



IIT Madras

Placement Brochure 2012-13



Our Vision

"To be an academic institution in dynamic equilibrium with its social, ecological and economic environment striving continuously for excellence in education, research and technological services to the nation."



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Introduction



Introduction

Established in 1959, IIT Madras, an Institute of worldwide repute, has been instrumental in nurturing the dreams and aspirations of some of India's brightest minds through a mix of intensive curricular and co-curricular activities. The programs at IIT Madras aimed at developing in each student, a mastery of fundamentals, versatility of mind and motivation for learning, have resulted in well-rounded leaders of the highest professional competence. Our students acquire various other entrepreneurial qualities and management skills by organizing and executing a plethora of events and festivals round the calendar. The multi-tasking and highly competitive environment in the campus makes the standards of our graduates commensurate with the demands of the industry.

Message from the Director

IIT Madras celebrates its fiftieth convocation in 2013. The number of students graduating has risen steadily in recent years - we expect to award around 2000 degrees in the next year. Particularly noteworthy is the increase in the number of post-graduates, both at the Masters' and Doctoral levels who continue to be immediately absorbed by industry and academia all over the world. Our graduates are an integral part of India's growth story. The nation's best education system, along with the finest facilities, has ensured that our students achieve excellence in their chosen fields.

I am certain that our students, with the help of the Placement Office, will find their dream jobs. I am also sure the organizations they join will be glad they came here. I appreciate the Placement Office for their untiring efforts, and wish the students all the best in Placement 2012-13.

Prof. Bhaskar Ramamurthi

Programs

B-Tech & Dual Degree

These programmes, offered by ten departments, are developed to impart the fundamentals of professional engineering to the students. The admission to these programmes is carried out through the Joint Entrance Exam (IIT-JEE), one of the toughest examinations in the world, with an approximately 2.5% acceptance ratio amongst almost 5,00,000 candidates. Students gain practical industrial exposure through pursuing summer internships in their pre-final year. A two-semester project in the final year is also a part of the curriculum. Aimed at inculcating a sense of original research amongst the students, it also gives them an exposure to state-of-the-art technology and cutting edge research undertaken in the Institute.

The Dual Degree programme, a unique ten-semester programme, confers a B.Tech in a basic field of engineering along with an M.Tech in specialized areas through additional courses and an exclusive M.Tech project in the final year. The academic curriculum is a well-rounded one. It includes courses from humanities, basic sciences and management, thus helping students excel in all spheres of their professional careers.

M-Tech

This four-semester programme, offered by twelve departments, is developed to provide graduates with a synergetic combination of industry-oriented course work and research. Graduate students in various fields of engineering are admitted to various specializations through GATE (Graduate Aptitude Test in Engineering). The academic curriculum includes core courses and electives to develop a strong theoretical base with a final-year project and seminars. Admitted graduates may have prior work experience.

Msc

This four-semester programme takes in the best science graduates of the country through JAM (Joint Admission Test to M.Sc). On an average, only 4% of the aspiring candidates are admitted to this programme offered by the IITs. The programme is developed to impart essential knowledge in the respective departments and provides opportunities for specialization in all major areas.

MBA

The Department of Management Studies (DoMS) at IIT Madras, offers a two-year/ eight-quarter full-time MBA program designed to meet the growing demand for Top Management Talent. The salient features of the program are its intellectual rigor, distinctive curriculum and pedagogy and exceptional faculty and students. A batch of 70+ students is selected through an interview process from among candidates appearing for the Common Aptitude Test administered by the IIMs. The program offers specialization in Business Consulting, Finance, Marketing, Human Resources, Operations and Supply Chain Management and Information Systems. With formal industry relationships, through courses and regular class room interactions, DoMS, IIT Madras prepares MBA students with the necessary acumen to be competitive in the Global Arena.

