National Institute of Electronics and Information Technology, Calicut

CDS/CA/7.5.1/F 40/R13B

COURSE PROSPECTUS

Name of the Group: *Embedded Systems Group*
Name of the Course: *Internship on Embedded Systems and IoT*
Course Code: *ESIN-101,102*
Starting Date: *19 June 2024*
Duration: *ESIN-101(4 Weeks), ESIN-102(6 Weeks)*
Course Coordinator: *Manoj.N,9446783170 – Akula Sri Rama Pavan, 8904310403*
No. of Seats: *40*

Preamble: *Preamble for the Course*

- *This internship program is designed to provide participants with a comprehensive understanding of Embedded systems and Internet of Things (IoT) technologies. The course combines theoretical knowledge with hands-on practical experience to equip participants with the skills required in these rapidly evolving fields. The Course is planned with instructor led Offline sessions of lectures, demonstrations and hands on sessions with various development boards and kits.*

Objective of the Course: *Objective of the Course*

- *Understand the fundamental principles of embedded systems, including hardware components, software development, and real-time systems.*
- *Explore the intricacies of IoT, covering topics such as architecture, communication protocols, cloud integration, and data management.*
- *Gain hands-on experience in programming embedded systems, interfacing sensors and actuators, and developing IoT applications.*
- *Develop problem-solving skills and innovative thinking through project work that applies learned concepts to real-world challenges.*
- *Acquire industry-relevant skills and knowledge of best practices in embedded systems and IoT development.*

Outcome of the Course: *Outcome of the Course*

- ***Comprehensive Understanding:*** *Gain a thorough understanding of embedded systems, including hardware components, software development, real-time systems, and their applications in various industries.*
- ***IoT Concepts Mastery:*** *Master the core concepts of the Internet of Things, including IoT architecture, communication protocols, cloud integration, data management, and security considerations.*
- ***Hands-on Experience:*** *Acquire practical experience through hands-on sessions, including programming embedded systems, interfacing sensors and actuators, setting up IoT devices, and transmitting data to the cloud.*

- **Programming Proficiency:** *Develop proficiency in C programming for embedded systems, as well as familiarity with programming languages commonly used in IoT development.*
- **Project Development:** *Apply learned concepts and skills to complete a project that demonstrates the ability to design, implement, and troubleshoot solutions using embedded systems and IoT technologies.*
- **Industry-Relevant Skills:** *Acquire industry-relevant skills and knowledge of best practices in embedded systems and IoT development, making you well-prepared for roles in the embedded systems and IoT industry.*

Expected Job Roles: *NA*

Course Structure:

Sl. No	Module Title	Duration (Hours)		
		Theory	**Lab**	**Total**
1	*Embedded C Programing*	*10*	*15*	*25*
2	*ARM Cortex Microcontrollers*	*10*	*15*	*25*
3	*MATLAB*	*10*	*15*	*25*
4	*Internet of Things fundamentals*	*10*	*15*	*25*
	Total Duration ESIN-101	**40**	**60**	**100**
5	*Mini project*	*10*	*40*	*50*
	Total Duration ESIN-102	**50**	**100**	**150**

Other Contents

I. **Course Fees**:

Rs. *3400/-* (Exclusive of GST) for ESIN-101

Rs. *5110/-* (Exclusive of GST) for ESIN-102

Course Code: *Internship on Embedded Systems and IoT*				
Module & Course Code	Module Name	Duration (Weeks)	Fees (for Other candidates)	Payable by SC/ST candidates admitted under reservation quota
Internship on Embedded Systems and IoT *ESIN-101*	*ESIN-101*	*4*	*Rs.3400(Exclusive of GST)*	*Rs.3400(Exclusive of GST)*
Internship on Embedded Systems and IoT *ESIN-102*	*ESIN-102*	*6*	*Rs.5110(Exclusive of GST)*	*Rs.5110(Exclusive of GST)*

II. Refund of Fee:

If the student does not join for the registered course / any of the registered courses, fee paid shall be forfeited.

However above the registration fee shall be refunded on few special cases as given below

➢ Course postponed and new date is not convenient for the student
➢ Course cancelled in advance, well before the admission date

III. Course Fee Structure:

Students can pay the full fees in advance as mentioned below

Fees	*Amount	Due Date (on or before)
ESIN-101	*Rs.3400(Exclusive of GST)*	17th June 2024
ESIN-102	*Rs.5110(Exclusive of GST)*	17th June 2024

*Above fees is exclusive of GST, with any revision by Government shall be applicable at the time of payment.

