COURSE PROSPECTUS

Name of the Group: *Embedded Systems Group*
Name of the Course: Internet of Things (IoT) Associate
Course Code: QG-04-IT-00345-2023-V1-NIELIT
NSQF Level: NSQF-aligned course of Level 4
Duration: *450 hours/ 3 Months*
Starting Date: 23rd Oct 2024
Course Coordinator: *Akula Sri Rama Pavan / Manoj*

Preamble: In an era where connectivity and smart technology are transforming industries and everyday life, the "Internet of Things (IoT) Associate" course is designed to equip students with the comprehensive knowledge and practical skills needed to thrive in this dynamic field. This course provides a solid foundation in basic electronics and IoT platforms, beginning with hands-on identification and troubleshooting of electronic components and the operation of measurement devices. Students will be introduced to the fundamentals of microprocessors, microcontrollers, and IoT, with a particular focus on the Arduino platform for embedded programming and sensor interfacing. As the course progresses, students will conceptualize and develop practical IoT use cases such as smart street lighting, home automation, and digital locks. Furthermore, the course delves into advanced topics including wireless IoT architecture using NodeMCU, TCP/IP modeling for IoT, and cloud-based IoT implementation, enabling students to create and monitor IoT devices using cloud platforms. By the end of the course, students will be well-prepared to apply their skills in real-world scenarios, contributing to the rapidly growing field of IoT with innovative and efficient solutions.

Objective of the Course: The objective of the "Internet of Things (IoT) Associate", course is to provide students with comprehensive knowledge and practical skills in basic electronics and IoT platforms. Through hands-on identification and troubleshooting of electronic components, students will gain a solid foundation in basic electronics and the operation of measurement devices. The course will introduce microprocessors, microcontrollers, and the Internet of Things (IoT), focusing on the Arduino platform for embedded programming and sensor interfacing. Students will conceptualize and develop IoT-based use cases, such as smart street lighting, home automation, and digital locks. Additionally, they will explore wireless IoT architecture using NodeMCU, TCP/IP modeling for IoT, and cloud-based IoT implementation, equipping them to create and monitor IoT devices using cloud platforms.

Outcome of the Course:
By the end of the "Internet of Things (IoT) Associate" course, students will be proficient in identifying and troubleshooting basic electronic components, operating measurement devices, and understanding microprocessors and microcontrollers. They will develop skills in programming and interfacing with Arduino platforms, enabling them to design

and implement practical IoT use cases such as smart street lighting, home automation, and digital locks. Additionally, students will explore wireless IoT architecture using NodeMCU, TCP/IP modeling for IoT, and cloud-based IoT implementation, allowing them to create and monitor IoT devices using cloud platforms. These competencies will prepare students for advanced study or careers in electronics and IoT development, equipping them to contribute innovative solutions to the growing field of IoT.

Expected Job Roles: Internet of Things (IoT) Associate

Course Structure:

Sl. No	Module Title	Duration (Hours			Credit
		Theory	Lab	Total	
1	NOS 1: Identification and troubleshooting of Basic Electronics components	20	40	60	*2*
2	NOS 2: Conceptualising IoT Platform - Arduino	45	75	120	*4*
3	NOS 3: Conceptualising IoT based use-cases	15	45	60	*2*
4	NOS 4: Fundamentals of wireless IoT using NodeMCU	40	50	90	*3*
	Sub total (A)	120	210	330	*11*
5	Employability Skills (B)	60			*2*
6	OJT/Project* (C)	60			*2*
	Total Duration/Credit	***450***			***15***

Other Contents

I. **Course Fees**:

General Candidates: Course fee is Rs. *16,652*/- (Including NSQF Registration and Exam Fees with taxes as applicable)

SC/ST Candidates : Tuition Fees are waived for SC/ST students admitted under SCSP/TSP. However they are required to remit an amount of **Rs. *1652*/-** towards NSQF registration and examination fee at the time of joining. This amount will be considered as security deposit and will be refunded after successful completion of the course on first attempt. If the student fails to complete the course successfully, this amount along with any other caution/security deposits by the student will be forfeited.

It is mandatory that students attending NSQF aligned courses have to appear for NIELIT NSQF examination conducted by NIELIT Headquarter, New Delhi on fee payable basis. Successful candidates will be issued certificates by NIELIT HQ. If the student fails to clear the exam, **participation** certificates will be issued by NIELIT Calicut on passing the exam conducted by NIELIT Calicut.

Module wise Course Fee: Not Applicable for this course

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

SC/ST Candidates: Registration fee is Rs.500/- (nonrefundable)

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 canceled in advance, well before the admission date

III. Course Fee Structure:

Fees	***Amount for General Candidates**	**Amount for SC/ST Candidates. (considered as caution/security deposit)**	**Due Date (on or before)**
Registration Fee*	Rs. 1000/-	Rs. 500/-	During Registration
**Advance Fee	*Rs.* 1000/-	*Nil*	*14/10/2024 (counseling day)*
Course Fee *	*Rs. 14,652/-*	Nil	
NSQF Registration & Exams Fee*	*Included in the Course fee*	*Rs. 1,652/-* (Refundable on successful completion of course on first attempt)	
Total Course Fee	*Rs. 16,652/-*	Nil	

* Above fees is inclusive GST as per the prevailing rate (presently 18%) and revision if any by Government, shall be applicable at the time of payment

Fine will be applicable for late fee payment.

** Advance fee – (*Applicable only for courses with duration 3 months and more).* After publication of first selection list, the students selected have to pay the Advance Deposit within the due date to take the provisional admission. Students in the additional selection list should pay both Advance and first installment fee together on or before the counseling day.

IV. Eligibility: Any one of the following

- 12th Grade Pass
- Completed 2nd year of 3-year diploma (after 10th) and pursuing regular diploma
- 10th grade pass plus 2-year NTC
- 10th grade pass plus 1-year NTC plus 1 year NAC
- 10th-grade pass and pursuing continuous schooling

- Internet of Things (IoT) Assistant NOS from 1-6 will be exempted from Previous NSQF Qualification of Level 3

V. Number of Seats: *20*

VI. Selection of candidates: Based on marks in the qualifying exam.

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

VIII. Counseling/Admission: **14-10-2024**

IX. Important Dates (if applicable):
Last date for applying: **06-10-2024**
Selection intimation through mail/website: **08-10-2024 (after 2 PM)**
Certificate Verification/Admission (online mode): **14-10-2024**

X. Course Timings:
Live sessions covering Theory will be scheduled between 9.30 am to 5.00 pm. Assignments and projects can be done at any time of your convenience and submitted before the deadlines provided. Support for completing lab work/assignments will be provided at scheduled times.

XI. Placement: Placement assistance will be provided.

XII. Lab Facilities
Skilled Manpower Advanced Research and Training (SMART) facility or Virtual Prototyping Lab is set up at NIELIT Calicut as part of Chip to Start-up (C2S) programme of MeitY for the proliferation of advanced VLSI and Embedded system design training, research, and electronics systems development across the country.

XIII. Course Contents: Detailed Course Syllabus /Contents Link

Click here for General Terms and Conditions – Applicable to all courses

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