AMRITA
VISHWA VIDYAPEETHAM
U N I V E R S I T Y

श्रद्धावान् लभते ज्ञानम् Established u/s 3 of the UGC Act 1956
A multi campus university accredited by NAAC with 'A' grade

Information Handbook

For M.Tech Programmes Offered at

Amrita Schools of Engineering

Amritapuri   *Coimbatore*   *Bengaluru*

Handbook Contents

Introduction

Amrita Vishwa Vidyapeetham is an internationally acclaimed University that aims at creating professionals who will be driven by a firm commitment to excellence, yet rooted in the rich cultural heritage of our nation. This Multi-Campus University, with headquarters at Coimbatore and having campuses in Amritapuri, Bangalore, Kochi and Mysore, is accredited by National Assessment and Accreditation Council (NAAC), Government of India, with 'A' grade. AMRITA has also been ranked in the ivy league of Indian universities along with Indian Institute of Science, Bangalore, Tata Institute of Fundamental Research (TIFR), Mumbai etc. in the review of Deemed Universities constituted by the Ministry of Human Resource Development (MHRD) of the Government of India. AMRITA is placed in Category 'A' in this review, which is popularly known as the Tandon Committee report conducted by a high power committee consisting of reputed academicians. Amrita is fast emerging as a pioneering Research cum Teaching Institution molding a new generation of engineers, doctors, managers, healthcare and media professionals, scientists and entrepreneurs of caliber and character.

The engineering schools at Amritapuri, Bangalore, and Coimbatore are offering Under Graduate and Post-Graduate programmes including Ph.D. in various disciplines of engineering. The two – year post graduate programme leads to an M.Tech. degree, for which the admission is on an all India basis. Candidates who satisfy the eligibility criteria stipulated by the University can apply.

Amrita is committed to provide the best career opportunities to its students by maintaining close rapport with the corporate, identifying potential recruiters and organizing campus recruitment. The meticulously planned and executed placement programme for students who have been put through a well structured training schedule has contributed to the high percentage of student placements in reputed organizations like TCS, Microsoft, Wipro, L&T, Infosys, Patni, Cognizant, Caterpillar, Hindustan Motors, HP, HCL, Accord Soft, Honey Well, I - flex, Mind Tree etc. More than 200 Companies visit the campus regularly to meet their human resource needs.

This handbook contains general information and rules relating to the M.Tech admissions 2016 and other relevant details. Candidates are required to go through the handbook carefully and acquaint themselves with the procedures relating to the admission. The contents of the handbook are subject to modification as may be deemed necessary by the University. The decision of the University will be final and binding on any issue related to the admission.

Why Amrita M.Tech Program?

Program Offering & Quality

- 25 program offerings that span a wide range of specializations across three campuses.
- Ranked **No. 1 Private University** in India by TIMES- THE BRICS and Emerging Economies Ranking 2015.
- Re-accredited with an **'A' grade by NAAC** and Placed in the **'A' category by MHRD**, India

Scholarships & Fees

- All GATE Scholars can avail Rs. 12,400 monthly stipend as Amrita University is approved by UGC / AICTE.
- Top 20% non – GATE students of every M. Tech. program will receive an attractive monthly stipend of Rs. 5000 provided by Amrita University.
- Educational loans with concessional rates and quick approval with partnered banks.

Fellowships

- Fellowships from prestigious institutions and organizations are available for the following programs.
  - M.Tech. - Computational Engineering & Networking
  - M.Tech. - Cyber Security
  - M.Tech. - Cyber Security Systems & Networks
- Fellowship funding will be provided to selected meritorious students in these programs.

Admissions

- Simple, easy admissions process. Apply Online or Download Information Handbook and mail application.
- Direct admission for GATE qualified students.
- All non – GATE qualified students go through an Amrita entrance interview or test.

Placements

- More than 200 industrial tie-ups.
- Highest CTC/salary Rs. 75 Lakhs.
- Up to 4 Job offers per student.
- Placement and six month Internships at Multinational Companies such as Google, Microsoft, Intel, Cisco, ABB, Wipro, Cerner, Bosch, Honeywell, TCS, Zoho etc.

Dual Degrees

- Direct admission and funding eligibility to partner International Universities in US, Europe to earn Dual Degrees- M. Tech. & M. S. in 2 years.
- Participate in 'Semester Abroad Program' and choose amongst more than 60 foreign universities across Europe, US, and Asia.

World Class Facilities

- State-of-the-art class rooms, 100+ top notch labs, workshops and well-equipped library.
- Adjunct Faculty from US and Europe Universities, teaching and guiding students.
- Scenic, healthy and student friendly campuses.
- Excellent hostels for boys and girls with Wi-Fi.
- Indoor/outdoor sports facility including Gym and Olympic size swimming pool.

Amrita M.Tech Information Handbook*

Campuses & Programmes

Coimbatore Campus Amrita School of Engineering, Amritanagar P.O., Ettimadai, Coimbatore – 641 112, TamilNadu, India. Admission Enquiry: 0422 – 2685169 / 170 Email: mtech@amrita.edu	• Automotive Engineering • Bio-Medical Engineering • Communication Engineering & Signal Processing • Computational Engineering & Networking • Computer Science & Engineering • Computer Vision & Image processing • Control & Instrumentation Engineering • Cyber Security • Embedded Systems • Engineering Design • Manufacturing Engineering • Material Science • Power Electronics • Remote Sensing & Wireless Sensor Networks • Structural & Construction Engineering • Renewable Energy Technologies • VLSI Design
Bangalore Campus Amrita School of Engineering, Kasavanahalli, Carmelaram (P.O), Bangalore – 560 035, Karnataka, India. Admission Enquiry: 07022588703 Email: mtech@amrita.edu	• Computer Science & Engineering • Computer Science & Engineering - Data Science **(Part-time)** • Communication Engineering & Signal Processing • Embedded Systems • Power Electronics • Thermal Science & Energy Systems • VLSI Design
Amritapuri Campus Amrita School of Engineering, Amritapuri, Clappana (PO) Kollam – 690525, Kerala, India Admission Enquiry : 0476 – 280 4537 Email: mtech@amrita.edu	• Computer Science & Engineering • Control & Instrumentation Engineering • Cyber Security Systems & Networks • Computer Science & Engineering-Internet Technologies • Power& Energy • Robotics & Automation • Thermal & Fluids • VLSI Design • Wireless Networks & Applications

Eligibility

A pass with 60% marks in BE / B.Tech / M.Sc. in the relevant area of specialization or equivalent qualification mentioned below each specialization.

Automotive Engineering	Bio-Medical Engineering
• Mechanical Engineering • Automobile Engineering • Production Engineering • Mechatronics Engineering • Materials Engineering • Aerospace/Aeronautical Engineering • Electrical and Electronics Engineering	• Electronics & Communication Engineering • Electrical and Electronics Engineering • Electronics & Instrumentation Engineering • Bio Medical Engineering • Mechatronics Engineering • M.Sc. Electronics • M.Sc. Physics with Electronics as one of the subjects
Computational Engineering and Networking	**Computer Science & Engineering**
B.E./ B.Tech Degree with Minimum 60% marks or equivalent grade in any branch of engineering or equivalent or M.Sc. Maths / Physics/Computer Science (60% minimum).	• Computer Science and Engineering • Information Technology • Electronics and Communication Engineering • Electrical and Electronics Engineering • Electronics & Instrumentation Engineering • MCA / M.Sc. in Computer Science / Software Engineering
Computer Science & Engineering- Data Science (Part-time)	**Computer Science & Engineering-Internet Technologies**
• Computer Science and Engineering • Information Technology • Electronics and Communication Engineering • Electrical and Electronics Engineering • Electronics & Instrumentation Engineering • MCA / M. Sc. in Computer Science / Software Engineering	• Computer Science & Engineering • Information Technology • Electronics & Communication Engineering • MCA / M.Sc. in Computer Science / Software Engineering or equivalent

Computer Vision and Image Processing	Communication Engineering & Signal Processing
• Electronics and Communication Engineering • Electrical and Electronics Engineering • Electronics and Telecommunication Engineering • Instrumentation and Control Engineering • Computer Science and Engineering • Information Technology • Electronics and Instrumentation Engineering • MCA / M.Sc. in Computer Science / Software Engineering	• Electronics and Communication Engineering • Electronics and Electrical Engineering • Electronics and Instrumentation Engineering • Telecommunication Engineering • Applied Electronics • Information Technology and Communication
Control & Instrumentation Engineering	**Cyber Security**
• Electrical and Electronics Engineering • Electronics and Communication Engineering • Electronics and Instrumentation Engineering	• Computer Science & Engineering • Information Technology • Electronics & Communication Engineering
Cyber Security Systems & Networks	**Embedded Systems**
• Computer Science & Engineering • Information Technology • Electronics & Communication Engineering • Electrical and Electronics Engineering • Electronics and Instrumentation Engineering • MCA / M.Sc. in Computer Science / Software Engineering or equivalent	• Electronics & Communication Engineering • Electrical & Electronics Engineering • Computer Science and Engineering • Information Technology • Electronics & Instrumentation Engineering • Instrumentation & Control Engineering
Engineering Design	**Manufacturing Engineering**
• Mechanical Engineering • Automobile Engineering • Production Engineering • Manufacturing Engineering • Metallurgical Engineering • Industrial Engineering • Aerospace Engineering • Civil Engineering	• Mechanical Engineering • Automobile Engineering • Production Engineering • Manufacturing Engineering • Metallurgical Engineering • Industrial Engineering • Aerospace Engineering • MSc Material Science

