Manipal Institute of Technology

Manipal Institute of Technology (MIT), Manipal was established in the year 1957 as one of the first pioneering self-financing engineering colleges in the country. In the year 2000, it became a constituent institute of the Deemed University - Manipal Academy of Higher Education (MAHE). With a total student intake of about 2000 per year, and around 10,000 students, over 650 faculties, over 1000 support staff, over 30,000 alumni, the Institute provides the right ambience and platform for the students' all round development. It has the requisite student to teacher ratio of 15:1. MIT has 17 undergraduate programs, 26 Masters Programs and Doctoral programs in all streams of Engineering and Science under 18 different departments. To promote innovation, incubation and entrepreneurship the Innovation Centre at MIT houses Manipal University Technology Business Incubator and Central Instrumentation Facility. The institute undertakes sponsored research programmes supported by funding agencies such as DST, CSIR, AICTE and the Ministry of Environmental Sciences. It has collaborative research programs in association with premier research laboratories and institutes in India and abroad. The institute has an innovative flexible syllabus based programs that involve participation of all stakeholders like management, academia, students, alumni, industry to discuss updating of the course contents in a continual process. With state-of-the-art facilities and experienced faculty members, MIT is certainly one of the most preferred technical institutes in India.

MILESTONES

- Manipal Engineering College (MEC): First self-financing Engineering College in India, affiliated to Karnataka University
- Affiliated to Mysore University
- Renamed as Manipal Institute of Technology (MIT) from Manipal Engineering College (MEC)
- Affiliated to Mangalore University
- Affiliated to Visveswariah Technological University (VTU)
- Constituent Institution of Manipal Academy of Higher Education
- Academic Autonomy: 10 point credit system
- Celebrated Golden Jubilee
- Celebrated Diamond Jubilee

Founder and Builder of Manipal

Padma Shri awardee Dr. T. M. A. Pai
30-04-1898 to 29-05-1979

Manipal is a place born out of one man’s dream - Dr. Tonse Madhav Ananth Pai. It is a testimony to the fact that no matter how big a dream is, it can always turn into reality. The once barren hillock is now India’s largest education township with more than 24 institutions of learning.

Manipal Academy of Higher Education is the result of the single-minded dedication of the founder Dr. T. M. A. Pai. It was his vision to see the bare hilltop of Manipal transformed into one of the premier centres of learning.

Manipal Academy of Higher Education was founded on one principle; one unshakeable belief - that it must make available the best of education to its students. The last six decades, have seen institutes at Manipal taking meticulous, small steps to build reservoirs of intellectual wealth and academic excellence.

In the process, Manipal Academy of Higher Education has created some of the country’s best institutes across diverse streams like medicine, dentistry, engineering, pharmacy, hotel management and communication.

Each institution at Manipal Academy of Higher Education is geared to meet the ever changing demanding standards and to create professionals and citizens of values by inspiring them in multiple ways.
Leading the way...

Manipal Academy of Higher Education

Dr Ramdas M Pai
Chancellor

Dr H S Ballal
Pro Chancellor

Lt.Gen. (Dr.) M.D. Venkatesh (Rtd.)
Vice Chancellor

Dr P L N G Rao
Pro Vice Chancellor
Faculty of Health Sciences,
Quality Assurance

Dr. Dilip G Naik
Pro Vice Chancellor
Mangaluru Campus

Dr Abdul Razzak M S
Pro Vice Chancellor
Melaka Campus,
Malaysia

Dr C S Thammaiah
Pro Vice Chancellor
Corporate Academia
Engagement

Dr Narayana Sabhahit
Registrar

Dr Vinod V Thomas
Registrar Evaluation
Administrators

Manipal Institute of Technology

Dr D Srikanth Rao
Director
Ph: +91 820 2924012
Email: director.mit@manipal.edu

Dr B H V Pai
Joint Director
Ph: +91 820 2924013
Email: jd.mit@manipal.edu
Academics

Manipal Institute of Technology has full academic autonomy from 2003 with a 10-point relative grading system. The curriculum offers academic flexibility in terms of Program Electives which enables the student to get a Minor specialization within his/her domain. The Open Electives enable the student to get a flavor of other domains of his/her choice as well.

Curriculum Design and Development

- Curriculum design is aligned with institutional objectives – vision, mission statements and Outcome Based Education (OBE) guidelines of NBA
- Complete curriculum revision is done on periodic basis – once in four years
- Academic Audit has been initiated with academicians from premier institutions to get the feedback on curriculum structure, content and relevance
- “Curriculum Conclave” is conducted by inviting all stakeholders – academicians, industry partners, teachers and students
- Feedback from alumni is obtained on continuous basis to enrich the academic contents
- Involving industry officials as members of Board of Studies in the curriculum development to ensure the content relevance.

Curriculum Enrichment

- New academic programs are launched in emerging thrust areas
- Impact of the new curriculum is measured in terms of attainment parameters (as per NBA guidelines)
- Increased flexibility in terms of Program Electives, leading to Minor specialization, and Open Electives
- Audit Courses
- Digital Paperless Examination
- Student mobility
  - Practice School
  - Semester abroad with credit transfer
- Access to value-added programs:
  - QEEE Direct to Student program and availability of NPTEL resources (IIT)
  - Online Courses through Coursera and other similar platforms
- Industry Initiated programs for students
  - Campus connect of Infosys
  - CISCO certification program
  - Electives from EMC2, Schneider
  - Bosch-Rexorth supported Laboratories
  - Shell support for research Laboratories and other academic facilities
- Adjunct Faculty from Industry and Academia
- Alumni support in academics: MIT-KEF Research Center

Dr Raviraja Adhikari
Associate Director (Academics)
Ph: +91 820 2924014
Email: ada.mit@manipal.edu
Department of Aeronautical and Automobile Engineering

The Department of Aeronautical and Automobile Engineering was established in 2008 with a vision of offering world-class education and cutting-edge research environment. The department strives for a healthy balance between teaching, research & development. Faculty of the department draws upon a long history of technical excellence, innovation and teaching performance, preparing graduates to contribute to the society with technically imaginative and commercially viable solutions. The vision is realised through commitment to educational excellence, to the creation, development and application of the technologies critical to aerospace and automobile engineering. This program aims to promote aeronautical & automobile engineering by establishing close linkages between education, industry and research activities. The department has highly successful Centres of Excellence program to research best practices in unified approach to teaching and learning.

The students will have abundant opportunities for working on projects and internships across the globe, taking advantage of established relationships with aerospace & automotive industries and research institutes. The students showcase their talent by developing several working models and presenting them in various prestigious national and international events. The students have won various awards at national and international level.

> Programs offered

Under Graduate Programs
- B.Tech in Aeronautical Engineering (2008)
- B.Tech in Automobile Engineering (2008)

Post Graduate Program
- M.Tech in Automobile Engineering (2016)

PhD

> Faculty Strength

Qualification-wise

![Qualification-wise chart]

Cadre-wise

![Cadre-wise chart]

Dr Satish Shenoy B
Professor & Head
Ph: + 91 820 2925482
Email: aeroauto@manipal.edu
Biomedical Engineering is a fascinating multidisciplinary field in which the principles of engineering are applied to solving problems in medicine, gaining a deeper insight into life-sciences, towards providing an overall enhancement to health care. The Biomedical Engineering program was started at the MIT in 1989 with a P.G Program (M.Tech.), and subsequently a U.G. program (B.Tech.) was added in 1992. The proximity of the reputed Kasturba Medical College under the same umbrella of Manipal University offers a unique platform for training students in several fields, and renders the Biomedical Engineering program a very special one. Currently, the Department provides a variety of modern facilities to help the students acquire an in-depth technical knowledge in various topics in the field of Biomedical Engineering. The department encourages research activities and a Research Lab including a physiological signal acquisition lab and a medical devices lab are provided for the purpose. Areas of interest of the Faculty at the department include: Medical Imaging, Image Processing, and Physiological Signal Processing, Biomedical Instrumentation, Medical Devices, Nanotechnology and Biomaterials. In summary, it has something to offer to everyone. Presently, the Headquarters of the Biomedical Engineering Society of India (BMESI) is at the Dept. of Biomedical Engineering.

**Programs offered**
- **Under Graduate Program**
  - B.Tech in Biomedical Engineering (1992)
- **Post Graduate Program**
  - M.Tech in Biomedical Engineering (1989)
- **PhD**

**Faculty Strength**

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**Dr G Muralidhar Bairy**  
Professor & Head  
Ph: + 91 820 2924211  
Email: biomed@manipal.edu
Department of Biotechnology

The Department of Biotechnology came into existence with the admission of students for the B.Tech. program in Biotechnology, from the year 2005. The department also offers M.Tech in Industrial Biotechnology and full time PhD courses. The objective of the courses is to mold our students with all the technical skills needed for employment in the diverse areas of biotechnology, especially industry and research based careers. The curricula of the programs provide an equal weightage to the core principles of biological sciences, computational analysis and process engineering principles applied to biotechnology. Flexibility in the course curriculum is offered by means of providing minor specialization in the areas of environmental and pharmaceutical biotechnology. Being a multidisciplinary campus, the students have the advantage of conducting research in frontier areas of core life sciences, pharmaceutical sciences and medical biotechnology in the constituent institutions of MAHE.

Equipped with a total of thirteen laboratories, the department offers hands-on experience in most aspects of biotechnology. This course has been designed to provide the students with both theoretical knowledge and practical skills to keep pace with latest developments and to cater to the needs of industrial biotechnology sector. As regards the faculty composition, nearly 85% of our faculty members are doctorates and the rest are actively pursuing the same. The core competencies of our faculty lie in the fields of environmental biotechnology, bioinformatics, drug delivery, biopolymers, biofuels, animal cell and plant tissue culture.

Programs offered

Under Graduate Program
- B.Tech in Biotechnology (2005)

Post Graduate Programs
- M.Tech in Industrial Biotechnology (2009)

Faculty Strength

Qualification-wise

- PhD: 3
- M.Tech/ME/M.Sc: 17

Cadre-wise

- Professors: 12
- Associate Professors: 3
- Assistant Professors: 5

Dr M Ramananda Bhat
Professor and Head
Ph: +91 820 2924321
Email: biotech.mit@manipal.edu
Chemical Engineering explores the processing of materials and the production or utilization of energy through chemical and/or biochemical routes. Chemical engineers play a key role in petroleum, fertilizers and plastic industries, and in the production of antibiotics, soft drinks and cosmetic products. Chemical engineers make use of their expertise to find solutions to environmental hazards such as pollution and harmful chemicals delivered by several other industries. Chemical engineering graduates typically work in chemical process industries, biotechnology, environmental remediation, food processing, pharmaceuticals, energy and plastics.

The department of Chemical Engineering established in the year 1969 and the first batch of Chemical Engineers graduated in 1974. The department is celebrating Golden Jubilee in 2019. Till date, 45 batches of students (about 2200 Chemical Engineers) have been graduated from the department. The department is having MoU with University of Nottingham and University of South Alabama for the post graduate studies.

Core Competencies of the Department are:
• Process Modelling & Simulation
• Fluid & Fluid-Solid Operations
• Drug Delivery Systems
• Environmental Pollution Control
• Catalysis and Nanotechnology
• Computational Fluid Dynamics
• Process Control
• Renewable Energy

### Programs offered

**Under Graduate Program**
- B.Tech in Chemical Engineering (1969)

**Post Graduate Programs**
- M.Tech in Chemical Engineering (2009)

**PhD**

### Faculty Strength

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Dr SVSR Krishna Bandaru
Professor & Head
Ph: +91 820 2924311
Email: chemical@manipal.edu
Department of Civil Engineering

Civil Engineering Department was established in the year 1957 with the inception of Manipal Institute of Technology. In the 63 years of its glorious existence, the Civil Engineering Department has evolved into one of the most matured and full-fledged departments in the institute.

The course curriculum has been designed aptly to cater the ever-expanding demands of research and industry, by continuously soliciting feedback from all stakeholders. The department upholds excellent interaction with reputed academics in specialized areas, and also with industry professionals at national and international levels.

The department has created a platform for exchanging the research ideas by organizing conferences, workshops, seminars from time to time. The department ardently fosters the industry-academia collaborations by conducting invited lectures by eminent industry professionals. Department has got accreditation by National Board of Accreditation in the year 2001 for a period of 5 years, 2008 for a period of 3 years and 2016 for a period of 3 years.

Programs offered

Under Graduate Program
• B.Tech in Civil Engineering (1957)

Post Graduate Programs
• M.Tech in Construction Engineering and Management (1989)
• M.Tech in Structural Engineering (1992)
• M.Tech in Environmental Engineering (2010)
• M.Sc in Geology (2015)

PhD

> Faculty Strength

Qualification-wise

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Cadre-wise

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</table>

Dr Purushotham G Sarvade
Professor & Head
Ph: +91 820 2924711
Email: civil@manipal.edu
Department of Computer Applications

The department of Computer Applications has been functioning as an independent department at MIT, located strategically in the Innovation Center of MIT. The department of Computer Applications offers an undergraduate program, B.Tech in Data Science & Engineering. The emphasis is on core data science subjects along with the related computational mathematics, statistics, and computer science subjects. Students can also opt for a minor specialization in either business, finance or healthcare analytics. Besides, the department offers a 2-year Master of Computer Applications course at the postgraduate level.

The department has a set of dedicated and experienced teachers with a doctoral degree in various topics of data science, image processing, security, and health informatics. The department has a vibrant research laboratory and several funded research projects. Numerous research scholars are currently working on a variety of topics such as machine learning, artificial intelligence, motion detection, video streaming, and medical image processing. The department houses the Center for Virtual Reality which focusses on the design and development of modules that can be used in medical education.

The department has formed a Curriculum committee consisting of IT industry experts and experienced faculty from various streams like computer science, mathematics, statistics, commerce, management, and health care. The committee is the right mix of industry and academia and will deliver the B.Tech course in Data Science & Engineering, over the next few years. The department offers open electives in topics like data analytics, virtual reality, databases for the B.Tech students. Adjunct faculty from the IT industry are currently teaching B.Tech electives on trending topics like enterprise data architecture and algorithmic trading.

The students of the department actively participate in international exchange programs like IAESTE and AIESEC. To ensure their holistic development of students, the department hosts student clubs such as the Open Source Technology Forum Club and a Socio-Technical Agri club called Lakshya. The department addresses the overall development of students through soft skill classes, workshops, and student fests.

Programs offered

Under Graduate Program
- B Tech in Data Science and Engineering (2020)

Post Graduate Program

PhD

Faculty Strength

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Dr Karunakar A. Kotegar
Professor & Head
Ph: + 91 820 2925381
Email: mca@manipal.edu
Department of Computer Science & Engineering

The B.Tech degree program in Computer Science and Engineering was started in the year 1985 under the Dept. of Electronics and Communication. The Department of Computer Science & Engineering (CSE) came into existence as an independent department in 1988. Over the years, the department has developed to become a center of excellence providing in-depth technical knowledge and opportunities for innovation and research with well-equipped computer facilities and dedicated faculty. The department has tie-up with various industries and offers electives in collaboration with the industries. The department has strong research interest in diverse areas of Computer Science and also offers a PhD program. Great emphasis is given on the emerging, interdisciplinary, cutting-edge areas of research in the department. The focus areas of research are High Performance Computing System, Computer Vision, Software Engineering, Knowledge Engineering, Computer Networks and Security and Machine Learning. The research activities of the faculty members and the students have resulted in more than 600 publications in International conferences as well as journals. Students are encouraged to participate in co-curricular and extracurricular activities. The department coordinates the activities of the student clubs IE(CSE), Linux Users Group and ACM student chapter. Students are placed in reputed industries like Microsoft, Amazon, Deloitte, Goldman Sachs, Oracle, Cisco, Samsung etc.

Programs offered

Under Graduate Program

• B.Tech in Computer Science and Engineering (1985)

Post Graduate Programs

• M.Tech in Computer Science and Engineering (1989)
• M.Tech in Computer Science and Information Security (2010)

PhD

Faculty Strength

Qualification-wise

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Cadre-wise

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</table>

Dr Ashalatha Nayak
Professor & Head
Ph: +91 820 2924511
Email: computer@manipal.edu
Established in the year 1972, the department of Electronics & Communication Engineering has developed itself as a center of excellence in academics and research. The department has been working primarily on imparting basic knowledge and essential skills in Electronics and Communication Engineering to the students.

The department has facilities such as MEMS design center for device simulation, fabrication and testing; ATMEAL MCU Center; NOVOTON ARM Processor boards; development boards for embedded system; campus wide license for MathWorks tool; and CADENCE tool for VLSI design. To support the co-curricular and extra-curricular activities, at the department level we have IE, IEEE, ISTE student chapters.

In addition to regular teaching learning activity, faculty and student are involved in active research in the area of Image, Audio, and Speech Processing; Biomedical Instrumentation; Soft Computing Techniques; Source and Channel Coding; Cipher System; Sensor Networks; Plasmonics; Analog and Digital VLSI; Embedded Systems; MEMS and Nano technology, Carbon Nano Tubes, and Thin Film Technology. Student research and project work in these domains has resulted in Journal and Conference publications at National and International levels; and has brought laurels at national and International level technical competitions. About 60 to 70 students from every passing out batch go abroad for their masters in reputed universities.

Dr M Sathish Kumar
Professor & Head
Ph: +91 820 2924811
Email: electronics@manipal.edu
Department of Electrical & Electronics Engineering

Established in the year 1960, the Department of Electrical & Electronics Engineering has been at the forefront to produce well-groomed graduates, possessing sound technical skills and innovative ideas to cater to the ever growing demands of the industry. The department is backed by a team of motivated, dedicated and experienced teachers with expertise in key domains such as Power Systems, Power Electronics, Signal Processing, Illumination Technology, Renewable Energy, etc.

The undergraduate program of the department offers a unique blend of core and elective courses. The laboratory exercises and mini projects are carefully designed to ensure synchronism with the curriculum, and exposure to relevant Software & Hardware packages related to the field of learning. The curriculum design enables the graduates to embark on a professional career or pursue higher studies in their area of interest.

