

TEACHING PLAN (TP)

Academic Year: 2025-26 (EVEN)

Institute Code and Name: 0078- K. K. Wagh Polytechnic, Nashik
Programme and Code: Information Technology (IF)
Course and Code: INTERNET OF THINGS
Name of Faculty: Ms.M.K.Wadekar
CLASS: SYIF (Cray)

Semester: Fourth
Course Code: 314006
Scheme: K
Allocated Hrs. 30

COURSE LEVEL LEARNING OUTCOMES (COS)

- CO1 - Integrate hardware and software for simple IoT applications.
- CO2 - Create IoT applications by interfacing various sensors and embedded boards.
- CO3 - Create IoT applications by interfacing various actuators and embedded boards.
- CO4 - Develop IoT applications using IoT networking devices.
- CO5 - Develop database based IoT application by integrating sensors with single board computer.

TEACHING-LEARNING & ASSESSMENT SCHEME

Course Code	Course Title	Abbr	Course Category	Learning Scheme						Credits	Paper Duration	Assessment Scheme									
				Actual Contact Hrs./Week			SLH	NLH	Theory			Based on LL & TSL Practical				Based on SL		Total Marks			
				C	T	L			FA-TH			SA-TH	Total	FA-PR		SA-PR			SLA		
							Max	Min						Max	Min	Max	Min		Max	Min	
314006	INTERNET OF THINGS	IOT	SEC	1	-	4	1	6	3	1.5	-	-	-	-	25	10	25@	10	25	10	75

Total IKS Hrs. for Sem.: 0 Hrs.

Abbreviations: CL- Classroom Learning , TL- Tutorial Learning, LL-Laboratory Learning, SLH-Self Learning Hours, NLH- Notional Learning Hour FA -Formative Assessment, SA -Summative assessment, IKS - Indian Knowledge System, SLA - Self Learning Assessment Legends: @ Internal Assessment, # External Assessment, *# On Line Examination , @\$ Internal Online Examination

SUGGESTED COS - POS MATRIX FORM

Course Outcomes (COs)	Programme Outcomes (POs)							Programme Specific Outcomes (PSOs)	
	PO-1 Basic and Discipline Specific Knowledge	PO-2 Problem Analysis	PO-3 Design/ Development of Solutions	PO-4 Engineering Tools	PO-5 Engineering Practices for Society, Sustainability and Environment	PO-6 Project Management	PO-7 Life Long Learning	PSO- 1	PSO-2
CO1	2	1	2	2	1	2	1		
CO2	1	2	2	3	2	2	2		
CO3	1	2	2	3	2	2	2		
CO4	1	2	2	3	2	2	2		
CO5	2	2	3	3	2	2	2		
Legends :- High:03, Medium:02,Low:01, No Mapping: - *PSOs are to be formulated at institute level									

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Unit No. (Allocated Hrs.)	CO	TLO aligned to COs	Title/ Details	Plan (No. of Lectures)		Actual Execution (From-To & No. of Lectures)		Pedagogy used (Teaching method /Media)	Remarks
				From	To	From	To		
01 (03)	CO1		Unit - I Basics of Internet of Things					Chalk, Board, PPT+ LCD Videos, Google Classroom, Learn Live	
				02 Lecture					
		TLO 1.1 TLO 1.2	1.1Introduction: 1.1 Describe IoT building blocks with their relationship. 1.2 State the features of various Embedded boards	17/12/25	20/12/25				
		TLO 1.3	1.3 Write simple Arduino program	02 Lectures					
				24/12/25	27/12/25				
02 (04)	CO2		Unit - II Sensors in IoT					Chalk, Board, PPT Videos, Learn Live	
				02 Lectures					
		TLO 2.1	2.1 Select various sensors for IoT applications.	31/12/26	03/01/26				
		TLO 2.2	2.2 Write steps to interfacing sensors with Arduino	02 Lectures					
				07/01/26	10/01/26				
				04 Lectures					

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		TLO 2.3	2.3 Explain working techniques of Sensor	17/01/26						
03 (03)	CO3	Unit - III Actuators in IoT							Chalk, Board, PPT+ LCD Videos, Google Classroom, Learn Live	
		TLO 3.1 TLO 3.2	3.1 Select various Actuators available. 3.2 Explain the process of interfacing appropriate actuator with Embedded boards.	03 Lectures						
				21/01/26	24/01/26	31/01/26				
		TLO 3.3	3.3 Write the steps for displaying output on various display devices.	03 Lectures						
04/02/26	07/02/26			11/02/26						
04 (03)	CO4	Unit - IV Communication in IoT devices							Chalk, Board, PPT+	
		02 Lectures								

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		TLO 4.1 TLO 4.2	4.1 Explain IoT Protocols. 4.2 Write the process to use IoT Wireless networking devices in developing IoT applications.	14/02/26				LCD Videos, Google Classroom, Learn Live	
		TLO 4.3	4.3 Explain the method of performing Wi Fi connectivity to WEB	02 Lectures		18/02/26	21/02/26		
05 (02)	CO5		Unit V-Programming with Single Board Computer					Chalk, Board, PPT+ LCD Videos, Google Classroom, Learn Live.	
				02 Lectures					
		TLO 5.1	5.1 Write the steps to install any operating system on Raspberry Pi protection.	25/02/26	28/02/26				
		TLO 5.2	5.2 Write various Linux commands to be used on Raspberry Pi	02 Lectures		07/03/26	11/03/26		
		TLO 5.3 TLO 5.4	5.3 Write steps to Install database on Raspberry Pi. 5.4 Write database query to be performed on Raspberry Pi.	02 Lectures		14/03/26	18/03/26		

ASSESSMENT METHODOLOGIES/TOOLS

A. Formative assessment (Assessment for Learning) (FA-TH)

- Continuous assessment based on process and product related performance indicators. Each practical will be assessed considering 1) 60% weightage is to process 2) 40% weightage to product

B. Summative Assessment (Assessment of Learning) (SA-TH)

End Semester Exam based on Practical performance and Viva-voce.

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SUGGESTED LEARNING MATERIALS / BOOKS

Sr. No	Author	Title	Publisher
1	Cornel M Amariei	Arduino Development Cookbook	PACKT publishing Ltd. New Delhi, ISBN: 978-1-78398-294-3
2	Arshdeep Bahga, Vijay Madiseti	Internet of Things: A Hands-On Approach	Orient Blackswan New Delhi ,ISBN: 978-0996025515 628/-2
3	David Hanes, Gonzalo Salgueiro, Patrick Grossetti	IoT Fundamentals: Networking Technologies, Protocols, and Use Cases for the Internet of Things	Cisco Press ISBN: 978-1- 58714 456- 1 599
4	Simen Monk	Raspberry Pi Cookbook	Publisher(s): O'Reilly Media, Inc. ISBN: 9781098130923
5	Agus Kurniawan	Smart Internet of Things projects	PACKT publishing Ltd. New Delhi ISBN:9788131766613

LEARNING WEBSITES & PORTALS

Sr. No	Link / Portal	Description
1	https://github.com/microsoft/IoT-For-Beginners	All practicals
2	https://www.javatpoint.com/difference-between-sensors-and-actuators	Sensors and Actuators
3	https://www.tinkercad.com/learn/circuits?collectionId=O0K87S QL1W5N4P2	Practical using Simulator
4	https://www.geeksforgeeks.org/introduction-to-internet-of-things-iot-set-1/	Online content of Internet of Things
5	https://hands-on-books-series.com/iot.html	Introduction to IoT

Ms.M.K.Wadekar
 (Name & Signature of Staff)

Ms. M. S. Karande
 (Name & Signature of HOD)