Material Science & Engineering	**Power Electronics**
• Chemical Engineering • Biochemical Engineering • Metallurgical Engineering • Materials Science & Engineering • Mechanical Engineering • Polymer Engineering • Petroleum Engineering • Petrochemical Engineering • Aerospace Engineering • Civil Engineering • M.Sc. Degree Physics / Chemistry or allied disciplines	• Electronics & Communication Engineering • Electrical & Electronics Engineering • Electronics & Instrumentation Engineering • Electronics & Telecommunication Engineering • Instrumentation & Control Engineering
Remote Sensing and Wireless Sensor Networks B.E./B.Tech degree with Minimum 60% marks or equivalent grade in any branch of Engineering or equivalent or M.Sc.Maths / Physics / Computer Science (60% minimum).	**Power & Energy** • Electrical & Electronics Engineering
Renewable Energy Technologies • Electrical Engineering • Electrical & Electronics Engineering • Electronics Engineering • Electronics & Communication Engineering • Mechanical Engineering • Mechatronics Engineering • Production Engineering • Instrumentation Engineering • Aerospace Engineering	**Robotics & Automation** • Computer Science and Engineering • Mechanical Engineering • Electronics & Communication Engineering • Electronics & Instrumentation Engineering • Electrical & Electronics Engineering
Structural & Construction Engineering B.E/B.Tech Degree in Civil Engineering with minimum 60% marks or equivalent grade.	**Thermal Science & Energy Systems** • Mechanical Engineering • Automobile Engineering • Aeronautical Engineering • Chemical Engineering • Production Engineering • Manufacturing Engineering • Industrial Production Engineering

Thermal & Fluids Engineering	VLSI Design
• Mechanical Engineering • Automobile Engineering • Chemical Engineering • Aerospace Engineering	• Electronics & Communication Engineering • Electronics & Instrumentation Engineering • Electrical & Electronics Engineering • Instrumentation & Control Engineering
Wireless Networks & Applications • Electronics & Communication Engineering • Electrical & Electronics Engineering • Electronics & Telecommunication Engineering • Instrumentation & Control Engineering • Computer Science & Engineering • Information Technology • MCA / M.Sc. in Computer Science / Software Engineering/ Electronics Science or equivalent	

Duration of the Programme

M.Tech -2 Years (4 Semesters)   M. Tech (Part Time) - 3 Years (6 Semesters)

How to Apply

Cost of Application: Rs. 960/-.

1. Apply online: http://amrita.edu/joinmtech. Pay either online or by demand draft*. If you are paying as demand draft, print the application after filling it online and send the same with the demand draft*.
2. Fill the application form printed in the last pages of this Handbook. Tear it and send it along with the demand draft*.
3. Application forms may also be obtained by post from the Admission Coordinator of Amrita Schools of Engineering at Amritapuri, Bangalore or Coimbatore (address given below) on a written request indicating their full address together with the demand draft*.

*demand draft shall be drawn in favour of "Amrita School of Engineering" payable at:
Coimbatore for Coimbatore campus
Kollam for Amritapuri campus
Bengaluru for Bengaluru campus.
The amount on DD will be Rs.960. Send the filled application to the respective campus of your choice. Candidate should indicate the name behind the demand draft). Please keep a photocopy of the Demand Draft with you for future reference). If you wish to apply to two different campuses, use different applications

Filled in applications shall be sent to the following address for Amritapuri, Bangalore and Coimbatore campuses, according your preference.		
The Admission Co-ordinator, Amrita School of Engineering, Amritapuri, Clappana (PO), Kollam – 690525, Kerala, India. Tel: 0476-2801280 Fax: 0476 - 2896178 Email: mtech@amrita.edu	**The Admission Co-ordinator,** Amrita School of Engineering, Amrita Vishwa Vidyapeetham, Kasavanahalli, Carmelaram(P.O), Bangalore 560 035, Karnataka. Phone: 080 – 25183700 E-mail : admissions@blr.amrita.edu	**The Admission Co-ordinator**, Amrita School of Engineering, Amrita Vishwa Vidyapeetham, Amritanagar (P.O), Ettimadai, Coimbatore 641 112, Tamil Nadu. Phone: 0422 – 2685169 / 2685170 E-mail : admissions@amrita.edu

Selection Procedure:

- GATE qualified students get preference for admission. They do not need to attend the interview.
- Non – GATE Students are admitted based on their academic record and performance at the interview.

Financial Assistance:

- GATE qualified students are eligible for GATE scholarships of Rs. 12400 per month for all approved M.Tech Programs. This scholarship is directly given by AICTE to qualified students.
- Students with excellent academic record are eligible for Additional University Scholarships (Rs. 5000 per month). Scholarship will be given based on academic record and performance at the interview.
- Educational Loans also available at special interest rates at partnered banks for all applicants.

General Guidelines:

- Mere submission of the application does not guarantee admission to the programme.
- Admission will stand cancelled automatically if the candidate fails to join the University on the specified date.
- All the relevant original Certificates / mark statements should be submitted at the time of interview or on the stipulated date.
- The candidate should submit the completed application to the respective campuses according to the first preference/ choice of campus. The address of the campuses is as follows.
- Online application shall be submitted with the demand draft of Rs. 960/-.

Enquiries:

Email: mtech@amrita.edu	**PHONE** General enquiries: 09487919470 Amritapuri: 0476 280 4537 Bangalore: 070225 88703 Coimbatore: 0422-2685169 / 170

Fee Structure

Sl.No	Head	Term	Amritapuri (In Rs)	Bangalore (In Rs)	Coimbatore (In Rs)
1	Tuition Fee*	Per Semester	50000	50000	50000
2	Additional Charges	Annual	30000	32500	36500
3	One Time Charges	One Time	2000	2500	2500
4	Caution Deposit (Refundable)	One Time	5000	3000	5000
	TOTAL		**87000**	**88000**	**94000**

Tuition Fee for Computer Science & Engineering - Data Science (Part-time)-Bangalore campus is Rs.75,000 per semester. Tuition fees for all other specializations is Rs.50,000 per semester.

HOSTEL CHARGES

Sl.No	Head	Term	Amritapuri (In Rs)	Bangalore (In Rs)	Coimbatore (In Rs)
1	Room Rent	Annual	18000	29500	24000
2	Establishment Charges	Annual	9500		15000
3	Medical Fees	Annual			2000
4	Caution Deposit	One Time	5000	5000	5000
	TOTAL		**32500**	**34500**	**46000**
	Mess Charges	**Annual**	**36000**	**41000**	**45000**

Refund Rules:

Refund of fees will be made as per the regulations of the Govt. of India. If a student admitted to the M.Tech programme withdraws from the programme before the starting of the classes, the fees collected from the student will be refunded after deducting a processing fee of Rs.1000/-. If a student leaves after starting of the classes, but before closing of the admission, and if the seat consequently falling vacant is filled by another candidate before the last date of submission, the University will return the fees collected with proportionate deductions of monthly fees. If the vacant seat is not filled up as above, the fee will not be refunded. No refund will be given to a student leaving after the closing of admissions. The date of closing of admissions will be announced by the University.

M.Tech Programmes in Nutshell

Automotive Engineering (Coimbatore)

Automotive Engineering is now in the forefront of engineering development concerning the materials, design process, manufacturing techniques with application of computer software programs and electronic control systems. It is regarded as an exciting topic area but globally it is a highly competitive industry where engineers require a sound understanding of engineering principles and also be able to demonstrate a clear application of the principles within the automotive domain. Additionally the aspiring automotive engineer should be able to think ahead and work on the future demanding requirements of the society. India being recognized as a hub for the global players creates a demand for such a course and is deemed appropriate at this juncture.

The M.Tech is designed to satisfy the needs of the graduate engineers with appropriate background, who wish to specialize their careers towards automotive engineering and automotive system design.

Further the program provides an opportunity for the students to pursue internships in Automotive / Allied companies and in organizations such as CVRDE, NAL, HAL, ARCI and in European Universities under Indo-European initiative. In addition, students are encouraged to participate in the funded research projects sponsored by Technical partners such as ATS and organizations like DST, DRDO, ISRO and AICTE. Meritorious students will be offered teaching assistantship.

Core Courses
- Computational Mathematics
- Automotive Chassis Systems
- Internal Combustion Engines I
- Materials Engineering
- Automotive Embedded Systems I
- FEA/CAE/Computational Tools Lab
- Vehicle Dynamics
- Automotive Emissions and Control
- Automotive Manufacturing Techniques
- NVH and Refinement
- Seminar on Advanced Topics
- Transmission Systems
- Vehicle Systems Design
- Minor Project

Electives
- Automotive Standards and Regulations
- Hydraulics and Pneumatics
- Design for Manufacturing, Assembly and Environment
- Vehicle Body Engineering
- Automotive Safety
- Automotive Embedded Systems II
- CAE for Automotive Applications
- Internal Combustion Engines -II
- MEMS(Micro-Electro Mechanical Systems)
- Sensor and Technologies for Automotive Applications
- Automotive HVAC, Cabin Comfort and Ergonomics

- Dissertation

- Off-Highway Mobility
- Quality and Reliability
- Alternate Propulsion Technology
- Testing and Validation
- New Product Development
- Tribology and Preventive Maintenance

Bio-Medical Engineering (Coimbatore)

The aim of the post graduate program in Bio-Medical Engineering is to integrate technology with the medical sciences in such a manner that the synergistic relationship between them can help evolve a better system for medical diagnosis, treatment, research and support systems. It is envisaged that at the end of the program, the student would be in a position to understand the fundamental biological and engineering processes involved as well as to develop creative ideas for the early detection and identification of various biological signals. It is also expected that the student of the program would be able to come up with algorithms for the successful and objective interpretation of biological data. The course deals with biomedical electronics, the quantitative and analytical skills required to interpret the data acquired and the processing of medical data including imaging and enhancement techniques. It is intended to equip the engineer with the skills and knowledge required to interact knowledgeably with medical practitioners so that both professions may benefit. It goes without saying that the program is interdisciplinary, drawing content from a variety of areas like chemistry, medicine, physics, electronics and mechanical engineering, to name a few.

Medical practice has become highly sophisticated, relying heavily on machines, for diagnosis and support. Modern hospitals therefore, require competent biomedical engineers, who can help the medical personnel, communicate with the highly complex equipment and make sense of the bewildering variety of information provided by them. Biomedical engineers are also in demand with equipment manufacturers, who require experts who are well versed with both the engineering and medical aspects of their equipment. Moreover, with the increase in automation and computerization of medical diagnosis and treatment, biomedical engineering offers ample scope for research in diverse areas like instrumentation, signal and image processing, biomaterials and biomechanics. As such, a student of the post graduate program in biomedical engineering can expect to have bright career prospects, be it in the industry, academia or research.

