasks, demonstrating appropriate levels of autonomy and responsibility
- Plan and execute a significant level of research projects, investigation or development in a specialist area, demonstrating extensive, detailed and critical understanding of the area in focus

Curriculum

The first year develops the fundamentals of process engineering and builds on the enabling sciences (e.g. chemistry, microbiology, cell biology, physics and mathematics). To integrate all this material there is an industrially sponsored design exercise at the end of the year.

The second year builds on the first year and includes further development of the principles of chemical and bioseparation process principles. Biochemistry, computer skills, and process design and safety are also introduced.

The third and fourth years of the programs bring the student to the highest level of professional knowledge in areas appropriate to their degree course. In this program, there is also room for advanced specialization in areas such as reaction engineering, renewable energy engineering, energy technology & management and environmental management. The quantitative education is rounded by courses in business management, product design and the responsibilities of the profession for safety and the environment.

The professional approach

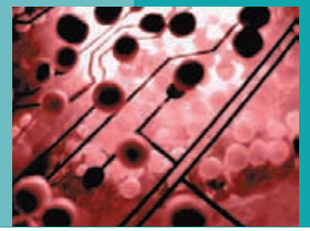
The undergraduate laboratories contain modern equipment, and up-to-date and challenging laboratory programs in the first two years form one of the strong features of the degree courses. The computing laboratory provides dedicated and networked computer facilities for students to carry out general IT, simulation and computer aided design work. A wireless network is available so that you can also connect your laptop.

Problem solving classes are a feature of most taught modules and the university is firmly committed to the small group personal tutorial system. Students will find guidance and encouragement whenever they need it.

Career

A wide range of rewarding career opportunities exists in the private and public sectors, and in health, safety and environment agencies. The demand for chemical and bioprocess engineering graduates remains high as many companies need their technical expertise to solve process problems and manage their environmental interfaces.

Many graduates of bioprocess engineering are engaged in the management of resources. Others will work to use chemical/biochemical-engineering principles to improve the design of consumer products and commodities. The development of new technologies for physical and chemical processing of both resources and waste materials provides significant opportunities for research in fundamental aspects of chemical engineering science.



SCHOOL OF BIO ENGINEERING

Department of Bioinformatics

The Human Genome Project is one of the best examples of Bioinformatics. This rapidly developing branch of biology is highly interdisciplinary, using concepts and techniques from informatics, statistics, mathematics, retrieval and analysis of data related to biological systems. Started in the academic year 2004-05, the department strives to train human resource to take up the challenges of the post-genomics era.

Academics

Undergraduate
The B.Tech. in Bioinformatics is a broad and flexible degree program. The curriculum gives due importance to the three important integral sub disciplines – biology, computer science and information technology. Students acquire skills in applying vast amount of biological information in genomics, proteomics, drug designing, molecular medicine, forensic analysis, crop improvement and veterinary science. The course is designed to produce bioinformatics engineers who reach for the frontier in bioinformatics, which sets the platform in seeking employment or in pursuing higher studies.

Postgraduate
The M.Tech. program provides a choice of electives from both the biology and the IT spheres. Some of the key subjects are: data mining and analysis for genome projects, protein structure prediction, systems biology, and developing computer databases and algorithms for biological research. As several of these electives are project based, students are provided with sufficient practical training. On completing this course, bioinformatics engineers are quickly absorbed into bioinformatics research and development establishments and pharmaceutical companies.

Faculty
The department has well-qualified faculty with inter-disciplinary proficiency, and expertise in the areas of computational biology, systems biology, genomics, proteomics, pharmacogenomics and medical informatics.

Cutting-edge laboratories & facilities
The department is equipped with state-of-the-art computer programming, biocomputing, genomics (sequencing and genome analysis) and proteomics (2D protein separation and protein purification) laboratories. The department also has several high-end biology labs for the bioinformatics students. Hands-on skills are offered in microbiology, biochemistry, genetic engineering, immunology, database management, genomics, proteomics, and computer aided drug designing. Software to provide an integrated environment for drug design, modelling and simulation solutions for biomolecules, comparative modelling and docking, computational chemistry and genome analysis are available. Biocluster, a cluster of tools required for DNA and protein sequence analysis is also available.

Research & consultancy
Research in the department is focused on drug designing and development, protein purification and proteomics. Thrust is given for submission of research proposals to funding agencies such as DBT, DST, CSIR and DRDO. Faculty are involved in student projects, internally funded pilot projects, externally funded projects and multi-institutional collaborative projects with research institutions in India and abroad. Students Research Club fosters innovative ideas and encourages student/faculty research publications. The students of the Ph.D program are involved in research into lead (drug) molecules from microbes and plants, antibiotic resistance in bacteria, probiotics and metabolic engineering.

Major events & achievements
- Research papers by faculty members have been published in international journals
- Research papers have been presented by faculty members and students in both international and national conferences
- Students have won prizes in paper and poster presentations in international/national conferences
- Workshop on “Computational drug discovery” was conducted by Schrodinger, India
- A National Seminar on “Proteomics” was organized, where scientists from reputed research institutions emphasized the applications of bioinformatics in research
- Under the Semester Abroad Program, 3 students have been sent to University of California-Davis, USA

Academics

Undergraduate
B. Tech. (Bioinformatics)

Postgraduate
M. Tech. (Bioinformatics)

Doctoral
Ph. D

Industrial connection
The department works closely with several biotechnology industries of repute and bioinformatics related research institutions that facilitate joint research and funded projects. Students get the opportunity to learn the latest technologies during the course of the study. The students carry out projects/training from R&D units of bioinformatics, pharmaceutical, microbial and agro-based industries and research institutions.

