

Admission Brochure
for
2014-15 batch M. Tech Courses
in
Embedded Systems (ES)
&
Electronics Design Technology (EDT)
of

**NATIONAL INSTITUTE OF ELECTRONICS AND INFORMATION TECHNOLOGY
(NIELIT, CALICUT)**

An autonomous Scientific Society of Department of Electronics and
Information Technology,
Ministry of Communications & Information Technology, Govt of India.
NIELIT Calicut, PB No. 5, NITC Campus P.O, Calicut – 673 601 Kerala.

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About Us: National Institute of Electronics and Information Technology (NIELIT), Calicut is a Centre of NIELIT New Delhi, Which is an autonomous body of Department of Electronics and Information Technology (DeitY), Ministry of Communications & Information Technology (MCIT), Government of India. This institute was established in 1989 and is located close to the National Institute of Technology Calicut, about 20 km east of Calicut city. The Institute received assistance from UNDP (United Nations Development Program) and was also a participating institution under Project IMPACT of the World Bank and Swiss Development Co-operation for infrastructure development and faculty training.

The Institute has state-of-the-art laboratories, fully equipped with the latest systems and development tools in the areas of **Embedded Systems, VLSI Design, Information Technology, Power Electronics, Product Design, Control & Instrumentation and CAD/CAM.**

The Institute has highly qualified and best available talents in the fields, as its faculty who have undergone specialized training in various International Universities and Industries in USA, UK, Germany, Netherlands etc. and with many years of experience in Embedded Systems. This includes post graduate and graduate engineers having ample teaching and industrial/R&D experience and highly skilled technical support staff to assist the faculty and students in their activities.

Our Objectives

- To undertake Product Development, Contract Research, and Consultancy.
- To provide technical support to Industries in Application of Electronics and IT
- To develop Entrepreneurs and Designers in Electronics and IT.
- To train manpower in Electronics Product Design, Manufacturing, Maintenance, and IT
- To impart quality IT training through National Level Certification

Our Vision

To be the leader in the development of industry oriented quality education and training and be the country's premier Institution for examination and certification in the field of Information, Electronics and Communications Technology (IECT).

Long Term Courses

- M. Tech in Embedded Systems
- M. Tech in Electronics Design Technology

Short Term Courses

- PG Diploma in Embedded System Design
- PG Diploma in Embedded Wireless & Mobile Applications
- PG Diploma in Industrial Automation System Design
- PG Diploma in VLSI and Embedded Hardware Design
- PG Diploma in ASIC Design and Verification
- PG Diploma in CAD/CAM
- PG Diploma in Software Technology
- PG Diploma in Information System Security

- PLC/SCADA/DCS Engineer
- CNC Machine Tools and NC Part Programming
- Advanced course in .NET Technologies
- Advanced Course in J2EE
- Advanced Diploma in System Administration with Shell Scripting
- Advanced Diploma in Information Security and Audit
- Advanced CAD/CAM

M. Tech Courses in Embedded Systems (ES) & Electronics

Design Technology (EDT)

The M.Tech courses in 'Embedded Systems' and 'Electronics Design Technology' are four semester programs. These courses focus on practical design aspects of Embedded Systems and Electronic Product Design and are intended for students who wish to work in the Industry as Design Engineers. The core and elective papers are practical oriented. This program is also an excellent one for those aspiring to take teaching as a profession.

To maximize the engineering, design and problem solving skills of the students and to become more adaptable to real life situations, project work in Industry is very helpful. This not only provides an opportunity to the students to have real life problem solving experience/ project work, but would also help them to apply their class-room/ Laboratory knowledge to live situations. To achieve this objective, students are given the option to do the project work at reputed industries.

Objective of the Course

To mould fresh electronics engineers and to upgrade working engineers into High Caliber Embedded System Designers and Electronics Product Designers by enhancing their knowledge and skills in various hardware and software design aspects of Electronic Systems. These courses cover a range of topics of immediate relevance to industry and make the students suitable for working in industries engaged in Embedded System and Electronic Product development. These courses also provide an excellent foundation for those wishing to engage in application research in this rapidly developing area.

Outcome of the Course

- *Participants get exposure to different families and architectures of Embedded System such as Microcontrollers, DSPs, FPGAs, RTOS etc.*
- *Participants shall develop the expertise required to design electronic products, embedded system hardware and software using the above tools and become industry ready.*
- *Participants become highly proficient in Embedded Software particularly in real-time programming*

UNIVERSITY AFFILIATION						
M.Tech courses are affiliated to Calicut University.						
AICTE APPROVAL						
M.Tech courses are approved by AICTE and approval for the year 2014-15 is awaited soon.						
DISTRIBUTION OF SEATS						
Each M.Tech in Embedded Systems and Electronics Design Technology has 18 seats. Reservations shall be as per the existing government rules. The seat distribution in each M.Tech is as given below.						
General (including Physically handicapped and SEBC)	10	SC/ST	3	Sponsored	5	
ELIGIBILITY CRITERIA FOR M.TECH COURSES						
<p>a. The candidate shall be an Indian National</p> <p>b. The candidate should have passed the B.Tech course or equivalent from an institution approved by the University of Calicut and the All India Council for Technical Education.</p> <p>c. The eligible branches of engineering for each M.Tech are given under the eligibility criteria.</p> <p>d. Candidates should have a minimum of 55% aggregate marks in the engineering degree examination. For SC/ST candidates, a pass in the engineering degree course is sufficient.</p> <p>e. Admission shall normally be restricted to those candidates who have a valid GATE Score.</p> <p>f. However Non GATE candidates can also apply. They shall be considered against the vacancies of eligible GATE candidates. These unfilled GATE seats shall be filled with NON GATE candidates from KERALA state alone. They have to produce nativity certificate.</p> <p>g. GATE score is not needed for Sponsored candidates.</p> <p>h. Candidates who have passed AMIE/AMIETE Examination in Electronics and satisfying the following conditions are also eligible for admission.</p> <ol style="list-style-type: none"> They must have a valid GATE score A Minimum marks of 55% for the section B in AMIE/AMIETE Examination Minimum 3 years of professional experience in the field of specialization after acquiring the qualifying degree <p>i. GATE qualified candidates who have appeared for the final examination may also apply provided the results (mark lists/ confidential mark lists) are made available on or before 14-07-2014. Such candidates may be considered for provisional admission. Any candidate admitted provisionally as mentioned above shall have to discontinue the course, if he/she does not produce the final complete mark list and provisional/ degree certificate on or before 31.07.2014.</p> <p>The specific eligibility for the two M.Tech courses is as given below.</p> <p>I. ELIGIBILITY FOR EMBEDDED SYSTEMS (ES)</p> <ol style="list-style-type: none"> The candidate should have a B.E./B.Tech in Electronics and Communication/ Electrical and Electronics/ Applied Electronics and Instrumentation/ Instrumentation and Control/ Electronics and Instrumentation/ Electronics/ Computer Science/ Computer Science and Engg./ Information Technology/ Biomedical Engg./ Electronics and Biomedical Engg./ Biomedical Instrumentation Engg. subjects awarded by the Calicut University or equivalent there to as approved by the University of Calicut. GATE score in Electronics/ Electrical/ Instrumentation/ Computer Science/ IT/ Biomedical engineering subjects. 						

II. ELIGIBILITY FOR ELECTRONICS DESIGN TECHNOLOGY (EDT)

- a. The candidate should have a B.E./B.Tech in Electronics and Communication Engg./ Applied Electronics and Instrumentation Engg./ Electronics and Instrumentation Engg./ Instrumentation and Control Engg./ Electronics and Biomedical Engg. subjects awarded by the Calicut University or equivalent there to as approved by the University of Calicut.
- b. GATE score in Electronics/ Instrumentation/ Biomedical engineering subjects.

SPONSORED SEATS

A sponsored candidate must have at least **three years** of service at the time of applying. Their employers must sponsor them and relieve them to pursue the programme for the full duration of the course. GATE score is not needed for sponsored candidates.

Candidates from Central/State Govt. Institutions, Public Sector Organizations and reputed Private Organizations will be considered in this category. Teachers sponsored from AICTE recognized Engineering Colleges will also be considered in this category.

SELECTION OF CANDIDATES

The admission to the course shall be based on the following criteria:

1. For **General and SC/ST** category admission, preference shall be given to candidates who have a valid GATE score.
2. Should have passed the B.Tech/B.E course with a minimum of 55% marks.
3. SC/ST candidates should have minimum pass mark.
4. Should have valid GATE Score (see the eligibility criteria for each M.Tech)
5. Any seats unfilled by eligible GATE qualified candidates shall be filled with NON GATE candidates from KERALA state, the selection of which shall be based on marks in the qualifying degree examination and grace mark. **They should produce nativity certificate.** Students belonging to Calicut University shall be given a grace mark of 15%, students belonging to other universities from Kerala shall be given a grace mark of 5%.
6. Those result awaiting GATE candidates, who have completed the engineering degree course and passed all subjects and are able to produce the proof of passing with complete mark lists or confidential mark lists from University on or before 22.07.2014 shall be considered for provisional admission. They have to produce the complete mark lists and provisional/degree certificate on or before 31.07.2014. If they fail to meet admission criteria, the fees paid by them will not be refunded in any case.
7. In the case of students with the same GATE score then the selection shall be based on the marks in the Qualifying degree. In case a tie still exists, the selection shall be as follows,
 - i. M.Tech ES**
 - a. Preference shall be with GATE Score in the order as given below: Electronics/ Electrical/ Instrumentation/ Computer Science/ IT/ Biomedical engineering subjects.
 - b. In case of a further tie, next preference shall be according to the order of the qualifying degree specified above.
 - ii. M.Tech in EDT**
 - a. Preference shall be with GATE Score in the order as given below: Electronics/ Instrumentation/ Biomedical engineering subjects.
 - c. In case of a further tie, next preference shall be according to the order of the qualifying degree specified above.

8. For **Sponsored candidates**, minimum 3 years of experience at the time of applying is required and they should produce the necessary certificates such as the Original sponsorship certificate and Original Experience Certificate at the time of counseling/admission. GATE score is not required for sponsored students. Selection of these candidates is based on marks in the qualifying examination and performance in the interview conducted by the selection committee with a weightage of 80:20 respectively.
9. Vacant Sponsored seats shall be filled with eligible candidates from the general list.
10. The counseling/admission will be on **14-07-2014**. **All are requested to attend the counseling and admission in person on that day with the original mark lists, certificates and other necessary documents.**
11. Admission is subject to satisfying the requirements and availability of seats. Attending the counseling does not guarantee admission.
12. Candidates offered admission would have to remit the one-year fees or at least one-semester fees on the same day of counseling, failing which the admission is not guaranteed.
13. **Transfer Certificate issued from the institution last attended must be produced at the time of admission.**

FEES

Fees shall be Rs 65,000/- per semester which includes the semester tuition fees of Rs 50,000/- and special laboratory tuition fees of Rs 15,000/-. University affiliation, examination, sports, union and other fees is approximately Rs 3,000/- per year. Refundable caution deposit is Rs 5,000/-. The semester fee is excluding the hostel and food charges.

SC/ST students are eligible for full tuition fee waiver. However they need to pay the refundable caution deposit of Rs 5,000/- and University affiliation fee of Rs 3,000/-. Physically handicapped candidates can avail 25% fee exemption on the tuition fee, if their annual family income is below Rs 1,00,000/- for which they need to produce income certificate from a Tahsildar. Other university fees shall be extra for students of all categories.

	Sem1	Sem2	Sem3	Sem4
General & Sponsored	73,000/-	65,000/-	73,000/-	65,000/-
SC/ST	8,000/-	Nil	3,000/-	Nil

FEE PAYMENT MODE

Candidates can pay the semester fees as well as the application form processing fee of **Rs 1000.00** for general and **Rs 500.00** for SC/ST candidates either through **Demand Draft or direct online payment or by using SBI Collect.**

DD should be taken in favour of '**Director, NIELIT, Calicut**', payable at State Bank of India, NITC, Chathamangalam Branch (Code No. 02207).

