



NATIONAL INSTITUTE OF TECHNOLOGY CALICUT

NIT CAMPUS POST, CALICUT, KERALA - 673 601, INDIA

Information Brochure for M.Tech. / M.Sc. Programmes 2012-13

ABOUT THE INSTITUTE

National Institute of Technology Calicut (NITC) is one of the premier national institutions for technical education in India. This was formerly known as Calicut Regional Engineering College. NITC is a technical institution of national importance set up by an Act of parliament (Act 29 of 2007) namely, the National Institute of Technology Act 2007, which received the assent of the President of India on 5th June, 2007. The provisions of the Act have come into force with effect from 15th August, 2007 as per Notification S.O.1384 (E) dated 9th August, 2007 of the MHRD (Dept. of Higher Education), New Delhi. As per the provision of the said Act, this Institution runs on non profitable basis. NITC offers academic programmes leading to B.Tech., B. Arch., M.Tech., MBA, M.C.A, M.Sc. and Ph.D. degrees in the appropriate disciplines. NITC has well-qualified faculty strength of 188 and dedicated support staff of about 232. Apart from teaching, NITC is engaged in a wide spectrum of activities covering research and development, industrial consultancy, continuing education and faculty & staff development.

MISSION

To develop high quality technical education and personnel with a sound footing on basic engineering principles, technical and managerial skills, innovative research capabilities and exemplary professional conduct to lead and to use technology for the progress of mankind, adapting themselves to the changing technological environment with the highest ethical values as the inner strength.

VISION

International standing of the highest caliber

LOCATION

Set in a picturesque landscape at the foothills of the Western Ghats, NITC is located about 22 km north-east of Calicut City in the state of Kerala, India. It stretches over a length of about 1.5 km along the Calicut-Mukkam road, extending over an area of approximately 120 hectares. The nearest airport is Calicut which is about 45 km away from the campus.

INFRASTRUCTURE FACILITIES

The Institute has well equipped library, computer centre, seminar halls, lecture hall complexes, various laboratories in different departments, workshops, hostels for accommodating about 3000 students, health care centre and adequate facilities for sports, games and co-curricular activities. The Institute has a state-of-the-art library consisting of digital library, "NALANDA" (Net work of Automated Library AND Archives) and a conventional library of books, journals and bound volumes. The main computer centre, which is open 24 hours a day, has all the relevant software packages and latest computers with internet facilities. To provide service to the campus residents, State Bank of India, Post Office, Canteen & Co-operative Store are also functioning in the campus.

CO-CURRICULAR ACTIVITIES

Students' chapter of many professional bodies such as Computer Society of India (CSI), Indian Society for Technical Education (ISTE), Institute of Electrical & Electronics Engineers (IEEE) and Institution of Engineers (India) are functioning at NIT Calicut. In previous years, NITC won the best chapter award for CSI as well as ISTE. The Centre for Value Education provides students, a unique opportunity to engage in activities that promote human values. Social work is a part of curriculum. Students get opportunities to take part in cultural and other activities through a number of Clubs such as Literary & Debating Club, Industrial & Planning Forum, Nature Club, etc. operating under the Students Council. Students annually organize cultural festival *Ragam* and technical festival *Tathva* in which students from all over India participate.

STUDENT SUPPORT SERVICES

The Institute has Training and Placement department that looks after the training needs of the students, their placement of jobs on graduation and for partnership in industry. An

Entrepreneurship Development Cell promotes the students for self-employment. A Technology Business Incubator (TBI) with the assistance from Department of Science and Technology, Government of India is being established. TBI helps in incubating knowledge based start-ups into sustainable business with single window system.

DISTINGUISHED ALUMNI

A vast majority of the former students have made immense impact in the professional areas such as academics, administrative services, research laboratories, government and private industries. A strong network of alumni thrives in India as well as in foreign countries and is known as RECCAA.

WITHDRAWAL/ DISCONTINUATION OF PROGRAMME

Withdrawal/ Discontinuation of admission for all programmes during the process of Counselling will be as per the guidelines issued by the Counselling agencies from time to time. On joining the courses the student will be governed by the Institute rules for withdrawal/discontinuation. As per the rule in force, the fees paid by the students for their current and previous semesters of the programme will not be refunded and the caution deposit of Rs. 1000/- (Rupees one thousand only) will be adjusted against the processing fee of Rs. 1000/- (Rupees one thousand only), after clearing the liabilities if any.