IV. Eligibility:

For ESIN-101- B.E/B.Tech/ Diploma (Electrical Electronics / Instrumentation) Qualified or pursing.
For ESIN-102- M.Tech Qualified or pursing.

V. Number of Seats : *40 (ESIN-101+ESIN102)*

VI. Selection of candidates : *Online portal registration , first come first serve basis*

VII. Reporting Date : *19th June 2024 9.30AM*

VIII. Important Dates (if applicable) : *Last date for application and payment 17th June 2024*

IX. Course Timings : *10AM to 4PM*

The following texts do not form part of the prospectus:
This approval is valid for uploading to NIELIT, Calicut website as well.

Course Code : ESIN101/ ESIN102   Course Starting Date:19th June 2024

Signature of the Course Coordinator: Signature of GH:

Signature of Training Officer: Accounts:

Approved/Not Approved

Executive Director

Guidelines:
1. All Text in Italics are to be entered by the course coordinator
2. All text in Italics and underlined are only instructions, should not be displayed finally.
3. The Course Prospectus to be put to Executive Director for approval through Training Officer and Accounts before uploading to website.
4. Final approved hardcopy should be submitted to Training Department.

General Terms & Conditions - Applicable to all courses

X.   How to Apply :

Students are advised to apply online @http://nielit.gov.in/content/online-registration. Payment towards registration fee of Rs.3400/- (Exclusive of GST - for ESIN-101) and Rs.5110/- (Exclusive of GST - for ESIN-102)   may be paid through online payment gateway *available in the Registration page*

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. It is advised to keep the payment reference number as proof and produced as and when required.

XI.   Admission Procedure:

Students who are registered, required to report to the Institute on 17th June 2024 at 9:30 hrs along with the following

  ➢ Original College ID card from the institute for the ongoing students.
  ➢ Copy of course completion/provisional/UG/PG certificate for course completed students.

XII. Location and how to reach:

NIELIT Calicut is located very close to NIT campus and is about 22Kms from the Calicut (Kozhikode) city. A number of buses (Buses to NIT via Kunnamangalam) are available from "Palayam Bus Stand and KSRTC Bus Stand". The bus stop at our Institute is called "Panthrand" and is one stop before NIT. The bus fare is around Rs.20/- from Calicut City to NIELIT.

Calicut (Kozhikode) is well connected by Rail, Road and Air form different parts of the country. The maximum and minimum temperatures range between 35^0C and 20^oC.

XIII. Course enquiries:

Students can enquire about the various courses either on telephone or by personal contact between 9.15 A.M. to 5.15 P.M. (Lunch time 1.00 pm to 1.30 pm) Monday to Friday.

XIV. a. Hostel facilities:

Hostel accommodation is available for boys and girls on monthly or daily chargeable basis. The hostel fee varies from Rs.1,600 /- to Rs.4,800/- per month depending on the type of accommodation. However, students are required to pay the hostel fees for the entire duration of the course for which they are seeking admission at the time of joining the course itself. It is mandatory that all who stays in the hostel to avail mess facility.

b. <u>Accommodation facility prior to admission date</u>

Accommodation shall be provided on the written recommendations of the concerned Course Co-ordinator /Training Officer. Student should forward a written request (through email) to the course coordinator well in advance.

Such accommodation will be temporary and for a maximum period of 2 days only.

c. Daily rent for hostel accommodation prior to admission shall be Rs.100/-. An additional amount of Rs.500/- shall be collected towards caution deposit which will be adjusted in the hostel fee on regularization of hostel admission. Payment for such stay shall be made online in advance similar to registration fee payment. All such allotments shall be regularized on the next working day by submitting the Hostel application in the prescribed form.

Entry in hostel prior to formal admission will be permitted strictly on production of photo identity cards like Aadhaar, Driving License, Voters id etc. issued by Government agencies

XV. Boarding facilities :

Canteen & Mess facility is available for both boys & girls, students, those who avail mess facility should pay monthly mess fee @Rs.165/- per day. An amount of Rs.5,000/- should be paid as mess advance to the Canteen Contractor at the time of joining the mess which will be adjusted in the last month mess fee.

An amount of Rs.3,000/- should be paid as caution deposit at the time of joining the hostel which will be refunded/adjusted at the end of the course. For students not availing hostel facility, Rs.1,000/- will be the caution deposit