It is expected that at the end of the program, the student would be equipped with the knowledge and the skills required to become a truly world-class biomedical engineer, ready to embark on a career in either the industry or to undertake independent research.

Core Courses	Electives
• Probability and Statistics	• Nano materials for Biomedical Applications
• Anatomy and Physiology	• Bio photonics
• Signal Processing	• Diagnostic and Therapeutic Equipment
• Analog and Digital Electronics	• Ergonomics
• Bio software Engineering	• Drug Designing and Delivery Systems
• Research and Medical Ethics	• Advanced Signal Processing
• Biomedical Instrumentation	• Bio Mechanics
• Medical Imaging Techniques	• Medical Informatics and Telemedicine
• Embedded Systems for Bio medial Applications	• Biosensors
• Biomaterials	• Virtual Instrumentation for Medical Systems
• Biomedical Image Processing	• Bio fluid Mechanics
• Seminar	• Tissue Engineering
• Internship	• Biomedical Nanotechnology
• Minor Project	• Laser Instrumentation for Biomedical Applications
• Dissertation	• Methods for Medical Diagnostics
	• Principles of Hospital Management
	• Computer Communication and Networking
	• Electromagnetic for Biomedical Applications

Communication Engineering & Signal Processing (Bengaluru & Coimbatore)

Communication is one of the fastest growing segments of the industry. It has experienced exponential growth over the last decade. The explosive growth of high speed Communication Systems offers a bright future for Communication Engineering field. Signal processing is an area of systems Engineering, Electrical Engineering and Applied Mathematics that deals with the operations or analysis of signals in either continuous or discrete time. This programme is an advanced level course in the field of Communication Engineering and signal processing offering specializations in terms of technology and applications to fulfill the requirements of the industry.

The M.Tech in Communication Engineering and signal processing offers exposure to state -of the-art in Communication, signal, image and video processing applications. It is a potential platform for pursuing several high profile research and projects to enable external funding from various agencies and technical support from industries working in communication devices, automobiles, aerospace and control fields. Sufficient faculty expertise with varied research background in communication and signal processing enhance excellent value to the programme.

The curriculum is designed to balance theoretical content and practical skills. This will enable the students to develop specialist knowledge and skills relevant to the industry. They should be able to identify principles of signal processing and communications, elaborate the principles in scientific and technological terms. The course will appeal to graduates who wish to pursue a career in a range of industries such as communications, radar, medical imaging and wherever communication with signal processing is applied. The designed curriculum is used to develop core competencies in the areas such as Digital Signal Processing, Wireless and Mobile Communications, RF circuits and systems, Multirate Signal Processing for Communications, Software Defined Radio, Millimeter Wave Engineering, Image and Video Processing, Speech/Audio Information Processing, Sparse signal and Image Processing etc. The curriculum includes extensive laboratory courses to impart training with hardware platform using FPGA's to implement signal processing and communication techniques. The lab is also equipped with Xilinx Integrated Software Environment (ISE) and Vivado systems for high level synthesis with high speed FPGA boards.

Core Courses

• Mathematics for Communication Engineering
• Signal Processing
• Wireless Communications
• RF Circuits and Systems
• Estimation and Detection Theory
• Cultural Education
• Adaptive Signal Processing
• Mobile Communication Systems
• System Modeling and Simulation
• Multi rate Signal Processing for
• Communication Systems
• Speech & Audio Processing
• Satellite Communication

Electives

• Wireless Networks and Protocols
• Wireless Ad hoc, Sensor Networks and Applications
• Broadband Networks
• Millimeter Wave Engineering
• Radar Systems
• Optical communications
• IP Networks and Architecture
• Multimedia Communications
• Mobile Computing
• Computer Vision and Pattern Recognition
• Security and Cryptography
• Error Correcting Codes
• Wavelets & Applications

• Image & Video processing
• Bio-medical signal Processing
• Software Defined Radio

Computer Science & Engineering (Amritapuri, Bengaluru, Coimbatore)

This M. Tech. programme aims at preparing the students to take up application, research and development activities in core and some emerging areas in Computer Science like machine learning, architecture, intelligent systems and networks, vision and high performance computing. The programme includes advanced level courses in Computer Architecture, Algorithms. The programme also has a focus on AI and AI related applications in a distributed computing environment. Students can choose an array of electives leading to the specialization in the following streams

- Machine Learning & Data Science
- Architecture & Systems
- Networks & Intelligent Systems
- Computer Vision & Image Processing
- High Performance Computing.

This programme will provide a strong basis in Computer Science for those who opt for a serious career in industry. The purpose of the programme is to generate human resources capable of supporting R & D activities in critical areas like automated, secured, monitoring and surveillance systems, medical imaging & diagnostics, intelligent monitoring systems, robotics, document imaging etc. The diversity of platforms available for implementation and the huge volume of data available for analysis, knowledge mining activities associated with biological systems, medical field, data related to climate changes etc. attract employment opportunities. Students have abundant opportunities to pursue internships in major companies and R&D labs like ISRO, NPOL, and DRDO etc.

The department hosts the following advanced research labs for the benefit of M.Tech students to gain hands-on training and exposure in cutting-edge areas:

- Amrita Multi Dimensional Data Analytics Laboratory to support projects in Pervasive computing, Big Data Analytics, Web Science etc .

- Amrita Cognizant Innovation Laboratory to support projects in Robotics, Artificial Intelligence and Security.
- Wireless Sensor Networks Lab to support projects in Wireless sensor networks for societal applications, Cognitive radio networks
- Mobile Application Development Lab to support projects in App development, Information security.

Core Courses

- Modern Computer Architecture
- Advanced Algorithms and Analysis
- Operating System Design
- Advanced Computer Networks
- Distributed Systems

- Advanced Database Design
- Machine Learning
- Information Security
- Minor Project
- Dissertation

Electives

- Compiler Design
- Computational Intelligence
- Information Retrieval
- Pattern Recognition: Approaches and Applications
- Natural Language Processing
- Mobile and Wireless Networks
- Distributed Computing
- Computational Statistics
- Spatio-Temporal Databases
- Mobile Computing
- Machine Learning Applications
- Semantic Web
- High Performance Computing – Recent Trends
- Business Intelligence

Computer Science & Engineering- Data science (Part time) (Bengaluru)

Data science has been in the forefront providing techniques to handle the flood of big data generated across the world. Statisticians and Computer Scientists together are developing the skill set required to collect, process and extract meaningful information from large and diverse data sets. Data visualization allows a way to understand the big data. Data scientists are required by every industry, government organization, and Internet start-ups to financial institutions to handle big data projects at every level.

Estimation by McKinsey and other agencies has reveled that by 2018, there is requirement for more than 2 million data scientists and 1.5 million managers and analysts who understand how to use big data to make decisions.

This post-graduate programme, which specializes in Data Science along with core Computer Science & Engineering, is aimed at enhancing the skill set of engineers to be data scientists. The programme also has adjunct faculty members from industry to share real time case studies.

Some of the industries employing data scientists include:

- Pharmaceuticals
- Computer Software
- Internet
- Research
- IT and Services
- Biotechnology

For all non-CSE background students a bridge course to be offered for first 3 weeks.

Bridge courses:

- Computer Programming
- Data Structures & Algorithms
- Database Management Systems

Core Courses	Electives
• Mathematical Foundations for Computer Science	• Object Oriented Design
• Introduction to Machine Learning	• High Performance Computing
• Parallel Computer Organization	• Parallel and Distributed Computing
• Data Mining	• Cloud Computing
• Advanced Databases	• Data Security
• Advanced Algorithms and Analysis	• Functional Genomics/Bio Informatics
• Data Analytics	• Storage Management
• Computational Intelligence	• Information Retrieval
• Data Visualization	• Business Intelligence
	• Natural Language Processing
	• Semantic Web

Computer Science & Engineering- Internet Technologies (Amritapuri)

Traditional methods of teaching and learning are proving themselves to be inadequate in terms of quality and reach to meet the needs of society today. The right blend of

technology and pedagogy, which would help learners look at innovative means of teaching and learning, is becoming more relevant by the day. The growth of Massive Open Online Courses (MOOCs), online educational programs, innovative distance education courses etc. are examples of this phenomenon. The next generation of education technologies is facilitating substantial change. E-Learning technologies are evolving beyond lecture and group work to games, simulations, and augmented reality. Software is creating environments where students can direct the creation of their own knowledge with nearly invisible prompts from teachers.

Given the emergence of various forms of technology-enabled learning, there is an increasing need to understand, apply and appreciate various kinds of technology that facilitates the acquisition of a variety of learning goals for different learners, contexts, courses, and curricula. This program aims to achieve the above by equipping students with knowledge in pedagogy, instructional technology, and computer science. The vision of this program is to establish an evolved culture of learning and teaching using the most innovative means of information technology and pedagogical principles in the country and on a global level.

This involves equipping the students with the necessary knowledge, skills and outlook in technology in order to lead the field of E-Learning.

On successful completion of this program, the student will be able to: appreciate and evaluate technology related to learning to make it specifically context- relevant and involve in designing, developing, and applying new interactive educational tools to empower teaching-learning for different levels of learning in a wide range of contexts. A lot of companies across the globe have risen today that are dedicated to helping educators use technology effectively. Many of these companies did not even exist five years ago and are still small, but together they demonstrate the reality that technology can transform the classroom. Another factor is the breakthrough in which high quality digital content has been entering the educational stream for the students who complete successfully this program.

Core Courses	**Electives**
• Modern Computer Architecture	• Design of Internet Applications
• Advanced Algorithms and analysis	• Collaborative Internet Applications

- Systems security
- Mathematical Foundations for Computer science
- Parallel and Distributed Systems
- Internet Networking
- Enterprise Architecture

- Psychology of Internet Users
- Information Retrieval
- Multimedia Systems
- Machine Learning

Computer Vision and Image Processing (Coimbatore)

In recent times, there has been a dramatic increase of image and video data in every conceivable field due to the proliferation of digital capture devices and also due to the internet increasingly becoming a multimedia phenomenon. Consequently, the field of Computer Vision and Image Processing has emerged as a promising field of study and research due to its wide spread applications in managing the huge influx of image and video data.