M.Tech. PROGRAMMES OFFERED

Department	Department Code	M.Tech. Programme	Programme Code
Civil Engg.	CE	Structural Engineering Traffic & Transportation Planning Offshore Structures Environmental Geotechnology	CE61 CE62 CE63 CE64
Computer Science & Engg.	CS	Computer Science & Engg. Computer Science & Engg. (Information Security)	CS61 CS62
Electrical & Electronics Engg.	EE	Instrumentation & Control Systems Power Systems Power Electronics Industrial Power & Automation	EE61 EE62 EE63 EE64
Electronics & Communication Engg.	EC	Electronics Design & Technology Microelectronics & VLSI Design Telecommunication Signal Processing	EC61 EC62 EC63 EC64
Mechanical Engg.	ME	Industrial Engineering & Management Thermal Sciences Manufacturing Technology Energy Engineering & Management Materials Science & Technology	ME61 ME62 ME63 ME64 ME65
School of Nano Science and Technology	NST	Nano -Technology	NS61

ELIGIBILITY FOR ADMISSION TO M.Tech. PROGRAMMES

The maximum age for admission to M.Tech. Programme is 40 years. Candidates for admission to M.Tech Degree Programme shall be required to have passed the **four-year regular full time** B.E./B.Tech. Degree in an appropriate branch with minimum 60% marks (CGPA 6.5/10) in aggregate in the qualifying examination together with a valid GATE SCORE and for SC/ST candidates 55% marks (CGPA 6/10) in aggregate with a valid GATE SCORE in the respective discipline. Candidates under lateral entry should have passed the three year diploma in engineering with minimum 60% marks and for SC/ST candidate minimum 55% marks (Minimum marks / CGPA for SC/ST during 2012-13 are subject to revision by the senate of NIT Calicut). AMIE holders in an appropriate area of study may also be considered eligible, subject to the condition that the candidate possesses eligible GATE score in the appropriate discipline.

M.Tech. Programme Code	Required B.E./B.Tech. branch/ discipline	GATE Subject
CE61/CE62/CE63/CE64	Civil Engineering	Civil Engg.
CS61 / CS62	Computer Science & Engineering/ Information Technology/ I st class MCA	Computer Science & Engg.
EE61	Electrical Engineering/Electrical & Electronics Engineering/Instrumentation & Control System/Applied Electronics & Instrumentation/ Instrumentation	Electrical Engg.
EE62	Electrical Engineering/Electrical & Electronics Engineering	Electrical Engg.
EE63	Electrical Engineering/Electrical & Electronics Engineering	Electrical Engg.
EE64	Electrical Engineering/Electrical & Electronics Engineering/Instrumentation & Control Systems/Applied Electronics & Instrumentation Engg. /Electronics & Instrumentation/Instrumentation.	Electrical Engg. / Instrumentation Engg.
EC61/EC62	Electronics Engg./Electronics & Communication/Electrical & Electronics/ Applied Electronics & Instrumentation	Electronics & Communication Engg.
EC63/EC64	Electronics Engg./Electronics & Communication	Electronics & Communication Engg.
ME61	UG Degree in any Engineering / Technology Stream	Eligible GATE Score in any Engineering Stream / Technology
ME62	UG Degree in Mechanical Engineering/ Aerospace Engineering/Aeronautical Engineering/Automobile Engineering/ Energy Engineering/Manufacturing Engineering/Nuclear Engineering/ Production Engineering	Eligible GATE Score in Mechanical Engineering.
ME63	UG Degree in Mechanical Engineering/ Automobile Engineering/Manufacturing Engineering/Material Science & Engg/ Mechatronics/ Metallurgical Engineering./ Production Engineering/Production & Industrial Engg./Production & Management	Eligible GATE Score in Mechanical Engineering/ Production & Industrial Engineering
ME64	UG Degree in Mechanical Engineering/ Chemical Engineering/Aeronautical Engineering/Aerospace Engineering/ Automobile Engineering/ Energy Engineering/ Nuclear Engineering/ Renewable Energy	Eligible GATE Score in Mechanical Engineering/ Chemical Engineering
ME65	UG Degree in Mechanical Engineering/ Automobile Engineering/Material Science & Engg./Engineering Physics/ Manufacturing Engineering/ Mechatronics/Metallurgical Engineering/ Industrial Metallurgy/Nano Technology/ Production Engg/Production & Industrial Engg./Production & Management	Eligible GATE Score in Mechanical Engineering/ Production & Industrial Engineering/Metallurgical Engineering
NS61	Mechanical Engg. /Chemical Engg. / Production Engg. / Material Science & Engg. / Civil Engg.	Mechanical Engg./ Production & Industrial Engg./Chemical Engineering/ Material Science & Engineering/ Civil Engg.

Final semester students with a valid GATE score can also apply provided their final semester marks are made available by 15th September 2012. Such candidates may be considered for **provisional admission**. Any candidate admitted provisionally, subject to his/her producing provisional certificate and mark lists as proof of having satisfied the eligibility criteria, shall have to discontinue the course, if he/she does not produce the provisional certificate and mark lists (satisfying the minimum requirements of marks / CGPA) on or before 15th September 2012. Such candidates will not be eligible for any refund of fees paid by him/her. Provisional admission is not applicable to candidates who have failed in the qualifying examination and subsequently appeared for the supplementary examination. Part-time degree holders are not eligible for admission.

M.Sc. PROGRAMMES OFFERED

Department	Code	Programme	Programme Code
Mathematics	MA	M.Sc. Mathematics	MA62
Physics	PH	M.Sc. Physics	PH62
Chemistry	CY	M.Sc. Chemistry	CY62

ELIGIBILITY FOR ADMISSION TO M.Sc. PROGRAMMES

Post Graduate Programme leading to M.Sc. Degree in Mathematics: B.Sc. Degree in Mathematics/ Applied Mathematics/ Statistics **with first class or minimum 60% marks (CGPA 6.5/10).** [For SC/ST candidates 50% (CGPA 5.5/10)]

Post Graduate Programme leading to M.Sc. Degree Physics: Bachelor's degree with at least 60% marks / 6.5 CGPA (on 10 scale) or equivalent, with **Physics** as main and **Mathematics** as a subsidiary subject **OR** Physics and Mathematics among the main subjects. For SC/ST candidates 50% marks or CGPA 5.5/10 in aggregate in the qualifying examination.

M.Sc. Chemistry: Bachelor's degree with Chemistry (Main) with Mathematics/ as one of the subsidiary **OR** Bachelor's degree through Physics, Chemistry, Mathematics (three main system), with 60% marks (6.5/10CGPA). [For SC/ST candidates 50% (CGPA 5.5 /10)].

SPONSORED SEATS

Sponsored candidates should have a minimum experience of two years at the time of applying for the programme and must be sponsored by their employers. Candidates from Central/State Govt. Institutions, Public Sector Organizations and reputed Private Organizations will be considered in this category. In the case of teachers sponsored by Engineering Colleges and Polytechnics, the Institution should be recognized by AICTE. The sponsored candidates should have a minimum of 60% marks in the qualifying examination. The employer while sponsoring will have to give an undertaking that the candidate will be paid full salary during the entire period of the M.Tech. Programme and that the candidate will not be withdrawn midway. The sponsored candidates are not eligible for campus interview conducted by Placement Cell.

DISTRIBUTION OF SEATS – 2012 ADMISSION

M.Tech.(GATE qualified)															
Sl. No.	Dept	Programme	Code	Quota of Seats										Total	
				OP	OBC	OM	SC	ST	PD						
									OP	OBC	OM	SC	ST		
1.	CE	Structural Engineering	CE61	10	4	1	3	2	-	-	-	-	-	20	
2.		Traffic & Transportation Planning	CE62	10	4	1	3	2	-	-	-	-	-	20	
3.		Offshore Structures	CE63	10	4	1	3	1	-	1	-	-	-	20	
4.		Environmental Geotechnology	CE64	10	5	0	3	1	1	-	-	-	-	20	
5.	CS	Computer Science & Engg.	CS61	10	4	1	3	1	-	-	-	-	1	20	
6.		Computer Science & Engg. (Information Security)	CS62	10	5	1	3	1	-	-	-	-	-	20	
7.	EC	Electronics Design & Technology	EC61	10	4	1	3	2	-	-	-	-	-	20	
8.		Microelectronics & VLSI Design	EC62	10	5	1	2	1	-	-	-	1	-	20	
9.		Telecommunication	EC63	6	3	0	2	1	1	-	-	-	-	13	
10.		Signal Processing	EC64	6	3	1	2	1	-	-	-	-	-	13	
11.	EE	Instrumentation & Control Systems	EE61	10	4	1	2	2	-	-	-	1	-	20	
12.		Power Systems	EE62	10	4	1	3	2	-	-	-	-	-	20	
13.		Power Electronics	EE63	9	5	1	3	1	1	-	-	-	-	20	
14.		Industrial Power & Automation	EE64	10	5	0	3	1	-	-	1	-	-	20	
15.	ME	Industrial Engineering & Management	ME61	10	4	1	3	2	-	-	-	-	-	20	
16.		Thermal Sciences	ME62	9	4	1	3	2	1	-	-	-	-	20	
17.		Manufacturing Technology	ME63	9	5	1	3	1	1	-	-	-	-	20	
18.		Energy Management	ME64	10	5	0	3	2	-	-	-	-	-	20	
19.		Materials Science & Technology	ME65	10	4	1	3	1	-	1	-	-	-	20	
20.	NST	Nano Technology	NS61	7	2	1	2	1	-	-	-	-	-	13	
Total				186	83	16	55	28	5	2	1	2	1	379	
										11					
1.	MA	Mathematics	MA62	9	5	1	3	1	1	-	-	-	-	20	
2.	PH	Physics	PH62	7	2	1	2	1	-	-	-	-	-	13	
3.	CY	Chemistry	CY62	7	3	0	2	1	-	-	-	-	-	13	