The fees can be paid directly into our account from any bank where core banking facility is available. The Institute will not be responsible for any mistakes done by either the bank concerned or by the depositor while remitting the amount into our account. The candidate should provide the proof of online payment with the UTR Number/Journal ID from the branch while depositing cash directly into our account. Name of the Student, Date of Payment, Amount Deposited, Name of Bank/branch through which amount deposited, Proof of Deposit (UTR Number/Journal ID) should be provided.

The details required for direct payment are as given below.			
1.	Bank Account No	:	31329537747
2.	Account Type	:	Savings Bank
3.	Account Name	:	Director NIELIT Calicut
4.	Bank Name	:	SBI, NITC (CREC) Branch Chathamangalam – 02207
5.	Bank Address	:	NIT Campus Post, Chathamangalam, Calicut, Kerala - 673601 Ph: 0495 - 2287239
6.	IFS Code	:	SBIN0002207
7.	MICR	:	673002012
8.	Mode of Electronic Transfer	:	RTGS, NEFT, ECS, CBS

RECOGNITION CERTIFICATE

For candidates with qualifying degree from Universities and Deemed universities outside Kerala, Equivalence certificate from the Calicut University is a must for admission. **Only those candidates who get provisional admission need to produce the equivalence certificate.** The admission is liable to be cancelled for not producing equivalence certificate within a day.

Candidates are advised to check with Calicut University regarding the recognition with the following details: Degree Name, Branch of Degree, Name and address of the University, Name and address of the College and Year of passing.

SCHOLARSHIP

All GATE qualified candidates are eligible for teaching assistantship (TA) subject to AICTE and MHRD guidelines. This facility will not be available to students admitted under Sponsored Candidates quota, Foreign Nationals and Dependents of NRIs. Disbursement of TA will only be done after the Govt. of India makes funds available. As per MHRD directives fellow holding TA shall not accept or hold any appointment paid or otherwise or receive any emoluments, salary, stipend etc from any source during the tenure of the award.

The students joining the programme under this category will be considered for Teaching Assistantships of Rs. 8,000/- per month, based on the following norms:

- Students getting assistantship will be required to assist / work for courses, laboratory, or any other related academic / administrative work to the extent of 8 hours per week.
- The assistantship will be available for a maximum period of 24 months and students with TA have to complete M.Tech in two years.
- Assistantship will be paid on the basis of monthly attendance.

DISCONTINUING THE COURSE & REFUND OF FEES

- In the event of a student withdrawing before the starting of the course and closing of admissions, the refund of fees shall be the Entire fee less Rs 1000/- (Rupees One Thousand only) as processing fee.
- Should a student leave after joining the course and if the seat consequently falling vacant has been filled by another student before the closing of admission, the fee collected should be returned with proportionate deductions of monthly fee and proportionate hostel rent. The monthly fee shall be Rs 10833.00 (semester fees of Rs 65000.00 spread over six months per semester). The hostel rent shall be the yearly hostel fees spread over 12 months. The monthly fees and the hostel rent up to the month, the student is leaving shall be collected and the

	<p>balance amount to be returned.</p> <ol style="list-style-type: none"> 3. If any student admitted for M.Tech discontinues the studies after the closing of admissions in the same academic year or in subsequent academic years, to join other courses or for other purposes, he/she is liable to pay a liquidated damages of Rs. 65000.00 (Rupees sixty five thousand only) in addition to the fees already paid. This is not applicable for those who are leaving in their final semester and have paid all the fees. Candidates belonging to SC/ST category shall be exempted from paying the liquidated damages. Any candidate admitted provisionally and has to discontinue the course since he/she does not produce the complete mark list and provisional/degree certificate on or before 31.08.2014 will also have to pay the full fees for the first two semesters. 4. If any student admitted for M.Tech avails scholarship or stipend (such as GATE scholarship or SC/ST fee reimbursement) etc and discontinues the studies after the closing of admissions in the same academic year or in subsequent academic years, to join other courses or for other purposes, he/she has to pay all the scholarship or stipend received so far back to the authority concerned.
RAGGING CASES	
	<p>In case the applicant for admission is found to have indulged in ragging in the past his/her admission shall be refused or if it is noticed later that he/she has indulged in ragging in the past or is indulging in ragging during the period of the M.Tech course duration, the concerned student shall be given liberty to explain and if his/her explanation is not found satisfactory, his/her admission gets cancelled and the authority would expel the student from the institution. Further he/she has to pay a liquidated damage of Rs. 65,000.00.</p>
WHO SHOULD APPLY?	
	<p>Those who are seriously interested in pursuing a design career in Embedded System Design and who are having an aptitude in programming as well as hardware design only shall apply. It is also expected that the student is good in electronic fundamentals.</p>
HOW TO APPLY?	
	<ol style="list-style-type: none"> 1. It is strongly advised to use the on-line method of applying. After filling all the required fields, a print out of the application should be taken and sent it to the M.Tech coordinator along with the appropriate application fees. On-line application link is - http://calicut.nielit.in/EL/MTechApplication.aspx 2. In case the on-line mode is not possible, one can use the appropriate application form for admission to M.Tech programme obtained from NIELIT Calicut or downloaded from NIELIT Website http://calicut.nielit.in 3. Enclose a self-addressed stamped cover along with a request to get the application form by post. 4. A passport size photograph taken not earlier than 3 months is to be affixed on the Application Form. The photo in the application should be self-attested. Four more copies of the same photograph and one stamp size photograph should be produced at the time of counseling/admission. 5. The following documents should be enclosed along with the application: <ol style="list-style-type: none"> i. Copies of the Mark Lists & Degree Certificate of the Qualifying Examination. ii. Course Completion Certificate from the Head of the Institution last studied and attested copies of Mark Lists up to the pre-final semester/ pre-final year for those who have appeared in the qualifying examination and are awaiting results. iii. Copy of the GATE Score Card (if applicable). iv. Copy of Community Certificate in the case of Scheduled Caste/Scheduled Tribe candidates from a competent authority not below the rank of a Tahsildar. v. Copy of Community and non creamy layer Certificate in the case of SEBC

	<p>candidates from a competent authority not below the rank of a Tahsildar.</p> <p>vi. Copy of Nativity Certificate in the case of NON GATE candidates from Kerala State from competent authority.</p> <p>vii. Copy of proof of Date of Birth.</p> <p>viii. Copy of Sponsorship Certificate and Experience Certificate in the case of Sponsored Candidates.</p> <p>ix. Proof of payment of application form fee of Rs 1000.00 for general and Rs 500.00 for SC/ST candidates.</p> <p>5. A single application form with the above amount is to be sufficient for both M.Tech's. Preferences should be clearly mentioned in the application form.</p> <p>6. The application with all the above enclosures should be sent by Registered Post/Speed Post on or before 5.30 pm of 07-07-2014 so as to reach the</p> <p>'M.Tech - Coordinator, NIELIT Calicut, PB No. 5, NITC Campus P.O, Calicut – 673 601 Kerala'.</p>
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COUNSELING

All Sponsored and GATE qualified candidates have to report personally for counseling by **9.00 am on 14-07-2014** with all the necessary documents (originals and attested copies). The interview shall be from 9.30 am onwards.

All Non-GATE candidates have to report personally for counseling by **12.00 pm on 17-07-2014** with all the necessary documents (originals and attested copies). Their interview shall commence immediately after the admission of the Sponsored and GATE qualified candidates are over.

Those who fail to submit the application form before 5.00 pm of 07-07-2014 and those who don't bring the necessary documents (originals, attested copies and proof of passing) on 14-07-2014 are not eligible for interview or admission.

The selected candidates have to pay the full fees or one-semester fees for admission on the same day. The original certificates and mark lists starting from SSLC or equivalent upto the present qualifying degree have to be submitted. Transfer Certificate issued from the institution last attended must be produced at the time of admission. The classes shall commence on 04-08-2014.

All result awaiting candidates who have shown proof of passing on the counseling day and are taking admission have to pay the full one year academic fees. Their admission gets cancelled if they are unable to produce the complete mark lists and provisional/degree certificate on or before 31.08.2014 and if they fail to meet admission criteria. The fees paid by them except the caution deposit will not be refunded under any circumstances.