Computer Vision started with building machines that can visualize data like human and give inputs for robots; and now has wider objectives to serve applications such as search engines, computational photography, medical imaging, vision for computer graphics and many more. Areas like document and medical image analysis are also developing rapidly. The field of robotics has abundant potential to serve in medical surgery, defense, home security and the community at large.

With the advancements in supportive technologies such as digital cameras and video equipments, Computer Vision and Image Processing will become increasingly more capable and affordable as well.

The issues and scope for research in this area of specialization are so vast that it is vital to offer a specialized programme in this area. With this as the goal, the University is offering a two year M.Tech programme in Computer Vision and Image Processing. The objective is to create professionals and researchers with the necessary expertise to handle the various real-world problems where image processing techniques might provide robust solutions.

The programme includes core courses in Digital Image Processing, Signal Processing, Video Processing, and Computer Vision with the necessary background covered in mathematical courses. The programme has an intensive course work for three semesters with suitable elective courses followed by a dissertation where the students would conduct research in this field of study. The department has a well established research

facility, "Amrita – Cognizant Innovation lab" which would help the students to build applications on real-time image and video data.

Students have abundant opportunities to pursue internships in major companies and R&D labs like ISRO, NPOL etc. Bright career opportunities are available to students in top companies and

Core Courses	Electives
• Computer Graphics	• Digital Video Processing
• Digital Image Processing	• Multi core Architecture
• Image Analysis and Compression	• Virtual Reality and Applications
• Pattern Recognition & Machine Learning	• Multidimensional Digital Signal Processing
• Computer Vision	• Principles of Multimedia Databases
• Advanced Computer Vision	• Document Image Analysis
• Algorithms and Data Structures for Image Processing	• 3-DModellingforVisualisation
• Problem Solving and Programming Paradigms	• Video Analytics
• Linear Algebra	• Medical Image Analysis
• Optimization Theory	• Embedded Systems in Robotics
• Minor Project	• Geographic Information Systems
• Dissertation	• Cluster Analysis
	• Content based Image and Video Retrieval
	• Information Security
	• Computational Intelligence for Image Processing
	• GPU Architecture and Programming

Computational Engineering and Networking (Coimbatore)

Computational Engineering is a broad, rapidly growing multidisciplinary area that encompasses applications in science/engineering, applied mathematics, numerical analysis, and computer science. Going from application area to computational results requires domain expertise, mathematical modeling, numerical analysis, algorithm development, software implementation, visualization and validation of results.

Computational Engineering makes use of the techniques of applied mathematics and computer science for the development of problem-solving methodologies, which will be the building blocks for solutions to scientific engineering problems of ever- increasing complexity. It differs from mathematics or computer science in that analysis and methodologies are directed specifically at the solution of problem classes from science and engineering, and will generally require a substantial collaboration from those

disciplines. On the other hand, it is certainly more than using software packages to generate and visualize the results, since it also concerns the development of algorithms for solving scientific and technical problems. Today, many problems in science and engineering can be treated only by means of efficient use of computers. Computation is now regarded as an equal and indispensable partner, along with theory and experiment, in the advancement of scientific knowledge and engineering practice. Numerical simulation enables the study of complex systems and natural phenomena that would be too expensive or dangerous, or even impossible, to study by direct experimentation.

Centre has collaboration with several IITs , CDAC s, and DRDO in areas like "Big data analytics for Business Intelligence", "Big data for Cyber Security" , "Big data analytics for Social network data analysis" , and "Indian language processing for mobile applications". Centre is also doing sponsored research in the areas like "Computational drug discovery" and "GIS & spatial intelligence".

Centre has facilities for doing research also in "Embedded Computing and Control "(with FPGA) , "3D printing" (additive manufacturing) and "data-driven cyber security". In the academic side, Centre provides 60 elective courses so that student can specialize in any one of the sub domain like Big data and Cyber security, Big data and Business Intelligence, Big data and social network data analysis, Natural language processing, Embedded Computing and Control, Additive Manufacturing. Several alumni of CEN have their own companies any many have done and doing research from well known US and European universities. This strong alumni network facilitates CEN students to get into core companies and research positions abroad.

CEN faculties have published several renowned books in the area of Data Mining, Machine learning, Signal processing, Image Processing and Computational Drug Discovery. New books are under preparation in the areas like Big data analytics and spatial intelligence.

Core courses
- Computational Linear Algebra and its Application
- Fundamentals of Embedded Computing
- Variation Methods and its Applications
- Computational Optimization Theory – Linear and Non-Linear Methods
- Advanced Data Structures and Algorithms
- Computational Thinking –I
- Signal Processing and Pattern Classification
- High Performance Computing

- Probability and Graphical Models
- Scientific Computing
- Computational Thinking –II

Electives for Embedded Computing and Control

- Real Time Systems
- 3D printing
- Software defined radio radar and Networks
- Embedded Computing for Big data
- Open CL computing with CPU,GPUs and FPGAs
- Big data and Internet of Things
- Software Defined Networks
- Security in Distributed Systems
- Introduction to Additive Manufacturing
- Introduction to Manufacturing Process
- 3D Computer Aided Design Solid Works

Electives for Big data Analytics

- Data Mining and Machine Learning
- Support Vector Machines and Kernel Methods
- Neural Network and Deep Learning
- HPC and Big Data Analytics
- Mobile Applications of Language Technology
- Intrusion Detection Systems
- Big data analytics and Apache spark Scala for HPC
- Big data analytics for cyber security
- Software and Hardware Security
- Advanced Methods in Machine Translation
- Distributed Computing and Big Data: Hadoop and Map Reduce Text Analytics

Control & Instrumentation Engineering (Amritapuri, Coimbatore)

Control and Instrumentation has wide range of applications starting from day to day life to space exploration. In today's information age, many businesses are placing increasing demands on real time accessibility in order to improve business planning and decision making, and to access information that can demonstrate their economic and environmental performance. Rapid advancement in technologies also provides challenges as businesses need assurance that their control system investments will deliver efficient operational performance of their plants and economic returns, with minimal risk of technological obsolescence. Hence control and instrumentation systems

not only play important roles in plant operation, but also in reducing the cost of production while maintaining and/or enhancing safety. Therefore, it is extremely important that control and instrumentation systems are managed efficiently and economically. With the increasing use of digital technologies, new methods are needed to solve problems associated with various aspects of digital control systems.

M. Tech. program in Control and Instrumentation Engineering is intended to explore the above mentioned challenges and also initiate research activities. This program provides necessary theoretical background with a good blend of applied mathematics along with in-depth coverage in analysis of various control and instrumentation systems. The core courses include automatic, economic, efficient and reliable control and instrumentation with a wide range of electives in robotics, flight dynamics, electric drives, power system, micro controllers etc.

Core courses	Electives
Applied Mathematics	Microcontrollers & Applications
Advanced Control Systems	Computer Controlled Systems
Control System Design	Intelligent Control
Instrumentation Systems	Virtual Instrumentation
Digital Control Systems	Operation & Control of Power Systems
Control and Instrumentation Laboratory	System Identification & Parameter Estimation
Cultural Education	Modeling and Simulation
Optimal and Adaptive Control	Power Plant Instrumentation
Non linear System Analysis	Power Electronic Converters
Process Control and Instrumentation	Robust Control
Thesis – Preliminary	Bio Medical Instrumentation
Thesis – Final	Robotics Control
	Electrical Drives & Control
	Industrial Load Modeling & Control
	Flight Dynamics & Control
	Embedded System Control

Cyber Security (Coimbatore)

Amrita's M. Tech. Program in Cyber Security started in 2006 is the first of this kind in the country. TIFAC (Technology Information Forecasting and Assessment Council), Dept. of Science and Technology, Govt. of India identified the Centre for Cyber Security at Amrita Vishwa Vidyapeetham, Coimbatore as a CORE (Centre Of Relevance and Excellence) in September 2005. The unique aspect of this CORE is to bring together partnering

industries and academia to create innovative educational and research programs and develop world-class expertise in Cyber Security.

The curriculum is updated every two years and sometimes sooner to include the most current topics like Secure Coding, Cyber Forensics, Secure System Engineering and Android Security-keeping pace with security incidents and research for building world-class expertise not only for meeting the current security challenges but foreseeing future needs as well.

AICTE approved program: Eligible for GATE scholarship. DRDO approved program for sponsoring staff under R&T scheme. Students are placed in premier security companies such as Symantec, VeriSign, Palladian Networks, RSA, Amazon and VMware.

Research Areas: The centre is pursuing various research projects with Govt. agencies in the area of Cryptology, Visual Cryptography, Steganalysis, Secure Coding, Web Security, Intrusion Detection and Prevention. Our M. Tech. students work as interns in premier security companies in their final semester for completing their dissertation work relating theory to practice and become conversant with all aspects of Security – theoretical, developmental, research and operational.

The Centre conducts technical symposiums periodically, inviting speakers and participants from the Academia, Industry and Govt. Research Organizations to increase the awareness of threat evolution and to impart new knowledge on security products, practices and current research topics. The centre has also a strong and vibrant alumni base, many of them occupying coveted positions in many educational, industrial and research organizations all over the world. Visiting faculties from the Industry and foreign universities are involved to have a good mix of Security Theory and Practice.

Core Courses	**Electives**
• Mathematical Foundations for Cyber Security	• Security in Mobile Networks
• Design and Analysis of Algorithms	• Language-Based Security
• Pattern Recognition and Machine Learning	• Network Security
• Secured Coding	• Information Hiding
• Internetworking - Protocols and Security	• Information Security and Risk Management
• Cryptography	• HDL and Cryptographic Applications
• Concepts in System Security	• Coding and Information Theory
• Cryptographic Protocols and Standards	• Security in Cloud Computing
	• Secure System Engineering
	• Cyber Forensics

Cyber Security Systems & Networks (Amritapuri)

With the phenomenal growth of internet, and its use to initiate, manage, control and communicate almost every aspect of human interaction where it be official or personal, the world has seen a rapid expansion of the cyber systems. Along with this growth come challenges and plaguing cyber threats related to breach of confidentiality and privacy. With emergence of technologies such as cloud computing and the like security has become so critical and hence the need for skilled cyber security professionals in large numbers has become essential.