Abbreviations:

OP- Open, OBC – Other Backward Class ,OM-Other Minorities, SC- Scheduled Caste, ST- Scheduled Tribe, PD-Persons with Disability

Candidates may check the website (www.nbc.nic.in) of the National Commission for Backward Classes, Govt. of India to ascertain from the Central List of Other Backward Classes whether they are entitled to seats reserved for the OBC category.

The criteria for exclusion of OBC candidates belonging to “creamy layer” will be based on OM NO. 36033/3/2004-Estt. (Res) dated 9th March 2004 and any other modifications that may take place from time to time in this regard. With effect from the 1st January, 2012 a sub-quota of 4.5 per cent (four point five) five socially and educationally backward classes of citizen belonging to minorities, as defined in clause (c) of section 2 of the National Commission for Minorities Act, 1992 from within the 27 per cent reservation for Other Backward Classes as notified by the

Government in accordance with O.M. No.36012/22/93-Estt. (SCT), dated 8.9.1993.

NITC provides 3% seats reservation for PD category as per Central Govt. rules.

A Maximum of 4 seats each is available in the Departments of Civil, Computer, Electrical and Mechanical Engineering for candidates from Engineering Colleges under Quality Improvement Programme (QIP).

A maximum of 6 seats are available in all the Departments put together for QIP candidates from Polytechnics.

A maximum of 2 seats in any programme of study is available to Foreign Nationals.

SELECTION OF CANDIDATES

M. Tech. Programmes

Selection of candidates who are qualified in GATE is based on their GATE Score subject to eligibility and availability of seats. For Sponsored Candidates and Foreign Nationals GATE Score is not required. Selection of these candidates is based on marks in the qualifying examination and/or performance in the interview.

M.Sc. Programmes

Selection of candidates is based on marks in the qualifying examination and performance in the Test/ Interview.

Test/ Counselling/ Admission

Eligibility for test/counselling/admission and call letter for test/counselling can be downloaded from the website after login using application number and date of birth. **There is no separate call letter dispatched.** All those who are called for counselling/admission will have to produce the original certificates and other documents. Admission is subject to satisfying the requirements and the call for Test/Interview/counselling does not guarantee admission. Candidates offered admission would have to remit the fees on the day of admission. The Schedule of Test/Interview/Counselling/Admission for PG programmes is planned during June/July 2012.

FINANCIAL REQUIREMENTS**

Amount to be paid at the time of admission

(a) Institute Fee:

Fee Category	All Open, SC/ST & Sponsored Candidates
Tuition Fee for M.Tech. ((Per semester)	Rs. 17,500
Tuition Fee for M.Sc. ((Per semester)	Rs. 12,000
Caution Deposit (Refundable)	Rs. 1,000
Examination Fee	Rs. 800
Other Fees:	
Admission Fee	200
Library Fee	1000
Growth Fund (Development Fee)	1500
Matriculation Fee	100
Special Fee (Students Group)	600
Miscellaneous Fee (Other Fee)	200
Amenities Fee	300
Sports Amenities Fee (Affiliation Fee)	300
Training & Placement Fee (Students Welfare)	300
Magazine Fee	75
Association Fee [SJET, PTA, RECCA, Dept. Assn. & Co.Op.Share]	762
Registration Fee	400
*Annual premium for Medclaim	265
Total amount to be paid at the time of admission: M.Tech	Rs. 25,302/-
Total amount to be paid at the time of admission: M.Sc.	Rs. 19,802/-

*Mediclaime amount may change.

(b) Hostel Fees: For all categories of candidates:

One Time Fee (Hostel Staff Welfare Fund, Student Amenities/Welfare Fund, etc.)	: Rs. 2,000/-
Mess Deposit (Refundable)	: Rs. 8,000/-
Furniture Deposit (Refundable)	: Rs. 3,000/-
Total Fees	: Rs. 13,000/-

Hostel room rent and mess charges payable every month extra.

** Financial Requirements are subject to change.

Hostel accommodation is not available for PG & Ph.D. students at present. However, efforts will be made to provide temporary accommodation with limited facility within the campus subject to availability.

