

COURSE PROSPECTUS

Name of the Group: *Smart Technology & Education Division (STED)*

Name of the Course: *PG Program in Embedded System Design & IoT*

Course Code: *ES 700*

Mode of Conduction: *Online*

Starting Date: *06th Nov 2023*

Duration: *600 Hours / 26 credits*

Course Coordinator: *Akula Sri Rama Pavan & Manoj N*

No. of Seats: *20*

Preamble:

In today's world, Embedded Systems and IoT are all over homes, offices, cars, factories, hospitals, and Industries. The inherent value of these technologies lies in their pervasiveness. They are literally embedded in all electronic products, from consumer electronics to office automation, automotive, medical devices, and communications. They make the products smart, and connected and are responsible for differentiating the products in the market.

Developing tomorrow's industrial infrastructure is a significant challenge. This course goes beyond the hype of consumer IoT to emphasize a much greater space for potential embedded system applications and growth. The primary objective of this specialization is to closely examine emerging markets, technology trends, applications, and skills required by engineering students or working engineers, exploring career opportunities in the Embedded System design and IoT space. This course is conducting in collaboration with ARM and the syllabus has been updated based on the ARM University Program Contents.

This Embedded System Design and IoT course focuses on the Architecture and Programming of Embedded Processors and the development of Embedded and IoT applications using Embedded/Real-Time Operating Systems. Internet of Things (IoT), Industrial IoT, and Embedded Product Design are discussed in detail. As part of the project work, a proof-of-concept prototype design of an Embedded / IoT system has to be undertaken by participants to be industry-ready.

Objective of the Course:

PG Program in Embedded System Design & IoT Course is intended to impart skills essential for the design and implementation of Embedded and IoT systems using appropriate hardware and software tools. This course offers a

range of topics of immediate relevance to the industry and makes the participants exactly suitable for the Embedded and IoT Industry.

Outcome of the Course: *Outcome of the Course*

- *Provide the participants with in-depth knowledge and skills required by Embedded Systems and IoT Companies around the globe by imparting a comprehensive understanding of the fundamental principles, methodologies, and industry practices.*
- *Makes the successful participants readily employable in multiple roles available in the Embedded and IoT Industry*
- *Enhances the skillsets and confidence for Embedded Startups*

Expected Job Roles:

- *Embedded Design Engineer*
- *Embedded Software Engineer*
- *Embedded Firmware Engineer*
- *Embedded Hardware Engineer*
- *Embedded System Programmer*
- *Embedded Trainee Engineer*
- *IoT Developer*
- *IoT Solution Architect*
- *IoT Hardware Design engineer*
- *IoT Network Engineer*

Course Structure:

The ES700 course has seven modules including project work. The Participants are required to do project work in any one of the modular areas, to be eligible for the issue of a PG Program in Embedded System Design & IoT.

Sl. No	Module Title	Duration (Hours)			Credit	
		Theory	Lab	Total	Theory	Lab
1	Embedded C and ARM Cortex Microcontrollers	13	52	65	1	2
2	Embedded RTOS	13	52	65	1	2
3	Embedded Linux	13	52	65	1	2
4	Internet of Things	13	52	65	1	2
5	Scripting Tool & GUI development for Industrial Application	13	52	65	1	2
6	Industrial Product Design	13	52	65	1	2
7	Project Work		210	210		8
	Total Duration/Credit	78	522	600	26	

Other Contents

I. Course Fees: Course fee is Rs. 40000/- (All taxes are included)

Module wise Course Fee: Not Applicable for this course

* Taxes Included (Currently GST @18%), and revisions, if any by the Government shall be applicable at the time of payment

** B.E/B. Tech Ongoing Students should submit a bonafide certificate from HoD of the respective college of study and should meet the prerequisite as mentioned in the syllabus.

II. Registration Fee: An amount of Rs.1000/- (including all taxes as applicable) (nonrefundable) should be paid at the time of registering for the course.

This fee shall be considered as part of the course fee if the student joins the course. If a student register and pay for more than one course and join for any one course, all such amount will be adjusted against the course fee payable.

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

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

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

III. Course Fee Installment Structure:

Students can pay the full fees of Rs. 40000/- (including all taxes as applicable) in advance or in installments as given below

Fees	Amount *	Due Date (on or before) #
Registration Fee	Rs.1000/-	During Registration
** Advance Fee	Rs.9000/-	31 st Oct 2023
1 st Installment	Rs.10000/-	06 th Nov 2023
*** 2 nd Installment	Rs.20000/-	11 th Dec 2023
Total Fee	Rs.40000/- (including GST)	-

*The above fees are inclusive of CGST 9% and SGST 9% and revision, if any, by the Government shall be applicable at the time of payment.

Fine will be applicable for late fee payment.

** Advance fee - After the publication of the first selection list, the selected students have to pay the Advance Deposit within the due date to take the provisional admission. Students in the additional selection list should pay both the Advance and First installment fees together on or before counseling day

*** 2nd Installment is applicable only to PG Program courses and not to Advanced Program and Certificate Courses.

IV. Eligibility: B.E /B. Tech completed students of the following branches: Electronics/ Electronics & Communication/ Electrical/ Electrical and Electronics/Instrumentation/ Biomedical /Computer Science/Information Technology or M.Sc. (Electronics/CS).

B.E /B. Tech results awaiting students can also apply.

V. Number of Seats: 20

VI. Selection of candidates: Selection is based on the marks in the Qualifying Degree.

VII. Test/Interview (*if applicable*): Not Applicable

VIII. Counseling/Admission: 31st October 2023

IX. Important Dates (if applicable):

<i>Last date for applying the online application for the course with the fee payment of Rs. 1000/- for registration. Candidates applying after this date will be considered in spot admission against vacancy.</i>	26.10.2023
<i>Publication of the First selection list on our Website.</i>	27.10.2023
<i>Counseling and Admission (Online Mode)</i>	31st Oct 2023
<i>Commencement of Classes</i>	06th Nov 2023

X. Course Timings: Classes will be between 9.30 am to 5.00 pm. The hands-on session using SMART Hardware Lab at NIELIT Calicut. (Saturday & Sunday – Closed Holiday)

XI. Placement: Placement assistance shall be provided.
visit <http://nielit.gov.in/content/placement-3>

XII. Lab Facilities: <http://nielit.gov.in/calicut/content/embedded-system-group>

XIII. Course Contents: Detailed Syllabus is present on the Course page

[Click here for General Terms and Conditions – Applicable to all courses](#)