Careers
Bioinformatics is the most promising and a fast growing sector in life sciences. With the completion of human genome sequencing and the sequencing of various plants, animals and microbes’ genomes, bioinformatics is poised to take up the challenges of the post-genomic era and the need for well-trained human resource is greater. Presently the US bioinformatics market alone is worth US $7 billion and there will be a 10% annual growth in the bioinformatics market in the years to come.

Department of Genetic Engineering

The world has come to realize the miracles of Genetic Engineering; in agriculture - higher yield and better varieties of crops; in medicine - diagnostics and cures that were only a dream a few years back. It forms the backbone of biotechnology. The opportunities for a genetic engineer in clinical and applied genetics today and in the future are boundless. Started in the year 2004, the department aims to produce genetic engineers who excel in the field of genomics and gene manipulation. Towards this end, the department has brought together state-of-the-art laboratories and a highly experienced and dedicated team of faculty. The department takes immense care to impart:

- Knowledge in a highly interactive mode
- Hands-on training in advanced molecular techniques
- Cutting-edge research opportunities within the campus

Academics

Undergraduate

The B.Tech. program in Genetic Engineering comprises foundation courses in Biology and Engineering. Unique courses like Recombinant DNA Technology, Gene Therapy, Nanobiotechnology in health care, Gene Expression lab, Genome analysis lab, Plant Genetic Engineering lab, Stem Cell Biology and Microarray Technology are offered by experienced faculty.

Student seminars and assignments are designed to be highly challenging, which in turn brings out their intellectual and interactive skills in analyzing scientific problems. Students are required to conduct research as part of their curriculum and submit a project report. Some of the research projects being carried out by students are:

- Sequencing of chloroplast genome
- DNA barcoding of organisms
- RNA interference in plants
- Molecular diagnosis of genetic diseases
- Ultra-sensitive magnetic biosensor for cholesterol
- Invitro Micropropagation of orchids
- Production, purification and optimization of therapeutic proteins
- Study on plant metabolites for anti-cancer activity
- Direct bioethanol production from paddy straw
- Cloning of oil biosynthesis genes of Jatropha

Postgraduate

This is the only university in India where post graduate training in Genetic Engineering is provided at global standards. Specialization is offered in human genetics, medical genetics and plant genetic engineering.

Academics

Undergraduate

B. Tech. (Genetic Engineering)

Postgraduate

M. Tech. (Genetic Engineering)

Doctoral

Ph. D

Faculty

The department is supported by 11 full-time teaching faculty and 3 laboratory instructors. The faculty includes scientists with Ph.D in genetic engineering, neurobiology, cancer biology and animal biotechnology, and bioengineers with expertise in protein engineering, enzyme scale up, bio energy and bioprocessing. The faculty shares with students their national and international expertise in research. Each faculty member serves as a staff advisor for about 10 students.

Faculty research & consultancy

Great importance is placed in obtaining externally funded research projects from India and abroad. Collaborative and interdisciplinary research is aimed at the areas of genomics, molecular diagnosis, bio-energy, plant, animal and microbial genetics. Faculty members take keen interest in externally funded research projects, internally funded pilot projects and student projects.

Facilities

The facilities for teaching and research are on par with that of developed countries. The department is well equipped for teaching and research in the fields of genetic engineering, immunology, neurobiology and genomics. The department has a 16-capillary Automated DNA Sequencing Machine from Applied Biosystems, PCR machines, Gene Pulser, Phosphor Imager, Scintillation Counter, Plant Growth Chamber and Vacuum drier. The department also Transgenic green house and radiation labs.

Major events & achievements

- A three-year research project for isolation of all the genes that are involved in oil biosynthesis in Jatropha is funded by the department of Biotechnology, Government of India. The department has also partnered in a research project on Rhizosphere Microbial Community for Sulfur Transformation in Rice
- A national-level training program on Gene Cloning Techniques and Automated DNA Sequencing was conducted by the department. This training program was completely sponsored by the department of Biotechnology, Government of India
- A National Students Symposium in Gene Revolution and a National Conference on Plant Made Pharmaceutical and Industrial Proteins were organized
- Two students were sent to Sweden and four students were sent to University of California-Davis, USA for two semesters and for project work. One student has been sent to University of Warwick, UK for a dual degree program - B.Tech. from SRM University and M.Sc. from Warwick
- Several B.Tech graduates have secured admission to MS and Ph.D programs in the USA, with fellowship of upto 64,000 USD/Yr

Industrial connections

Senior persons from Metahelix Life Sciences, the Centre for Genomic Application and Vittal Mallaya Scientific Research Foundation are part of the Corporate Advisory Board. Students are sent for industrial training to Biocon, Reddy's Lab, Life Line Research Centre, Reliance Life Science, Life Cell, etc.

Career

A wide scope of 27 billion USD worth of outsourcing in R&D and 25,000 R&D based jobs are available for genetic engineers. A large number of students also opt for higher studies in India and abroad (USA, UK, Sweden, Australia, Germany and Canada).

Department of Food Process Engineering

Food processing has been identified as the sunrise industry due to its enormous impact and significance in the Indian development sector. The importance of food & process engineering lays in the fact that it has the capability to provide food to our population through scientific conservations, eliminating available losses and making available more balanced and nutritious food. The department was started in 2003 in response to the potential in the field.

Academics

Undergraduate

The B.Tech. in Food & Process Engineering is a focused program with the main goal of training the students in a broad based manner with equal focus on food engineering and food fermentation technology. The curriculum is designed to impart engineering knowledge in topics such as unit operations, crop processing, food preservation, food packaging and quality control.