FINANCIAL ASSISTANCE

Teaching Assistantship/ Scholarships is available to those who are GATE qualified and admitted to M. Tech. programmes in different departments subject to the maximum number available as stipulated by Ministry of Human Resources Development (MHRD). At present, the amount of assistantship is Rs.8000/ per month. This is awarded based on the minimum academic requirements and is available for a maximum period of 22 months only. The award and renewal of this assistantship/scholarship is as per the guidelines issued by MHRD from time to time. Those who are receiving the assistantship/ scholarship are required to assist the department in academic work to a minimum of 8 hours per week. As per rules in force, those who are interested in getting the scholarship are required to give an undertaking on stamped paper to the effect that they will not discontinue the course before completion. Those who discontinue the M.Tech. course are required to refund the entire scholarship amount drawn by them. However, if the student has discontinued the programme with the written permission from the concerned authority, the Director may consider the refund of the recovered amount of scholarship, provided the student completes all the requirements for the award of the degree within the maximum period as specified in the ordinances and regulation for the M.Tech. course in the Institute. The assistantship/ scholarship is not available for sponsored candidates or any student getting financial support from any agency including state and central governments.

HIGHLIGHTS OF M.Tech. PROGRAMMES

The four semester (Two year) M.Tech. programmes is based on the credit system. The programme comprise of several core and elective courses and project work. The highlights of M.Tech. programmes offered by various departments are given in the following section.

CIVIL ENGINEERING DEPARTMENT

M.Tech. Programme in Structural Engineering (CE61)

The M.Tech. Programme in Structural Engineering was started in the year 1971 with an intention of providing a comprehensive education and training to civil engineers using a holistic approach to structural systems engineering by emphasizing and building on the commonality of engineering structures at the levels of materials, mechanics, analysis and design is intended.

The programme provides a thorough training in the design principles and structural action as related to components and systems over a broad range of application areas. It also provides a thorough training in the methods of analysis, including problem formulation and the use of current mathematical and computational tools. The programme covers specialized topics in Theory of Elasticity, Earthquake Resistance Structures, Structural Dynamics, Structural Optimization, Finite Element Analysis, Advanced Metal Structures, etc.

M.Tech. Programme in Traffic & Transportation Planning (CE62)

The M.Tech. Programme in Traffic & Transportation Planning started in the year 1985. The Programmes aims to impart futuristic and need based technical education, and to promote reengineering in the field of Transportation Engineering for working out cost effective solutions in liaison with local authorities and to establish social relevance of research and developmental activities. Under the PMGSY (Pradhan Mantri Gram Sadak Yojana), National Highway Development Programme (NHDP-Golden Quadrilateral,

North-South and East-West corridors), Kerala Expressway (Kasargode to Thiruvananthapuram), etc. the importance given to the highway development has increased in leaps and bounds. Similarly, considerable attention is being given to the development of railways, waterways and airways. The present program in Traffic & Transportation Planning has three broad areas of specialization namely i) Traffic Engineering ii) Transportation Planning and iii) Pavement Technology.

M.Tech. Programme in Offshore Structures (CE63)

The goal of the programme is to prepare graduate students in civil engineering for the offshore profession having application of ocean sciences and engineering to the challenging conditions encountered in the ocean environment and to conduct research in support of the education programme. The oil industry with its crucial role in deciding the economy of the nation is shifting its exploitation strategy from land-based to ocean-based systems the world over. This shift in emphasis has resulted in turn to a growing need for structural engineers with expertise in design of off shore platforms and other deepwater structures, marine pipelines, towed bodies and cable systems, etc.

The various major courses offered in the programme are Wave Hydrodynamics, Design of Offshore Structures, Marine Foundations, Offshore Structural Systems-Modelling and Behaviour, Theory of Elasticity, Structural Dynamics, Statistics, Probability & Reliability Methods in Civil Engineering.

M.Tech. programme in Environmental Geotechnolgy (CE64)

The M.Tech.Programme in Environmental Geotechnolgy is an inter-disciplinary course covering geotechnical engineering and environmental engineering. The programme will train engineers to develop environmentally sound solutions to geotechnical problems and to solve environmental engineering problems unique to soil and subsurface conditions. The programme has its major core courses in topics dealing with geotechnical engineering, environmental protection and pollution control. A good number of electives are offered in areas such as foundation engineering in difficult soils, waste management, waste water engineering, earth quake engineering, landslide mitigation methods, etc. The project work is spread over in the third and fourth semesters.

COMPUTER SCIENCE & ENGINEERING DEPARTMENT

M.Tech. Programme in Computer Science & Engineering (CS61)

The two-year post graduate programme in Computer Science is intended to train the students in advanced areas in computer science and specialized topics in emerging areas in computing. Courses offered include Topics in Algorithms, Topics in Programming Languages, Operating System, Design, Trends in Middleware Technologies and Bioinformatics. The project work in the second year is intended to orient the student towards deeper study and research in his/her area of interest.

M.Tech. Programme in Computer Science & Engineering [Information Security] (CS62)

Information Security relates to the protection of IT assets against the risks of loss, misuse, disclosure or damage. Information security management comprises of the controls that sensibly manage these risks. By proactively managing information security, we can reduce the likelihood and/or the impact on our information systems from a wide range of threats. The M.Tech. programme in Computer Science & Engineering (Information Security) is envisaged to train graduates in Computer Science & Engg. / IT and MCA with the necessary skills to design and develop protocols and techniques to secure information systems.

ELECTRONICS & COMMUNICATION ENGINEERING DEPARTMENT

M.Tech. Programme in Electronics Design and Technology (EC61)

This course aims to train engineers as creative designers of electronic products and systems. This

programme is designed with the belief that any engineer concerned with the development of new electronic product needs to integrate the functional design, industrial design, equipment packaging and manufacturing. The Indian industries are more concentrating on value added electronics and IT products, and these industries need electronics design engineers, who can identify the customer requirements and develop appropriate systems. There are only very few institutes in India, providing specialized training programme on Electronics Design Technology with emphasis on practical design and problem solving skills.

M.Tech. Programme in Microelectronics and VLSI Design (EC62)

Micro Electronics is the driving force behind a large number of technical and commercial innovations at the present world scenario. There is a need of good amount of trained manpower in Micro Electronics and VLSI Design related areas in the coming years to raise India's share in the global VLSI Market. This is one of the thrust areas of the Ministry of Information Technology, Govt. of India. This is possible only through specialized programmes in Micro Electronics and VLSI Design. The course is well suited for the current academic and industrial needs of India. Employment opportunities are ample in this field as the industries recruit engineers on a global scale.

M.Tech. Programme in Telecommunication (EC63)

The social and economic life of all of the society are getting increasingly dependent on the Information and Communication Technologies. The technological revolution in the area of telecommunications has irreversibly changed the economy of every nation and the dynamics of every society. Many recent analyses done on the Telecommunication sector in India predict huge growth of the sector in coming decades. The two year M.Tech. programme in telecommunication is aimed at producing high quality man power in the area. The curriculum of the program is designed so as to make the students knowledgeable in the fundamental concepts involved, trained in the basic skill sets required, familiar with the latest technological advances made and sensitive to the social and ethical issues entailed in this very important subject.

M.Tech. Programme in Signal Processing (EC64)

Signal processing deals with the analysis, interpretation and manipulation of signals. The signals may be speech, audio, image, video, ECG, EEG, signals captured by communication receivers, seismic signals, etc. Hence, signal processing techniques are finding important applications in wide areas of technology ranging from wired and wireless communication to multimedia processing to medical diagnosis to earth quake prediction. The two year M.Tech. programme, programme in Signal Processing is designed to give the students a strong theoretical background of the subject and introduce them to some of its practical applications.

ELECTRICAL ENGINEERING DEPARTMENT

M.Tech. Programme in Instrumentation & Control Systems (EE61)

Instrumentation is the heart of any industry and sophisticated process control and guidance techniques are essential in modern days. This course, which was the first master's programme to be started in this institute, has been very useful for industries. The syllabus of this programme is structured to have the latest trends in Control and Instrumentation.

M.Tech. Programme in Power Systems (EE62)

This course is structured to give a strong base on power system generation, transmission & distribution, operation, analysis, dynamics and control together with the recent advances such as FACTS, power quality and deregulation. Adequate exposure is also given on software tools and techniques in the relevant areas. The course is designed so as to enable the students to work effectively both in industries and utilities.

M.Tech. Programme in Power Electronics (EE63)

This programme was introduced to meet the needs of the modern power industry which makes use of power converters and inverters. The emphasis is given for both theory and practical through design, fabrication and testing. The courses incorporate modern trends in switched mode power supplies, active power filters and the latest control techniques in drives.

M.Tech. Programme in Industrial Power and Automation (EE64)

Micro-processors/Micro-controller/DSP controlled motor drives, process control & SCADA

systems, Plant Automation, Co-generation, Power Wheeling, Power factor controllers etc. in industries make the necessity of integrating these devices and systems with electric power control. With the introduction of time of use and dynamic tariff schemes by the utilities, industries can effectively adapt load control techniques and energy conservation programmes. Computer controlled systems with integrated load control become essential for the modern industries. The M.Tech. programme in 'Computer Controlled Industrial Power' is with this objective to provide sufficient theoretical and field experience on the above systems to the Electrical engineers.