MA

The unique five year integrated programme, launched in 2006, leads to Master of Arts (M.A.) degree in three major disciplines – Development Studies, Economics, and English Studies. The MA Programme exposes students to a wide variety of disciplines in the Social Sciences and Humanities, moving on to develop strong analytical, communication and research skills in the relevant stream through applied projects, quantitative subjects and a firm theoretical backing. Internships at organizations like IFMR, E&Y, Frost & Sullivan expose students to the work environment.

MS and PhD

These research programs in various disciplines are designed to promote core fundamental research and cater to the needs of industries and laboratories in cutting edge technologies both in basic and applied research on par with international standards. Interdisciplinary and industry specific problems are undertaken to sustain the institution-industry interaction. Admitted through GATE entrance examination and a rigorous interview process by the departments, students undergo a curriculum wherein strong foundations on theory are laid down in their first year which is followed by a research project culminating with an exhaustive thesis of high standards. Tentative time taken for the completion of MS. and Ph.D program is 2 and 4 years respectively. Admitted graduates may have prior work experience.

Specializations

Dual Degree (B.Tech & M.Tech)

Aerospace Engineering
Aerospace Engineering
AE (B-Tech) & Applied Mechanics (M-Tech)

Biotechnology
Biotechnology

Civil Engineering
Infrastructural Civil Engineering
CE (B-Tech) & Applied mechanics (M-Tech)

Chemical Engineering
Chemical Engineering

Computer Science & Engineering
Computer Science & Engineering

Engineering Design
Engineering Design with M-Tech in
Automotive Engineering Biomedical Design

Electrical Engineering
Communication Engineering
Micro Electronics & VLSI Design
Power Systems & Power Electronics
EE (B-Tech) & Applied Mechanics (M-Tech)

Mechanical Engineering
Energy Technology
Product Design
Intelligent Manufacturing

Metallurgical & Materials Engineering
Metallurgical & Materials Engineering

Ocean Engineering
Naval Architecture & Ocean Engineering
NA (B-Tech) & Applied Mechanics (M-Tech)

M.Tech

Aerospace Engineering
Aerospace Engineering

Applied Mechanics
Solid Mechanics
Fluid Mechanics
Bio Medical Engineering

Biotechnology
Clinical Engineering

Civil Engineering
Building Technology & Construction Management
Environmental Engineering
Geotechnical Engineering
Hydraulic & Water Resources Engineering
Structural Engineering
Transportation Engineering

Chemical Engineering
Chemical Engineering
Catalysis Technology

Computer Science & Engineering
Computer Science & Engineering

Electrical Engineering
Communication Systems
Power Systems & Power Electronics
Microelectronics & VLSI Design
Control & Instrumentation Systems
Photonics

Mathematics
Industrial Mathematics and Scientific Computing

Mechanical Engineering
Thermal Engineering
Design
Manufacturing Engineering

Metallurgical & Materials Engineering
Metallurgical & Materials Engineering
Nuclear Engineering

Ocean Engineering
Ocean Engineering
Ocean Technology & Management
Off Shore Structures & Engineering
Petroleum Engineering

Physics
Solid State Technology

Departments

Aerospace Engineering

Established in 1969, the Department of Aerospace Engineering at IIT Madras has excellent experimental and computational facilities and has been actively engaged in research activities of national importance. The department offers B.Tech, Dual Degree, MS and PhD programs. The faculty of the department can be divided into three broad categories: Aerodynamics, Propulsion and Structural Mechanics. The well planned out curriculum ensures that the fundamental knowledge of students is sound and they are exposed to a wide range of basic practical and theoretical courses.

Applied Mechanics

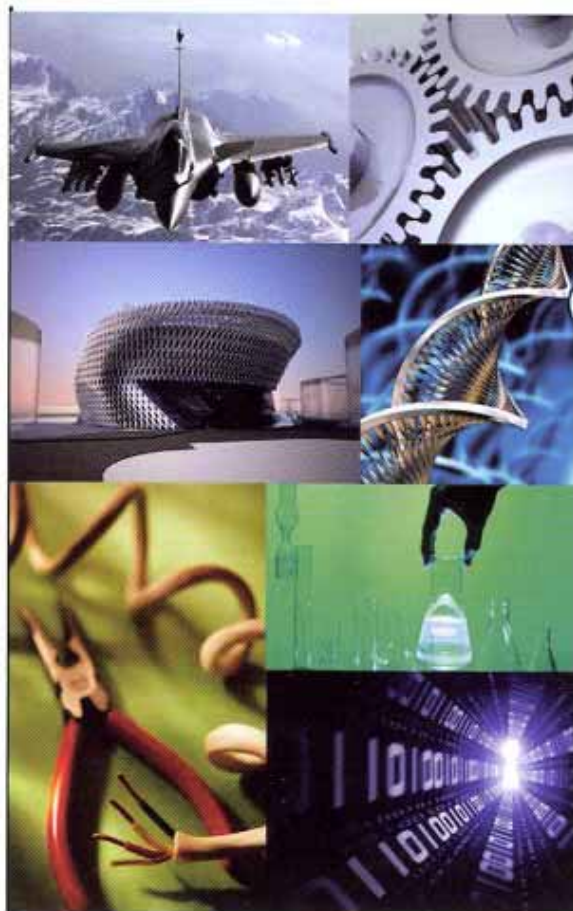
The Applied Mechanics department has been in existence since 1959 and has grown into a full-fledged inter disciplinary graduate research department over the years offering M.Tech, MS and PhD programs. The Department focuses on academic activities in three broad areas viz., Biomedical Engineering, Fluid Mechanics, Solid Mechanics and Biomedical Engineering. The faculties of this Department are drawn from Aerospace Engineering, Applied Mechanics, Biomedical Engineering, Civil Engineering, Electronics & Instrumentation Engineering and Mechanical Engineering teaching various subjects such as advanced structural mechanics, composite structures & smart materials, FEM, advanced fluid mechanics, CFD, turbulence, haptic, biomechanics, biomedical signal processing only to name a few.

Biotechnology

The Department of Biotechnology offers B.Tech, Dual Degree, M.S and PhD programmes in Biotechnology. The department also offers M.Tech and PhD programs in Clinical Engineering, a joint initiative by IIT Madras, Sree Chitra Tirunal IMST & CMC Vellore. The focus of the department includes basic research in modern biotechnology and molecular basis of life processes; enhancing knowledge base and human resource development; and biotechnology for societal development.

Chemical Engineering

The Department offers an undergraduate program (B.Tech), an integrated undergraduate and post graduate program (Dual Degree), masters (M.Tech), Master of Science (MS) in Chemical engineering or Catalysis technology and a PhD program. With sophisticated and state of the art lab facilities, the best Sophisticated Analytical Instrumentation Facility (SAIF), a rigorous curriculum and trained by highly qualified and experienced faculty members, it churns out the best chemical engineers in the country every year. It also offers a variety of elective courses such as Biochemical engineering, Polymer technology, Renewable energy resources etc. The Process Control and Systems engineering group has been ranked among the best worldwide



Departments

Chemistry

Since its inception in 1959, the department has been engaged in imparting academic education of the highest quality and has focused on addressing key scientific problems, which have gathered worldwide appreciation and recognition. The department comprises of a 33-member faculty, experts in frontier areas of research. Since 1995, the department has seen the publication of over 25 books, 725 research papers and 15 patents. There are about 50 ongoing research projects sponsored by various Government organizations, the military as well as the industry. The department imparts education towards the award of M.Sc. and PhD. degrees.

Civil Engineering

The Department of Civil Engineering has produced some of the finest nation-builders known to the country. The department offers B-Tech, M-Tech, Dual Degree, MS and PhD programs and embraces planning, design, construction and management activities. The department offers a wide array of core courses and electives, across all major areas of civil engineering. The activities of the department are carried out in five different divisions. The department has 14 laboratories, equipped with some of the finest equipment in the country, to aid the researchers here.



Computer Science & Engineering

The mission of the CSE department is to impart knowledge, both theoretical and practical, so as to enable the student to take on challenging real world problems upon graduation. The CSE department at IIT Madras brings together a highly talented and motivated set of professors and students, a situation that is unique to an institute of excellence such as IIT Madras. The department offers B.Tech, Dual Degree, M.Tech, MS and PhD programs. Engineering real world and large scale systems is a key component of the CSE curriculum, both in the theory courses as well as the labs and correspondingly there is a strong emphasis on team work.

Electrical Engineering

The Department of Electrical Engineering, IIT Madras, which has a fine blend of renowned as well as young and dynamic personalities as faculty, is involved in providing quality education at both Postgraduate (PG) & Undergraduate (UG) levels. It has a broad based UG curriculum and specialized Dual Degree & M.Tech programs in Communication Systems, Microelectronics & VLSI design, Power Systems & Power Electronics, Control, Photonics and Instrumentation. It also offers high quality research in the MS and PhD programs. The Department has strong industry interaction and has been involved in development of state-of-the-art products for industries.

Engineering Design

The Engineering Design department was set up in the year of 2005 with an aim of catering to the growing need of design engineers with a good base in engineering skills and with a multi-disciplinary perspective. The department offers dual degree programs with master specialization in two streams, Automotive and Biomedical (from the year of 2009).



Departments

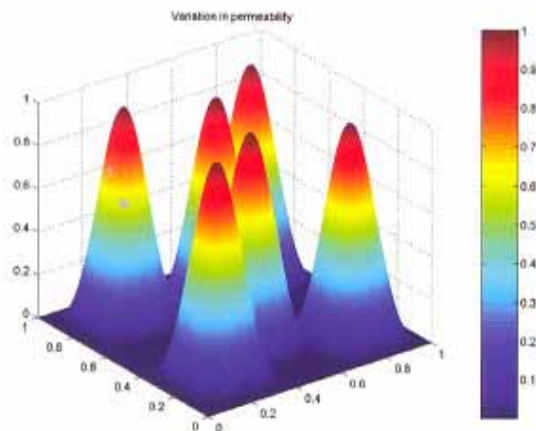
A group of highly motivated professors teach the students the concepts of mechanics, manufacturing, electronics, mechatronics, modeling, automobile design, conceptual, functional and system design, ergonomics and aesthetics. All the students gain real world experience in the field by taking up design projects in an industry for a period of 6 months in organizations like Daimler, Caterpillar, Ashok Leyland, Bosch to name a few.

Humanities & Social Sciences

The Department of Humanities and Social Sciences (DoHSS) was setup in 1959 with the purpose of providing the engineering students with a multi-disciplinary experience. Over the years, the Department has grown from strength to strength, finally emerging as the only DoHSS at IITs in the country to initiate an Integrated Master of Arts Program in 2006. The 5 year Integrated Masters provides students selected through HSEE with specializations in Development Studies, Economics and English Studies. The Department has also produced over 100 Ph.Ds (since 1982) in a variety of disciplines, including economics, history, linguistics, literature, philosophy, political science and urban studies, to name just a few.

Management Studies

In addition to the MBA programme, the Department of Management Studies offers research programs leading to MS and PhD in the various functions of Management. The Department also offers a unique program in Entrepreneurship leading to an MS degree. The research programs are aimed to develop (a) exceptional faculty resources in various areas of management (b) professionals capable of leading innovative industrial research and development activities. Research activities at the Department are in the areas of Operations and Supply Chain Management, Logistics Management, Financial Management, Marketing Management, Human Resources, Information Systems and Interdisciplinary research. Both the programs (MS and Phd) have a combination of a taught element consisting of MBA level and research level courses, and a rigorous research process requiring publications in international journals and participation in international conferences.



Mathematics

The Department researches in Algebra, Analysis, Computational & Theoretical Fluid Dynamics, Mathematical Physics, Stochastic Processes, Theoretical Computer Science and Discrete Mathematics to keep in pace with the advances in technology. The unique M. Sc/M. Tech. and Ph. D. programmes promote interdisciplinary investigations to solve industrial problems.