Postgraduate

The postgraduate program in Food and Nutritional Biotechnology prepares scholars to become knowledge-driven professionals, by providing a learning environment strongly focused on collaborative and interdisciplinary research. A sum of Rs. 50 lakh has been sanctioned by the Ministry of Food Processing Industry as assistance for creating facilities for postgraduate studies.

Faculty

The department is led by an experienced professor who has developed many food processing processes, gadgets/equipment and new value added food products. It is an interdisciplinary subject in nature and shares the staff of chemical engineering, biotechnology and mechanical engineering.

Laboratory facilities

The department has several major laboratories:

- Food microbiology laboratory
- Food bio-chemistry laboratory
- Food analysis laboratory
- Fermentation technology laboratory
- Food engineering laboratory
- Fruit and vegetable processing laboratory
- Unit operation in food processing laboratory
- Bakery and Confectionary Lab

Academics

Undergraduate

B. Tech. (Food & Process Engineering)

Postgraduate

M. Tech. (Food & Nutritional Biotechnology)

Doctoral

Ph. D

Research

Academic research is coordinated by the Research Advisory Committee headed by the Dean, School of Bio Engineering along with members comprising Head of the Food & Process Engineering Department, Head of the Department of Chemistry and the Head of the Bio-technology Department.

Major events & achievements

The faculty members contribute to academia by presenting research papers in international/national conferences and by publishing in peer-referred journals. Students of the department are also encouraged to attend student symposia. There is a technical association in the department that conducts international/national level seminars, symposia and workshops.

Industrial training

To enrich the teaching-learning process by imparting real-time experience, the department maintains close links with various food processing industries. The students are trained on the basic engineering approaches to fruits and vegetables, grains, oil seeds, plantation crops, meat, poultry, and milk processing and preservation techniques.

Careers

The department prepares students to pursue leadership, technical and management positions in a variety of food based industries. Students have obtained prestigious placements at such leading companies as Britannia, Tasty Foods, Perfetti, Pepsi, HCL, Hutson, Mannar Foods, Team and Quatex.

SCHOOL OF CHEMICAL AND MATERIAL TECHNOLOGY

Department of Chemical Engineering

From large scale refineries to artificial organs for the human body. From developing new energy sources to synthesizing revolutionary new materials. The possibilities boggle the mind. But that is the scope of chemical engineering. With the current emphasis on computer-supported problem solving and modern laboratory technology, the field becomes all the more exciting.

Academics

Undergraduate

The B.Tech. in Chemical Engineering is a focused program designed to understand and solve industrial related chemical problems. The curriculum has been so designed that it gives a balanced version of theoretical knowledge in various core and electives of this field in addition to courses in humanities, basic science and also practical knowledge. The department also lays emphasis on entrepreneurship.

Postgraduate

The department offers a postgraduate program in chemical engineering. A prospective student who undergoes this program should be able to pursue his doctoral program in a variety of fields such as bio-chemical engineering, food technology, fertilizers, petro and petrochemicals.

Faculty

The department is gifted with highly qualified faculty having experience in research and in industry. The teaching-learning process is monitored by a department representative for quality assurance.

Cutting-edge laboratories & facilities

The department has the following laboratory facilities:

Technical & instrumental analysis lab, physical chemistry & organic chemistry lab, mechanical operations lab, momentum transfer lab, heat transfer lab, process control lab, mass transfer lab, chemical reaction engineering lab and computer lab.

Major events & achievements

The faculty members of the department contribute to academia by publishing books, presenting papers in the international and national conferences, delivering guest lectures and organizing national seminars. The department has a chemical engineering association, which conducts student level technical seminar and also arranges technical lectures by eminent persons from industry. Three worthy students were sponsored to visit Japan for a 2 month training on Environmental Science and Biotechnology, organized by Hiyoshi Co. Ltd., Japan. They experienced real-time analysis and control of dioxins and harmful substances in the environment.

Research

The department has a research coordination committee directed by the Head of the Department along with two faculty members to coordinate academic research. There are four approved guides as resource persons to guide Ph.D research. The department is pursuing a research project on “Cocoa Butter Equivalent” funded by AICTE with a financial grant of Rs.10 lakhs. The department has taken up socially relevant pilot research projects in the field of alternate fuels, Bio remediation and the environment.

Career

Options are wide open in terms of self-employment and employment in chemical, biotech and food industries and R&D laboratories. Post graduates are highly preferred by process design consultants.

Academics

Undergraduate
B. Tech. (Chemical Engineering)

Postgraduate
M. Tech. (Chemical Engineering)

Doctoral
Ph. D

Department of Nanotechnology

The Department of Nanotechnology has been recognized as one of the core competence centers for excellence in research as well as academia. Nanotechnology is an inherently interdisciplinary field and bridges physics, biology, materials science, and chemistry. It has been recently shown tremendous attention and deals with the latest developments in the various disciplines such as Material Science, Micro(Nano) electronics, Manufacturing of miniaturized electronic and optical devices, quantum computing, Computational Nanotechnology, Nanomechanical engineering & sensors, Nanolithography & Nanointerface engineering, Nanomagnetism etc. It is expected to greatly impact Nanomedicine, BioNanotechnology, Nanoeconomy, Industrial and Commercial Applications, Nano-Intellectual Property Rights.