What makes the M.Tech in Cyber security Systems & Networks center unique is the integration of theoretical and practical knowledge from both cyber and physical systems perspective into the two-year curriculum. The advancements on the technological front has made the potential of every device in the daily life to be hooked to the cyber world communicating and passing critical data ranging from personal house hold activities to critical areas in etc. .

This M. Tech programme aims to train the students in the cyber security discipline, through a well-designed combination of course-ware and its application on real-world scenarios. The programme has a strong emphasis on foundational courses such as mathematics for security applications, advanced algorithms, networks etc., in addition to subject core areas such as cryptography, operating systems & security, cloud security, security of cyber-physical systems etc.

Students will be exposed to real-world problems, open-ended problems, and simulated real-life scenarios with active guidance from domain experts in this field. Key highlights of the program include:

- *Students will receive an all rounded job oriented hands-on training. They will learn about various security threats and vulnerabilities of the cyber world keeping in line with the industrial trends.*
- *Knowledge of problem solving techniques is provided to students to solve emerging concerns from multiple industrial sectors of the cyber world.*

Ultimately this programme will yield next generation cyber security leaders who can be successfully employed in various sectors of industries, business firms, Government departments, financial bodies, educational institutions such as hardware, software, healthcare, automotive, banking and finance, defense communication systems,

information technology. These sectors generate huge demand for well-trained, professional people to be employed on cyber security front.

With adjunct faculty from United States and Europe supporting the program, with the rigorous training to meet industry requirements at Amrita Vishwa Vidyapeetham the quality of education here prepares students to become globally ready to pursue a highly rewarding technical career.

Core Courses	**Electives**
• Mathematical Foundations of Computer Science –I	• Security in the Cloud
• Operating System and Security	• Formal Methods
• Algorithmic Fundamental for Security Applications	• Fundamentals of data Science and
• Advanced Computer Networks and Internet Architectures	• Security of Cyber Physical Systems
• Principles of Cryptography	• Wireless Security
• Advanced Computer Programming	• Principles of Machine Learning
• Cultural Education	• Mobile Computing Security
• Mathematical Foundations of Computer Science – II	• Cyber Crimes, Cyber Laws and Cyber Forensics
• Distributed Systems	• Software Protection
• Advanced Security of Networked Systems	• Advanced Data Science for Security Analysis
• Technical Writing	
• Database and Application Security	
• Programming Concepts: Practical	
• Dissertation – I	
• Dissertation – II	

Embedded Systems (Bengaluru, Coimbatore)

Almost all Electronics, Electrical and Mechanical systems are now controlled by one or more controller, which is embedded as a part of the complete system. Such a system is called an Embedded System. Examples are Tele-communication systems, chemical-processing plants, transportation systems such as aircraft and automobile, bio-medical instruments and home appliances like microwave oven and washing machines. The characteristics of embedded system are that they are designed to do certain specific tasks often in real time satisfying certain performance requirements. It is achieved through the controllers and software called firmware stored in read only memory of the controller.

The vast majority of control systems built today is embedded, that is, they rely on built-in, special -purpose microcontroller. Some systems contain large number of controllers. In such settings, controllers often use shared network to communicate with each other and with large numbers of sensors and activators scattered throughout the system. The design of embedded controller and the intricate, automated communication network that support them raises many new problems -theoretical and practical -about network protocols, compatibility of operating systems, and ways to maximize the effectiveness of the embedded hardware. This course will address many such questions and aspects of embedded and networked control.

One project work, during second year is part of the programme in which each student is expected to work on a specific area involving the design, simulation, fabrication, and testing of system with embedded controller.

Core Courses
• Probability and Random Processes
• FPGA-Based System Design
• Embedded System Programming
• Digital Signal Processing

• Fault Tolerant System Design
• Computer Organization and Design using ARM
   Processor
• Sensor Networks

• Soft Computing
• Real Time Systems
• Model based Design for Embedded System
• Image and Video Processing

Electives
• Cryptography and Network Security
• Speech and Language Processing
• Advanced Digital Signal Processing
   and Processors
• Multi-Core Architectures
• Parallel Programming

• Embedded Systems for Automotive
   Applications
• Networked Embedded Systems
• Advanced Mobile and Wireless Networks
• Object Oriented Analysis and Design
• Embedded Systems in Biomedical Applications

• Embedded Systems in Robotics
• Micro Electro Mechanical Systems
• Hardware Software Co-Design
• Hardware Software Co-Design

Engineering Design (Coimbatore)

This program is designed to enable an engineering graduate to develop specific capabilities in design, synthesis and analysis of a wide variety of mechanical engineering

systems. The program focuses on developing design methodologies which involve high degree of research orientation supplemented with practical insights. On the whole, the Masters program is committed to produce design engineers with excellent creative capabilities and caliber to solve real life problems curtailing to industry requirements, in tune with the objectives envisioned by the University.

Further the program provides an opportunity to the students for pursuing their projects in organizations such as DRDL, NAL, HAL, L&T, BHEL, ARCI, ROOTS, etc., and in European Universities under Indo-European initiative. In addition, students are encouraged to participate in the funded research projects sponsored by organizations like DRDO, ISRO and AICTE, and henceforth, get their research work published in reputed journals. Meritorious students will be offered teaching assistantship.

Core Courses

• Applied Engineering Mathematics
• Theory of Elasticity
• Fluid Dynamics
• Thermal Systems and Design
• Optimization Techniques in Engineering
• Mechanical Vibrations
• Selection of Materials & Processes
• Finite Element Methods
• Mechanical Behavior of Engineering Materials
• Engineering Design Lab –I
• Engineering Design Lab –II
• Engineering Design Lab –III
• Seminar
• Minor Project
• Dissertation
• Machine Condition Monitoring

Electives

• Continuum Mechanics
• Reliability Engineering
• Modeling, Simulation and Analysis of Engineering Systems
• Advanced Mechanism Analysis and Design
• Theory of Plasticity
• Tribology
• Product Lifecycle Management
• Fracture Mechanics

• Theory of Plates and Shells
• Computational Fluid Dynamics
• Design for Manufacture and Assembly
• Mechanics of Composite Materials
• Random Vibrations
• Computer Aided Product Development
• Micro-Electro-Mechanical Systems

Manufacturing Engineering (Coimbatore)

This program focuses on the requirements of the manufacturing industry embracing the areas of production, planning and control, design, materials, processes, maintenance and quality control. The curriculum has been framed drawing course contents from traditional fields such as materials and processes, mechanical engineering, industrial engineering and management. The syllabus for various courses has been designed in general to introduce the application of analytical and quantitative methods in manufacturing and to train the students to develop skills in the utilization of the modern

tools such as simulation, optimization, statistical data analysis and finite element analysis. During the course of study, the students will be exposed to practical problems encountered in manufacturing.

Further, the program provides an opportunity to the students for pursuing their projects in organizations such as NAL, HAL, ISRO, L&T, BHEL, ARCI and in European Universities under Indo-European initiative. In addition, students are encouraged to participate in the funded research projects sponsored by organizations like DRDO, ISRO, and AICTE. Meritorious students will be offered teaching assistantship.

Core Courses
- Applied Engineering Mathematics
- Materials Science and Engineering
- Optimization Techniques in Engineering
- Theory of Plasticity and Metal Forming
- Analysis of Machining Processes
- Manufacturing Automation
- Advanced Casting Technology
- Metrology and Sensing Systems
- Seminar I
- Production and Operations Management
- Manufacturing Engineering Lab I
- Manufacturing Engineering Lab II
- Manufacturing Engineering Lab III
- Minor Project
- Dissertation
- Quality Engineering

Electives
- Computer Aided Product Development
- Finite Element Methods
- Surface Engineering
- Design of Experiments
- Advanced Welding Technology
- Embedded Systems
- Advances in Manufacturing Technology
- Logistics and Supply Chain Management
- Composite Materials and Processing
- Product Lifecycle Management
- Tool Engineering and Design
- Advances in Process Technology
- Reliability Engineering
- Financial Management
- Lean Manufacturing

Material Science & Engineering (Coimbatore)

The M.Tech. Materials Science and Engineering program is offered at Amrita Vishwa Vidyapeetham by the Centre of Excellence in Advanced Materials and Green Technologies established in May 2013, based on a grant awarded by the Ministry of Human Resource Development (MHRD). The centre has numerous ongoing research projects covering materials for fuels/energy, electricity, construction, and water. It has made tremendous strides since its inception, with research grants exceeding Rs. 4 crores, more than a hundred publications, and 25 active PhD scholars.

 The program is designed to produce graduates that can apply fundamental knowledge of mathematics, physics & chemistry of materials, and statistics, to model and solve

problems related to design, synthesis, performance enhancement, and optimization of materials. Recognizing the multidisciplinary nature of the field, the teaching and project guidance will be accordingly delivered by highly qualified, world-class faculty from various departments including, chemical engineering, chemistry, physics, & aerospace engineering.

With a view towards developing both science and engineering skills, the program curriculum has been framed so as to incorporate and deliver on experimental, analytical, statistical, and computational tools & educational components of globally accepted standards in the materials discipline. The core courses include: Materials Science I & II, Materials Thermodynamics, Statistical Design of Experiments, Materials Characterization Techniques, Nano science and Nanotechnology, Materials Design, and Polymer Materials. While the labs cover important aspects of synthesis, testing, and characterization, the electives are structured in such a way as to offer opportunities for acquisition of specialized and advanced knowledge in sub-disciplines such as electronic materials, biomaterials, and materials for energy systems. Students have the opportunity to pursue their projects either in-house (research in the departments of chemical engineering, chemistry, physics, aerospace engineering, and the centre for excellence in advanced materials & green technologies), or outside in reputed industrial or R&D institutions, and even in eminent foreign universities. With a strong focus on developing research skills among the students, in frontier areas, the program includes educational components that would make the graduates suited to, and employable in, industrial, government R&D, and academic settings, spanning diverse areas such as electronics & communications, energy, chemicals, medicine, and transportation.

