

MADHAV INSTITUTE OF TECHNOLOGY AND SCIENCE, GWALIOR
(A Govt. Aided UGC Autonomous & NAAC Accredited Institute Affiliated to RGPV, Bhopal)

Skills Enhancement Program (SEP) - 2023

Name of Department	Department of Computer Science & Engineering
Module Name	Getting Started with IoT: A Hands-On Approach
Module Coordinators	1) Dr. Devesh Kumar Lal 2) Prof. Smita Parte
Module Objective	<ul style="list-style-type: none">• Understand the basic concepts of IoT and its applications in various fields.• Develop an understanding of the hardware and software components of IoT systems.• Build and program IoT devices using microcontrollers such as Arduino or Raspberry Pi.• Connect sensors and other devices to the IoT system and collect data.• Analyze and visualize data collected from IoT devices using tools such as Python.• Apply their knowledge of IoT to develop practical solutions for real-world problems in various fields such as agriculture, healthcare, and manufacturing.• Develop an understanding of cloud computing and how it can be used to store and process IoT data.• Understand the role of data analytics and machine learning in IoT systems and how they can be used to improve performance and efficiency.

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Module Content	<ul style="list-style-type: none">• Introduction to IoT and its applications• Basics of microcontrollers and IoT devices• Sensors and actuators in IoT systems• IoT communication protocols• Cloud computing and IoT• Data analytics for IoT• Building and programming IoT devices• Connecting devices to the IoT system• Collecting and storing IoT data• Analyzing and visualizing IoT data• Real-time data processing in IoT systems• IoT applications in agriculture, healthcare, and manufacturing• Emerging trends and future directions in IoT• Hands on Training• Quiz /Assessment during and at the end of Session
Module Methodology	Development, Designing and Testing of IoT devices based application
Module Outcome/ Impact	<ul style="list-style-type: none">• Student able to create an IOT based application• Demonstrate knowledge and application of IOT• Demonstrate ability to apply knowledge of computing• Have the ability to understand and define requirements of the problem• Have the ability to design and implement a program to solve the problem.
Duration	5 Weeks (30 days)
Module Coordinator	Dr. Devesh Kumar Lal, Prof. Smita Parte
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Day Wise Schedule				
	Date	Day	Module Contents to be covered/Interactive Session/Assignment/Quiz/Exercises/Daily practice sheets (DPP)/Tutorial/Project etc (10:30 AM onward, 2-3 Hrs/ Day)	Faculty
Week 1	15-05-2023	Mon	Introduction/ Discussion on subject	Dr. Devesh Kumar Lal, Prof. Smita Parte
	16-05-2023	Tue	Introduction to IoT and its applications	Dr. Devesh Kumar Lal, Prof. Smita Parte
	17-05-2023	Wed	Case Study/ industrial applications of IoT and its applications	Dr. Devesh Kumar Lal, Prof. Smita Parte
	18-05-2023	Thu	Practical Session IoT and its applications	Dr. Devesh Kumar Lal, Prof. Smita Parte
	19-05-2023	Fri	Tutorial and Quiz	Dr. Devesh Kumar Lal, Prof. Smita Parte
Week 2	22-05-2023	Mon	Basics of microcontrollers and IoT devices	Dr. Devesh Kumar Lal, Prof. Smita Parte
	23-05-2023	Tue	microcontrollers and IoT devices, Connecting devices to the IoT system	Dr. Devesh Kumar Lal, Prof. Smita Parte
	24-05-2023	Wed	Case Study/ industrial applications of microcontrollers and IoT devices microcontrollers and IoT devices	Dr. Devesh Kumar Lal, Prof. Smita Parte
	25-05-2023	Thu	Practical Session microcontrollers and IoT devices microcontrollers and IoT devices	Dr. Devesh Kumar Lal, Prof. Smita Parte
	26-05-2023	Fri	Tutorial and Quiz	Dr. Devesh Kumar Lal, Prof. Smita Parte
Week 3	29-05-2023	Mon	IoT communication protocols	Dr. Devesh Kumar Lal, Prof. Smita Parte
	30-05-2023	Tue	Cloud computing and IoT, Analyzing and visualizing IoT data	Dr. Devesh Kumar Lal, Prof. Smita Parte
	31-05-2023	Wed	Case Study/ industrial applications of IoT communication protocols Cloud computing and IoT	Dr. Devesh Kumar Lal, Prof. Smita Parte
	01-06-2023	Thu	Practical Session IoT communication protocols Cloud computing and IoT	Dr. Devesh Kumar Lal, Prof. Smita Parte
	02-06-2023	Fri	Tutorial and Quiz	Dr. Devesh Kumar Lal, Prof. Smita Parte
Week 4	05-06-2023	Mon	Data analytics for IoT	Dr. Devesh Kumar Lal, Prof. Smita Parte

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	06-06-2023	Tue	Data analytics for IoT	Dr. Devesh Kumar Lal, Prof. Smita Parte
	07-06-2023	Wed	Case Study/ industrial applications of Data analytics for IoT, Data analytics for IoT	Dr. Devesh Kumar Lal, Prof. Smita Parte
	08-06-2023	Thu	Practical Session IoT and its applications	Dr. Devesh Kumar Lal, Prof. Smita Parte
	09-06-2023	Fri	Tutorial and Quiz	Dr. Devesh Kumar Lal, Prof. Smita Parte
Week 5	12-06-2023	Mon	IoT applications in agriculture, healthcare, and manufacturing	Dr. Devesh Kumar Lal, Prof. Smita Parte
	13-06-2023	Tue	Emerging trends and future directions in IoT	Dr. Devesh Kumar Lal, Prof. Smita Parte
	14-06-2023	Wed	Case Study/ industrial applications of Data analytics for IoT	Dr. Devesh Kumar Lal, Prof. Smita Parte
	15-06-2023	Thu	Practical Session IoT and its applications	Dr. Devesh Kumar Lal, Prof. Smita Parte
	16-06-2023	Fri	Tutorial and Quiz	Dr. Devesh Kumar Lal, Prof. Smita Parte

Eligibility and Important Instructions:-

1. The Finishing School Program/ Online Summer Internship Program is designed only for pre-final & final year students of **Computer Science and Engineering Department**.
2. Participants must have Laptop/Desktop and also preliminary knowledge of IoT Devices.
3. The students may apply on line.
4. The Skill enhancement program/ Online Summer Internship Program is free for the participants of pre-final & final year students of MITS.
5. The participants outside the Institute may also join the Program on payment basis.
6. This online module will be conducted under the Skill enhancement program which will be considered equivalent to Online Internship of Pre-final year students who could not get any Internship during this situation.
7. Duration of this program will be of five weeks which is equivalent to summer Internship period as per AICTE and our Institute policy. Daily no. of hours of online training may be flexible.
8. Certificates will be issued to candidates who have attendance 75% or more and also score more than 60% in the test.