Academics

Undergraduate

B.Tech. (Nanotechnology): The four year programme is designed to help prepare students from a broad range of disciplines for careers or graduate study in fields involving nanotechnology. These fields cover a spectrum ranging from medicine (drug delivery) and catalysis to surface/bulk chemistry and controlling even at the atomic/molecular scale to quantum computing. The students are consistently encouraged to develop this interdisciplinary approach to science and engineering. The course prepares the exciting career opportunities in a variety of diverse fields to the students.

Postgraduate

M.S. (Nanoscience & Nanotechnology): The program imparts several courses in Material Science, Thermodynamics, Mathematical physics, Quantum Physics, Nanochemistry initially. Later on, it provides the basic aspects of Instrumentation techniques and the advanced courses such as Thin Film Technology and Nanophotonics. At the end of programe, the students are expected to do a well-qualified project. This program is intended to enable the students' interests and provide the basic research activities for deeper insights in both theoretical and experimental aspects.

Doctoral

Ph.D (Part time/Full time): The school offers both part time and full time Ph.D programs and provides training and research opportunities for University graduates. This programe enables the graduates to deepen their knowledge of their chosen area of specialization. It offers a wide range of experimental and theoretical topics and has several research scholars. The main basis for the Ph.D thesis is the experimental laboratory work. As a complement to the laboratory work, many scientific activities are organized regularly within the framework of the Ph.D program, in particular seminars, short-term training courses and organizing conferences globally.

Faculty

The school has a few number of highly motivated and potential candidates with the widely expertise aspects of different subfields of Nanoscience and Nanotechnology. The faculty involve in various advanced research activities such as Nanomagnetism, Molecular Nanoelectronics, fabrication of carbon based nanostructures, organic and polymer based field-effect transistors, Interface engineering, nanocomputing, Nanodrugs, Nanosensors, etc. The faculty is expected to explore the various disciplines and to balance between the academic and research skills.

Cutting-edge laboratories and infrastructures

The University has provided the major funding by more than two crores for initialization and set up of the different laboratories including class 1 to 10 clean rooms. The conference hall and library facilities can be accessed for fruitful discussion. Therefore, the Nanotechnology Research Center (NRC) at SRM University has been well equipped with the recent sophisticated equipments of Scanning Force/Probe Microscopy (SPM/SFM), along with Magnetic/Electric Force Microscopy (MFM), Conductive Force Microscopy (CFM), Scanning Tunneling Microscopy (STM), Physical Vapor Phase deposition (PVD), Electron Beam Deposition, Plasma Enhanced Chemical Vapor Phase Deposition (PECVD), Langmuir-Blodgett film technique, X-Ray Diffractometer, low and high field emission scanning electron microscopes and other accessories. Data analysis and modelling can be performed at the advanced level.

Research and Consultancy

The Nanotechnology Research center (NRC) encourages inter-department research and academia activities. The students from different disciplines also benefit. The thriving research due to be implemented here will focus on assessing the true nature of surface and to provide the exact quantifications between surface chemistry and bulk chemistry.

Industry collaboration

To develop and maintain state-of-the-art quality, the department is constantly creating Government-Academy-Industry collaborations, with other R&D institutions/organizations.

Careers

The department provides comprehensive guidance to career aspects along with many helpful hints on choosing the right career and landing a well-paying job that is best suited to one's skills and interests. There is a huge demand in Europe, Far East Asian countries, USA, Canada, and in India. This enables students to pursue their higher studies in India as well as in well-established centers abroad.

Academics

Undergraduate

B. Tech. (Nanotechnology)

Postgraduate

M. S. (Nanoscience & Nanotechnology)

Doctoral

Ph. D

Department of Nuclear Engineering

Nuclear power-ike wind, hydro and solar energy-can generate electricity without carbon dioxide or other greenhouse gas emissions. The critical difference is that Nuclear Energy is the only option to produce vastly expanded supplies of clean electricity on a global scale. Today nuclear energy provides about 16% of world electricity. With sound public policy, this percentage could grow rapidly-supporting global economic prosperity. Without greenhouse gases and pollution. Fortunately, the Uranium that fuels nuclear power is found in great quantity in both Earth and Sea water. Uranium's worldwide availability at economically viable cost is a key factor that would allow a sharp expansion in nuclear power. Nuclear Engineering is an intellectually exciting, dynamic and expanding field, and socially important discipline, supporting a wide range of applications that improve human health and welfare. Nuclear Engineering continues to be a growing field, evolving with the nuclear industry and national laboratory programs.