Core Courses
• Materials Science I
• Materials Science II
• Materials Thermodynamics
• Materials Characterization Techniques
• Polymer Materials
• Materials Design
• Nano science and Nanotechnology
• Biomaterials Science
• Mathematical Methods in Materials Science
• Statistical Design of Experiments
• Materials Synthesis Lab
• Materials Characterization Lab

Electives
• Polymer Processing
• Semiconductor Processing
• Electrochemistry
• Catalytic Chemistry
• Spectroscopy
• Carbon Nano materials
• Interfacial Science and Engineering
• Biosensors
• Solar Energy
• Waste to Energy
• Energy Storage Technologies
• Process Modeling and Simulation

• Materials Performance Analysis Lab

• Molecular Simulation
• Green Chemistry
• Design for Sustainable Development

Power Electronics (Bengaluru, Coimbatore)

Power Electronics plays an important role in processing and controlling the flow of electric energy by supplying voltages and currents in forms that are optimally suited for the user loads from a few watts to several mega watts. The application areas include wide spectrum such as heating and lighting control, as and dc power supplies, electric motor control, energy conservation, process control, factory automation, transportation, HVDC, FACTS, power quality improvement etc.

 The PG program includes courses in mathematics, cultural education and the core subject areas. In core subject areas emphasis is given on power processors with emerging power switching devices, electrical machines and their control, measurement and processing of signals, signal processors, control systems and digital system design required to build any power electronic equipment with necessary controllers. The program offers electives for the students to enhance the knowledge of emerging areas of power electronics applications to optimize the designs

The program culminates with a project work in which the students are encouraged to work on specific areas involving design, simulation, fabrication and testing of any power electronics system having research /industrial application values.

Core Courses
 • Linear Algebra and Numerical Method
 • Power Converters I
 • Electrical Machine Analysis
 • Analog Signal Processing and Control
 • Soft Computing
 • Simulation Laboratory
 • Digital Signal Processing
 • Power Converters II
 • Electric Drives and Control
 • Digital Signal Processors
 • Digital Signal Design

Electives
 • Flexible AC Transmission Systems
 • High Voltage DC Transmission
 • Power Quality Improvement
 • Over Voltage in Power Systems
 • Electric Power Quality
 • Energy Conservation and Management
 • Programmable Logic Controllers
 • Power System Operation and Control
 • Design for Reliability
 • Optimization Theory
 • Computational Optimization Theory –Linear and Non-Linear Methods
 • Special Electric Machines

• Electromagnetic Interference and Compatibility
• Renewable Energy Technologies
• Optimal and Adaptive Control Systems
• Electrical Machine Analysis Using Finite Element Analysis

Power & Energy Engineering (Amritapuri)

Recent progress in new and renewable energy technologies together with the restructuring and deregulation of electric utilities have paved the way for unprecedented challenges and wide scope for research in power and energy systems and open up new opportunities to young Power Engineers. Conventional Power system is redefined and power electronics components are incorporated along with the existing system. This includes flexible ac transmission and HVDC links embedded in the conventional ac power transmission networks etc. Further, use of renewable energy such as solar and wind power, coupled with higher efficiency and conservation, will be the key factors to a sustainable world for future generations.

M. Tech. program in Power and Energy Engineering aims to explore the above mentioned challenges and also initiate research activities. This program provides necessary theoretical background with a good blend of applied mathematics along with in-depth coverage in   analyses of power and energy systems. The core courses include sustainable, economic, efficient and reliable energy conversion, generation, transmission, distribution, storage and utilization of electric energy, including application of power electronics in power system operation and control. Completing the course, students will be eligible for the fulfilling the requirement of engineers for design, installation and operation in electric power industries including renewable energy sector. They can also be assets to several scientific and R&D organizations.

Core Courses
• Applied Mathematics
• Computer Applications in Power Systems
• Power Quality
• New and Renewable Sources of Energy
• Power Systems and Power Electronics Laboratory Systems
• Cultural Education
• Advanced Control Systems
• Basic Energy Dynamics'

Electives
• Digital Control Systems
• Optimization Techniques
• Applied Numerical Methods
• Soft Computing Techniques
• Operation and Control of Power

• Restructured Power Systems
• Embedded Systems
• Electrical Drives and Control

- Power Electronic Converters
- Energy Systems Laboratory
- Energy Conservation and Management
- High Voltage Power Transmission
- Minor Project
- Dissertation

- Wind Energy Conversion Systems
- Energy Systems Modeling & Analysis
- Nuclear Energy
- Energy Planning and Reliability
- Advanced Protective Relaying
- Transient Analysis in Power Systems
- Power System Stability
- Solar Energy Utilization
- Materials and Devices for Energy Systems
- Nanotechnology
- Cryogenic Engineering

Remote Sensing & Wireless Sensor Networks (Coimbatore)

Earth observation from space has provided mankind and its decision makers with new global perspective of its environment. Protection of the environment will certainly be one of the greatest challenges in the 21st century. Remote sensing data gathered from air borne and space borne sensor systems are one of the starting points for preparing tools for gaining a better understanding of its complex interactions between the atmosphere, oceans, ice regions and land surfaces on one hand and the population with its various activities on the other hand. Recent developments in sensor technology coupled with wireless network technology have given a new dimension to the word 'remote sensing'.

Remote sensing by deployment of thousands of sensors in fields to gather data for remote monitoring, control or other decision making process can now be put under the purview of remote sensing. There are immense possibilities for integrating data obtained from satellite based sensing and ground based measurements using cheap sensors deployed in the field. This course aims at developing manpower in this highly interdisciplinary area. The forecast for such manpower requirements is large and fall short of the current requirements. Remote sensing and wireless sensor networks as a scientific discipline, depends on field measurements, computer vision, adhoc wireless networks, analysis and cognition systems. It has great strategic importance from the point of view of defense, natural calamities, space exploration and non-destructive testing. It is also applied in agriculture, marine and geological explorations, weaponry, transportation and health monitoring of machines, structures and livestock.

The basic course starts with a strong foundation in mathematics. It is strengthened by courses in remote sensing, image processing, pattern recognition and specific courses on sensor technology, wireless networking and geographical information systems. Electives offered are from microwave engineering, Internet of Things, Robotics, Big data and spatial intelligence.

Core Courses

- Computational Linear Algebra and its Applications
- Image Processing Methods for Remote Sensing
- Computational Optimization Theory - Linear & Non- linear Methods
- Advanced Data Structures and Algorithms
- Principles of Remote Sensing
- Wavelet Theory and Pattern Classification
- Probability and Graphical Methods
- Measurement Techniques in Remote Sensing
- Geographical Information Systems and Global Positioning Systems: Principles and Applications
- Minor Project
- Dissertation

Electives

- Satellite Remote Sensing Astrodynamics
- Adaptive Digital Signal Processing using FPGA
- Hyper Spectral Imaging Systems
- Biochemical Sensors and Applications
- Signal Processing and Optimization for Transceiver Systems
- Compressed Sensing in Communication and Radar Systems
- Control and Design of Small Unmanned Aerial Vehicles

Renewable Energy Technologies (Coimbatore)

Renewable energy being the most important application area of engineering and technology in the twenty first century, this graduate programme is designed for quality learning in that sector. RE sector needs manpower with design and engineering skills in RE systems and components – this programme targets to impart these. The curriculum has an emphasis on solar and wind energy systems, in tune with the Indian national missions on these. Job avenues targeted are RE equipment manufacturers, farm developers and system operators; also, the qualified human resource requirement in RE teaching and research is potentially high.

The learning is guided through two parallel streams of electrical and mechanical disciplines. Core courses and electives of specialization are offered by faculty from various departments like Electrical and Electronics, Mechanical, Aerospace, Business Management, Science etc.

A Renewable Energy laboratory developed through assistance from C-WET, MNRE and DST, Government of India, equipped with hard and soft experiment systems and real field data collection systems, provides active training support to the programme. Collaborations with global academic and industrial establishments too help in imparting quality learning in this programme.

Core Courses	Electives
• Soft Computing	•Power System Operation and Control
• Electronic Instrumentation Systems	• Power Electronics for Energy Systems
• Solar Energy	•Programmable Logic Controllers
• Applied Engineering Mathematics	•Electrochemical Energy Systems
• Bio and Hydro Energy Sources	•Power System Modeling
• Simulation Laboratory	•Flexible AC & High Voltage DC Transmission Systems
• Cultural Education	• Aerodynamics and Wind Turbines
• Energy Economics & Renewable Energy Policy	• Computational Optimization Theory – Linear and Non-Linear Methods
• Energy Conservation & Management	• Wind Electric Generators
• Wind Energy	•Electrical Machine Analysis Using Finite Element Analysis
• Seminar	
• Energy System Laboratory I	•Applied Computational Fluid Dynamics
• Energy System Laboratory II	•Energy Storage Systems
• Dissertation 1	•Smart Grid
• Dissertation II	• Electric Power Quality
	• Solar Thermal Engineering
	• Project Management

Robotics & Automation Engineering (Amritapuri)

AMMACHI labs is a multidisciplinary research center of Amrita University with a focus in technological innovation for social impact in the field of computer-human interaction, haptics, multimedia and virtual reality, with application areas in education, healthcare, defense and disaster preparedness. Even as India's economy booms and the demand for skilled workers rise, vocational training in India is effectively paralyzed by social stigma, budget constraints and inadequate numbers of trainers and materials. Born out of the demand for accessible, standardized vocational education in India, available at dispersed locations to a diverse population, AMMACHI Labs has developed full-package solutions which can address the most crucial areas in the way of meeting India's training goals: multi-media enriched computerized training modules and life enrichment education curriculum, ground-breaking uses of haptic technologies, and a first-of-its-kind solar-powered Mobile Vocational Education (MoVE) unit. AMMACHI labs extend Amrita

University's unswerving focus on providing effective value-based education to include skill development at all levels and in numerous disciplines.