The department also offers two post-graduate programs; M.Tech in Energy Systems & Management and M.Tech in Power Electronics & Drives. The department has well equipped and state of the art laboratories, such as Advanced Energy Systems Lab (sponsored by Schneider Electric), Power Electronics Lab, Solid State Drives Lab, Lighting Lab. Research and Consultancy takes place in core competency area of the department such as Lighting & Energy Studies, Power & Control Systems, Power Electronics & Drives, Embedded Systems.

Programs offered

Under Graduate Program
- B.Tech in Electrical & Electronics Engineering (1960)

Post Graduate Programs

PhD

Faculty Strength

Qualification-wise
- PhD: 34
- M.Tech: 20

Cadre-wise
- Professors: 39
- Associate Professors: 7
- Assistant Professors: 8

Dr C S Adiga
Professor & Head
Ph: + 91 820 2925121
Email: electrical@manipal.edu
Department of Instrumentation & Control Engineering

Department of Instrumentation and Control Engineering was established in the year 2001, offering B.Tech program in Instrumentation and Control Engineering. Since 2018, B.Tech program offered by the Department has been changed to Electronics and Instrumentation Engineering. The UG program offers courses in Electronics, Control Theory and Instrumentation providing specialization to students like Embedded Systems, Automation and Sensor Technology. The department has state-of-the art laboratories on Instrumentation, Process Control, Micro-controllers, Industrial Automation, Control Systems Simulation and Design along with requisite software like MATLab, LABView etc. All the programs offered by the department are AICTE approved.

Programs offered

Under Graduate Program
• B.Tech in Electronics & Instrumentation Engineering (2018)

Post Graduate Programs
• M.Tech in Aerospace Engineering (2016)

PhD
in Allied disciplines

Faculty Strength

Qualification-wise

Cadre-wise

PhD
M.Tech/ME

Professors
Associate Professors
Assistant Professors

Dr Shreesha C
Professor & Head
Ph: +91 820 2925151
Email: instrument@manipal.edu
Established in the year 2001, the Department has developed itself as a center of excellence, providing opportunities for innovation and research, with well-equipped computer laboratories and dedicated faculty.

The students and faculty are given freedom to organize workshops or seminars and are encouraged to take part in co-curricular and extra-curricular activities without compromising the quality of learning. The academic curriculum for the courses offered in the Department and the technical skills of the students have been appreciated by the industries who have visited MIT. Our alumni are working as software professionals in top industries like Google, Microsoft, Oracle, Cisco, IBM, Intel, Samsung R&D, Honeywell, Flipkart, Toshiba, KPIT Cummins, Deloitte etc., and such higher job offers per student testify the quality and excellence of the Department.

> Programs offered

Under Graduate Programs
- B.Tech in Information Technology (2000)
- B.Tech in Computer and Communication Engineering (2013)

Post Graduate Programs

PhD

> Faculty Strength

Qualification-wise
- PhD: 30
- M.Tech/ME: 18

Cadre-wise
- Professors: 36
- Associate Professors: 7
- Assistant Professors: 5

Dr Balachandra
Professor & Head
Ph: + 91 820 2925361
Email: infotech@manipal.edu
Department of Mechanical & Manufacturing Engineering

The Department of Mechanical and Manufacturing Engineering, established in the year 1960, offers two Under Graduate courses, four Post Graduate courses and also PhD programmes. The department is also recognized as a QIP center for post graduate courses and PhD. The department consists of experienced faculty members, who are also constantly engaged in undertaking research work and subsequent publications. The department conducts workshops, seminars or conferences every year. The department has very good industry – institute interaction and has conducted several short courses for working professionals from industry. The department provides ample laboratory facilities and hands-on training to the undergraduate students both in the conventional subject as also in the modern trends.

Programs offered

Under Graduate Programs
• B.Tech in Mechanical Engineering (1960)
• B.Tech in Industrial and Production Engineering (1975)

Post Graduate Programs
• M.Tech in Manufacturing Engineering (2005)
• M.Tech in Tribology and Maintenance (2018)

PhD

Faculty Strength

Qualification-wise

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Cadre-wise

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Dr Sathya Shankara Sharma
Professor & Head
Ph: +91 820 2925461
Email: mech@manipal.edu
Department of Mechatronics Engineering

Mechatronics is a multi-disciplinary domain lying in the intersection of Mechanical, Electrical, Electronics and Computer Science Engineering. The idea behind such discipline is to groom a student to be industry ready in today’s age where automation is one of the buzzwords. Imagine a freshly graduated engineer who can draft a complicated machine assembly in a CAD software and do the stress analysis, at the same time analyse the electrical drive system of an automation unit. In addition, the individual would also be trained in the basic tenets of computer science engineering to enable them to code. That is what a mechatronics engineer is about. The reason behind the increasing popularity of this branch is that with the advent of automation in industries, the challenges are becoming more interdisciplinary by the day. The main objective of the department is to enable students with the potential to address these challenges by laying a strong foundation of multidisciplinary knowledge in their intellect.

The curriculum is designed to provide a broad-based education in the basic principles of Electrical, Electronics, Computing, Mechanical and Control Systems. The department is well equipped with laboratories set up in collaboration with Bosch Rexroth India Pvt. Ltd., which includes some of the finest automation equipment like Industrial Hydraulics, Industrial Pneumatics, Programmable Logic Controllers, Drives and Control, and Sensorics. On the other hand, the Robotics Lab has been set up in collaboration with ABB, Bangalore. In keeping up with the latest advancements in technology, the department has set up an Internet of Things (IoT) lab in collaboration with Beckhoff Automation India Pvt. Limited and Texas instruments, University program initiative. The enthusiasm and farsightedness of the department have enabled it to obtain sponsorship from the MHRD for setting up an e-Yantra laboratory, mainly dealing with embedded systems. The main objective of this industry-academic partnership initiative is to transfer current technology to the students and to bridge the technology gap that exists between the industry and academics. The necessity of seamless integration of different disciplines has been effectively managed by a multidisciplinary team of young, dynamic and well-motivated faculty.

Programs offered

Under Graduate Program
• B.Tech in Mechatronics Engineering (2006)

Post Graduate Program

PhD

Faculty Strength

Qualification-wise

- PhD: 22
- M.Tech/ME: 11

Cadre-wise

- Professors: 32
- Assistant Professors: 1

Dr Chandrashekhar Bhat
Professor & Head
Ph: +91 820 2925441
Email: mechatronics@manipal.edu
Department of Media Technology

Global communication sector has propelled us into the new millennium with engineering innovations and newer technologies. Electronic Publishing, Audio Visuals, Multimedia, Digital Data Transfer and Social Media are creating a new world of media market. Print media industry sees itself as media service and information processor. Born out of this niche is B.Tech in Media Technology at MIT, Manipal, an applied engineering course that deals with the comprehensive study of print and electronic media technologies. Along with the B. Tech degree, students can also be entitled to a minor certification in Packaging Technology, Film Production or Business Management. Department also offers M.Tech in Printing and Media Technology.

Since 1992, Department has built a strong edifice to become one of the leading Print and Electronic Media Institute of the country and has one of the best infrastructures available for Print and Electronic Media Technology. Newly setup Studio Facility in the Department and Social Media Platforms have given abundant opportunities to excel with their creativity. Students have added advantage of getting hands on training & exposure on state of the art equipment in Manipal Technologies Limited, Manipal one of the leading Print and Media Organizations in the world.

Students after successful completion of the course can get job in printing companies and media houses across countries. Generally, students are recruited by; major commercial printers, advertising agencies, newspapers/ magazines, machine manufacturers, packaging industries, and media houses to name a few sectors. Students can also try placement at various government departments and banks. Student can also explore the possibility of entrepreneurship in Print and Electronic Media Sector.

Programs offered

Under Graduate Program
• B.Tech. in Media Technology

Post Graduate Program
• M.Tech. in Printing and Media Technology

PhD

Faculty Strength

Qualification-wise

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Cadre-wise

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Dr Amrutharaj H Krishnan
Professor & Head
Ph: +91 820 2925661, +91 9900077632, +91 8151929439
Email: amrutharaj.hk@manipal.edu, mediatechnology@manipal.edu
The Department offers a compulsory course on Engineering Physics and Engg. Physics Lab (PHY1051/PHY1061) to all branches of first year B.Tech and also offers open electives to students of B.Tech. The department offers P.G. program in physics leading to M.Sc. physics in five specializations viz. Condensed Matter Physics, Optoelectronics, Nuclear Physics, Electronics and Theoretical Physics. The Department offers Ph.D program in physics in different areas like radiation and nuclear physics, nanomaterials, polymeric materials, thermoelectric materials, thin film based devices, solar cells, spectroscopy, non-linear optics and high energy physics.

The department has received several externally funded projects from Government of India and State Government (Rs. 400 in lakhs). Currently 37 Research Scholars are pursuing their PhD in Physics. The department laboratories are equipped with sophisticated instruments like vacuum coating unit (PVD and sputtering), SILAR, spin and dip coating units, spray pyrolysis coating, crystal growth unit, optical closed cycle variable temperature cryogenic system, He: Ne laser, Z - Scan System, XRD, UV-visible NIR spectrophotometer, spectrofluorometer, Keithley source/multimeters, particle detectors and thickness profilometer.

Dr. Mohan Rao K
Professor & Head
Ph: +91 820 2925621
Email: physics@manipal.edu

Dr. Mohan Rao K
Professor & Head
Ph: +91 820 2925621
Email: physics@manipal.edu
Department of Chemistry

Chemistry department started its functioning since the inception of MIT. The department has made significant contribution in education and research in all areas of chemistry and allied branches. It offers M.Sc. and Ph.D. programs in major areas of chemistry. Dept. offers engineering chemistry for undergraduate students of engineering. Students are provided with comprehensive practical and theoretical exposure of the subject. Research in the areas such as Synthetic Chemistry, Medicinal Chemistry, Green Chemistry, Corrosion control, Polymers, Solar Cells and Super capacitors, Natural Products, Liquid crystals are being pursued. The faculty members have published large no. of research articles in Scopus indexed journals.

> Programs offered

Post Graduate Program
• M.Sc in Chemistry (since 2009)

PhD

> Faculty Strength

Qualification-wise

Cadre-wise

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Dr Prakasha Shetty
Professor & Head
Ph: + 91 820 2924411
Email: chemistry@manipal.edu
Department of Mathematics

The Department of Mathematics at Manipal Institute of Technology was initiated in the year 1957 with a mere strength of three faculty members. Currently the department has grown and developed into a status of eminence both in terms of number and quality of its academic output. The department has a long tradition of excellent teaching and supporting environment for students and it is a resourceful academic department among others at MIT, with highly qualified, experienced and motivated faculty members who are committed for the advancement in every field of Mathematics. The department has 43 faculty members with 7 Professors, 13 Associate Professors and 23 Assistant Professors of which 29 members have Ph.D.’s. Research strength of the department includes Numerical Methods, Graph Theory, Fluid Dynamics, Algebra, Topology, Number Theory, Functional Analysis, Fuzzy logic and Complex Analysis. Further, a substantial number of faculty members are pursuing their Ph.D. degree. A few faculty members have also obtained Post-Doctoral fellowship in specialized areas of Mathematics.

Faculty of the Department teach Mathematics to UG/PG students of all constituent institutions of Manipal Academy of Higher Education. The department has started a M.Sc. programme in Applied Mathematics and Computing in the year 2009. The curriculum designed by the department provides a sound grounding in underlying mathematical theory, emphasizes a variety of useful mathematical techniques, and helps students to develop proficiency in using computers and computational methods.

> Programs offered

Post Graduate Programs
- MSc in Applied Mathematics and Computing (2009)

PhD

> Faculty Strength

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Dr. Sudhakara G.
Professor & Head
Ph: + 91 820 2925261/62
Email: sudhakara.g@manipal.edu
Department E-mail ID: maths@manipal.edu
The Department of Humanities & Management, MIT was founded in May 2009. The department has two disciplines: Management and English. The department has expertise in System Dynamics Modeling and Simulation, Organizational Behavior, Econometrics and Marketing, Research Methodology, Linguistics, English Literature, German Language, Cultural Studies, and English Communication.

Programs offered

Post Graduate Program

PhD

Faculty Strength

Qualification-wise

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Dr Gopalakrishna Barkur
Professor & Head
Ph: + 91 820 2924033
Email: humanities.mit@manipal.edu
POST GRADUATE PROGRAMS - M.Tech./MCA

> MECHANICAL STREAM
  • Manufacturing Engineering
  • Computer Aided Analysis and Design
  • Thermal Sciences and Energy Systems
  • Printing & Media Technology
  • Industrial Automation and Robotics
  • Automobile Engineering
  • Tribology & Maintenance
  • Avionics

> ELECTRICAL STREAM
  • Energy Systems & Management
  • Power Electronics & Drives
  • Digital Electronics & Communication Engineering
  • Microelectronics
  • Control Systems
  • Aerospace Engineering
  • Biomedical Engineering

> COMPUTER STREAM
  • Computer Science & Engineering
  • Computer Science & Information Security
  • Software Engineering
  • Computer Networking and Engineering
  • Master of Computer Applications

> CHEMICAL STREAM
  • Industrial Biotechnology
  • Chemical Engineering

> MANAGEMENT STREAM
  • Engineering Management

> BUILDING SCIENCE STREAM
  • Construction Engineering & Management
  • Structural Engineering
  • Environmental Engineering
Manipal Institute of Technology (MIT), Manipal has always been very proactive in placing the students into the profiles of their preference. The institute has a well-organized placement team headed by the Associate Director (Industry Liaison, Placement & Practice School), three Assistant Directors and comprising of faculty and student coordinators from each department. 250+ recruiting teams including 50+ Fortune 500 companies visit MIT Manipal for UG & PG campus placements & internships recruitment every year.

**B.Tech. Placements and Internships Statistics**

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**Core vs ITES Offers**

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## Placement Statistics

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<td>Philips Innovation ISC</td>
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<td>Company Name</td>
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<td>Samsung Semiconductor</td>
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<td>Samsung Semiconductor(I2P)</td>
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<td>Company Name</td>
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<td>The Math Company</td>
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<td>TIF Labs(I2P)</td>
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<td>Volvo</td>
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<td>WDC (PPO)</td>
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<td>Whitehat Jr</td>
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<td>WhitePanda</td>
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<td>Wipro (PPO)</td>
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<td>Ziegler Aerospace</td>
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<td>ZS Associates (BOA)</td>
<td>P+I</td>
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<td>ZS Associates (BTA)</td>
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<td>ZS Associates (BAA)</td>
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<table>
<thead>
<tr>
<th>Total Placement &amp; Internship Offers</th>
<th>49</th>
<th>9</th>
<th>32</th>
<th>275</th>
<th>136</th>
<th>131</th>
<th>15</th>
<th>217</th>
<th>147</th>
<th>116</th>
<th>37</th>
<th>25</th>
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<th>155</th>
<th>46</th>
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<tr>
<td>Total Students Placed</td>
<td>30</td>
<td>3</td>
<td>20</td>
<td>191</td>
<td>95</td>
<td>93</td>
<td>11</td>
<td>140</td>
<td>101</td>
<td>78</td>
<td>22</td>
<td>14</td>
<td>17</td>
<td>104</td>
<td>28</td>
<td>10</td>
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<tr>
<td>Total Students interested for Placements</td>
<td>110</td>
<td>22</td>
<td>41</td>
<td>216</td>
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<td>110</td>
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<td>32</td>
<td>41</td>
<td>172</td>
<td>71</td>
<td>10</td>
<td>1399</td>
</tr>
</tbody>
</table>

**Note:** P+I – Placement + Internship Offer, P – Placement Offer, I – Internship Offer, I2P – Internship converted to Placement, PPO – Summer Internship converted to Pre-Placement Offer
> Practice School

The concept of Practice School is one of the unique features of curriculum at Manipal Institute of Technology, Manipal. It provides the students an opportunity to spend quality time in the industry during their last semester/year of UG/PG Programme. During this period, students gain valuable ground exposure by being part of teams handling live and challenging projects. It enables them to work in the area of mutual interest, improve self-confidence and develop core competence.

The final semester Practice School exposure provides the students a platform to work in a competitive environment and deal with real-time problems. This experience enables students to develop their competence in problem-solving skills and demonstrate the knowledge of professional and ethical responsibilities. They get to adapt to the industry environment better and faster. It also ensures that they are productive from day one of their professional working career. This concept is encouraged and appreciated by most of the industries, as it is a win-win situation for the industry and the institute. Industries of repute have been recruiting our students for internship in increasing numbers over the years. Most of the students translate their convertible-internship opportunities into a full-time employment (FTE) offer.

> B.Tech. Practice School Internships

![Internship Graph]

Internships  
- 2016-2017: 498
- 2017-2018: 576
- 2018-2019: 608
- 2019-2020: 791
> Summer Internships

The students are encouraged to do summer internships during the summer or winter breaks of second year and third year, which help them to plan the Practice School project in an organization during the final semester. In addition to this, industries offer in-semester projects to the students. These projects during the programme help the students to be abreast of the latest developments and tools used in the industrial field. All these initiatives help the students in preparing for the final year Practice School project of their choice.

> Summer Internships data for the year 2019-20.