Academics

Undergraduate

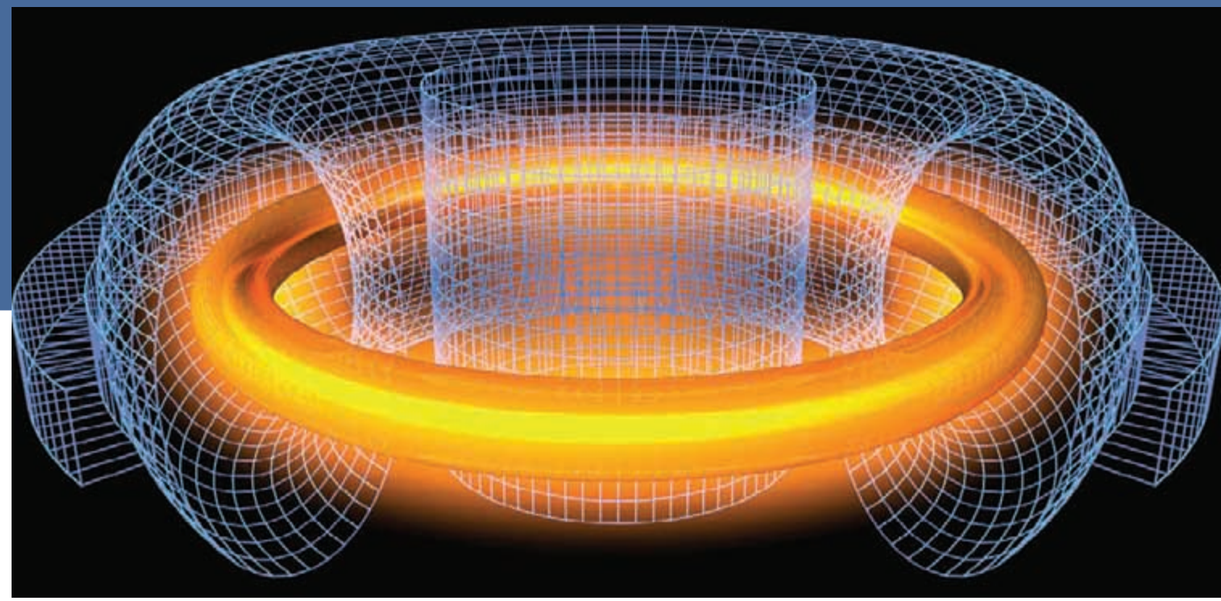
The general technical areas emphasized in the graduate education program include neutron physics, materials for nuclear technology, design in nuclear engineering, applied radio chemistry and radiological engineering .The outcome of the B.Tech degree program in Nuclear Engineering is bridging nuclear science and other engineering streams with technological improvement. Our course frame has been designed specifically with the needs of the nuclear sector in mind. It offers an extremely broad portfolio of subjects, from reactor theory through decommissioning to electrical power, waste disposal, storage & radiation safety. Each topic is presented in short course format which is ideal for employees within the industry.

Cutting-edge laboratories & facilities

Experiments may be run by a collaborative effort. A powerful suite of computers is available for data analysis within the department. Students are involved in development and use of advanced particle transport methods, multigroup cross-section generation techniques, reactor physics and perturbation methods, thermal hydraulics, nondestructive testing techniques and tools, advanced fuel design, robotics, radiation shielding and protection, simulation methodologies for real-life nuclear systems including reactors, medical devices, and radiation facilities.

Faculty

Our faculty has grown recently to professors plus adjunct and emeritus faculty who have varied research interests supported by industry, national laboratories, and government agencies. Many hold advanced academic degrees and are actively employed in research.



Our faculties are renowned for their ability to work well and multidisciplinary research with other institutes across India, and also collaborate with many of the other Universities and research centers across world. The visiting faculties will be from Bhabha Atomic Research Centre (BARC) and Indira Gandhi Centre for Atomic research (IGCAR) and from nuclear industry such as power generation, radiation detection and measurement, radiation treatment and imaging for medical and industrial applications.

Research

Investigations are proposed to study into the interaction of neutrons and other radiation with materials used in:

- nuclear reactors
- nuclear data analysis and evaluation
- radiation transport studies
- conceptual designs of fusion power systems and their engineering, safety, and environmental implications
- plasma wall interactions
- analysis of reactor accidents
- safety studies

Career

The students can look forward to many exciting careers in manufacturing units of radiology companies, R&D institutes and nuclear reactor centres. The future for nuclear power and related research is bright. Jobs are opening up world-wide.

Department of Architecture & Interior Design

Academics

Undergraduate

B. Arch.

B. Des. (Interior Design) - 4 years

B.Tech. (Architetural Engineering)

Postgraduate

M. Arch. (Architectural Design)

Doctoral

Ph. D

The greatness of a civilization is perceived from its architecture. From skyscrapers that disappear into the clouds to the sweeping domes and towers of historical buildings, we see the hands of genius. Vision: The school advocates a design philosophy that draws inspiration from the rich cultural heritage of India while simultaneously embracing the developments in science and technology, to produce architects of international competence. Started in 1992, the mission of the SRM School of Architecture & Interior design is to educate budding architects who will contribute to the socio-economic and cultural development of India and the broader global community through responsible participation in the process of design and construction of the built environment.

Academics

Undergraduate

The school offers three degree programs for undergraduates, i.e B.Arch., B.Des. (Interior Design) & B.Tech. (Architectural Engineering)

B.Arch.

The Bachelor of Architecture program of 10-semester duration at SRM is recognized as one of India's premier and the most comprehensive programs in Architecture due to the thrust on contemporary issues such as sustainability, urban re-development, housing etc and continuous interaction with practicing architects of repute. It also offers a large number of elective studies, ensuring flexibility and a choice-based education tailored to the students area of special interest which may be urban design, landscape architecture, housing, project management, city planning etc. The program is approved by the Council of Architecture, New Delhi and was the first one in south India to be accredited by the National board of accreditation, in 2001.

B.Des. (Interior Design)

The Bachelor of Interior design program is of eight semester duration and is one of the rare professional degrees offered by the school, since 2006. It specializes in the design of Interiors for all kind of buildings such as star hotels, office buildings, shopping malls, apartments etc. The primary goal of the program is to equip budding designers with the theoretical knowledge, technical skills and professional ethics needed to practice Interior design. Graduates of the program have a strong grounding in aesthetics and design, have highly developed problem solving skills and the ability to bring together the various elements of interiors, to produce a work of art.

B.Tech. (Architectural Engg.)

This eight semester degree program is an innovative course which addresses the need for professionals required by large and complex building projects such as airports, stadia, tall buildings etc, who can act as an interface between the architects and the project engineers. They acquire expertise in various areas of cutting edge technology such as structural systems, air conditioning, acoustics, lighting, fire retardent engineering, etc, and are mainly employed as project engineers and managers who execute the most prestigious projects in this world such as the Burjh Towers, Dubai and Petronas Towers, Kuala lumpur.