Core Courses

•Math fundamentals
HCI
•Embedded Systems design
•Computer Programming including Python and Embedded C
•Introduction to Robotics
•Digital Image Processing
•Cultural Education
•Probability & Statistical Inference
•Mobile and Autonomous Robots
•Industrial Automation I
•Machine Vision
•Technical Writing
Programming
•Thesis Preliminary
•Thesis Final

Electives

•Advanced Perception for Robotics and

•Advanced AI for Robotics
•Virtual Reality and Application
•Machine Learning
•Non linear control Theory
•Experimental Haptics
•Industrial Automation II
•Advanced Process Control
•FPGA Based System Design
•Embedded Real Time Systems
•Robot Simulation and offline

•Humanoid Robotics
•Swarm Intelligence
•Behavioral Robotics
•Frontiers of Bio Mechatronics
•Haptic Interfaces
• Linear / non – linear Optimization

Structural & Construction Engineering (Coimbatore)

The growth in infrastructure requirements has posed a definite and critical need of qualified Structural as well as Construction Engineers. The aim of this program is to impart advanced fundamental concepts related to mechanics and dynamics of the structures. These coupled with courses related to recent developments in construction materials and technologies will impart cutting edge design methodologies and implementation strategies to students in both Sub and Superstructures of various infrastructure facilities. The course will also focus on laboratory work, industry oriented project exposure and dissertation based on research for all round development of Design & Construction Engineer.

The program's goal is to provide students with advanced technical knowledge of evolving structural systems integrated with a solid grounding of design approaches. This programme is designed for students and industry professionals seeking to advance their

careers, and for academics preparing for the challenges of research and teaching. The courses are designed to establish a fine balance between academic fundamentals and industry realities and requirements.

This programme will be able to find many employers from Government, private corporations, public sector undertakings, and teaching and/or research institutions in the country as well as abroad. The uniqueness of this course is the blend of exposure to strong theoretical foundation, practical design & construction approaches through adequate computational, analytical and execution skill development.

Core Courses
• Linear Algebra, Legendre Equations & Numerical Methods
• Advanced Structural Mechanics
• Theory of Elasticity and Plasticity
• Advanced Structural Design
• Construction Project Management
• Experimental Techniques
• Finite Element Analysis
• Advanced Construction Practices
• Advanced Foundation Systems
• Structural Design Studio
• Construction Software Laboratory
• Technical Communication
• Industrial Seminar
• Dissertation

Electives

• Mechanics of Composite Materials
• Smart Materials and Structures
• Advanced Concrete Technology
• Construction Methods & Equipment
• Structural Dynamics
• Theory of Plates & Shells
• Stability of Structures
• Industrial Structures
• Bridge Engineering
• Prefabrication Engineering
• System Integration in Construction
• Quality Control & Safety in Construction
• Pre-stressed Concrete Design
• Design of Offshore Structures
• Analysis and Design for Wind and Earthquake Forces
• Pavement Analysis and Design
• Forensic Engineering and Rehabilitation of Structures
• Geo technics for Infrastructure
• Sustainable Design & Construction Practices
• Optimization theory

Thermal & Fluids Engineering (Amritapuri)

As the energy and process sector in India is in a boom, the need of the hour is engineers with strong background in thermal and fluid sciences capable of carrying out conceptual

design. The program is aimed at providing sufficient theoretical, computational and experimental knowledge in the thermal and fluid sciences. It also encapsulates simulation and experimental skills applied to IC engines, power plant, aerospace and gas turbines research. The program is designed to equip students to perform design related to linear and non-linear steady state/ transient heat transfer, steady and unsteady fluid flow, multi phase flows, fluid structure interactions viz., estimation of thermal and pressure loads and coupled field analysis.

The program provides required numerical simulation techniques for design and analysis of equipments like gas turbines and accessories, steam turbines and reactor pipes, heat exchangers, compressors, turbines, pumps, propellers, rotor stator interactions, flow separators, inlet manifolds, volutes, turbo chargers etc. The course also introduces the student to experimental techniques like flow visualization, combustion diagnostics, particle characterization and other recent imaging techniques adopted in the field of thermal research. The department actively collaborates with Indian Space Research Organization (ISRO) and National Aerospace Labs (NAL) and students work in projects at these institutes of National repute for their final M.Tech thesis. Some students have also been selected for international student exchange programs (Polytechnico de Milano, Italy, University of California, and Davis etc.) where they do their final M.Tech thesis work. Students will be eligible for the post of design engineers in industries related thermal and fluid sciences and also suitable for R&D organizations.

Core Courses	Electives
• Advanced Engineering Mathematics	•Boundary Layer Theory
•Advanced Fluid Dynamics	• Introduction to Turbulence
•Advanced Heat Transfer	• Gas Dynamics
•Advanced Engineering Thermodynamics	• Flow Induced Vibrations
•Cultural Education	• Design of Heat Exchanger Equipments
•Combustion and Propulsion	• Turbo Machine
•Power plant and Thermal Systems Engineering	• Design of IC Engines and Systems
•Computational Methods in Thermal and Fluids Engineering	• Chemical Reactor Analysis
•Experimental Methods in Thermal & Fluids Engineering	• Two – phase flow and Heat Transfer
•Fluid Dynamics and Heat Transfer	• Gas Turbine Theory and Design
•Minor Project	• Micro & Nano scale Thermal and Fluids Engg.
•Dissertation	• Cryogenics
	• Renewable Energy
	• Aerodynamics

Thermal Sciences and Energy Systems (Bengaluru)

India is energy starved country and per capita consumption of energy in India is one of the lowest in the world. India faces a formidable challenge in providing adequate and efficient energy supplies to users at a reasonable cost. With an average annual growth rate of 8-9 percent, it will be a great challenge to meet the energy demand, and producing it efficiently without polluting the environment. This programme is designed to enable the students to develop expertise in both theory and design of Thermal Systems, Energy Systems and Energy Management. The students also learn to simulate various fluid, thermal and energy systems using different computational tools. They also do experiments to test various thermal and energy systems.

This programme offers many career options for the youngsters in both public and private sector involved in production of energy, design and production of thermal systems and energy systems. They will also get opportunities to join various Research and Development organizations. This programme also includes courses on Micro Flows and Micro/Nano Heat Transfer which are of great importance in electronic equipment design industry.

Core Courses

- Advanced Engineering Mathematics
- Advanced Heat Transfer
- Advance Fluid Mechanics
- Thermal Power Plant Cycles and Systems
- Computational Methods in Fluid flow and Heat Transfer
- Design and Optimization of Thermal Systems
- Energy Conversion Systems
- Energy Conservation in Thermal Systems
- Renewable Energy Systems
- Gas Turbines and Jet Propulsion
- Computational Lab
- Thermal and Energy Lab
- Seminar
- Dissertation

Electives

- Design of Heat Exchangers
- Nano / Micro Heat Transfer
- Fluidized bed systems
- Information Technology in Energy Management
- Energy Modeling, economics and project management
- Measurements in Thermal Systems
- Gas Dynamics
- Solar Energy
- Computational Fluid Dynamics
- Fuel Technology
- Gas Turbines and Propulsion
- IC engine combustion and Pollution
- Energy and Environment
- Heat Transfer in Biological Systems

- Energy Management
- Energy Policies for Sustainable development

VLSI Design (Amritapuri, Bengaluru, Coimbatore)

The M Tech Programme in VLSI Design offered by the Department of Electronics and Communication is one of the oldest post graduate courses offered by Amrita Vishwa Vidyapeetham University. This course is being currently offered by all the three campuses of Amrita School of Engineering. The curriculum for the course is designed to cater equally to the needs of the industry as well as the research community. Besides courses in fundamental core areas such as CMOS Design, Digital Design, Analog Design, Solid State Devices, VLSI Testing and VLSI CAD, a wide range of electives in core and interdisciplinary areas are offered to the students to acquire specialized knowledge and skills in their chosen domain. The theory courses are supplemented by Laboratory sessions which provide an opportunity to get hands on experience in standard EDA software in the industry. The Laboratories in all the campuses are well equipped with EDA tools from Synopsys, Cadence and Mentor Graphics. High end FPGA kits are provided for prototyping and validation of hardware designs especially in the video and signal processing domains. The VLSI Design group is actively engaged in research and has several publications in reputed journals and conferences to its credit. The focus areas of research carried out by the VLSI Design group at Amrita are listed below:

- Low-Power VLSI Design
- Reconfigurable Architectures
- Low Power VLSI Testing
- VLSI Testing for Multiple Fault Detection and Diagnosis
- High Level Synthesis
- Analog and Mixed Signal Processing
- CMOS Design for Millimeter Wave Frequencies
- Architectures for Biomedical Signal Processing

Amrita VLSI Design alumni are well placed in leading chip design companies in India and Abroad such as IBM, Wipro Technologies, Synopsys, Texas Instruments, Microchip, HCL etc. The research orientation provided to the students by the programme has enabled many alumni to secure admission to Ph D programmes in IITs and Universities in Europe and USA.

Core Courses	**Electives**
• CMOS Digital Integrated Circuits	• VLSI Signal Processing and Processors
• Digital Signal Processing	• Principles of Multicarrier Communications
• Computer Architecture and Processor Design	• Hardware Software Co-Synthesis
• Solid state Devices and Modeling	• VLSI Fabrication Technology
• Digital Design	• FPGA based System Design
• Analysis & Design of Analog and Mixed Signal VLSI Circuits	• Compressive Sensing for VLSI
• Low power VLSI circuits	• RFIC Devices and Modelling
• Testing of VLSI circuits	• Cryptography and Applications
• Computer Aided Design of VLSI Circuits	• Functional Verification of Digital Circuits
• Embedded Systems	• Soft Computing
	• Monolithic Microwave Integrated Circuits
	• Wavelets and Applications
	• Design for Test
	• Image and Video Processing Algorithms
	• Nano Electronics
	• CMOS RF System Design
	• Design of Semiconductor Memories
	• Embedded Controller and Real Time Operating System
	• Analog Subsystem Design
	• Micro Electro Mechanical Systems

Wireless Networks & Application (Amritapuri)

Building on a very successful joint project called WINSOC with about a dozen international partners; Amrita Vishwa Vidyapeetham launched the MTech program in one of the advanced topics of today, wireless networks and applications, at its Amritapuri campus, Kollam, Kerala. This M. Tech. program includes the latest advanced topics in wireless communications, mobile computing, sensor networks, Embedded Systems, signal processing, wireless networks and applications such as landslide detection, environmental monitoring etc.

The students get a hands-on experience in real-time wireless sensor networks for land slide detection using the landslide monitoring system deployed at the land slide prone area in Munnar, Kerala. Reputed researchers and well known faculty from highly ranked international universities across the world teach and guide the students. The program provides opportunities for students to get project guidance from well-established research groups around the world and work on exciting, real-world installations of wireless sensor networks.