MECHANICAL ENGINEERING DEPARTMENT

M.Tech. Programme in Industrial Engineering & Management (ME61)

NIT Calicut has started PG Programme in Industrial Engineering in the year 1984. Later this programme is restructured in the year 2003 to include management topics also and it is renamed as Industrial Engineering & Management. The primary objective of this programme is to orient graduate Mechanical and Production Engineers in the broad areas of Industrial Engineering and functional aspects of management. The programme includes courses covering Decision modelling, Inventory and supply chain management, Cost management, Production planning & control, Finance management and Marketing management. A choice of several advanced electives in areas such as Lean manufacturing, Management information systems, Human resource management, Strategic management, Work system design, System modeling and simulation, Risk management, Quality engineering, etc. are offered under the programme. The theory is enhanced through laboratory classes and seminars. Adequate exposure is also given on software tools and techniques in the relevant areas. This programme is tailored to develop suitable skill for students to manage the resources optimally and to develop better procedures and management practices for efficient operation of the corporate.

M.Tech. Programme in Thermal Sciences (ME62)

The M.Tech. Programme in Thermal Sciences enables the students to develop expertise in the theory and design in the following areas of thermal engineering: Heat transfer, Turbo machines, Cryogenic engineering, Heat pump technology and Multiphase flow. A number of core courses and elective courses are offered in the first and second semesters. The project work spread over the third and fourth semesters involves application of knowledge in solving conceptual and practical problems in thermal engineering.

M.Tech. Programme in Manufacturing Technology (ME63)

The objective of this programme is to train manpower required to develop and manage the manufacturing capabilities of industries. The core courses offered in this specialization are Machining science, Metal forming, Machine tool design and analysis, Metal casting and joining, Robotics, Advanced Metrology and Computer Aided Inspection and Quality engineering & management. A good number of electives are offered in areas such as Tribology, Mechatronics, Cellular manufacturing systems, Tool engineering & design, Finite element methods and applications, Non-traditional machining processes, Computer integrated manufacturing systems, etc.

M.Tech. Programme in Energy Engineering & Management (ME64)

Energy Management is critical to our future economic prosperity and environmental well-being. This M.Tech. programme is designed to develop Mechanical/Chemical engineers with a high standard of expertise in energy management. The core courses offered in this programme include Energy conversion systems, Renewable energy Technology, Electrical energy systems and management, Design and analysis of energy systems, Energy & environment, and Energy conservation in thermal systems. A number of courses such as Energy policies for sustainable development, Optimal design of heat ex-changers, Direct energy conversion, Cost management, Heat pump technology, Fluidized bed systems, Industrial load management etc. are offered as electives. There is ample scope for doing project work in non-conventional energy systems.

M.Tech. Programme in Materials Science & Technology (ME65)

The educational mission of the Materials Science & Technology programme is to provide students with a unique interdisciplinary academic foundation on which development of intellectual capacity, and the scholarly training needed to address

complex problems in materials science with emphasis on advances in Materials processing, Electronic materials, Ceramics, Composites, Polymers, Super alloys, and the selection of materials to meet specific design goals. The practice of materials science and technologies available today in order to develop and characterize new materials and materials systems that will lead technological development for the future. The Programme provides students the following essential elements: a firm grasp of the fundamentals of science and engineering, ample exposure to a wide range of applications and an understanding of contemporary issues and the need for lifelong learning.

SCHOOL OF NANO SCIENCE & TECHNOLOGY

M.Tech. Programme in Nano Technology (NS61)

Nanotechnology is an emerging interdisciplinary area, which is rated as one of the top ranked subjects in academics and research. This programme will impart state-of the art knowledge in this new area, and has an objective of training the students to make them capable of addressing the challenges of this emerging technological field. The programme is designed for students with a background in Mechanical/Production/Chemical Engineering. This will deal with topics related to the fundamentals and applications of the subject, with a focus on emerging areas in Nanoscience and Nanotechnology. The courses offered in the programme include fundamental and applied subjects such as Physics of Materials, Thermodynamics of Nano Materials and Systems, Mechanics of Finite-size Elements, Microscale and Nanoscale Heat Transfer, Nanosized Structures, Experimental Techniques in Nanotechnology and Micro Electro Mechanical Systems, and a variety of elective subjects ranging from Computational Nanotechnology to Composite Materials from which students can choose, according to their background and interest. Laboratory courses dealing with production and applications of nanoparticles, nanofluids and nanocomposites as well as giving exposure to discrete computational analysis of nanoscale phenomena and systems will also be offered as part of the curriculum. The specialization in Nanotechnology holds a very high potential for employment in R&D, academics and industries, as well as provides a gate way to the extremely challenging field, which is expected to have a profound impact on the future of all streams of science and technology.