Departments

Mechanical Engineering

The Department of Mechanical Engineering at IIT Madras attracts a diverse set of talented individuals, with nearly 700 undergraduates, 500 post-graduates who are trained by over 50 distinguished faculty members. Students can choose from over 100 electives and pursue their interests. The department also includes 9 widely equipped laboratories catering to the three streams - Thermal Engineering, Design and Manufacturing. The students and faculty interact with the industry through internships, projects and hence are in touch with the latest industry trends.



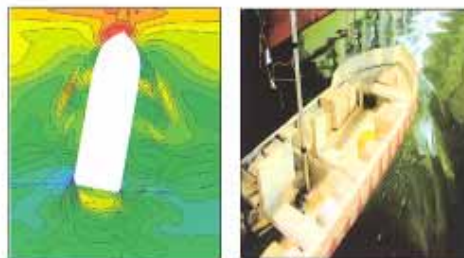
Metallurgical & Materials Engineering

The Department of Metallurgical and Materials Engineering offers B-Tech, Dual Degree, M-Tech, MS & PhD programs and draws in faculty's expertise in a variety of areas like Metal Forming, Metal Joining, Materials Technology, Extractive Metallurgy, Physical Metallurgy, Iron and Steel Technology, Computational Techniques, Corrosion, Materials Processing, etc. to equip the students with an unmatched skill set in these core areas. The emerging areas in Materials Science such as Nanotechnology, Fuel Cells, Biomaterials, and Additive Manufacturing are also covered through courses. This department wherein courses are offered by faculty from other departments too like Mechanical and Chemical Engineering also offers an M.Tech program in Nuclear Engineering. Students admitted to this program also undergo compulsory summer training at Indira Gandhi Centre for Atomic Research (IGCAR) where they undergo rigorous training and work on challenging projects.



Ocean Engineering

Established as The Ocean Engineering Center in 1977 and a functioning academic department since 1982, The Department is equipped with experimental facilities like no other Ocean Engineering department in the world. The department offers B.Tech, Dual Degree, M-Tech, M.S and PhD programs with the



B.Tech degree in Naval Architecture and Ocean Engineering and postgraduate specializations in Applied Mechanics, Ocean Engineering, Ocean Technology and Management and Petroleum Engineering. The department has a strong association with the industry forged through consultancy projects, sponsored research and student internships.

Physics

The department offers a B.Tech in 'Engineering Physics' in conjunction with the Department of Electrical Engineering. This background prepares students to tackle complex problems in multidisciplinary areas that are at the forefront of 21st Century technology. It also offers a M.Sc. Program in Physics, an M-Tech program in 'Solid State Technology' and a Ph.D. program. The major research areas include Alternative Energy and Nanotechnology, Applied Optics, Atmospheric Sciences, Atomic and Molecular Physics, Classical and Quantum Dynamics.



Departments and Programs

Departments	BTech	Dual Degree	MTech	MSc	MBA	MA	MS	PhD
Aerospace Engineering (AE)	✓	✓	✓				✓	✓
Applied Mechanics (AM)			✓				✓	✓
Biotechnology (BT)	✓	✓	✓				✓	✓
Chemical Engineering (CH)	✓	✓	✓				✓	✓
Chemistry (CY)				✓				✓
Civil Engineering (CE)	✓	✓	✓				✓	✓
Computer Science & Engg. (CS)	✓	✓	✓				✓	✓
Electrical Engineering (EE)	✓	✓	✓				✓	✓
Engineering Design (ED)		✓					✓	✓
Humanities & Social Sciences (HS)						✓		✓
Management Studies (MS)					✓		✓	✓
Mathematics (MA)			✓	✓				✓
Mechanical Engineering (ME)	✓	✓	✓				✓	✓
Metallurgical & Materials Engg. (MM)	✓	✓	✓				✓	✓
Naval Arch. & Ocean Engg. (OE)	✓	✓	✓				✓	✓
Physics (PH)			✓	✓				✓
Engineering Physics (EP)	✓							

A ticked box indicates a running department-program