Postgraduate

The 4-semester M.Arch. (Architectural Design) degree is one of the most innovative programs in India, and it prepares graduates to meet the challenges thrown up by the ever changing needs of the contemporary society. This professional degree is structured to educate those who aspire to create masterpieces of complex architecture including large scale infrastructure projects and metro level urban facilities. It aims to train scholars specifically in the design & construction of tall buildings, airports, mass rapid transportation terminals, stadiums and environmental planning projects for large areas.

Faculty

The School of Architecture is first and foremost about people. Our distinguished faculty of 20 members represents an unparalleled range of design philosophies and visions since they are specialized in diverse areas such as digital architecture, city planning, urban design, project management, housing, landscape architecture, etc. Some of them have been consultants to various corporate and governmental organizations for a number of prestigious design projects. Their work is complimented by 10 members of the visiting faculty comprising eminent architects and engineering professionals, who provide the much needed interface with the architectural profession and the building industry.

Research & consultancy

Research in School of Architecture & Interior design is about quality not quantity. Our objective is to create an institutional, people oriented research culture in areas such as Architectural conservation of heritage buildings, urban re-development and environmental planning for sustainability. We do this by creating a stimulating, constructive and supportive environment for our staff and students to undertake high quality research. We also portray the school as a center for the highest quality research and scholarship.

The School encourages interdisciplinary research through the following research groups: architectural design, environment & sustainability, history & theory, building science and urban studies. Interdisciplinary approaches have led to many research collaborations, most notably in heritage and urban studies through the Documentation Cell & Research Center, that records and documents heritage buildings of the region. Other than the publications in various journals and conferences by the faculty members, the school has brought out the conference proceedings of 2 national conferences convened by it. The school hopes to publish the SRM Design Magazine and Studio Works of students to reach out to an international audience in the near future.

Infrastructure and Facilities

The school of architecture and interior design is housed in an exclusive building with a built up area of 3000 sq.m and housing design studios, lecture halls, library, CAD Lab, model making workshop, material museum, construction yard, etc.

Art & architecture library

The School of Architecture has its exclusive art & architecture Library. It contains more than 3,000 volumes on architecture, painting, sculpture, graphic design, urban planning, and the history of art and architecture and subscribes to 5 international journals and 12 national journals. The library also contains a dedicated multimedia section, housing slides, CD ROMs and videos relating to art & architecture.

Modeling workshops

Graduate and undergraduate students use the School's fabrication shops in support of studio and course work assignments, as well as for independent projects. They include fully equipped facilities for building models, fabricating furniture and sculpting with imported machines & tools. All students undertake intensive exercises in solid modeling and detailing exposing them to a wide range of tools and procedures. First-year students use the fabrication shops to fabricate elements for the building project.

Digital Media Facilities

Using digital media in the design process and having updated information systems has become a crucial part of the school's educational pedagogy. The School provides students with a high quality information infrastructure including high speed internet, intranet and Wi-fi connectivity backed up by peripherals such as scanners, copiers and fax machines. It has its own proprietary digital media facilities that consist of a centralized server pool for high quality distributed information systems, remote computer clusters and high-end workstations, supported by architectural software solutions, and integrated design tools. The School provides data projectors, digital cameras, large-format plotters, 2-D printers, and scanners for individual student use. In addition, students at the School have access to the Desktop Publishing service facilities of the university.

Other facilities

The School is equipped with numerous state-of-the-art facilities such as the climatology lab, building materials museum and a construction yard that foster teaching, research and innovation in building systems and construction.

Major events and achievements

Conferences and symposia are conducted on an annual basis, bringing together eminent architects and scholars who examine historical or contemporary issues and ideas concerning architecture and natural environments. The conference proceedings & publications further enhance the reputation of the school as a premier institution in this country.

The School convened the national conference on "Sustainable rchitecture and Green buildings" called NIRATHARA in January, 2008 and the national conference on "Disaster mitigation and management" titled PRALAYAM in November, 2006. It also conducted Quality Improvement Program (QIP) for faculty members of other schools on "Contemporary processes in Architecture" in September, 2006 and a short-term training program (STTP) about "Teaching in the age of Digital media" in 2005, which was sponsored by the Council of architecture and AICTE. Under the Semester Abroad Program, 3 students have been sent to Birmingham City University-UK.

Professional interface

The School facilitates extensive interaction with the design community at large and architects in particular. The architecture studios are enhanced by the participation and guidance of leading luminaries from the profession, who apart from inspiring the students to excel in their creative endeavors, also bring a tremendous quantum of professional know-how to complement and balance the theoretical inputs from the faculty members. The Architecture Association is a student body that ensures Industry-Institute interaction by organizing a series of special lectures, workshops and product presentations.

Careers

The School is renowned for its distinguished alumni with nearly 40% of each graduating batch going abroad for higher studies or employment, since 1997. Approximately, about 75% of the undergraduates go on to become leading architects and designers, who are gainfully employed in leading architectural practices in the country and abroad. About 25% of the students pursue higher education to earn a Masters degree in Architecture and allied subjects. Students are employed not only as architects, but also as project managers, contractors, developers, and in fields outside the construction industry. The school boasts of a placement record of over 90% for the last 5 years.

Center for TQM

Total Quality Management has proved an impressive benchmark in a company's performance and effectiveness of its processes. Its influence has been felt in industry as diverse as manufacturing and healthcare, which explains the rising demand for expertise and consultancy in this area. Sensing the trend, SRM University has stayed one step ahead by establishing the Center of Excellence in TQM in 2005. The center creates skilled graduates who can lead the industry and be at par with their counterparts across the globe.

International link

The Center for Excellence in TQM was a result of SRM University's rapport with the international fraternity. Tokai University, Japan is an acknowledged leader in the study of quality management and the association with them has opened doors to foster, nurture and develop quality management programs and techniques.

Faculty

The courses offered at the TQM centre are handled by faculty trained in quality management at the TQM centre as well as experts drawn from Deming awarded industries, professional Institutions and practicing TQM professionals.

Curriculum

Quality drives the curriculum. It forms the basis of academic study and practical application. The course is designed to be a valuable addition in knowledge to practicing engineers, executives and supervisors of industries as well as government/quasi–government departments, NGOs, statutory bodies and teaching faculty. The course will also immensely benefit graduates from recognized academic institutions.

Industry rapport

The advisory board includes eminent industry experts in quality management who have achieved International awards for the same. The other members consist of TQM professionals and members of professional bodies and institutions of excellence propagating quality as the main theme. The Chief Advisor is Prof. Katsutoshi Ayano, Chief of the Dept. of Business administration and Political Sciences at Tokai University, and a jury member of JUSE, the International Professional body for scrutinizing, examining and certifying the industries applying for Deming Award.

Course details

The center offers both certificate level and post graduate level programs. The certificate courses are conveniently timed for working professionals so that they can continue with their careers. The degree program will be a four-semester full time course for individuals who aspire to become experts in this field.

Courses offered

M.S. Degree in TQM
Duration: 2 Years, 4 Semesters; Full Time

TQM Certified Teacher
TQM Certified Engineer
Duration: 6 months. Part-time evening classes, 2 hours per day, five days a week

Eligibility

Certificate Program:

Diploma / Degree in Engineering/Science with Mathematics/Physics/Chemistry/Statistics/Applied Sciences as a main subject. Candidates must have at least one year work experience in the relevant field.

M.S. Degree Program:

Graduates in Engineering, Science, Humanities and Social Sciences. Candidates under 10+2+3 stream should have a minimum of one year work experience.

FACULTY OF ENGINEERING & TECHNOLOGY

Nanotechnology Research center

The nascent science of nanotechnology has emerged as a highly multi disciplinary science spanning diverse fields such as materials science, physics, chemistry, biochemistry, molecular biology, computing, and engineering. The Center for Excellence in Nanotechnology was established in December 2006 due to the enormous potential of research in the field in the areas of drug delivery and discovery, environmental sciences, manufacturing, microelectronics and quantum computing.

Faculty

The center draws bright minds from such prestigious institutions as Trinity College, UK; Caltech, USA and IIT Madras, India. The faculty members have expertise in wet chemical synthesis, nano-magnetism, thin film technology, carbon nanotechnology to designing and fabrication of ultra high vacuum systems. The center is also reinforced by research scholars with experience in diverse fields such as computing, robotics, biotechnology, microbiology & chemistry. The centre currently engages four full-time research scholars and another four part-time researchers.

Research focus

Nanostructured Materials & Nanomagnetism: This involves fabrication and application of magnetic thin films and heterostructures to develop high density magnetic storage devices and other nanostructured materials for a wide variety of applications. Advanced Drug Synthesis, Drug Delivery & Controlled Release Systems:
A dynamic team of researchers along with doctors from SRM Medical College are engaged in synthesis of site specific drugs for various ailments along with an effective drug delivery system based on Nanotechnology. Controlled drug release based on polymer micro-nano beads are also a focus of the team's research.
Stem Cell Research: Doctors and scientists from the center are initiating an advanced research center for stem cell research and stem cell bank. Nanomaterials for Sensor Applications: The focus is to develop size specific nanomaterials such as iron oxide, silica, and polymer based nanoparticles. This specific area of sensors are intended for medical, biological and environmental applications.

Funded projects

The center has also recently received funds amounting to INR 1.21 crores from the Department of Biotechnology, Government of India for a research project titled 'Development of Nanofilters for Water Purifications and Removal of Supported VOC's from Contaminated Air'.

Infrastructure

The Nanotechnology Research Center boasts of multiple, international caliber synthesis and characterization labs having a wide range of advanced equipment. The university has funded in excess of 2 crores for the setting up of the research center.

- Agilent Technologies' Scanning Probe Microscope
- HindHivac's Physical Vapor Deposition System with E Beam Evaporator
- HindHivac's Plasma Enhanced Chemical Vapor Deposition
- Apex Instruments' Langmuir Blodgett's Thin Film Deposition System
- Panalytical's X-Ray Diffractometer
- Shimadzu's Gas Chromatography Mass Spectrometry
- An advanced Nano Chemistry Lab equipped with Polytron's homogeniser, Buchi's RotoVapor, Remi's Tabletop Centrifuge and Prima Product's Fume Hoods with Filtration facility
- Apex Instruments' Spin Coating Unit
- Field Emission scanning electron microscope with electron beam

Collaborations

The Nanotechnology Research Center is a multidimensional research system with industry and academic associations. The Drug Delivery Group at the center works in close tandem with many pharmaceutical companies in the country. The center has started a collaborative research program with Queens University in Canada for research on Fuel Cells and related technology.