COUNSELING INTIMATION

All those who apply shall have to be present in person for the counseling on 14-07-2014. There shall not be any separate intimation for the counseling.

IMPORTANT DATES

Commencement of Issue of Application Forms	15-05-2014
Last Date for Issue of Application Forms	07-07-2014
Last Date for Receipt of Completed Application forms (before 5.00 pm)	07-07-2014
Counseling/Admission for GATE students	14-07-2014
Counseling/Admission for NON-GATE students	17-07-2014
Reporting/Commencement of Classes	04-08-2014

TELEPHONE NUMBERS	
Office	0495 - 2287266 / 2287268
Director's Office	0495 - 2287123
Co-ordinator M.Tech	0495 - 2287266 / 2287177/ 9447541518
Office Fax	0495 - 2287168
ADDRESS FOR CORRESPONDENCE	
M.Tech Coordinator, NIELIT Calicut,, PB # 5, NITC Campus P.O., Calicut – 673601, Kerala, India	
Ph:	0495 - 2287177
Fax:	0495 - 2287168
e-mail:	mtech@calicut.nielit.in
Website:	http://calicut.nielit.in
OFFICE TIMINGS	
The office timings are from 9.00 am to 5.30 pm with half an hour Lunch break at 1.00 pm. Saturday and Sunday are holidays.	
CLASS & LAB TIMINGS	
This program is a practical oriented one, hence there shall be more lab than the theory classes. The classes and labs are from 9.30 am to 12.45 pm and 1.30 pm to 5.30 pm Monday to Friday. During project work, the timings are from 9.15 am to 5.30 pm.	
PROJECT WORK	
The project work of two semester duration is part of the course and can be done in an Industry or in NIELIT during the third and fourth semesters.	
PLACEMENT	
<p>We have a placement cell, which provides placement assistance to students who qualify our courses. The Syllabus for this M.Tech is prepared in collaboration with reputed Embedded System Companies in Bangalore and Techno Park Trivandrum such as Wipro, GE Power Controls, Robert Bosch, Philips, Texas Instruments, Analog Devices, Wind River, BBS, MindTree, TATA Elxsi, etc.</p> <p>The previous students are placed in companies such as WIPRO, INFOSYS, BOSCH, SIEMENS, MISTRAL, TATA Elxsi, KYOCERA WIRELESS, CAPTRONICS, GDA Tech, HONEYWELL, SANKHYA TECHNOLOGIES, Caterpillar etc.</p>	
LAB FACILITIES	
<p>The centre is equipped with state-of-the art lab facilities in Embedded Systems in the country. These Include,</p> <ul style="list-style-type: none"> • Microcontroller Dev. Systems - Intel 8051, 80C196, MPLAB for PIC 16 & 18 series, ARM9, Cortex M3, ADS, KEIL 'C' IDE, • Code Composer Studio, Visual DSP, TI & AD DSP Dev.Systems –'C6000, 'C5400, 'C5500, 'C243, 'C2812, 2191, 21065, 21061 (Sharc) DSPs • VxWorks & RTLinux RTOS • Xilinx ISE FPGA Design Tools, Leonardo Spectrum, Model Sim Simulator • Linux for Embedded Applications, Matlab, Simulink, TI 'C6000 target for Matlab, • LabView, Universal DATA I/O programmer, PC Based EDA tools (ORCAD) • 500, 350, 300, 100 MHz Digital Storage & Mixed Signal Oscilloscopes • EMI Test Setup, Wireless LAN, Logic Analyzer, SMD Rework station 	
HOSTEL/CANTEEN FACILITY	
<p>We provide hostels with shared accommodation for both ladies and gents at reasonable rent. For boys, hostel rent ranges from Rs 850/- to Rs 1300/- per month. For Girls, hostel rent ranges from Rs 1000/- to Rs 1400/- per month. A canteen is also functioning inside the hostel and food at reasonable rates is available .</p>	
LOCATION & HOW TO REACH?	
We are located 20 kms away from Calicut City and is one bus stop before the NITC (REC), Calicut. The bus stop is 'CEDT' or 'Panthrandu' and the present bus fare is Rs 15.00 from city.	