HIGHLIGHTS OF THE M.Sc. PROGRAMMES

The four semester (Two year) M.Sc. programmes based on the credit system comprise of several core and elective courses and project work. The highlights of various M.Sc. programme offered by various departments are given in the following section:

MATHEMATICS DEPARTMENT

Post Graduate Programme leading to M.Sc. Degree in Mathematics

The focus of the programme would be to generate mathematics graduates with strong fundamentals, who are confident of applying their knowledge to practical/ research problems in mathematics and related areas. The curriculum and syllabi maintains an appropriate balance between pure and applied mathematics by providing familiarity with a wide range of mathematical tools on the one hand and at the same time giving enough importance for developing analytical skills, thus keeping career option academia, R&D organizations and industries open.

CHEMISTRY DEPARTMENT

M.Sc. in Chemistry

The Department is offering a M.Sc. course in Chemistry. The aim of the programme is to prepare students for a research career in academia or industry, with strong basics in fundamental aspects of chemistry and exposure to the latest research trends. The programme curriculum and syllabi is designed to cover all major branches of chemistry with regular revisions to incorporate the latest developments in each area.

PHYSICS DEPARTMENT

M.Sc. Physics

The objective of this two year M.Sc. Physics programme is to prepare students for a career of research and academics, in basic or applied sciences. The programme focuses on building a strong base of fundamental principles on which modern Physics is built. This would enable the students emerging from this programme to compete with the best of talent available at the entry point to Ph.D programmes anywhere in the country or abroad.

FORMAT OF CERTIFICATES

COURSE COMPLETION CERTIFICATE

This is to certify thatstudying/studied inDiscipline/specialization* has completed/ will be completing the semester/year regular full time programme from the (Name of Degree) UGC/AICTE recognised institute on..... and has passed with an aggregate mark of percentage/CGPA up to and includingsemester/year.

His/Her Character and Conduct are

Place.....

Signature of the Head of the institute with seal

Date...../...../.....

Office Seal

- M.Tech./M.Sc (Tech) applicants: Please specify branch/ discipline in the case of candidate with Engineering Degree and for other graduate specify the discipline/specialization and will be any one of the following Mathematics, Applied Mathematics, Physics with Mathematics as subsidiary, Chemistry with Mathematics as subsidiary or (Mathematics, Physics, Chemistry three main system)

SPONSORSHIP CERTIFICATE (Only for Sponsored Candidates)

This is to certify that: Mr./Ms is employed in this organization on full time basis from..... to till date in the post as in the Department of and that,

1. He / She will be sanctioned leave for the required period as per M.Tech. regulations to carry out M.Tech. studies in NIT Calicut
2. He/She will be paid full salary and allowances during this period
3. He/ she will be re-employed in this organization on completion of the M.Tech. programme for a minimum period of years.

Place.....

Signature of the sponsoring authority with seal

Date...../...../.....

(By Head of the institute/organization or competent authority)

Office Seal

IMPORTANT DATES (Tentative)

Events	Dates
For admission to M.Tech. GATE Qualified	Visit NIT Jaipur Website http://ccmt2012.mnit.ac.in
Availability of Online Application Forms for M.Tech. Sponsored and M.Sc.	19 th April 2012 to 21 st May 2012
Last Date for Receipt of Completed Applications for M.Tech. Sponsored and M.Sc.	21 st May 2012
Test/ Interview for M.Sc.	11 th June 2012
Admission to M.Sc.	25 th June 2012
Test/Interview for M.Tech. (sponsored)	26 th June 2012
Admission to M.Tech.-Sponsored	12 th July 2012
Registration	16 th July 2012
Orientation	17 th July 2012
Commencement of Classes	18 th July 2012

LEGAL JURISDICTION

All disputes pertaining to the counseling and admission for the M. Tech./M. Sc.(Tech.) programmes of NIT Calicut shall fall within the jurisdiction of Calicut, Kerala only.

DISCLAIMER

The statement made in the information brochure and all other information contained herein is believed to be correct at the time of publication. However, the Institute reserves the right to make, at any time without notice, changes in and additions to the regulations, conditions governing the admission, requirements, seats, fees and any other information, or statements contained in this information brochure. No responsibility will be accepted by the Institute/Chairman-Admissions for hardship or expenses encountered by its students/any other person for such changes, additions, omissions or errors, no matter how they are caused.

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