<table>
<thead>
<tr>
<th>Company Name</th>
<th>UG (BTech Branches)</th>
<th>Offer Type</th>
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</thead>
<tbody>
<tr>
<td>Microsoft IDC</td>
<td>CV 2 BT 14 CS 4 CC 1 IT BM EC EE IC AE AU IP ME MT PM Total</td>
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<td>Goldman Sachs</td>
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<td>Samsung Semiconductor</td>
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<td>SAP Labs</td>
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<td>Amazon</td>
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<td>Mscripts</td>
<td>CV 2 BT 1 CS 1 CC 1 IT BM EC EE IC AE AU IP ME MT PM Total</td>
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<td>Optum</td>
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<td>Standard Chartered</td>
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<td>Ugam Solutions</td>
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<td>Reliance</td>
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<td>Squadcast</td>
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<td>Infinivalue</td>
<td>CV 2 BT 1 CS 1 CC 1 IT BM EC EE IC AE AU IP ME MT PM Total</td>
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</table>

Dr. Harish Kumar S
Associate Director, Office of Industry Liaison, Placement and Practice School
Professor and Former Head, Department of Chemical Engineering
Ph: +919663301894 (M), +9182029255 61/62 (L)
Email: placement.mit@manipal.edu; harish.kumar@manipal.edu
Student Testimonials

Serving as the President of MIT Student Council has been one of the greatest learning experiences I have had so far. In the 4 year stint at MIT, you begin to inspire a style of life which is not just self-satisfying but is unique to this beautiful University town. Studying here turns one into a well-rounded person as learning is beyond the four walls of classroom. The MIT culture helped me find new dimensions and realize my full potential. These four years would definitely be one the best times of my life.

Darshan Nandekar
Trainee Decision Scientist
Mu Sigma Inc.
Chemical Engineering, MIT - Batch 2014-18

Diverse students, plethora of technical and cultural events, great infrastructure, a beautiful campus and an awesome administration, MIT has it all. Joining MIT was the best decision of my life. MIT has surely played an important role in transforming me into a much more sorted and a confident human being. The college has always provided us with the best that can be expected in every sphere.

Being a part of the Student Council for two consecutive years and serving as the President for one year was definitely the best part of my college life. The change it brought in me is just amazing and can't be put into mere words. It made me a lot more responsible, optimistic and overall helped in developing a better me. I can never stop thanking my parents for sending me to Manipal and giving me the best four years of my life.

Aakar Jain
Business Technology Analyst
Deloitte
Electrical Engineering, MIT - Batch 2013-17

The best 4 years of my life were spent at Manipal. The focus on the holistic development of students alongside academic excellence is something MIT is known for. Enriched with diverse student-managed clubs spanning across technology, robotics, entrepreneurship, sports, performing arts, literature, etc., Manipal not only gives you the right platform to showcase your talent but also gives you the confidence to experiment and identify your passion.

Being a part of the student council was an amazing experience for me. At an early age, it helped me hone my personality and learn essential life skills. The support and the guidance from the administration and faculty members was commendable. Stepping into our first jobs, the corporate culture can get overwhelming at times due to the spike in the responsibilities entrusted upon us. My student council experience at MIT helped me transition easily into the corporate world as I was fortunate to have been in similar situations during my tenure. That is the level of professionalism and self-confidence that MIT builds in you if you leverage the plethora of opportunities it has in store for you.

As they rightly say, you can take anMITian out of Manipal but not Manipal out of an MITian. This small town in Udupi has etched a very special mark on all our lives. :)

Althaf Ibrahim Para
Program Manager, Amazon India Operations
President, MIT Student Council 2018-19
Vice President, MIT Student Council 2017-18
Student Testimonials

Nothing can express the wave of emotion washed over me when I found out I was selected in the Manipal Institute of Technology to pursue B.Tech in the field of Mechanical Engineering. Here at Manipal, amidst state-of-the-art infrastructure accompanied by highly intellectual, experienced and supportive faculties, I have witnessed my skill and competence rising to a zenith. The learner centric environment encouraged me to go above and beyond to pursue my interest in Data Analytics alongside the daily curriculum. Opportunities provided here to represent the college across various multitudes provided me the necessary industry exposure and helped me in becoming an independent individual. The sheer focus on application based learning was quintessential in bagging a job at ZS Associates Pvt. Ltd. for which I’m forever in debt to this institute. I was once told that college would be the best years of your life and looking back I’m certain that joining MIT was the best career decision of my life.

Archit Agrawal
Batch of 2020
Business Operations Associate
ZS Associates Pvt. Ltd.

The decision of going to Manipal was one of the best decisions that I have made. The institute has a reputation and also a lot of scopes to learn new things. The highlight is the plethora of technical and cultural clubs present that helps a person to learn a lot of life skills. The faculty was extremely helpful with everything. The skills that were taught in the labs are relevant to my job as well. College life is no cakewalk, but with the right surrounding, it can develop our personality and make college life worthwhile. Working as a part of the Student Council was the best experience in my Manipal life. I had the opportunity to work with the best team and learn a lot about leadership and teamwork. Part of being a member of the council was an opportunity of a lifetime.

Alolika Chakravarty
Associate Developer
SAP Labs
Information Technology, MIT Batch 2015-19

From being an avid follower to paving a path for others to follow, it was an enthusiastic path of retuning the quintessential mindset of fear of leading. Any student who steps through the gates of MIT is exposed to a wide array of opportunities. My journey as an undergraduate at MIT has uncovered me to various situations with invaluable learning experiences, and one such opportunity which triggered a holistic development was being elected as the General Secretary of Student Council.

I walked into the lap of this lush green university town of Manipal as a confused individual. But, during these four years at MIT, I was guided by competent and friendly faculty, and the professionally managed environment helped to transform myself into a confident, skilled, professionally groomed engineer. These numerous learning opportunities not only served me to secure a role I was aspiring for but also prepared me to face the corporate world.

Rohith Reddy A.
Business Intelligence Analyst
Dell Global Analytics
Dell Technologies
Alumni and International Relations

It is the endeavour of the Alumni Relations of MAHE to bring all the Alumni on one platform to create a global group of Manipalites called ‘ONE MANIPAL’. We at Manipal are working towards creating opportunities to network, share nostalgic moments, help the juniors and be partner in the growth of the Alma Mater.

With ever growing importance of Alumni in the development of the Institute, the Alumni Relation Office was set up at MIT in the year 2004. The objective is to gather the information of our Alumni and to create a database that will serve to improve interaction between the Alumni and the Institute. As on date, MIT has produced over 52 thousand graduates. The Office of Alumni relations tries to maintain an abiding life-long relationship among the faculty, Alumni and Alma mater.

Responsibility of the Office is to maintain close relations with the alumni keeping them abreast with the ongoing developments through emails, social media and personal connect. The Office hosts annual reunions for the graduates who are celebrating their golden and silver jubilees of graduation. In December 2017, 1200 Alumni attended the meet to be a part of “Diamond Jubilee” of the institute. Till date 19 annual meets have been held. These meets help the batch mates to reunite and reconnect and over the years the number of alumni attending have gradually increased.

MIT is proud of producing several distinguished Alumni who have graduated from the portals of the Institution. Leading the top corporates in the world which are listed in the Fortune 500’s, our alumni have also shown that they are capable of leading the nations by being members of Parliament, Government agencies like NITI Aayog, Indian Foreign services and so on.

Most of the alumni have reconnected with their alma mater and are leading to guide the current generation by setting up world class research facilities, mentoring student major projects, engaging classes as adjunct faculty, creating bursary to provide recognition to meritorious juniors and are also part of developing curriculum for future needs.

The Office of the International relations strives to support and achieve the goals of MAHE by providing both outgoing and incoming opportunities for students. Students can explore the options of Semester Abroad, Integrated Masters’, summer schools, dual degree at Master’s level, and also internships through student bodies like IAESTE and AISEC. Several scholarships are available under the memorandum of understanding with top universities in the world to carry our research projects or have mentors to guide projects. Till date more than 150 students have been to various universities to pursue their semester or internships and even integrated masters’. Around 120 students from different partner universities have carried out their semester at Manipal and have enjoyed the rich culture.

Dr M Vijaya Kini
Associate Director (Alumni, P, Intl. Relations)
Ph: + 91 820 2924027
Email: adalumni.mit@manipal.edu
intl.mit@manipal.edu
Nurturing Global Leaders Since 1957

Satya Nadella [E&C '88]
CEO, Microsoft Corporation

Rajeev Suri [E&C '89]
Operating Advisor, Apollo Global Management

Banmali Agrawala [MECH '84]
President - Infrastructure, Defence and Aerospace, Tata Sons

Sandeep Sinha [I&P '96]
Chief Executive Officer at TAFE

Faizal E Kottikollon [CIVIL '86]
Chairman, KEF Holdings, Dubai

George Muthoot [MECH '71]
Chairman, Muthoot Group
Manipal Universal Technology Business Incubator (MUTBI)

Manipal Universal Technology Business Incubator (MUTBI) is an initiative of Manipal Academy of Higher Education (MAHE), an Institution of Eminence, and is supported by National Science and Technology Entrepreneurship Development Board (NSTEDB), Department of Science and Technology (DST), Government of India. Multidisciplinary Research & Innovation ecosystem at MAHE, provides a conducive environment for the development of products, technology, and patent. Objective of MUTBI is to provide incubation services to students, faculty members, alumni, and others. MUTBI encourages aspiring entrepreneurs to start their own venture, nurture entrepreneurship skills, create self-employment, product development and manufacturing in line with the social objectives of Government of India.

Operational since 2010, MUTBI focuses on thrust areas like Information Technology (IT), Healthcare, Agriculture, Renewable Energy, Energy Conversion Systems, MEMS/Nanotechnology, and other emerging areas. Since its inception, MUTBI has supported 30 startups and 26 NIDHI-EIRs, till date. MUTBI operates from its state-of-the-art 10,000 sq. ft. new facility located within the MAHE campus.

Facilities and Support Services

MAHE ecosystem include TBIs, Innovation Center, Central Instrumentation and Technology Transfer Office (TTO). Central Instrumentation include 3D Printers, Laser Cutting Machine, Atomic Force Microscope, Microgravure, Nanofiber Electrospinning Unit, Thermal Camera, Injection Moulding Machine, and other facilities. TTO supports commercialization of Innovation /Research, after assessing market potential. MUTBI provides incubation space, mentoring, support services and financial support to startups. Incubator infrastructure includes maker space, coworking & dedicated space, and common meeting rooms.

Finance: MAHE supports innovations through funding during initial stages and pre-incubation. MUTBI financial support include seed money to Startups as loan or against equity upto Rs. 25 lakh for product development/commercialization/scale up.

Programs: Entrepreneurship Awareness Camp and Entrepreneurship Development Programs are organized for students & faculty members to keep them abreast of startup ecosystem. During Manipal Entrepreneurship Summit, industry experts and entrepreneurs, participate in panel discussion and pitch session. MAHE conducts an annual event ‘Provenance’, to accelerate idea to startup. The Provenance winners will be eligible for incubation with funding support at MUTBI.

Pre-Incubation: This is for 3-6 months and is during initial stage of product development and Startup formation. Co-working space and mentoring would be provided. Based on the progress and need, funding will be offered.

Incubation: Proposals from good team with appropriate prototype, innovation and traction would be considered for incubation. Dedicated space, mentoring and other support would be provided against incubation service charges and equity. Initial period of incubation is 18 months and upon request it would be further extended to 36 months.

Manipal Entrepreneurship Summit - 2020
> NIDHI-EIR

MUTBI has been selected for National Initiative for Developing and Harnessing Innovation (NIDHI) – Entrepreneur In Residence (EIR) program, in 2017. NIDHI-EIR is Government of India funded fellowship program for Graduates (Minimum 4 years of formal full time UG / 3 years Degree or Diploma with 2-year full time work experience post degree) who are aspiring to become entrepreneurs. Fellowship amount upto Rs. 3.6 lakh for 12-18 months would be given to aspiring entrepreneurs. MUTBI has supported 26 candidates, among them 13 startups have been registered and fund worth Rs. 3.8Cr has been raised. Portable refrigerator, App for medical consultancy, Vehicle tracking device, Automatic seed sowing machine, Crowd funding for the researchers, Virtual reality tour of properties, Electric kick scooter, 3D printed customizable orthosis, AI driven research, collaboration and professional development platform, Nutrition support resources platform, Online services for musicians, and 3D bioprinting of skin graft were the few projects supported through this program.

> Startups

During the last 10 years, 22 Startups have graduated from MUTBI. These Startups primarily worked on Healthcare, IT and Mechanical products. One such graduated Startup is featured here:

**Fractal Works Pvt Ltd** is a graduated startup of MUTBI. It is founded by MIT Manipal alumni, Mr. Vijay Varada & Mr. Asil Rohit. It is a 3D printer manufacturing and product development firm that provides product design and CAD services.

At present, 8 Startups are incubated at MUTBI and they are working in the area of Healthcare and IT. Three such Startups are featured here:

**Blackfrog Technologies Pvt Ltd** is founded by MIT Manipal alumnus, Mr. Mayur Shetty & MITE Moodbidri alumnus, Mr. Donson D’ Souza. The startup has developed “emvolio”, a portable battery powered refrigerator that will maintain the preset temperature for up to 12 hours for last-mile transport of vaccines/test samples.

**OSIND Medi Tech Pvt Ltd** is founded by MIT Manipal alumnus, Mr. Mohammad Samheel. The startup has developed, a hand rehabilitation platform to facilitate the recovery training of stroke and neuromuscular deficit patients.

**Kumudha Health Tech Pvt Ltd** is founded by Dr. Sampath Kumar and Dr. Hareesha K S, faculty members from MIT Manipal. The startup has developed 3D diagnostic and treatment planning tool for the spinal deformities, SPINAK. It is an online tool which takes x-rays of the spine as input and produces 3D spine model.

> Manipal-Government of Karnataka Bioincubator

This is joint venture between MAHE and Karnataka Biotechnology & Information Technology Services (KBITS), and is operational since January 2019. Bioincubator provides world class facilities, infrastructure, and services for the incubation of Startups in various domains of Biotechnology, Biomedical devices, Biopharma, Healthcare & Diagnostic, and Dental innovation. Both MUTBI and Bioincubator are operating from the same premises, in the Health Science campus of MAHE.

**MUTBI**
4th Floor, Advanced Research Center, MAHE Madhav Nagar, Manipal - 576 104
Ph: +91 820 2925051,
E-mail: mutbi.mit@manipal.edu,
Web: www.mutbimanipal.org

Dr. Y Shrihari Upadhyaya
CEO, MUTBI
Ph: +91 820 2925052
Email: ys.upadhyaya@manipal.edu
The Innovation Center @ MAHE nurtures Innovation and Entrepreneurial skills in our students, faculty and citizens of the region.

The Innovation Center provides a variety of resources and conducts various events to promote ideation to startups. The newly opened Idea Café in the Marena Recreational Complex encourages interdisciplinary teams to meet, network and brainstorm complex problems. We have regular seminars and workshops for our aspiring innovators and entrepreneurs to learn new concepts, network and share their ideas and challenges. These evening programs make it convenient for students across all colleges to participate.

Teams formed during ideation are provided collaborative, co-working space at Excelerate in the Innovation Center. Removed from the hustle and bustle of hostel life, here students from different MAHE Institutions can develop and test their ideas and turn them into viable projects in this modern co-working facility.

At the Makerspace we provide innovators with a wide range of tools and equipment to develop their proof-of-concepts and working prototypes. We also have several 3-D printers as part of our Center for Rapid Prototyping. Promising teams receive seed funding to defray the costs of developing prototypes.

In July 2018, the Innovation Center started the brand new, State-of-the-Art Apple Creative Studio. This is the home of the iOS Software development course offered to MIT and non-technology students as well. We offer training workshops for faculty and students across MAHE. Here students are encouraged to develop App with guidance from faculty trained at the Apple Training Center, Bengaluru, as well as regular interactions with experts from local iOS software companies.

When you are ready to start your own company, our Incubators (MUTBI and the BioIncubator) provides our budding entrepreneurs with all the resources and expertise needed to help them succeed.

The Innovation Centre also hosts a well-resourced Central Instrumentation Facility (CIF) to support multi-disciplinary research areas in emerging frontier fields by our students and faculty. CIF includes large instruments such as Scanning Electron Microscope, Energy Dispersive analysis (EDAX), Nuclear Magnetic Resonance (NMR), X-Ray Diffractometer, Ion Chromatography, NIR-VIS Spectrophotometer and Nano Fiber Electrospinning Unit. These equipment support interdisciplinary research and innovation in Emerging areas of Material Science, Biotechnology, Printed photovoltaic, Plasmonic biosensors, and other.
Innovation Center encourages student innovations with several events

We conduct a large number of Hackathons, Make-a-thons, and competitions to inspire students to participate in innovation. Our hackathons guide students through interdisciplinary team formation, ideation and early prototype development phases. Hackathons end with a short pitch to an interdisciplinary jury and awarding cash prizes and seed funding. During the past year we conducted the following events:

1. **Wearable Devices Hackathon 2**: was conducted in collaboration with the Kasturba Medical College, Manipal to conceptualize and develop the next generation of medical devices.

2. **Innovation Challenge**: a preliminary event to showcase innovations developed by MIT students.

3. **Innovation Festival**: is our annual event to inculcate the spirit of innovation among MAHE students & faculty, and create a common platform to showcase their innovation. Nearly fifty innovations were presented during this day-long gala at the Innovation Center.

4. **Grand Challenge Udupi 2019**: The Innovation Center along with the Prasanna School of Public Health jointly conducted this competition for social entrepreneurs. While our students compete in national and international events, we encouraged them to use their creativity in developing innovative solutions to address local problems identified by the district administration.

5. **Hacking Dentistry: Making it affordable**: The Innovation Center collaborated with the Manipal College of Dental Sciences Manipal to conduct this first hackathon focused exclusively on dental issues.

6. **Provenance 2018 - MAHE’s Annual Business plan competition**: It is the largest business plan competition in the region with prizes over 10 lakhs. Our primary goal is to encourage and foster the new generation of entrepreneurs. After a rigorous selection process, we identified three teams for further funding and pre-incubation services.