There are many projects going on at the research centre (WINSOC, DST, DIT, Indo-German, Indo-Brazil etc.) and the students get a unique opportunity to work in these live projects. Upon graduation, students can find employment in a broad spectrum of industries such as Computers, Communication Networks, Earth Sciences, Environmental Sciences, Disaster Management, Bio and Nano Technologies, VLSI and Embedded Systems, Transportation and Infrastructure, Structural Engineering, Agriculture and Chemical Industries.

Core Courses

- Design and Analysis of Algorithms
- Basics of Digital Signal Processing
- Probability and Graph Theory
- Advanced Computer Networks
- Fundamentals of Wireless Communications
- Advanced Computer Networks Lab
- Cultural Education*
- Wireless Networks and Security
- Wireless Networks and Security
- Embedded System Design
- Elective I
- Elective II
- Wireless Sensor Networks Laboratory
- Seminar
- Advanced Wireless Networks
- Mobile Communication Networks
- Elective III
- Minor Project

Electives

- Cryptography
- Advanced Database Design
- Distributed Systems
- Multimedia Systems
- Information Theory and Applications
- Random Process and Queuing Models
- Wireless Networks Applications
- Smart Grid Communications and Networking
- Security in Wireless Networks
- Introduction to Machine Learning
- Pattern Recognition
- Distributed Algorithms

Placement Details 2010-2015

Automotive Engineering	IBM India Ltd. Cognizant Technologies Infosys HCL Technologies Tavant Technologies (I) Pvt. Ltd.
Bio Medical Engineering	IBM India Ltd. Cognizant Technologies Infosys HCL Technologies Skanray Healthcare Patni UST Global WIPRO L&T Infotech Ltd. Robert Bosh Mahindra Satyam IP Infusion Software Cordys Software MPHASIS Ltd. BioGenex Tavant Technologies (I) Pvt. Ltd.
Computer Science & Engineering	ThoughtWorks Technologies Soliton Technologies KLA Tencor Atlas Health Care Software IBM India Ltd. CISCO Cognizant Technologies Infosys HCL Technologies KPIT Cummins ZOHO Corp. Payoda Verizon Synopsys India (P) Ltd. Nokia Siemens ABCO Advisory Services Siemens Philips WIPRO

	L&T Infotech Ltd. Mahindra Satyam IP Infusion Software Cordys Software MPHASIS Ltd. Honeywell Technology Amazon Development Centre (India) Pvt. Ltd Saggezza India (P) Ltd. Multicore Ware India (P) Ltd. Tavant Technologies (I) Pvt. Ltd. Continental Automotive Components Thermo Fisher Scientific Inc. Tata Consultancy Services (M.Tech.) Inside View
Computer Vision & Image Processing	Thought Works Technologies Soliton Technologies KLA Tencor Atlas Health Care Software IBM India Ltd. CISCO Cognizant Technologies Infosys HCL Technologies KPIT Cummins ZOHO Corp. Payoda Lucid Imaging Nokia Siemens ABCO Advisory Services Nissan Ashok Leyland Patni UST Global CVC Technologies WIPRO L&T Infotech Ltd. Mahindra Satyam Maples ESM IP Infusion Software Cordys Software MPHASIS Ltd. Honeywell Technology Saggezza India (P) Ltd. Multicore Ware India (P) Ltd. Tavant Technologies (I) Pvt. Ltd.

	Thermo Fisher Scientific Inc.
Computational Engineering & Networking	ThoughtWorks Technologies KLA Tencor Atlas Health Care Software IBM India Ltd. CISCO Cognizant Technologies Infosys HCL Technologies KPIT Cummins ZOHO Corp. Payoda Verizon Nokia Siemens ABCO Advisory Services Patni UST Global PACE Micro Technology WIPRO L&T Infotech Ltd. Mahindra Satyam IP Infusion Software Cordys Software MPHASIS Ltd. Multicore Ware India (P) Ltd. Tavant Technologies (I) Pvt. Ltd. Thermo Fisher Scientific Inc.
Cyber Security / Cyber Security Systems & Networks	KLA Tencor Atlas Health Care Software IBM India Ltd. CISCO Cognizant Technologies Infosys HCL Technologies ZOHO Corp. Payoda Nokia Siemens ABCO Advisory Services Symantec Corporation Ernst & Young Siemens Verisign

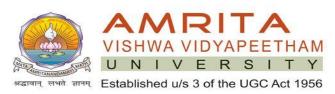|	
	Patni
	UST Global
	PACE Micro Technology
	WIPRO
	L&T Infotech Ltd.
	Mahindra Satyam
	Dataway Solutions
	IP Infusion Software
	Cordys Software
	MPHASIS Ltd.
	Honeywell Technology
	Multunus Software (P) Ltd
	Tavant Technologies (I) Pvt. Ltd.
	Thermo Fisher Scientific Inc.
	Tata Consultancy Services (M.Tech.)
Embedded Systems	IBM India Ltd.
	Cognizant Technologies
	Infosys
	HCL Technologies
	KPIT Cummins
	Verizon
	Skanray Healthcare
	Patni
	UST Global
	PACE Micro Technology
	WIPRO
	L&T Infotech Ltd.
	Robert Bosch
	Mahindra satyam
	IP Infusion Software
	TATA ELXSI
	Cordys Software
	MPHASIS Ltd.
	Ericsson
	Wabco India Ltd. (M.Tech)
	Tavant Technologies (I) Pvt. Ltd.
	Continental Automotive Components
Engineering Design	IBM India Ltd.
	Cognizant Technologies
	Infosys
	HCL Technologies
	L&T Construction Ltd.
	Nissan Ashok Leyland
	PATNI

	UST Global Tata Advanced Materials L&T ECC WIPRO L&T Infotech Ltd. Mahindra satyam IP Infusion Software Cordys Software MPHASIS Ltd. Tavant Technologies (I) Pvt. Ltd. Safran Engineering Services (I) Pvt Ltd.
Manufacturing Engineering	IBM India Ltd. Cognizant Technologies Infosys HCL Technologies L&T Construction Ltd. Patni UST Global WIPRO L&T Infotech Ltd. Mahindra Satyam IP Infusion Software Cordys Software MPHASIS Ltd. Tavant Technologies (I) Pvt. Ltd.
Power Electronics	IBM India Ltd. Cognizant Technologies Infosys HCL Technologies L&T Construction Ltd. Garuda Vayu Shakthi Ltd. Patni UST Global L&T ECC WIPRO L&T Infotech Ltd. Mahindra Satyam IP Infusion Softaware Cordys Software MPHASIS Ltd. Ericsson Tavant Technologies (I) Pvt. Ltd.

Power & Energy	IBM India Ltd. Cognizant Technologies Infosys HCL Technologies ZOHO Corp. Garuda Vayu Shakthi Ltd. Tavant Technologies (I) Pvt. Ltd. Tata Consultancy Services (M.Tech.)
Remote Sensing & Wireless Sensor Networks	ThoughtWorks Technologies KLA Tencor Atlas Health Care Software IBM India Ltd. CISCO Cognizant Technologies Infosys HCL Technologies ZOHO Corp. Payoda Verizon Patni UST Global PACE Micro Technology Wipro L&T Infotech Ltd. Mahindra Satyam IP Infusion Software Cordys Software MPHASIS Ltd. Ericsson Tavant Technologies (I) Pvt. Ltd.
Thermal & Fluids Engineering	IBM India Ltd. Cognizant Technologies Infosys HCL Technologies ZOHO Corp. Tavant Technologies (I) Pvt. Ltd.

VLSI Design	IBM India Ltd. Cognizant Technologies Infosys HCL Technologies VERIZON Synopsys India (P) Ltd. PATNI UST GLOBAL CVC Technologies WIPRO L&T Infotech Ltd. Mahindra Satyam IP Infusion Software TATA ELXSI Cordys Software MPHASIS Ltd. NeST (Network Systems & Technologies (P) Ltd.) Microchip Technology (M.Tech) Honeywell Technology Tavant Technologies (I) Pvt. Ltd. Tata Consultancy Services (M.Tech.)
Wireless Networks & Applications	ThoughtWorks Technologies KLA Tencor IBM India Ltd. CISCO Cognizant Technologies Infosys HCL Technologies Patni IP Infusion Software TATA ELXSI Cordys Software MPHASIS Ltd. Ericsson Tavant Technologies (I) Pvt. Ltd.

Important Dates

- Commencement of Admissions; January 25, 2016

- Last date for Admissions: May 1, 2016

- Interview Dates: May- 1st & 2nd weekends

- Publication of results: immediately after the interview process

- Commencement of classes in the third week of July

APPLICATION FORM FOR M.Tech ADMISSIONS 2016

Campus preference AMRITAPURI / BENGALURU / COIMBATORE	

PERSONAL INFORMATION		

Name		
Gender		Date of Birth	
Name of Parent / Guardian		
Relationship with Guardian		
Parent/Guardian occupation		
Annual Income		Nationality	
Social Status		Marital Status	
House No: / Name		Street Name	
City		
State		PINCODE	
Country		
Phone		
Email ID		

ACADEMIC INFORMATION		

Qualification (If B.Tech / BE, mention branch also)	

Year of passing		Class obtained		No of Arrears		Marks (%) Scored	

Institution last attended	

GATE Score		Year of passing	
Marks out of 100		GATE Paper/Branch	

M.Tech Preference	
1	
2	

Where did you hear about Amrita M.Tech. Programmes?			
Email		Offline poster	
Family/Friends		GATE Center	
Facebook		Newspaper	
Online Advertisement		Professor	
Others (please mention)			

Demand Draft details

DD Number		DD Date	
Bank Name		Branch	

DECLARATION

I hereby declare that all particulars stated by me in this application are true and correct. If any information furnished by me is found to be false or distorted, or if any information is found to be suppressed to secure admission, I understand that, I will be denied admission, and if already admitted, my admission/degree acquired is liable to be cancelled without any claim or consideration. I have read the information Hand Book Before filling the application form. I promise to abide by the rules and norms of discipline of the University, if I am admitted.

Place: Signature of the candidate

Date: