Certificate Course in

Internet of Things (IoT)

Avail 30% Scholarship from GTU

Course Abstract

Course name: ***Internet of Things (IoT) (Offline)***

Beneficiaries: ***From Any discipline; Students, Faculty members, researchers, Industry Personnel, Innovators/Start-ups or any aspirants who wish to learn about AI***

Apply Now

Duration: ***Four (4) months***

No of Sessions: ***Total of 10 sessions***

Timing Sessions: ***3 hrs. / Session (Saturday only, Flexible timings for professionals)***

*Tuition Fees: ***Rs. 11,000/- (Including GST, IoT Kit and other reference materials)*** *(After 30% scholarship, it costs Rs. 7700)*

(Partial Payment is accepted: **EMI 1: Rs. 4000, EMI 2: Rs. 3700**)

Overview : The Internet of Things, commonly referred to as IoT, is the network of physical objects, devices, vehicles, buildings, and other items that's been integrated into the technology of modern electronics, software, sensors, and other "things" with network connectivity that enables them to collect and exchange data. Once collected, this data becomes a powerful resource, which companies and technologies are tapping into, in revolutionary ways.

Why is Advanced IoT in demand?

IoT is fast becoming an indispensable part of our lives – often without us realizing it. Its applications extend to all areas of computing and internet connectivity, from the most commonly used devices (such as desktops, laptops, smartphones and tablets) to the most complex devices. Homeowners can benefit from "Smart Homes", while people with disabilities can use assistive technology such as voice control features to provide comfort and safety. The potential extends

to almost any industry and facet of life, The data captured on these devices through sensors reveals interesting patterns that have immense value in business and marketing.

As businesses realize the huge value of the insights drawn from the IoT-device data, enormous opportunities for IoT specialists arise. The technology promises to enhance data resources, improve efficiencies, and increase productivity for organizations globally. If there's ever been a fantastic time to leap into this path-breaking technology, it's now.

Module	Content	No. Of Hrs
1	Introduction to IoT • What is IoT ? , Why do we need IoT?, Definition of IoT • History of IoT, Applications, Market Study, Evolution of IOT • Application, Type of Protocols IoT Requirements, Interoperability, Scalability, Routing and Forwarding, Security	3
2	• IoT Architecture • Physical Layer , Communication Layer, Cloud Platform Layer, Application Layer	4

3	**Embedded C Programming**
	• C Programming Overview
	• Comparison of Embedded C & Assembly Language
	• Basic C Language
	• BRANCHING & LOOPING
	    o IF – ELSE
	    o Nested IF ELSE
	    o While Loop
	    o Do – While Loop
	    o For Loop
	    o Switch Case
		8

4	• Introduction of IoT Development Boards-Node MCU, Arduino	6
5	• Introduction to sensors and modules - concept, layout, working, applications • Interfacing - sensors with development boards, communication modules with sensors, communication modules with development boards	15

6	• Communication Technologies Wi-Fi , BLE, Zigbee, Ethernet, • Communication Protocols Zigbee, MQTT	6
7	• MATLAB and Arduino Interfacing • Sensor Interfacing with MATLAB & Arduino	4
8	Practical Implementation of IoT • Interfacing WIfi • IoT programming • Data Transfer between mobile and device using IoT App • Data Transfer between Cloud and Device • Using Things Board Cloud, to transfer data. • Data Analysis on Things Board, Data logging, Controlling device • through App Hands-on in IoT - various real life projects involving different boards, sensors, modules and communication technologies	10
	Mini Project	8
	Total	**64 Hrs**

Teaching / Learning Methodology:

I. The Design Thinking course will be **offline,** practical based involves Hands-on exercises, Face to face counselling and experiential program.

II. The course content will be available in form of study material, presentations, video and case studies. During the course, student may also request for the interaction with concerned faculty and industry experts for resolving their doubts and learning difficulties as per availability of experts.

III. Weekly Assignments/Tutorials and tasks will be given for their projects which requires involvements of 5-6 hours a week.

IV. At the end of the course, learner will be ready with their product and business plan to start their own start-up if they wish and further supports will be provided by GTU Incubation and DIC program in terms of funding, mentoring, fabrication lab support, company formation & legal structure, IPR etc.

Three steps Registration Process:

(1) Enroll Now: https://forms.gle/7En1fKCT4DXNug5A7

After registration through above link, kindly make payment through below link and Refer Step-by-step guide (https://go.aws/2wbFfeA) for payment process for your reference.

(2) Payment link: https://www.onlinesbi.com/sbicollect/icollecthome.htm

After payment, download the payment receipt and upload the receipt through the link given in the payment guidelines, for successfully enrolment into the course.

(3) DIC Course Payment receipt upload: https://forms.gle/dt9njJbbtwGsCWPN6

Note: GTU – DIC committee deserves all right to admit, cancel and alter the course content without any prior notice. The jurisdiction for any discrepancy will be Ahmedabad.

Experts Are:

1. **Mr. Nikhil Shah**
   Founder Gizmotronix, Ahmedabad
   Exp : 5 Years

2. **Mr. Ronak Jain**
   Software Engineer, Softnautics LLP
   Exp : 6 Years

For any query related to the course, kindly contact:
Mr. Raj Hakani, Course Coordinator, GTU.
Assistant Professor, Community Innovation & Co – Creation Centre, GTU.
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