Dr Arun Shanbhag  
Chief Innovation Officer  
MAHE, Manipal  
Ph: + 91 820 2925053  
Email: arun.shanbhag@manipal.edu
MIT Innovation & Incubation

MIT has always been in the forefront of Innovation. The state of art laboratories, support systems, mentorship from academia, industry and the vibrant ecosystem consisting of engineering, medical, dental, pharmacy, commerce and management have fostered inter-disciplinary ideas. The culture of innovation is the core philosophy that defines MIT and has been vividly captured by the concept of 'Experiential Learning'. This is facilitated by providing open electives, opportunity to work in Major Student Projects, myriad of technical and non-technical clubs, hackathons, and final year projects. These initiatives are coupled with support from the Idea Café, Innovation Centre, Manipal Universal Technology and Business Incubator, and the Manipal - Government of Karnataka Bioincubator where MIT students have established several start-up companies. Besides, the incubators, few start-up ventures have been initiated on the voluntary basis by many students.

> A new initiative: Start-up Final Year Project

Recently, MIT has initiated the Start-up Final Year Project. Last year 6 projects were identified and provided with pre-incubation status and accounted as final year project. These projects can be grouped into two types. The first type will be applicable for those projects which have substantial progress in terms of concept development/design and/or only minimal technical intervention is required by the student/team. The efforts by such teams will be mostly towards improving the technical know-how; business development, patenting, market survey and related milestones as required to organize a start-up company. The second type is for those students/projects who are interested in start-up but are yet to develop the concept/product would be treated as a technical project within the framework of the respective departments. For such projects, the departmental mentorship in accordance with the need of the project and appropriate guidance are provided when required by the student/team. Students desirous of opting for these start-up projects register their names with the concerned department coordinator for extending the required guidance/support.

Some highlights of Innovation & Incubation Activities:

- **Smart India Hackathon 2019**
  MIT was one of the nodal centers and was widely appreciated for its facilities. Honorable Prime Minister of India Shri Narendra Modi addressed selected participants of Manipal Nodal Centre via Teleconference.

- **SIH Internal Hackathon 2020**
  As per the MHRD directives, an internal Hackathon was carried out for both Software and Hardware editions to select teams from MIT to participated in SIH 2020.
As a part of TechTatva – annual technical festival, MIT, Manipal organized the Manipal Hackathon 2019. ‘The Manipal Hackathon’, is a software challenge aiming to find answers to pertinent social issues by using simple programming solutions. Initially, the competition had 1,500 participants from across the country. Among these, 125 participants eventually travelled to Manipal for the 36-hour final challenge.

Three students of Manipal Institute of Technology-Akshatha Kamath, Shubham Rateria, and Adir Rajaraman teamed up with Melia Watson, a respiratory therapist, from Washington DC, Hsiang Wei Hu, Cofounder of Acusense Biomedical, Taiwan and Mariane Melo, UK won the COVID-19 Challenge, ‘Beat the Pandemic’ organized by Massachusetts Institute of Technology in a 48-hour virtual event.

A solar powered HALE UAV developed by Ashley Mudaliar and Anish Pai from MIT, Manipal won the first place in the NACDeC II conducted jointly by the Aeronautical Society of India and IIT Mumbai.

Beat the Pandemic

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#Code19 Hackathon

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Team comprising of Ms. Akshatha Kamath (2nd from Left) and Mr. Jithin Sunny (4th from Left) from MIT Manipal won the first place in Stanford Health++ Hackathon 2019, in Stanford USA.

Stanford Health++ Hackathon 2019

MIT Innovation Challenge 2019

This is an exhibition of technical projects of students carried out to select 5 teams from MIT to compete in the MAHE Innovation Challenge 2019.

2nd National Aerospace Conceptual Design Competition (NACDeC II)

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Manipal Institute of Technology (MIT), Manipal encourages research, innovation, research publication, patent filing and technology commercialization at undergraduate and postgraduate level.

MIT has collaborative and interdisciplinary research programs in association with premier research laboratories and has secured research grants from government (both state and central), industries and international funding agencies. The faculty members are working on multiple research projects supported by a number of funding agencies such as Department of Science and Technology (New Delhi), Ministry of Environment and Forests (New Delhi), Department of Atomic Energy, AICTE (New Delhi), Vision Group on Science and Technology (VGST) Karnataka, Department of Biotechnology (New Delhi), Defence Research and Development Organization (New Delhi), Industries and MAHE.

Research Profile

No. of PhDs Awarded (after 2005) | 216
---|---
No. of Research Scholars (ongoing) | 295
No. of PhD Guides / Co-guides | 235
Sponsored Research projects (ongoing) | 34
Research Grants (till date) | 25 crores
No. of Patents Filed (after 2009) | 27
No. of Patents Granted | 10
Total No. of Publications - (Journal and Conference papers) | 5200

Dr Ashok Rao
Associate Director (R & C)
Ph: +91 820 2924016
Email: a.rao@manipal.edu
Faculty Development and Welfare

The office of the Associate Director - Faculty Development and Welfare, is established in January 2019 with the main objective of facilitating the overall professional development and welfare of the 650 faculty members and 1200 non-teaching staff on rolls at MIT Manipal.

The office organises regular programs on pedagogy, research orientation and leadership skills for overall development of the faculty members with an objective of enhancing their job satisfaction and help their career growth. Looking at the large number of young faculty members on the rolls at MIT Manipal, office of the Faculty Development and Welfare, also takes care of equipping them with the proper skill sets needed for the teaching-learning process and promoting good work culture at the Institute on a regular basis. Guest lectures from the eminent scholars and speakers will be arranged for helping the faculty members and students to keep up to date with the emerging trends. Moreover, regular workshops are conducted for the skill development of non-teaching staff to make them feel at home with their day to day activities in their offices.

The major activities of the office includes

- Organising Faculty Development Programs for imparting necessary skill sets for discharging their responsibilities as faculty members / staff, effectively throughout their career.
- Conduct Orientation program for newly joined faculty and staff
- Arrange Guest talks for the benefit of faculty and students.
- Conducting programs for skill development of non-teaching staff members.
- Programs for nurturing research culture amongst the faculty members
- Facilitation of Faculty recruitment, promotion and Performance appraisals
- Facilitate faculty grievances redressal

Dr. Shankaranarayana Bhat M
Associate Director (Faculty Development & Welfare),
Ph +91 820 2924043, 2924042
Email: adfd.mit@manipal.edu
MIT Central Library

The Institute has a sprawling air conditioned and Wi-Fi enabled central library with a total area of about 70,000 sq.ft. and a seating capacity of 950, catering the needs of all the academic programmes. Modern technologies like access controlled gate and CCTV surveillance has been implemented in the library.

The library has more than one lakh twenty thousand books and 40,700 e-books both technical and general. Library subscribes to more than three hundred print and nearly 2,750 online full text journals, 6 online databases magazines and standards for the use of faculty members and students.

Digital Library

E-books, Online journals, e-standards, e-question papers, NPTEL Video lectures, and Institutional repository are available in the digital Library. All electronic resources can be accessed remotely by using EZproxy technology. All the library activities are automated with the help of EASYLIB software. Books, bound volumes and book bank books all are bar coded. Barcoded / RFID enabled College ID Card can be used for all library transactions.

A student can check his/her dues, and search the availability of library resources using the title, author or any key words through library OPAC search anywhere in the campus.

A Link to access all library e-resources is given in Manipal Academy of Higher Education intranet portal http://muportal.

Dr Rekha D Pai
Chief Librarian
Ph: +91 820 2924451
Email: lib.mit@manipal.edu
MIT is a reputed institute with adequate hostel facilities for students studying in B.Tech./B.Arch. and various undergraduate and post-graduate courses.

MIT hostels provide accommodation for about 5630 boys and 2440 girls in 27 separate blocks. Single/double/triple occupancy AC/Non AC rooms are available. Boarding facilities include 6 messes and 3 Food Courts which can cater to about 8000 students.

> Hostel Facilities

All hostels provide 24 hour electricity and water supply, solar heated water, hot & cold drinking water with Aqua Guard filters, common telephone, common TV room and Sports facilities. All hostels have 24x7 Wi-Fi in all the rooms.

Excellent mess facilities are available for all students in different messes (Food Court 1 & 2/ Annapoorna/ Aditya/ Ashraya/ Aradhana/ Ananya Mess). Students can choose to be members of any one of these messes and are free to change their mess anytime during the year. Membership in any one of these messes is compulsory for all students staying in hostels for the first 2 years. 24x7 housekeeping is available in all the hostels.

All hostels have indoor games facilities like carrom, table tennis and chess and some hostels have gymnasium, volley ball and basketball along with other sports facilities.

Swimming pool, badminton courts, synthetic tennis courts, basketball courts, well-lit stadium, football grounds and hockey grounds are also available for all students. International standard Sports Complex (MARENA) is available for students. Excellent hospital care is available in Kasturba Hospital, Manipal with health insurance coverage.

Lt. Col. B. Suresh Kumar (Retd.)
Chief Warden
Ph: +91 820 2925221
Email: chiefwarden.mit@manipal.edu
MIT Academic Block 1 - Aerial View
Department of Physical Education

Sports is an important part of college life and MIT Manipal caters to the needs of everyone from the recreational to highly competitive persons. It aims to develop the following in the students and staff of the college:

• Health
• Social interaction
• Personality development
• Stress relief
• Leadership
• Sense of discipline
• Fair play
• Team spirit

The campus has its own Swimming pool, Boxing Ring and a Gymnasium, Badminton Courts Indoor, Tennis Courts Floodlit facilities for those who wish to enjoy recreational sport in their free time. Students interested in gaining competitive experience in these events can avail excellent coaching facilities from well qualified trainers.

*Inter – section, Inter – branch, There are both indoor and outdoor sports facilities available in the campus which include Athletics, Aerobics, Badminton, Chess, Basketball, Cricket, Football, Hockey, Handball, Squash, Swimming, Tennis, Table tennis and Volleyball. All the sports events are administered by the Department of Physical Education, MIT, Manipal.

The new indoor sports complex “MARENA” is perhaps one of its kind in Asia. The complex has five Howa badminton courts, four squash courts, four table tennis courts, two tennis courts, a basketball court, gymnasium steam bath, Sauna bath, five a side football court, a jogging track and swimming pool.

Beside the sports facilities available on campus, the sports Council organizes sporting activities throughout the year such as:

• All India Inter Engineering College Sports Meet – REVELS CUP – 20
• Inter – Collegiate Sport Events
• Inter – year Sports Events and many other fun activities
• MIT Basketball League
• MIT Football League
• MIT Cricket League

Besides improving fitness, Sports help to create new and lasting friendships, develop teamwork skills and bring laurels to the institution.

The players of our institute represented the University team in Cricket, Chess, Table tennis, Squash, Handball, Badminton and Tennis in South Zone Inter and All India tennis inter University tournaments.

Shridhar H
Director of Physical Education
Ph: +91 9880114930
Email: shridhar.h@manipal.edu
B.Tech Program Highlights

- Duration of the program is 8 semesters
- Credit requirement for the award of degree: 170 credits. Credits used for CGPA Computation: 157
- Semester I & II: Common for all branches
- Optional change of branch in semester III against vacancies based on First Year performance
- First Year course materials available on Intranet
- VII Semester only program electives and open electives
- VIII semester fully dedicated for Project work
- Live project experience through Practice school caters student mobility.
- Flexible curriculum: More elective courses including open electives from IV to VII Semester
- Minor Specialization based on program electives chosen
- Continuous assessment: Equal weightage of in-semester & end-semester assessment
- Student Life Cycle Management System to provide seamless access to academic information through internet to all stakeholders
- BTech (honours) for meritorious students

Physics Group

First Semester
- Engineering Mathematics - I
- Engineering Physics
- Mechanics of Solids
- Basic Electronics
- Basic Mechanical Engineering
- Communication Skills in English
- Engineering Physics Lab
- Workshop Practice
- Engineering Graphics - I

Second Semester
- Engineering Mathematics - II
- Engineering Chemistry
- Biology for Engineers
- Basic Electrical Technology
- Problem Solving Using Computers
- Environmental Studies
- Engineering Chemistry Lab
- PSUC Lab
- Engineering Graphics - II

Chemistry Group

First Semester
- Engineering Mathematics - I
- Engineering Chemistry
- Biology for Engineers
- Basic Electrical Technology
- Problem Solving Using Computers
- Environmental Studies
- Engineering Chemistry Lab
- PSUC Lab
- Engineering Graphics - I

Second Semester
- Engineering Mathematics - II
- Engineering Physics
- Mechanics of Solids
- Basic Electronics
- Basic Mechanical Engineering
- Communication Skills in English
- Engineering Physics Lab
- Workshop Practice
- Engineering Graphics - II
Computer Science Stream | Program Structure

Computer Science & Engineering

Third Semester
- Engineering Mathematics - III
- Computer Organization & Architecture
- Data Structures and Applications
- Digital System Design
- Object Oriented Programming
- Data Structures Lab
- Digital System Design Lab
- Object Oriented Programming Lab
- Open Source Technologies Lab

Fourth Semester
- Engineering Mathematics - IV
- Database Systems
- Design and Analysis of Algorithms
- Embedded Systems
- Formal Languages and Automata Theory
- Open Elective - I
- Algorithms Lab
- Database Systems Lab
- Embedded Systems Lab

Fifth Semester
- Essentials of Management
- Compiler Design
- Computer Networks
- Operating Systems
- Software Engineering
- Open Elective - II
- Compiler Design Lab
- Computer Networks Lab
- Operating Systems Lab

Sixth Semester
- Engineering Economics and Financial Management
- Distributed Systems
- Parallel Computer Architecture and Programming
- Program Elective - I
- Program Elective - II
- Open Elective - III
- Distributed Systems Lab
- Internet Technologies Lab
- Parallel Programming Lab

Seventh Semester
- Program Elective - III
- Program Elective - IV
- Program Elective - V
- Program Elective - VI
- Program Elective - VII
- Open Elective - IV

Eighth Semester
- Industrial Training
- Project Work /Practice school

Minor Specializations
- Computer Graphics & Visualization
- Computational Intelligence
- Computer Networks and Security
- Data Analytics
- Material Science
- Business Management
- Computational Mathematics
Third Semester
- Engineering Mathematics - III
- Object Oriented Programming
- Digital Systems
- Data Structures
- Principles of Data Communication
- Object Oriented Programming Lab
- Digital Systems Lab
- Data Structures Lab

Fourth Semester
- Engineering Mathematics - IV
- Operating Systems
- Computer Organization and Microprocessor Systems
- Design and Analysis of Algorithms
- Computer Network Protocols
- Open Elective - I
- Operating Systems Lab
- Microprocessor Systems Lab
- Algorithms Lab

Fifth Semester
- Essentials of Management
- Embedded Systems
- Cyber Security
- Database Systems
- Software Engineering
- Open Elective - II
- Embedded Systems Lab
- Network Programming and Simulation Lab
- Database Systems Lab

Sixth Semester
- Engineering Economics and Financial Management
- Distributed Systems
- Data Warehousing and Data Mining
- Program Elective - I
- Program Elective - II
- Open Elective - III
- Data Warehousing and Data Mining Lab
- Advanced Technology Lab
- Internet Tools and Technology Lab

Seventh Semester
- Program Elective - III
- Program Elective - IV
- Program Elective - V
- Program Elective - VI
- Program Elective - VII
- Open Elective - IV

Eighth Semester
- Industrial Training
- Project Work / Practice School

Minor Specializations
- Data Analytics
- Computational Intelligence
- Software System Design
- Computer Graphics and Visualization
- Material Science
- Business Management
- Computational Mathematics
Computer Science Stream | Program Structure

Computer & Communication Engineering

Third Semester
• Engineering Mathematics - III
• Object Oriented Programming
• Data Structures
• Principles of Data Communication
• Digital System Design
• Object Oriented Programming Lab
• Data Structures Lab
• Digital System Design Lab

Fourth Semester
• Engineering Mathematics - IV
• Operating Systems
• Design and Analysis of Algorithms
• Computer Network Protocols
• Database Systems
• Open Elective - I
• Operating Systems Lab
• Algorithms Lab
• Database Systems Lab

Fifth Semester
• Essentials of Management
• Network Programming and Advanced Communication Networks
• Data Mining and Predictive Analysis
• Information Security
• Software Design Technology
• Open Elective - II
• Network Design and Programming Lab
• Data Mining and Predictive Analysis Lab
• Advanced Programming Lab

Sixth Semester
• Engineering Economics and Financial Management
• Wireless Communication and Computing
• Embedded Systems Design
• Program Elective - I
• Program Elective - II
• Open Elective - III
• Network Simulation Lab
• Embedded Systems and IoT Lab
• Mobile Application Development Lab

Seventh Semester
• Program Elective - III
• Program Elective - IV
• Program Elective - V
• Program Elective - VI
• Program Elective - VII
• Open Elective - IV

Eighth Semester
• Industrial Training
• Project Work / Practice School

Minor Specializations
• Advanced Network Systems
• Data Analytics
• Computational Intelligence
• Computer Graphics and Visualization
• Material Science
• Business Management
• Computational Mathematics
Highlights
• Core Competency in Data Science, Computational Mathematics and Statistics
• Minor Specialization in Finance, Business, Health Care
• Multi-campus Model with student mobility in 4/5/6th semester
• Industry collaboration for the teaching-learning process
• The option of Semester Abroad
• The option of Integrated Master's Program with foreign universities

Third Semester
• Mathematical Foundations for Data Science-I
• Finance & Econometrics
• Introduction to Data Analytics
• Object-Oriented Programming
• Data Structures
• Computer System Architecture
• Data Analytics Lab
• Object-Oriented Programming Lab
• Data Structures Lab

Fourth Semester
• Mathematical Foundations For Data Science-II
• Database Systems
• Machine Learning
• Design & Analysis of Algorithms
• Data Communications and Networks
• Open Elective – I
• Database Lab
• Machine Learning Lab
• Design & Analysis of Algorithms Lab

Fifth Semester
• Mathematical Foundations For Data Science-III
• Deep Learning
• Operating Systems
• Natural Language Processing
• Cloud Computing
• Open Elective – II
• Deep Learning Lab
• Operating Systems Lab
• Web Technologies Lab

Sixth Semester
• Operations Research
• Artificial Intelligence
• Parallel Programming
• Big Data Analytics
• Data Privacy & Security
• Open Elective – III
• Artificial Intelligence lab
• Parallel Programming Lab
• Big Data Analytics Lab

Seventh Semester
• Program Elective - I
• Program Elective - II
• Program Elective - III
• Program Elective - IV
• Program Elective - V
• Open Elective – IV

Eighth Semester
• Industrial Training
• Project work/ Practice School

Minor Specializations
• Finance & Security Analytics
• Business Analytics
• Health Care Analytics
Third Semester
- Engineering Mathematics - III
- Electrical Circuit Analysis
- Digital System Design
- Electrical Machinery - I
- Electromagnetic Theory
- Analog System Design
- Analog System Design Lab.
- Digital System Design Lab

Fourth Semester
- Engineering Mathematics - IV
- Linear Control Theory
- Electrical Machinery - II
- Generation Transmission & Distribution
- Microcontrollers
- Open elective - I
- Electrical Machinery Lab
- Microcontroller Lab

Fifth Semester
- Essentials of Management
- Digital Signal Processing
- Power System Analysis
- Communication Systems
- Measurements & Instrumentation
- Open elective - II
- DSP Lab
- Measurements & Instrumentation Lab

Sixth Semester
- Engineering Economics and Financial Management
- Power Electronics
- Switch Gear & Protection
- Program Elective - I
- Program Elective - II
- Open Elective - III
- Power Electronics Lab
- Power Systems Lab

Seventh Semester
- Program Elective - III
- Program Elective - IV
- Program Elective - V
- Program Elective - VI
- Program Elective - VII
- Open Elective - IV

Eighth Semester
- Industrial Training
- Project Work / Practice school

Minor Specializations
- Power & Energy Systems
- Illumination Technology
- Computational Intelligence
- Signal Processing
- Embedded Systems
- Control Systems
- VLSI Design
- Sensor Technology
- Material Science
- Business Management
- Computational Mathematics
Electronics & Communication Engineering

Third Semester
- Engineering Mathematics - III
- Analog Electronic Circuits
- Digital System Design
- Network Analysis
- Signals and Systems
- Computer Organization and Architecture
- Digital System Design Lab
- Signals & Circuits Simulation Lab

Fourth Semester
- Engineering Mathematics - IV
- Electromagnetic Waves
- Linear Integrated Circuits
- Digital Signal Processing
- VLSI Design
- Open Elective - I
- Electronic Circuit Design Lab
- VLSI Lab

Fifth Semester
- Engineering Economics & Financial Management
- Linear Control Theory
- Microprocessors
- Analog and Digital Communication
- Microwave Engineering
- Open Elective - II
- Microprocessor Lab
- DSP Lab

Sixth Semester
- Essentials of Management
- Communication Networks
- Wireless Communication
- Program Elective - I
- Program Elective - II
- Open Elective - III
- Communication Networks Lab
- Communication Systems Lab

Seventh Semester
- Program Elective - III
- Program Elective - IV
- Program Elective - V
- Program Elective - VI
- Program Elective - VII
- Open Elective - IV

Eighth Semester
- Industrial Training
- Project Work /Practice school

Minor Specializations
- Embedded System
- Signal Processing
- Telecommunication
- VLSI Design
- Computational Intelligence
- Control Systems
- Sensor Technology
- Illumination Technology
- Material Science
- Business Management
- Computational Mathematics
Third Semester
• Engineering Mathematics - III
• Analog Electronic Circuits
• Digital Electronic Circuits
• Electronic Measurements
• Network Analysis and Signals
• Sensors and Transducers
• Digital Circuits Lab
• Measurement and Transducers lab
• Virtual Instrumentation Lab

Fourth Semester
• Engineering Mathematics - IV
• Digital System Design
• Industrial Instrumentation
• Linear Control Theory
• Linear Integrated Circuits
• Open elective - I
• Analog Circuits Lab
• Circuit Simulation and HDL Lab
• Instrumentation lab

Fifth Semester
• Essentials of Management
• Control System Components
• Microcontrollers
• Modern Control Theory
• Process Instrumentation and Control
• Open elective-II
• Micro-controller Lab
• Process Control Lab

Sixth Semester
• Engineering Economics and Financial Management
• Digital Signal Processing
• Industrial Automation
• Program elective -I
• Program elective -II
• Open elective -III
• Automation Lab
• Control System Lab
• DSP Lab

Seventh Semester
• Program Elective - III
• Program Elective - IV
• Program Elective - V
• Program Elective - VI
• Program Elective - VII
• Open Elective - IV

Eighth Semester
• Industrial Training
• Project Work /Practice school

Minor Specializations
• Computational Intelligence
• Control Systems
• Embedded Systems
• Illumination Technology
• Sensor Technology
• Signal Processing
• VLSI Design
• Material Science
• Business Management
• Computational Mathematics
Electrical Stream | Program Structure

Biomedical Engineering

Third Semester

• Engineering Mathematics - III
• Network Analysis
• Analog Electronics
• Anatomy & Physiology
• Digital Electronics
• Signals & Systems
• Electronics Lab
• Circuit Simulation Lab

Fourth Semester

• Engineering Mathematics - IV
• Integrated Circuit Systems
• Digital System Design
• Biomechanics
• Biomedical Instrumentation - I
• Open Elective - I
• IC Systems Lab
• MATLAB & Simulink

Fifth Semester

• Engg. Economics and Financial Management
• Microcontroller Based Systems
• Digital Signal processing
• Basic Clinical Science - I
• Biomedical Instrumentation - II
• Open Elective - II
• Microcontroller Lab
• Biomedical Instrumentation Lab - I

Sixth Semester

• Essentials of Management
• Digital Image Processing
• Basic Clinical Sciences - II
• Program Elective - I
• Program Elective - II
• Open Elective - III
• Signal and Image Processing Lab
• Biomedical Instrumentation Lab - II

Seventh Semester

• Program Elective - III
• Program Elective - IV
• Program Elective - V
• Program Elective - VI
• Program Elective - VII
• Open Elective - IV

Eighth Semester

• Industrial Training
• Project Work / Practice school

Minor Specialization

• Biomaterials
• Signal & Image Processing
• Business Management
• Computational Mathematics
Third Semester
- Engineering Mathematics - III
- Digital Graphic Design
- Material Science
- Offset Technology
- Audio Video Studios
- Electronic Media
- Material Quality Analysis Lab
- Digital Graphic Design Lab

Fourth Semester
- Engineering Mathematics - IV
- Flexography, Gravure and Screen Printing
- Digital Photography
- Animation Technology
- Digital Print Systems
- Open Elective - I
- Digital Photography lab
- Machine Lab

Fifth Semester
- Engineering Economics and Financial Management
- Sound Engineering
- Color Science and Technology
- Industrial Book Binding and Print Finishing
- Video Codecs and Standards
- Open Elective - II
- Sound Engineering Lab
- Color Analysis Lab

Sixth Semester
- Essentials of Management
- Video Production
- Packaging Design and Testing
- Program Elective – I
- Program Elective – II
- Open Elective – III
- Video Production Lab
- Binding and Packaging Lab

Seventh Semester
- Program Elective - III
- Program Elective - IV
- Program Elective - V
- Program Elective - VI
- Program Elective - VII
- Open Elective - I

Eighth Semester
- Industrial Training
- Project Work/Practice School

Minor Specializations
- Packaging Technology
- Film Production
- Business Management
Mechanical Stream

Program Structure

Mechanical Engineering

Third Semester
- Engineering Mathematics - III
- Thermodynamics - I
- Kinematics of Machinery
- Strength of Materials
- Material Science and Metallurgy
- Manufacturing Technology
- Computer Aided Mechanical Drawing and Modelling (CAMDAM) Lab
- Workshop Practice - I

Fourth Semester
- Engineering Mathematics - IV
- Thermodynamics - II
- Dynamics of Machinery
- Fluid Mechanics
- Metrology and Measurements
- Open Elective - I
- Strength of Materials Lab
- Workshop Practice - II

Fifth Semester
- Engineering Economics and Financial Management
- Turbo Machines
- Mechanical Design - I
- CAD - CAM
- Finite Element Methods
- Open Elective - II
- Mechanical Lab - I
- Metrology Lab

Sixth Semester
- Essentials of Management
- Heat Transfer
- Mechanical Design - II
- Program Elective - I
- Program Elective - II
- Open Elective - III
- Finite Element Methods (FEM) Lab
- Mechanical Lab - II

Seventh Semester
- Program Elective - III
- Program Elective - IV
- Program Elective - V
- Program Elective - VI
- Program Elective - VII
- Open Elective - IV

Eighth Semester
- Industrial Training
- Project Work /Practice school

Minor Specializations
- Machine Design
- Materials and Manufacturing Engineering
- Thermal Engineering
- Material Science
- Business Management
- Computational Mathematics
Mechanical Stream | Program Structure
Industrial & Production Engineering

Third Semester
- Engineering Mathematics - III
- Science and Mechanics of Materials
- Manufacturing Process Engineering
- Thermal Engineering
- Facilities Planning and Design
- Metrology and Measurements
- Computer Aided Mechanical Drawing
- Material Testing Lab
- Workshop Practice - I

Fourth Semester
- Engineering Mathematics - IV
- Manufacturing Automation Engineering
- Theory of Machines
- Fluid Mechanics and Machinery
- Work Systems Engineering
- Open Elective - I
- Thermo-Fluid lab
- Metrology Lab
- Workshop Practice - II

Fifth Semester
- Engineering Economics and Financial Management
- Operations Research
- Total Quality Management
- Design of Machine Elements
- Simulation Modeling and Analysis
- Open Elective - II
- Automation Engineering Lab
- Work Systems Engineering Lab
- Operations Research Lab

Sixth Semester
- Essentials of Management
- Operations and Supply Chain Management
- Tool Engineering and Design
- Program Elective - I
- Program Elective - II
- Open Elective - III
- Simulation Modeling and Analysis Lab
- Quality Engineering Lab
- Operations Management Lab

Seventh Semester
- Program Elective - III
- Program Elective - IV
- Program Elective - V
- Program Elective - VI
- Program Elective - VII
- Open Elective - IV

Eighth Semester
- Industrial Training
- Project Work /Practice school

Minor Specializations
- Industrial Management
- Manufacturing
- Material Science
- Business Management
- Computational Mathematics
Mechanical Stream | Program Structure Mechatronics

**Third Semester**
- Engineering Mathematics - III
- Sensors and Instrumentation
- Microcontroller based System Design
- Digital System Design
- Robotics - I
- Data Structures and Algorithms
- Sensors and PLC lab
- Microcontroller Lab
- Robotics Lab - I

**Fourth Semester**
- Engineering Mathematics – IV
- Linear Integrated Circuits and Applications
- Design of Machine Elements
- Linear Control Theory
- Automated Manufacturing Systems
- Open Elective – I
- Integrated Electronics Lab
- CAD and Kinematics’ Simulation Lab
- Manufacturing Processes Lab

**Fifth Semester**
- Engineering Economics and Financial Management
- Digital Signal Processing
- Electric Drives
- Theory of Machines
- Hydraulics and Pneumatics Systems
- Open Elective – II
- Robotics Lab - II
- Drives, Controls and Modelling Lab

**Sixth Semester**
- Essentials of Management
- Energy and Heat Transfer
- Automobile Engineering
- Program Elective – I
- Program Elective – II
- Open Elective – III
- Hydraulics Lab
- Pneumatics Lab
- IIoT Lab

**Seventh Semester**
- Program Elective – III
- Program Elective – IV
- Program Elective – V
- Program Elective – VI
- Program Elective – VII
- Open Elective – IV

**Eighth Semester**
- Industrial Training
- Project Work /Practice school
- Project Work (Only for B.Tech honour students)

**Minor Specializations**
- Robotics and Automation
- Industrial IoT Systems
- Electric Vehicle Technology
- Material Science
- Business Management
- Computational Mathematics
Mechanical Stream | Program Structure 

**Aeronautical Engineering**

**Third Semester**
- Engineering Mathematics - III
- Aircraft Structures
- Aerospace Materials and Manufacturing Technology
- Introduction to Aerospace Engineering
- Thermodynamics
- Fluid Dynamics
- Fluid Mechanics Lab
- Structures Lab

**Fourth Semester**
- Engineering Mathematics - IV
- Aerodynamics
- Aircraft Propulsion
- Flight Mechanics
- Linear Control Theory
- Open Elective - I
- Aerodynamics & Propulsion Lab
- Numerical Computational Lab - I

**Fifth Semester**
- Engineering Economics and Financial Management
- Flight Dynamics
- Gas Dynamics
- Aircraft Design
- Avionics and Navigation Systems
- Open Elective - II
- Geometric Modelling Lab
- Numerical Computational Lab - II

**Sixth Semester**
- Essentials of Management
- Theory of Vibrations
- Finite Element Method
- Program Elective - I
- Program Elective - II
- Open Elective - III
- Avionics Lab
- Structural Analysis Lab

**Seventh Semester**
- Program Elective - III
- Program Elective - IV
- Program Elective - V
- Program Elective - VI
- Program Elective - VII
- Open Elective - IV

**Eighth Semester**
- Industrial Training
- Project Work / Practice School

**Minor Specializations**
- Aerodynamics
- Material Science
- Business Management
- Computational Mathematics
Mechanical Stream

Program Structure

Automobile Engineering

Third Semester
• Engineering Mathematics - III
• Thermodynamics
• Fluid Mechanics
• Automotive Engines
• Materials Science and Metallurgy
• Strength of Materials
• Automobile Lab - I
• Geometrical Modelling Lab - I

Fourth Semester
• Engineering Mathematics - IV
• Linear Control Theory
• Automotive Transmission Systems
• Manufacturing Engineering and Technology
• Theory of Machines
• Open Elective - I
• Automobile Lab - II
• Materials Testing Lab

Fifth Semester
• Engineering Economics and Financial Management
• Metrology and Digital Manufacturing
• Automobile Chassis and Suspension
• Design of Machine Elements
• Combustion and Heat Transfer
• Open Elective - II
• Numerical Simulation Lab
• Automobile Lab - III

Sixth Semester
• Essentials of Management
• Theory of Vibrations
• Finite Element Method
• Program Elective - I
• Program Elective - II
• Open Elective - III
• Automotive Design Lab
• Vehicle Aerodynamics Lab

Seventh Semester
• Program Elective - III
• Program Elective - IV
• Program Elective - V
• Program Elective - VI
• Program Elective - VII
• Open Elective - IV

Eighth Semester
• Industrial Training
• Project Work/Practice School

Minor Specializations
• Automotive System Design
• Electric and Hybrid Vehicles
• Material Science
• Business Management
• Computational Mathematics
Third Semester
- Engineering Mathematics - III
- Fluid Mechanics
- Mechanics of Structures
- Highway Engineering
- Surveying
- Water Supply Engineering
- Surveying Practice - I
- Material Testing Lab

Fourth Semester
- Engineering Mathematics - IV
- Water Resource Engineering
- Engineering Geology
- Waste water Management
- Basic Reinforced Concrete Design
- Open Elective - I
- Building Material Technology
- Building Design and Drawing
- Fluid Mechanics Lab

Fifth Semester
- Essentials of Management
- Geotechnical Engineering
- Basic Structural Steel Design
- Analysis of Indeterminate Structures
- Construction Management
- Open Elective - II
- Soil Mechanics Lab
- Environmental Engineering Lab
- Computer Applications Lab

Sixth Semester
- Engineering Economics and Financial Management
- Applied Soil Engineering
- Railway and Airport Engineering
- Program Elective - I
- Program Elective - II
- Open Elective - III
- Estimation, Costing and Valuation Practice
- Structural Design and Drawing
- Surveying Practice - II

Seventh Semester
- Program Elective - III
- Program Elective - IV
- Program Elective - V
- Program Elective - VI
- Program Elective - VII
- Open Elective - IV

Eighth Semester
- Industrial Training
- Project Work /Practice school

Minor Specializations
- Building Construction and Management
- Environmental Engineering
- Transportation Engineering
- Water Resources Engineering
- Structural Engineering
- Geotechnical Engineering
- Material Science
- Business Management
- Computational Mathematics
Chemical Stream | Program Structure
Chemical Engineering

Third Semester
• Engineering Mathematics - III
• Physical and Organic Chemistry
• Chemical Process Calculations
• Momentum Transfer
• Particle Technology
• Chemical Engineering Thermodynamics - I
• Physical & Organic Chemistry Laboratory

Fourth Semester
• Engineering Mathematics - IV
• Chemical Engineering Thermodynamics - II
• Heat Transfer Operations
• Mass Transfer - I
• Chemical Process Industries
• Open Elective - I
• Numerical Methods for Chemical Engineers Laboratory
• Momentum Transfer & Particle Technology Laboratory

Fifth Semester
• Engineering Economics and Financial Management
• Mas Transfer - II
• Chemical Reaction Engineering
• Transport Phenomena
• Process Modelling and Simulation
• Open Elective - II
• Process Modelling and Simulation Laboratory
• Heat Transfer Laboratory

Sixth Semester
• Essentials of Management
• Design and Drawing of Chemical Process Equipment
• Process Dynamics and Control
• Program Elective - I
• Program Elective - II
• Open Elective - III
• Mass Transfer Laboratory
• Reaction Engineering and Process Control Laboratory

Seventh Semester
• Program Elective - III
• Program Elective - IV
• Program Elective - V
• Program Elective - VI
• Program Elective - VII
• Open Elective - IV

Eighth Semester
• Industrial Training
• Project Work/Practice School

Minor Specializations
• Petroleum Engineering
• Pollution Control Engineering
• Environmental Biotechnology
• Material Science
• Business Management
• Computational Mathematics
Third Semester
- Engineering Mathematics - III
- Bioprocess calculations
- Fluid flow operations
- Biochemistry
- Microbiology
- Cell Biology
- Biochemistry lab
- Microbiology lab

Fourth Semester
- Engineering Mathematics - IV
- Chemical and Biochemical Engineering Thermodynamics
- Principles of Heat and Mass transfer operations
- Downstream processes
- Molecular Biology & Genetic Engineering
- Open Elective - I
- Molecular Biology and Genetic Engineering Lab
- Unit Operations Lab

Fifth Semester
- Engineering Economics and Financial Management
- Bioreaction Engineering
- Separation processes
- Bioinformatics
- Bioprocess Engineering
- Open Elective - II
- Bioinformatics lab
- Downstream and separation processes lab

Sixth Semester
- Essentials of Management
- Animal, Plant Biotechnology and Bioethics
- Bioprocess control and instrumentation
- Program Elective - I
- Program Elective - II
- Open Elective - III
- Bioreaction Engineering and Bioprocess control Lab
- Animal, plant Biotechnology and Bioprocess Engineering lab

Seventh Semester
- Program Elective - III
- Program Elective - IV
- Program Elective - V
- Program Elective - VI
- Program Elective - VII
- Open Elective - IV

Eighth Semester
- Industrial Training
- Project Work /Practice school

Minor Specializations
- Environmental Biotechnology
- Pharmaceutical Biotechnology
- Material Science
- Business Management
- Computational Mathematics
Students' Major Projects – A Manipal Model for Experiential Learning

With easy access to resources, today’s children have ability for self-learning. They look for learning to be fun, hands-on, and experiential. Also, an engineering graduate is expected to have skillset to find solutions to problems of the society. Along with the domain specific knowledge, an engineer needs skills such as: Communication, Leadership, Teamwork, Problem Solving, Planning, Motivation & Enthusiasm, Adaptability & Flexibility, and Ability to Build Relationships.

With highly competitive market, human resource has become a critical resource. Corporates are looking at this resource to start contributing from day one. With knowledge-based economy, today’s engineers are expected to demonstrate their ability for lifelong learning. All these mandates engineering education to be experiential, practical, relevant, and up to date.

In India, entry into engineering institutions is highly competitive. With this, students have built-in competitive spirit. To foster this spirit, in 2007, Institute came up with the idea of ‘Major Student Projects’, wherein, institute provided infrastructure to build a technical project to compete in an international competition. Such an initiative was ‘Formula Manipal’, a student engineering project comprising of a group of undergraduate students aiming to conceptualize, design, fabricate, test and race a single seater, open-wheel Formula-style race car. Since its first competition in 2008, the team has participated in competitions in Italy, UK, Austria, Germany, and the Czech Republic.

The success of this has led to initiation of many more student teams. The year 2008 saw the start of ‘Team Manipal Racing’, off-road racing club to design and fabricate All-Terrain Vehicles according to the rules laid by SAE BAJA. Year 2009, AeroMIT was initiated to design, manufacture, and fly a complex, stable, and portable model aircraft with minimal empty weight, maximum payload carrying capacity; RoboManipal was started with an aim of taking part in robotics competitions like Robocon. Parikshit Student Satellite Team started in 2010 aims to build nanosatellites. Year 2011 was the beginning of ‘Solar Mobil’ with an aim of research & development of solar powered electric vehicle. Project Manas, aiming to develop an ‘autonomous drive system for vehicles’ optimized for Indian road and traffic conditions; Mars Rover Manipal, with a primary objective of building a Rover for University Rover Challenge was established in the year 2014.

Thrust MIT – working in the field of rocketry; R.U.G.V.E.D Systems – A.I. Defense Robotics team; DRONAID to provide engineering solutions to medical field using Drones; MotoManipal – building environment-friendly Electric Superbike; VISION – engaged in developing AR based applications; S.W.A.R.M – working towards development of Smart Wireless Autonomous Robots; Robotics and Circuits focused towards research and development in the field of robotics; Team Combat Robotics – working on combat robotics; Project AUV working on underwater robotics; Cryptonite – team of cyber security enthusiasts; loopMIT – active on SpaceX Hyperloop, and Manipal BioMachines – working on synthetic Biology are the recent additions to this list.

All these teams are interdisciplinary in nature, having student representation from first to final year. In the process of getting into the team, and selecting the members to the team, students learn to face and conduct interviews. With the team size ranging from 25 to 50, students learn to work in group. By working under tight schedules, they learn to meet deadlines. By submitting weekly progress report, by presenting weekly progress and scheduleing the task, they hone their documentation, presentation, and planning skills. To generate the financial support, they need to sell their idea to possible sponsors. In the process, they learn the marketing, budgeting, and accounting skills. Thus, with this activity, we have taken the learning experience beyond the classroom.

Projects being innovative in nature, these activities have seen many publications and start-ups coming out of these ventures. Institution also envisages more scope for publication and IPs. To enable this, teams have added a research wing.

You are encouraged to go through the video to get the feel of these activity

Dr Somashekar Bhat
Associate Director (Development)
Ph: +91 820 2924041
Email: soma.bhat@manipal.edu
Formula Manipal is a student engineering project based in Manipal, Karnataka. It comprises of a group of undergraduate students studying at Manipal Academy of Higher Education, Manipal who aim to design, conceptualize, fabricate, test and race a single seater, open-wheel Formula style race car. Since its first competition in 2008, Formula Manipal has come a long way. The team has participated in competitions at FS Italy, FS UK, FS Germany, FS Czech, FS Austria and Formula Bharat. Being one of the highly rated student projects of Manipal University and one of the best FSAE teams in India, Formula Manipal has scaled several heights on the student racing circuit.

• In 2008, the FM08 at Italy, received the Farthest travelled team award.
• 2009 saw the FM09 go to the UK, where the team stood 10th in the cost report.
• In 2010, the FMX team came 4th in the cost event in FS Austria and was the lightest India FSAE car that was also given the award of 'Most Motivated Team'.
• The FMXI team, which went to Italy in 2011, stood 16th in the cost event.
• FMX3 set the tracks blazing as FSG and FS Czech in 2013. With a personal best of 0-75m in 4.51 seconds, the FMX3 was the fastest Indian FSAE car. The team stood 2nd in the cost event at FSG, making Formula Manipal the first Indian team to achieve a podium finish at the competition. It was also the only Indian team to complete Endurance with Electro-pneumatic shifting.
• FMX4, the season 2014 scaled new heights at Formula Student India 2015 winning seven trophies and making two national records in all, after its show in FSG and FS Czech 2014.
• The season 2016 car, FMX6 came 3rd in the Design event at Formula Bharat 2017 after the events at FSG and FS Czech in 2016.
• FMX8, qualified and competed in Formula Student Austria. The car bagged 4 awards (1st in Business Presentation, 1st in Acceleration, 2nd in Design Event) in Formula Bharat 2019 along with standing 3rd overall among the 72 teams that participated. For the first time our Electric car participated in Formula Bharat and stood second in design event and 3rd overall among 22 teams.
• FM20 & FM20e, went out to compete in Formula Bharat 2020. The combustion car FM 20 emerged as the Autocross Winners and the team also bagged 2 special awards presented by Ather Energy, Bangalore. Both the cars qualified in Formula Student Austria, Hungary & Czech Republic for the 2020 Season.
In its 15th season, the team has evolved into a multidisciplinary organization with students from all branches of MIT participating in making not only electric & combustion racecars but a driverless racecar too. The team has spent nearly 2 years in the research & development of its driverless vehicle. The car will have its first prototype up and running by the end of 2021, making it, India’s first Driverless Racecar and Formula Manipal the only team in India to compete with all three categories of formula student racecars. The team of 60+ students working around the clock, often partnering up with Industry leading companies such as MATLAB, FESTO, Simscale, Ricardo etc. and active interactions with an alumni network comprising of 200+ members across the globe, makes sure that the team members acquire industry relevant skills with an overall personality development which helps them orient towards a better career path in the future. Apart from these awards and collaborations, the team have also been commended by big names from the world of automotive and racing, such as Claude Rouelle and Michael Royce. Having so much to match up to, the team is full of energy and enthusiasm and embodies the philosophy of our tagline - ‘ENGINEERED WITH PASSION’.

> Formula Manipal Team
1. Udit Rathee (Team Manager)
2. Vineet Maheshwari (Combustion Team Leader)
3. G.S Mounik (Electric Team Leader)

> Faculty Advisors
1. Dr Dayananda K Pai
   Dept. of Aeronautical and Automobile Engg.
   9731041646
dayanand.pai@manipal.edu
   For Combustion Team
2. Pramod Anthony D’sa
   Dept. of Electrical and Electronics Engg.
   8971316316
   pramod.dsa@manipal.edu
   For Electric Team

Links
- formulamanipal@manipal.edu
- https://www.formulamanipal.in/
- https://www.facebook.com/FormulaManipal/
- https://www.instagram.com/formulamanipal/?hl=en
- https://www.linkedin.com/company/formula-manipal/?viewAsMember=true
- https://www.youtube.com/user/formulamanipal96
- https://twitter.com/formulamanipal?lang=en
SolarMobil founded in 2011, is the official Solar Car team of Manipal Academy of Higher Education (MAHE). They are a team of passionate individuals who under the aegis of Manipal Institute of Technology (MIT) focus on the research and development of solar powered electric vehicles.

> **Vision**

To become a leading student center of research and development in the field of green transportation with a focus on Solar Passenger Vehicles in the next five years.

> **Mission**

To fabricate a high-performance cruiser class Solar Electric Vehicle and at the same time focus on practicality and feasibility of the vehicle for daily use, building upon the success of past projects.

They are an entirely student-run team started in 2011. They manufacture and assemble most of the parts required in-house. Most of their financing comes from industrial collaborators and these funds are completely dedicated to sourcing parts and tools to build the solar vehicles and cover travel expenses to national and international competitions.

Tata Power Solar, CEAT tyres, LPS Bossard, Wilwood, CF Composites, Delfingen and Gigavac are some of the esteemed organizations which have supported them throughout their journey. Their work has been covered by major online and offline publications such as BBC Auto, Times of India, The Economic times and NDTV auto among others.

They have built four prototypes namely: Freyr-1, SERVe, SM-S1 and SM-S2.

> **Team Achievements**

- Freyr1 made SolarMobil the 3rd ever Indian Solar Car team to fabricate a solar car from scratch.
- Freyr1 won consolation Prize at Manipal University Innovation day.
- SERVe was India’s first 2-seater Solar Vehicle.
- SERVe won 3rd Prize at CII India Innovation Challenge among 1500 entries.
- SERVe won QuEST Ingenium 2015.
- SERVe won 1st prize under category UJJWAL in IIT-Bombay Tech fest.
- SM-S1 won ASME SLDC 2016.
- SM-S1 was India’s First 4-seater Solar Vehicle.
- SM-S1 got 3rd place in Anveshan 2017.
- SM-S2 was invited to feature at the Champions of Champions 2019, Vijayawada and Future Mobility Show 2019, Bangalore by ISIE.
Current Project

The team is currently putting their efforts into building a single-seater solar racing car. With this, they plan on competing in the latest iteration of the Electric Solar Vehicle Challenge 2021 and the World Solar Challenge.

Solar Mobil Team

1. Namezeno P (Team Leader)
   +91 78926 18383
2. Aryan Philip (Team Manager)
   +91 9611216111

Faculty Advisor

Mr Umananda K. V.
Assistant Professor - Senior Scale
Dept. of Aero & Automobile Engineering
+91 9886423623
umananda.kv@manipal.edu

Links

- team.solarmobil@gmail.com
- http://www.solarmobilmanipal.in
- https://www.facebook.com/SolarMobilMIT
- https://www.instagram.com/solarmobil_manipal
- https://www.linkedin.com/company/solarmobil-manipal
MANAS as quoted in Sanskrit scriptures means higher intelligence. The project aims to develop an autonomous drive system for vehicles optimized for Indian road conditions. With over 259 applicants across the country from the finest educational institutions and professional start-ups applying for the “Driverless Car Challenge” as a part of Mahindra’s Spark the Rise event, Project MANAS qualified several stages of the competition and is proudly among the top 13 teams today. The team is the only undergraduate team among the top 13 teams.

As driverless cars gain popularity worldwide, India has a long way to excel in this field. The globalization of this technology has raised questions regarding the safety of the cars on the Indian roads. Tackling problems with smart solutions with diligent work is the key motive of the team. It all began in 2014 when Mr. Kumar Ranjan came across Mahindra’s One Million Dollar Challenge in which he wished to participate. The university has been very supportive and has provided a seed fund of 12 lakhs. Mahindra has also provided the Reva e2o on which the technology will be implemented.

Project MANAS is the grand prize winner and won the Lescoe Cup at Intelligent Ground Vehicle Challenge (IGVC) 2019, held in Michigan, USA. Progressing with new ideas and technology, the team aims to build an autonomous UAV and plan to participate in the next iteration on AUVSI SUAS competition at Maryland, USA.
> Project Manas Team

1. Harsh Barde (Technical Head)
   - Phone: +916362959071
   - Email: tech_head@projectmanas.in
2. Ritwik Agarwal (Team Manager)
   - Phone: +91 9608155006
   - Email: team_manager@projectmanas.in

> Faculty Advisor

Dr. Ashalatha Nayak
Dept. of Computer Science & Engineering
- Phone: +919481753598
- Email: asha.nayak@manipal.edu

> Address

Automobile Workshop, Near Kamath Circle
MIT, Manipal, Karnataka 576104

> Links

- projectmanas.mit@gmail.com
- www.projectmanas.in
This year the team achieved various technical milestones. The mechanical subsystem fabricated a custom 5 bar suspension helping the rover perform way better in ditches. The rover also featured a 3D-LiDAR, which was responsible for significantly improving its autonomous traversal capabilities, making it better than manual drive in many cases. The onboard science laboratory made the conduction of experiments faster and more reliable.

The Research subsystem is actively engaged in making a 7 DOF robotic arm employing inverse kinematics.

Owing to the excellent rover design, the current team has cleared the System Acceptance Review of URC 2020 and stood 7th worldwide. URC 2020 was called off, due to the pandemic. We are sure the team would ace URC 2021.

MRM also took part in Indian Rover Design Challenge (IRDC), organized by the Mars Society South Asia (MSSA), where the team stood 1st among 28 teams from 7 different countries. The competition was first of its kind and saw participation from well-renowned universities like University of Michigan, National University of Singapore, Warsaw University of Technology, Indian Institute of Technology, and National Institute of Technology.

Over the last 5 years team size has increased to 33 members working across various subsystems.
Mars Rover Manipal Team
1. Udit Sharma (Team Leader)
2. Parthivi Choubey (Team Manager)
3. Saisha Kashyap (Technical Head)
4. Abhiraj Tiwari (AI Head)
5. R Sidharth (Research Head)

Faculty Advisors
1. Prof. Navaneeth Krishna Vernekar V
   Dept. of Mechanical and Manufacturing Engg.
   +91 9742351485
   navaneeth.kv@manipal.edu
2. Prof. Ramakrishna Vikas S
   Dept. of Mechanical and Manufacturing Engg.
   +91 7795337657
   ramakrishnavikas@manipal.edu

marsrovermanipal@manipal.edu ; marsrovermanipal@gmail.com
www.marsrovermanipal.com
https://www.facebook.com/MarsRoverManipal/
https://instagram.com/marsrovermanipal?igshid=1ln2cwnqm683a
https://www.youtube.com/c/MarsRoverManipal
https://www.linkedin.com/company/marsrovermanipal
RoboManipal is the official robotics team of Manipal Institute of technology, Manipal. Its 35+ odd members are an amalgamation of robotics enthusiasts from multiple streams of engineering. Conceived 10 years ago, RoboManipal has been a home to some of the best and most innovative minds of MIT. The team specializes in robotic technology and works in synergy to continuously engage in the process of learning and effectively applying the acquired knowledge to constantly innovate.

Every year, RoboManipal represent the college nationally and internationally in various robotics competitions. The students brainstorm, design, construct and test robots based on unique problem statements derived from a variety of fields. The team participates in the biggest robotics competition in the Asia-Pacific region – ABU Robocon which calls for multiple robots to work in synchrony in a given area to finish a predefined task in a stipulated period of time. World Robot Olympiad (WRO) is another major competition in which the team participates. This competition gives the team an opportunity to develop their creativity and problem solving skills in a fun and engaging way. It also participates in hackathons like the IICDC, a national innovation Hackathon by Texas Instruments.

Over the years, Robomanipal has represented and won laurels, commendations, and has always persevered to improve on its outlook and success. Apart from competitions there members are also involved in lots of personal projects and are constantly incubating their unique ideas. Fracktal Works, Xes Automation, Virid, Strange Matter etc. are some of the startups that originated in RoboManipal. The team has also diversified its footprint into the field of research-oriented projects.

The team has come a long way since its inception, integrating innovative solutions for complex problems with the motto: DREAM – BUILD – ACHIEVE.
> **RoboManipal Team**
1. Kaustubh Kuvalkar (Team Leader)
2. Simran Malhotra (Team Manager)
3. Abhishek Deshpande (Coding Head)
4. Arthik Raj Jain (Electronics Head)
5. Harshvardhan Reddy (Mechanical Head)
6. Yashvi Garodia (Management Head)
7. Dhanush Verma (Advanced Robotics Research Head)

> **Faculty Advisor**
Mukund Kumar Menon
Assistant Professor - Senior Scale
Department of Instrumentation and Control Engineering

📞 +91 9481146651
✉️ mukund.menon@manipal.edu

> **Links**
✉️ team.robomanipal@gmail.com
🌐 http://www.robomanipal.com/
MotoManipal

Moto Manipal is a team of passionate, selfless and dedicated students from Manipal Institute of Technology which was founded in the year 2018. The students at Moto Manipal have devoted themselves towards making an efficient and environment-friendly Electric Superbike.

> Vision
The rise in global temperatures and the depletion of the ozone layer has caused a paradigm shift in global concerns for humanities future. MotoManipal hopes to do their bit for the environment and is inspired to build a vehicle based on a different technology using power-cells and Battery Management Systems, making it a rich tool for R&D in order to help shape the future of clean transport technologies.

> Mission
As a unified team of passionate and enthusiastic young students, we are determined to create a world-class superbike. MotoManipal is focused on conducting research in various aspects of EVs and aims to participate in national and international competitions. We are currently working on building an electric race bike to participate in MotoStudent

India-Electric which is to be held at the Kari Motor Speedway, Coimbatore in 2021. Furthermore, we aim to be one of the first Indian teams to participate in the prestigious competition - MotoStudent Electric which is to be held at Aragon, Spain in 2022.

> Achievements
MotoManipal participated in the Asian E Bike Challenge - 2019 in the month of September at Vishakhapatnam, Andhra Pradesh where 35 teams from all over India participated. MotoManipal secured prizes in the following categories:

- Best Commercial Bike (Winners)
- Best Aesthetics and Ergonomics (Winners)
- Best Innovation (Winners)
- Best Innovative and Cleanest Pit (Winners)
- Engineering Design (Runners Up)
- Business Plan (2nd Runners Up)
> MotoManipal Team
1. Rishabh Suri (Team Leader)  
   📞 7676207616
2. Arav Gupta (Team Manager)  
   📞 9731517216
3. Giridhar Rangarajan (Technical Head)  
   📞 6362940060

> Faculty Advisors
1. Prof. Mohan S. Kumar  
   Department of Electrical and Electronics Engineering  
   📞 9901731340  
   📧 mohan.ks@manipal.edu
2. Prof. George Varghese  
   Department of Mechanical and Manufacturing Engineering  
   📞 9900139847  
   📧 George.varghese@manipal.edu
3. Dr. Saikrishna Goud  
   Department of Electrical and Electronics Engineering  
   📞 9611135503  
   📧 goud.saikrishna@manipal.edu

> Links
- motomanipal@gmail.com
- https://motomanipal.in/
- https://www.facebook.com/MotoManipal
- https://www.instagram.com/motomanipal/
- https://www.linkedin.com/company/motomanipal/
Team Manipal Racing is the official Off-road racing team of MAHE. Every year our goal is to innovate, design, fabricate, test an ATV (all terrain vehicle), using various industry grade manufacturing processes, to participate in collegiate competitions organized by institutions like SAE. This is a place where we apply the concepts we have learnt of physics, designing, material properties, and so on.

TMR took up its first project, V1 which participated in SAE BAJA held in Wisconsin USA. It was the first Indian team to qualify for the competition and one of the two teams representing Asia. From V1 to V11 Team Manipal Racing has come a long way in making efficient and light weight ATV’s. Each team in the competition works as a pseudo company and is judged on the basis of various static and dynamic events. Our team is split into subsystems, wherein different members would specialize in different aspects of the ATV, as a matter of shared responsibility. Every season we start off by considering the decisions which worked out well for the previous year, and also the ideas which would need further development. All of our ideas come together after rigorous planning, and starting with, making a CAD design of all components of the ATV, and after series of iterations towards optimization, applying FEA, we start fabricating. A large chunk of fabrication is done in our well-equipped college workshop itself, including the chassis, using various tools and machines, and over the years, every single team member is quite well versed in the operation of these machines. A lot of calculations go into the selection of parameters which govern the design. Taking it a step further, we have used Data Acquisition systems to retrieve data on a live car, to correlate with our calculations, and validate them. This cycle repeats every year with new ideas and new challenges. It’s not just a race on track, these collegiate design competitions are a much bigger race off track in terms of design. From this year, we are starting a full electric power ATV team along with our combustion based ATV, which brings more opportunities and areas of study.
Team Manipal racing V10 officially ended its twelfth season bagging achievements at BAJA SAE India NATRAX, Pithampur, MP, Jan 2020 where the team has secured 25th in overall statics, 6th in acceleration, 11th in business presentation, and at Enduro Student India, Feb 2020 where the team secured 5th overall, 2nd in business presentation, 3rd overall dynamics. The team also participated in the SAE BAJA International, Louisville, KY, USA in a virtual event and secured 19th in design report evaluation and cost presentation, and 25th overall. The next car V11 and our first electric vehicle will be participating in BAJA SAE India 2021 and Enduro student India 2021.

> Team Manipal Racing Team
1. Kartik K. Badiger (Captain)
   ☎️ +91 9834698529
2. Vedant S. Murugkar (Vice-Captain)
   ☎️ +91 8291998017

> Faculty Advisor
Dr. Mahesha GT
Dept. of Aeronautical and Automobile Engineering
☎️ +91 9480572702

> Links
✉️ tmr.mit@manipal.edu
بث https://www.youtube.com/user/TMRBAJA
AeroMIT takes immense pride in being the official Aeromodelling and Drone Research Team of Manipal Academy of Higher Education. They design and fabricate UAVs for various research and competitive applications. Established in 2009, AeroMIT is now a team of over 30 interdisciplinary undergraduate students whose primary focus is to dive into the world of flight. Over the years, the Team has carried out extensive research and analysis and have had many significant achievements. Some of the projects completed in the past are Autonomous Flights, Vertical Take-Off and Landing aircraft, High Payload Flights, Object & Image Recognition and Blended Wing Body Aircraft.

AeroMIT consists of 5 interdependent subsystems;

1. The Advanced Drone Research does extensive work on various Autonomous Unmanned Aerial Vehicles having numerous real-world applications. The culmination of this research is the implementation of machine learning alongside cutting edge image processing technology.

2. Aerodynamics designs RC aircraft for various mission specifications utilizing the strong fundamentals of aircraft design philosophy and aerodynamic concepts. It is also tasked with documenting the design process of every project the Team undertakes.

3. The Inquisitive and innovative students of the Research and Development subsystem bring their prowess to the table through innovation and fluid thinking. These novel ideas are then implemented to solve real-world problems.

4. Structures and Composites are the highly skilled workforce that builds aircraft designed by Aerodynamics. Materials used in builds include fibre-reinforced polymers like carbon fibre, glass fibre, and hybrid fabrics.

5. Finally, Management ensures the smooth communication, coordination and collaboration of the Team through intelligent and efficient logistics handling. In addition, Management deals with the social media and finances of the Team, while simultaneously acquiring sponsorships from a vast network of industry contacts.
Every year AeroMIT takes part in the SAE Aero Design competition held in the USA. In the 2020 season, the Team secured 1st in the Technical Presentation with an overall world rank of 4. Prior to this, they have also achieved a worldwide rank of 5 and 7 in the 2019 and 2018 editions respectively. The Team also takes part in other national-level aeromodelling and flying competitions held at Sahyadri College of Engineering and IIT Bombay. Finishing at podium positions in the 2019 and 2020 editions respectively.

SkyRush- The only Aeromodelling and Flying competition held in Manipal, is also carried out by AeroMIT annually. This event saw participants from all over India and required them to build an RC Aircraft befitting to a Problem Statement that was released in advance. AeroMIT continually strives to evolve and achieve the unthinkable through their pioneering work in the field, taking forward a legacy built on the sole objective to Fly High.

>AeroMIT Team
1. Vishnu Latheesh (Team Leader)
   - +91 82378 04441
   - vishnulatheesh@gmail.com
2. Aditeya Gurumurthy (Team Manager)
   - +91 98428 73816
   - aditeyaguru@gmail.com

>Faculty Advisor
Kamlesh Kumar
Assistant Professor- Senior Scale
Department of Aeronautical and Automobile Engineering
MIT Manipal, MAHE
- +91 73488 52747 /7667100873
- kamlesh.kumar@manipal.edu

>Links
- aeromitofficial@gmail.com
- https://aeromit.in/
- https://www.facebook.com/aeromitmanipal/
- https://www.instagram.com/aeromitofficial/
- https://www.linkedin.com/company/aeromit/
Nanosatellite, or nanosat, is a relatively recent term used to describe artificial satellites with a mass of 1 to 10 Kgs. The term “nanosatellites” was introduced by NASA at around 2004. Nanosatellites are appealing because of their small size which makes them affordable and opens-up the potential for a swarm of satellites. From a military perspective, nanosatellites may be useful due to the redundancy it could offer. Parikshit Student Satellite Team was formed in September 2010 with 40 student members from across the departments of MIT. Their aim was to explore the fields of space science, and specifically, work on experiments that could be performed in space. It was a brave thought, an ambitious venture, but the team forged ahead doggedly. Satellite Deorbit using Electrodynamic Tether, conceptualized by Aditya Palta was termed “ingenious” by ISRO, the first of its kind experiment by an Indian satellite in space, and was reviewed by Dr DVA Raghava Murthy, then Director of Small Satellites, ISRO. After much thought, terrestrial thermal imaging was adopted as the satellite’s primary payload. In April 2011, Dr BN Suresh, Former director, IIST, Trivandrum reviewed the team’s progress. Parikshit has 6 subsystems constituting its team. They are, Payload—which is the purpose that the satellite will serve once it’s in orbit, Attitude Determination and Control System, Power, Communication, On-board Data handling and Structures & Thermals.
MIT student Adheesh Boratkar represented the University for testing Parikshit's Tether Deployment System in a zero-gravity parabolic flight at NASA. The team got a total of four flights of 30 parabolas in zero-G to experiment with the payload; deployer testing is a crucial phase, and to do it at NASA was a great achievement for the team. At present the team is about to go for environment test and qualification model review. After the successful completion of the same, is likely to hand over the final flight model to ISRO soon. Parikshit makes it easy to believe that Manipal students not only aim for the sky but are just as capable of reaching it.

Parikshit Team
1. Abhishek Agarwal (Systems Engineer)
   ☎ +91913580692
2. Madhav Brindavan (Systems Engineer)
   ☎ +919619054656

Faculty Advisor
Prof. Shreesha C.
☎ Mob No; 9448722353
✉ shreesha.c@manipal.edu
ThrustMIT is one of India’s top student-run rocketry teams. We aim to participate in the largest rocketry competition in the world, Spaceport America cup, held at Spaceport, New Mexico every year, which happens to be the biggest platform in the world for UG and PG students to showcase their Rocket Engineering skills. The competition also sees active participation from major aerospace companies. The Spaceport America Cup 2018 saw the debut participation of thrustMIT. The Team won the Spot award for the design of the rocket. We participated in the 10000 ft. category and used a COTS (Commercial of the shelf) rocket motor. thrustMIT launched its first sounding rocket Vyom, (standing 8ft tall and weighing 26kg), at the competition in 2018. The rocket, which was entirely made in-house, reached an apogee of 4000 feet, moreover, was recovered successfully. In 2019, our rocket Arya (8.2 ft tall and weighing 24 kgs) performed in the 10000 ft. COTS category and we were able to secure a spot award for Team Professionalism. Arya carried a functional payload used for testing vibration and damping effects of a non-Newtonian fluid using a MEMS accelerometer. This year’s rocket christened Phoenix will be showcased at the Spaceport America Cup 2021. We are also working on a unique Payload design, which is going to be implemented in Phoenix.

From day one, the Team is doing what it does best, working to promote, spread, foster, and bring about technological innovations in the ingenious field of rocketry. The Team has come a long way since its inception and is continuously working towards perfection. What initially started as a group of 6 amateur rocket enthusiasts has now grown into a well-oiled team of more than 41 Under-Graduate students working on continuous research and development of our current prototypes. We also engage in research and development and aim to obtain patents and publish scientific papers on various topics related to rocketry and are on the verge of creating the most powerful sounding rocket motor in India.
trustMIT Team
1. Sai Sankalp S (Team Leader)
2. Vandan Chinnappa M S (Team Manager)
3. Vedant R Chaudhuri (Structures Head)
4. Nirvik Choudhury (Propulsion Head)
5. Omkar Shelar (Avionics Head)
6. Priyank Agarwal (Payload Head-Avionics)
7. Yuvraj Jain (Payload Head-Mechanical)

Faculty Advisor
Mr. Srinivas G.
Dept. of Aeronautical and Automobile Engg.
+91 8123677706
srinivas.g@manipal.edu

Links
- team.manager@thrustmit.in; info@thrustmit.in
- www.thrustmit.in
- www.facebook.com/thrustMIT
- https://www.instagram.com/thrustmit
- https://www.linkedin.com/company/thrustmit/
Robotics and Circuits was founded in 2010 by Anuj Mangla, focused towards research and development in the field of robotics. With an ardour for teaching and a penchant for breathing life into novel ideas, the term "Engineering Creativity" is an apt description of the team that looks to make strides in robotics research. The members of the team strive to integrate their classroom knowledge with their creativity to make projects, in the field of robotics, which would leave an impact on the society.

Our team has a threefold vision EXPERIENCE, EXPLORE & INNOVATE. We ensure hands on experience in robotics and its allied fields to complement our course work and bridge the gap between imagination and innovation.

Vedanth is RnC's annual technical exhibition and innovation contest where our members present their technical acumen and the project which were made all around the year; the contest is open to engineering student all over the nation.

In the recent year, at Vedanth 9.0, we saw some great projects by our students, some of which are focused to solve major problems of the society. We displayed innovations like "Technofarm", a robot to help farmers analyze their crop quality, while "Cerebro", the mind controlled wheelchair, designed to help the paralyzed.

The winning innovation of Vedanth 9.0 was another RnC project, the "Friction Profile Generator" for its highly accuracy results. Our team continues to advance research on the same.

We also hold internal and external workshops round the year to educate our fellow students and introduce them to the world of robotics.

Our team is currently working towards participating in the "International Micromouse Challenge (IMC)", held at IIT Bombay, annually, in the month of December. The problem statement involves making a small but high-speed autonomous robot that can find its path through maze.

Robotics and Circuits has been featured in various media platforms both online and offline like Times of India, for the projects done by our members.
> **RnC's team**

1. **Titiksha Wagh** (Chairperson)
2. **Khushal Kapoor** (Team Manager)

> **Faculty Advisor**

Prof. Suhas Y. Nayak

📞 9845322150
✉️ suhas.nayak@manipal.edu

> **Links**

✉️ roboticsandcircuits.mit@gmail.com
🌐 www.roboticsandcircuits.com
✈️ facebook.com/RnCmanipal/
📸 instagram.com/robotics_and_circuits/
➡️ linkedin.com/company/robotics-and-circuits
The ultimate aim of the team is to develop its very own AR headset (something like the HoloLens or the Google Glass) that has a basic operating system of its own and apps that are powered by custom hardware designed by the students.

One of India’s first student team working on Augmented Reality, Vision was formed in May 2018. What was started by two friends as a simple endeavour to understand and learn about this new technology, Vision is now a team of 30 members working on developing a Virtual Positioning System by integrating Machine learning and Augmented Reality.

The ultimate aim of the team is to develop its very own AR headset (something like the HoloLens or the Google Glass) that has a basic operating system of its own and apps that are powered by custom hardware designed by the students.

Currently the team is building an AR navigation app that will map the campus and plans to release the app by September. It will identify buildings, landmarks, sign posts, etc in the route in real time and dynamically calculate the distance left while travelling from one point to another. There will be a pointer that would be visible throughout the journey directing the user to his destination along with other information about the surrounding buildings and landmarks that could be accessed by just tapping on them. This is pretty much like a Google map but with the key difference being the scale of distance. While there is a zoom in limit in Google maps, the Virtual Positioning System developed by the students will be solely for precise navigation through short distances.

The team members are planning to participate in Image Processing competitions and Unity creator challenges from next year after developing the app.
> **Vision Team**
1. Ananya Sharma (Project Head)
2. Rahat Santosh (Technical Head)
3. Hemant S Srivastava (Team Manager)
4. Krithika Ramesh (Research Head)
5. Eeshan Khan (Innovation head)
6. Chandrakanth Reddy (Artificial Intelligence head)
7. Abhigyan Gautam (Augmented Reality head)
8. Arihant Jha (Sensors and Systems Simulation head)
9. Jayteerth Gundigiri (Management head)
10. Trinay Mithra (Web dev head)

> **Faculty Advisor**
Dr. Hareesh K S
Dept. of MCA
📞 +91 9481509128
✉️ hareesh.ks@manipal.edu

> **Links**
✉️ projectvision.mit@gmail.com
🔗 https://www.facebook.com/projectvision/
RUGVED Systems is a multi-disciplinary team of engineering undergraduate students focused on building various robots for military defense and law enforcement applications powered by various cutting edge technologies. RUGVED stands for Remote Unmanned Ground Vehicular Electronic Defense. We conduct research on the deployment of robots for intelligence gathering, ordnance disposal, logistics, and search and rescue as well as combat operations. Our primary competition is the Annual Intelligent Ground Vehicle Competition (IGVC) held at Oakland University, Michigan, USA, but we participate in multiple Robotics competitions as well. RUGVED Systems participated in IGVC in the year 2018 for the first time and stood at 8th position worldwide in the Design Challenge. In just under 4 months of formation of the team, we had already won the National level Tata Pioneer's Makerthon - UAV Challenge at the Techfest 2017 IIT Bombay designing an Auto-Levelling UAV Launchpad and again in 2018. Members from the team won 2nd place in Ford GME Hackathon 2020. The team has also successfully published 2 Research papers this year. The team has been sponsored by well-known companies such as Nvidia, National Instruments, Sick, Hemisphere GNSS, Slamtec, Ansys, and many more. Currently, the team is building an autonomous reconnaissance vehicle that can traverse on land which houses a detachable drone and spherical bot for aerial and naval surveillance which can scout for enemy targets and activity as well as generate detailed maps to get a lay of the land.
> RUGVED Systems Team
Enrique Ferrao (Team leader)
☎ 8433946260

> Faculty Advisor
Prof. Satyakam Deo
☎ satyakam.deo@manipal.edu
☎ 9663611063

> Links
✉ rugved.mit@gmail.com
🌐 https://www.rugvedsystems.in/
🌐 https://m.facebook.com/rugvedsystems/
🌐 https://instagram.com/rugved_systems?igshid=12akmvrqisb4
🌐 https://www.linkedin.com/company/rugved-systems/
Manipal BioMachines is the official synthetic biology and genetic engineering student project of Manipal Institute of Technology. The project was founded on the 14th of March 2020. The team strives to address pressing global issues by designing and building long term, efficient and environment-friendly solutions using their knowledge in the field of bioengineering. Being the only project that explores the applications of engineering and biology together, Manipal BioMachines allows students to innovate alternate solutions to problems that could not be solved by conventional engineering or biological techniques.