Courses offered

• M.S.-linked Ph.D • Ph.D

FACULTY OF MANAGEMENT

School of Management

SRM University's School of Management serves as a gateway to the high-profile world of management. The school trains enterprising young men and women to be industry leaders and decision makers. The school was rated A+ in 'Business India B-School survey' (Sep-Oct 2009) and is ranked among the Top 100 B Schools in India (Dalal street Directory 2009) The school is housed in two independent blocks measuring 150,000 square feet. Facilities include:

- Several air-conditioned seminar halls
- State-of-the-art computer labs – a total 200 terminals with Internet facility
- Classrooms equipped with LCD projectors, OHP and microphones
- Modern library with well over 9,000 books and journals along with online access to vast digital resources
- Health insurance coverage and blue card allow for medical treatment at a concession in SRM General Hospital

The school offers 3 programs: The regular 2-year MBA, 1-year Post Graduate Program in Management (PGPM) and 1-year Post Graduate Program in Retail Management (PGPRM). The regular 2-year MBA program is also offered in Ramapuram, Ramapuram part Vadapalani and Modi Nagar (U.P) campuses. These programs have been designed for undergraduate students who have just completed their degree. The school also offers Ph.D in Management.

2-year MBA, 1-year PGPM and 1-year PGPRM

The cream of international faculty from top universities in the USA and highly qualified and experienced Indian academicians will take you through some of the most rigorous and stimulating management programs that you could imagine.

Specialization

Students are prepared to meet today's IT-enabled business environments by offering functional specializations in Marketing, Finance, Human resources, Systems and Production and super specialization in ERP, Retailing, Hospitality, Management, Hospital, Pharma and Health Care Management.

Co-curricular activities

- Personality development programs: Yoga & meditation, communication skills, negotiation skills, stress management, lateral thinking, creativity and innovation
- Periodic industrial visits, workshops and seminars
- Corporate clubs: Clubs provide students with exposure to a wide range of management studies, including human resources, marketing, finance, systems and entrepreneurship
- Mini projects: Students undertake mini projects in subjects like production, systems, research, and finance to get an understanding of the practical implications of the subjects
- Center for entrepreneurship: The goal of the centre is to develop leaders with the spirit of entrepreneurship. As successful entrepreneurs, our students would play a key role in economic growth of the nation
- Center for retailing: The center strives to provide quality research, training and consultancy in the emerging areas of retailing

Ph.D. program in management

The School is committed to high quality knowledge creation through writing case studies and working papers as well as publishing articles in international journals. Linkages with the global academic business community facilitate these processes.

Mentors

Every Ph.D student collaborates closely with an assigned departmental guide. Visiting international faculty also mentor research scholars. This additional support raises the standard of learning by exposing research scholars to cutting-edge research tools. In addition, these relationships cultivate scholars who possess the skills necessary for publishing research results in the finest international journals.

Specializations

The department offers doctorates in Finance, Marketing, Information Technology, Operations and Human Resource Management. The school permits external registration as well as full-time admission.

Academic Interactions: Abroad

Through the Semester Abroad Program a few students have been sent to reputed international universities like SUNY Buffalo-USA and Northeastern University-USA.

Academics

Postgraduate
Master of Business Administration (MBA)

Postgraduate Program in Management
PGPM (12 months)

Postgraduate Program in Retail Management
PGPRM (12 months)

Doctoral
Ph. D

Department of Computer Applications

The Computer Applications Department has attracted bright minds from around the country since its inception in 1994. The same scholars have earned the department a reputation in the field. Modern curricula and syllabus promise an exciting academic program to prepare the next generation of students for the greatest challenges of the 21st century.

Academics

Postgraduate

Master of Computer Applications (MCA)

The course curriculum is comprehensive and aims to provide sound theoretical concepts coupled with hands-on experience on the best solution frameworks. The course curricula have been designed mainly to focus on the following thrust areas – system software, databases and computer networks in addition to various other allied fields and basic sciences. From 2008-09 onwards Choice Based Credit System has been introduced. This system has more advantages for the students in selecting courses of their choice under a flexible pattern.

Faculty

The department has qualified and experienced faculty members in the areas of data structures, data communication and networking, software testing and quality assurance, data warehousing and data mining. There is widespread interaction between this department and other university departments in the field of teaching and research.

Cutting-edge laboratories & facilities

The computer laboratories have modern facilities. The department has 7 laboratories with 240 high-end systems. All the laboratories are well networked with internet facilities.

Research & consultancy

Faculty members with rich research experience have specializations in several research areas including bio-statistics, spatial modeling, simulation & statistical modeling, image processing and data mining. The department is also planning on consultancy services for software industries and scientific bodies.

Major events & achievements

The department conducts programs for the benefit of students and research scholars. Some of the recently conducted programs are:

- Short-Term Training Program on “Data Acquisition Techniques” during 14th to 17th November, 2007
- National Level Conference on “Artificial Intelligence and Neural Networks” during 21-22 February, 2008
- Three National Level Technical Symposiums for students - ICON 2007: September 13-14, 2007, ICON 2008: September 18-19, 2008 and ICON 2009: September 3-4, 2009.

Industrial connection

The faculty members of the department have conducted lecture sessions and technical sessions for the students recruited by software industries (CTS, Wipro, etc). The department has formed a Corporate Advisory Board, which includes top executives from reputed industries. Formation of this advisory board will go a long way in achieving the major goals of the department in a phased manner.

Careers

There has been an increasing trend in the number of students getting placement in national and international software companies and in top corporate bodies during the past years. During 2007-2008 alone, more than 100 students were selected to serve in CTS, HCL, Wipro, Polaris, Virtusa, US Teach and others through campus recruitment drives.

Academics

Postgraduate
Master of Computer Applications (MCA)

Doctoral
Ph. D

Notes