**Vision**
Select a new problem statement each year and in efforts to bring out new and innovative solutions for the betterment of the society. Make the world a cleaner, greener and a safer place to live in. Compete in the annually held iGEM (International Genetically Engineered Machine) competition amongst other Hackathons/Innovation Fests and other synthetic biology competitions to give a platform to our ideas.

**Mission**
Our aim this year is to genetically engineer a bacterium that will be capable of converting methyl mercury and other organic mercury compounds into elemental mercury in conditions prevalent inside the human gut. Hence provide a proof of concept for the use of such engineered bacteria for probiotic applications.
> Objectives for 2020

- Theoretically design and develop a probiotic product based on inputs of industrial experts.
- Extensively survey the effects of industrial effluent discharge with the incidences of neurological disorders
- Deal with gut inflammation which may otherwise be a deterrent to the positive effects of the project.

> Manipal Biomachines Team

1. Varun Udaya Kumar (Team Leader & Dry Lab Head)
2. Niyati Sanghvi (Team Manager)
3. Soumodeep Sarkar (Research Head)
4. Shravan Balasubramanian (Wet Lab Head)
5. Navya Gupta (Wiki & Web Dev Head)
6. Sanya Lakhotia (Graphics & Media Head)

> Faculty Advisor

Dr. Ritu Raval
Department of Biotechnology
+91 90190 62782
ritu.raval@manipal.edu

manipalbiomachines.igem@gmail.com
manipalbiomachines.com
www.facebook.com/ManipalBioMachines
https://instagram.com/manipalbiomachines
loopMIT is a dedicated team of undergraduate students from various fields of engineering working on designing, developing, and building a sub-scale prototype transport vehicle known as the Hyperloop Pod to partake in the "SpaceX Hyperloop pod design competition," where a number of student teams from across the world participate to demonstrate the technical feasibility of various aspects of the Hyperloop concept. We aim to be the first Asian team to enter the competition with a levitating pod.

A Hyperloop is a mode of passenger and freight transportation, used to describe an open-source vacuum tube train design released by a joint team from Tesla and SpaceX. Hyperloop is a sealed tube or system of tubes through which a pod may travel free of air resistance or friction conveying people or objects at high speeds efficiently, drastically reducing travel times over medium-range distances.

The concept was unveiled in 2013 by Elon Musk—founder of SpaceX and Tesla, in which he proposed a "fifth mode of transport" comprised of pressurized capsules riding on an air cushion driven by linear induction motors and air compressors. In 2015, a design competition was announced for teams to build Hyperloop pods to operate on a SpaceX-sponsored track. If successful, this would revolutionize the field of transportation across the world.
> loopMIT Team

1. Jash Shah – Team Head
   ✆ 9699889554
2. Preyaan Gupta – Technical Head & Aerodynamics Head
   ✆ 9820240667
3. Kunal Thadani – Management and Web Development Head
   ✆ 9870601201
4. Aashish Kumar – Levitation Head
   ✆ 9545554110
5. Swethank Awasthi – Composites Head
   ✆ 9956002144
6. Nitin Nayak – Composites Head
   ✆ 7026162877
7. Karan Kapoor - Vehicle Dynamics Head
   ✆ 8310564321
8. Anirudh Sivakumar – Electronics Head
   ✆ 7299903688

> Faculty Advisor

Santosh Kumar Choudhary
Assistant Professor (Department of Mathematics)
 ✆ 9945871746
 ✉ santosh.kumar@manipal.edu

> Links

✉ loopmit2019@gmail.com
✉ loopmit2019@manipal.edu
✉ www.loopmit.in
✉ Loop MIT
✉ loopmit
✉ loopMIT
✉ loopMIT
Team AUV Manipal

Established in 2019, Project AUV Manipal, MIT’s official underwater robotics student team, is a group of individuals brought together by a common interest in exploring the field of underwater robotics. We aim to conceptualize, design and fabricate Remotely Operated Vehicles (ROVs) and Autonomous Underwater Vehicles (AUVs) for both research and competitive purposes.

AUVs are self-guiding and self-powered vehicles, making them attractive options for industries and fields of study that require venturing into depths not accessible to humans, such as ocean-based research. They can be configured with different sensors and communication systems to provide real-time information back on land or to a ship over the horizon. The challenge remains to make AUVs intelligent enough to perform their tasks, identify problems, and adapt to different situations.

Our prime focus in terms of research is development of autonomous vehicles and systems for defense applications, marine propulsion systems, usage of navigation systems for digital twinning, applications of metal matrix composites, underwater photogrammetry and object modelling using cameras.

Our flagship competition is Robonation’s RoboSub, an international underwater robotics competition held in the United States of America, where we represent our college every year. The problem statement given encourages us to further our research effort in the field while inculcating industry-level practices and professionalism. The behaviors expected of these experimental AUVs mimic those of real-world systems, currently deployed around the world for underwater exploration, seafloor mapping and sonar localization, amongst many others. We also participate in SAUVC, a primary underwater robotics competition held in Singapore.

The team is divided into 4 sub-systems, namely – Mechanical, Electronics and Electrical, Artificial Intelligence and Coding, and Management.

Using state-of-the-art tools and technology, the various subsystems have been working on the design and fabrication of our AUV and aim to have the first iteration manufactured by the end of 2020 in preparation for RoboSub 2021.

In a short span of time, the team has seen tremendous growth in terms of knowledge acquired and imparted, and further aims to put this knowledge to good use and strive for greater heights in the years to come.
AUV Manipal Team
1. Prakhar Srivastava (Team Leader)
2. Hardik Joshi (Team Manager & Management Head)
3. Rishabh Kala (Electronics Head)
4. Kunwarhargovind Singh (Mechanical Head)
5. Kartikeya Mehrotra (AI & Coding Head)

Faculty Advisor
Mr. Vijay Kumar Pandey
Dept. of Mechatronics Engineering
+91-9415011994
vk.pandey@manipal.edu

Links
- projectauvm@gmail.com
- https://www.facebook.com/ProjectAUVM
- https://instagram.com/project_auv_manipal
TEAM COMBAT ROBOTICS founded in 2018, is a team of enthusiastic undergraduate students from different factions of engineering, working on building efficient combat capable robots. TCR has built the first horizontal bar spinning robot in southern India. Working with different sub-system, TCR manages to design, built and put together mechanical and electrical aspects of the bot in its own workshops.

> **Vision**

To build the best bots, cause no unnecessary harm and to compete in various national and international robotics events held in India.

> **Mission**

To be one of the technical student projects to design, fabricate and manufacture innovative combat robots and at the same time focus on the practicality and feasibility of the bots in the combat arena.

TCR has built bots for 3 event catalogs: RoboWars, RoboSoccer and RoboSumo, and participated in various events annually.

- The team participated in BITS Pilani Quark 2019 and made it to the quarter finals in the RoboSoccer event.
- In the 2019 MIT TechTatva the team reached semi semi-finals.
- The team has also participated in IIT Bombay Tech Fest.
- The team also participates in various local college tech fests around Manipal.
TCR has managed to build several arena ready robots, that are strategically built with defensive and offensive features to ensure a thrilling match in the arena. The catalogue includes robots for:

**RoboWars:** Buffed and equipped with weapons, these metal piercing giants are designed sturdy for pure destruction and built to take a beating.

- **Trigger:** 45kg bot, equipped with a powerful drum weapon and an anti-wedge design, capable of lifting the opponent bot and feeding it to the drum spinner.
- **Alpha Raptor:** 40kg bot, equipped with a horizontal spinner weapon capable of delivering greater impact force.
- **Viper:** 30kg bot, has a zero-ground clearance knife edged wedge design.
- **Aura:** 15kg bot, equipped with a drum weapon powered by a propeller drive. It is the first wireless operable bot by TCR.
- **Shadow:** 15kg bot, equipped with a single tooth vertical spinner, and operable wireless through a RF controller.

**RoboSoccer:** Sleek and light bots, designed for swift movements to tackle the opponent, control the ball and score a goal.

- **Dark:** 5kg bot, with a kick mechanism and operated wireless through a RF controller.
- **Aryan:** 5 kg bot, with a catch mechanism and operated wireless through a RF controller.

**RoboSumo:** Tactical bots, built to hold one’s ground and strategically through the opponent off balance.

- **Nitro:** 5kg bot, with a push mechanism and operated wireless through a RF controller.

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**Team Combat Robotics Team**

1. Franklin Almeida (Leader)
2. Rohit Kini and Ananth Pai (Mechanical Leader)
3. Suhail Shetty and Raghavendra (Electronics Leader)
4. Herschelle and Abhinav Rao (Management Leader)

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**Faculty Advisor**

C.S. Suhas Kowshik  
Assistant Professor  
Mechanical and Manufacturing Department  
8105088163  
suhas.kowshik@manipal.edu
Cryptonite is the official ethical hacking and cybersecurity team of MIT. We focus our work in the fields of cryptography, cyber forensics, reverse engineering, binary exploitation and web exploitation. As a team, we strive to develop a keen interest in cybersecurity and to provide a conducive environment in order to hone the necessary skills required not only to compete in CTF (Capture the Flag) competitions with teams from all over the world throughout the year but also to carry out research. We follow a three-stage development process for every recruit, the initial stage being an in-depth understanding of traditional methods and techniques, followed by their application and finally, we encourage them to incorporate other fields of science with cybersecurity.

Since being founded in 2018, we have consistently improved our ranking on CTFtime. Our team member, Abhay Nayar, came in 2nd in InCTF held by Amrita University in Aug 2019. We ended 2019 with a national rating of 40 amongst 1955 teams throughout the country. We currently hold the 28th position in the country and are amongst the top 2% teams all over the world (as of July 2020).
> Cryptonite Team
1. Cynthia Maria Dsouza (Team Manager)
   📞 9769301831
   💌 cynthiamrd2014@gmail.com
2. Numan Zaheer Ahmed (Tech Head)
3. Aman Priyanshu (Tech Head)
4. Pranshu Kumar (Cryptography Head)
5. Gauri Bhardwaj (Forensics Head)
6. Navya Newatia (Web Exploitation Head)
7. Rajat Agarwal (Reverse Engineering Head)

> Faculty Advisor
Mrs. Nisha P Shetty
Dept. of Information & Communication Technology
📞 +91 9663757321
✉️ nisha.pshetty@manipal.edu

> Links
✉️ teamcryptonite18@gmail.com
🔗 https://github.com/Cryptonite-MIT
🔗 https://www.facebook.com/cryptonitemanipal/
🔗 https://instagram.com/cryptonite_mit?igshid=kte0s63rszbl
🔗 https://www.linkedin.com/company/cryptonite-mit
Dronaid

Dronaid is a one-of-a-kind student project initiated in an effort to make healthcare more accessible and hassle-free in India by means of incorporating artificial intelligence (AI), Unmanned Aerial Vehicles (UAV) and app development in building a network of healthcare systems and bring about practical clinical applications in accidents and emergency services at the community level.

> Team Background

In recent years, use of Unmanned Arial Vehicles (UAV) have shown transformative results in the field of farming, defense and energy production. Recognizing this development and in efforts to take it a step further, Project Dronaid was initiated, in a unique collaboration between the students of Manipal Institute of Technology and Kasturba Medical College.

The team is dedicated towards building an “Autonomous Drone System” (using an Artificial Intelligence (AI) configuration/interface) that not only navigates on its own but also can make important in-flight decisions like determining shortest route and terrain assistance. These independent drones can then be integrated into what we call a “drone network”.
Applications

• As a transport vehicle: To carry small loads like oxygen cylinders, drug kit with essential drugs, blood and IV fluids in appropriate containers to satellite areas.
• First aid kit with user manual or onboard instructions via webcam.
• Tourniquets to stop bleeding or inflatable splints to support fractured limbs, cervical immobilizers for trauma patients.
• Monitoring and procurement of water or air samples, for research in the field of public health.

What makes this project so unique?

• There is active research being carried out worldwide to integrate Artificial Intelligence and medicine and success of Dronaid will be a significant milestone in the same.
• Searching for solutions in the field of public health, which could boost up the status of the existing National Health Policies in practice, saving precious labor and financial resources.
• Monitoring of the trends of various seasonal diseases could be carried out more efficiently, hence enabling a prompt and effective administration of preventive public health measures.
• An overall improvement in the healthcare services provided

Dronaid Team

1. Mourya Kudaravalli
   • +91 9182681973
   • dronaid@manipal.edu

2. Siddhesh Kharwandikar
   • +91 8879000927
   • dronaid.care@gmail.com

3. Swathi JR
   • +91 8217848774
   • jrswhathi99@gmail.com

Faculty Advisor

Kamlesh Kumar
Assistant Professor- Senior Scale
Department of Aeronautical and Automobile Engineering, MIT Manipal, MAHE
• +91 73488 52747 /7667100873
• kamlesh.kumar@manipal.edu

Links

• http://www.dronaid.in
• https://www.facebook.com/dronaid.care
• https://www.instagram.com/project.dronaid
• https://in.Linkedinn.com/company/dronaid
Established in 2017, the team S.W.A.R.M Robotics is to make a collective of multiple autonomous entities which are virtually independent of each other but interact and communicate with each other to reach a common goal, which may be simple tasks like mapping an unknown environment or complex tasks like performing search and rescue tasks in high-risk environments, hereby reducing the risk to human life.

Currently, the team is working on advanced sensors and drivers being used by the team as a test bench for research in the field of autonomous swarms with a focus to make them more efficient and faster.
> S.W.A.R.M ROBOTICS Team
1. Vedant Walia (Team Leader)
2. Maheep Raj (Technical Advisor)

> Links
swarm@manipal.edu

> Faculty Advisor
Mrs Shweta Vincent
Department of Mechatronics Engineering
ounsel 9940359329
Email Shweta.vincent@manipal.edu
New Facilities

MIT Food Court - 2

Considering the increasing in number of students in campus, second Food Court construction has already started nearer to hostel blocks. Area: 32,270 SFT; capacity 1500 students with a project cost of INR 9 Crores.

MIT Ladies Hostel Block

With the increase in the number of girl students in campus, new hostel block for ladies has been constructed.
Area: 1,00,890 SFT,
Capacity: 500 students
Estimated Cost: INR 27 Crores

Student Plaza

Student Plaza (near Kamath Circle, MIT) is a place earmarked for cultural and extracurricular activities. It is expected to take the vibrant life of MIT to the next level with amenities such as the amphitheater and the student corner. Area: 26,000 SFT, with a project cost of INR 7 Crores.
New Facilities

**MIT-KEF R & D Center**

This is with support from one of MIT’s distinguished alumni, Mr Faizal Kottikollon. In a move that will work towards providing a cutting edge research & development facility to upcoming civil engineering and architecture students, MIT has tied up with KEF Holdings, a Singapore-based multinational holding company that specializes in innovative offsite construction technology, to set up a state of the art R&D Center.

The R&D Center will provide budding engineers with practical know-how about offsite construction and would enrich the research and academic curriculum. Area: 28,000 SFT with a project cost of INR 16 crores, with an equal contribution from both partners. Expected to be ready by May 2019.

**MIT TechShop**

To encourage experiential learning, a new facility is proposed to house student major projects (like, Formula car, all-terrain vehicle, etc). This will also host industry competency center in the area of automobile engineering. Area: 91,000 SFT, cost: INR 30 Crores.
Student Clubs / Chapters

> Technical Clubs

- ACM Manipal
- AeroMIT
- Akshay Urja Club
- American Society of Civil Engineers
- Apple Developer Group (ADG), Manipal
- ASME
- BMESIMC (Biomedical Engineering Society of India, Manipal Chapter)
- Data Science Lab
- Developer Student Club
- Engineers Without Borders
- Formula Manipal
- GDG Manipal
- IAESTE/AIESEC
- IE Aerospace
- IE Civil
- IE E&E
- IE Mechanical Students' Chapter
- IE Mechatronics Student's Chapter
- IEBt
- IECSE
- IE-EE
- IEEE SBM
- Indian Institute of Chemical Engineers Manipal Students' Chapter
- ISA Manipal Student Section
- ISOI Manipal
- ISTE
- Laksha - The Agri Club
- Linux Users’ Group Manipal
- Manipal Information Security Team
- Mars Rover Manipal
- MEGA
- MIT Gaming
- MUTBI Student Entrepreneurship cell (SEC)
- Open Source Technology Forum
- Parikshit Student Satellite Team
- Project MANAS
- Research Lab
- Regex
- RoboManipal
- Robotics and Circuits: Technical Students’ Chapter
- SAE-IM
- SolarMobil
- Teach Code for Good
- Team Manipal Racing
- The Astronomy Club, Manipal
- thrustMIT
- Verde Manipal
- TechCroft

> Non Technical Clubs

- Aaina Dramatics
- ADA
- Blank-101
- Blitzkrieg Dance Crew - INDIA
- Burning Ice
- CurioCity
- E.C.H.O. Manipal
- Economics and finance society of Manipal
- Ek Sangharsh
- Glam and Glitz
- Goonj
- LDQ
- Leaders of Tomorrow
- Manga and Anime Club, MIT
- MIT Live
- Music and Fine Arts Club (MAFIA)
- Naqaab Filmmaking
- Placement Club
- RedX
- Scio Foundation
- Sports Club
- The Photography Club Manipal
- The REAPERS Dance Crew
- The ShowStoppers
- The Think Tank
- Human Powered Endeavors
- Yes!+ Club, Manipal
- Chords & Co
- The Psych Club, Manipal
- Rotaract Club of Manipal
Students' Technical Fest - TECHTATVA
Students' Cultural Fest - REVELS
Students' Sports Fest - REVELS CUP
Manipal Institute of Technology
Manipal - 576 104, Karnataka, India
Tel: 0820 2571060  Fax: 0820 2571071
E-mail: office.mit@manipal.edu
Website: www.manipal.edu