



SWARNANDHRA

COLLEGE OF ENGINEERING & TECHNOLOGY (AUTONOMOUS)

Accredited by National Board of Accreditation, AICTE, New Delhi, Accredited by
NAAC with "A" Grade – 3.32 CGPA, Recognized under 2(f) & 12(B) of UGC Act 1956,
Approved by AICTE, New Delhi, Permanent Affiliation to JNTUK, Kakinada
Seetharampuram, W G DT., Narsapur-534280, (Andhra Pradesh)

DEPARTMENT OF INFORMATION TECHNOLOGY TEACHING PLAN

Course Code	Course Title	Semester	Branch	Contact Periods /Week	Academic Year	Date of commencement of Semester
20CS7E08	EDGE COMPUTING	VII	CSE-DS	5	2025-2026	09-06-2025
COURSE OUTCOMES						
1	Understand various edge computing hardware architectures and edge platforms (K2)					
2	Differentiate IoT Vs Machine-to-Machine Vs SCADA (K1)					
3	Configure RaspberryPi, Program (K5)					
4	Explore MQTT architecture details, state transitions, packet structure, datatypes, communication formats (K4)					
5	Apply edge computing with RaspberryPi (K3)					
UNIT	Out Comes / Bloom's Level	Topics No.	Topics/ Activity	Text Book/ Reference	Contact Hour	Delivery Method
I	CO - 1	1.1	IoT and Edge Computing Definition	T1	1	Chalk & Board
		1.2	Introduction to Edge Computing Scenario's and Use cases	T1	1	
		1.3	Edge Computing purpose and definition	T1	1	
		1.4	Edge computing use cases	T1	1	Power point presentations
		1.5	Edge computing hardware architectures	T1	1	
		1.6	Edge platforms	T1	1	Assignment
		1.7	Edge vs Fog Computing	T1	1	
		1.8	Communication Models	T1	1	
		1.9	Edge, Fog and M2M	R1	1	
		Content beyond syllabus		1.10	AI and Edge	R1
Total					10	
II		2.1	IoT Architecture and Core IoT Modules	T1	1	Chalk & Board
		2.2	A connected ecosystem	T1	1	
		2.3	IoT versus machine-to-machine versus SCADA	T1	1	
		2.4	The value of a network,	T1	1	



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	CO - 2		Metcalf's and Backstrom's laws			Power point presentations
		2.5	IoT and edge architecture	T1	1	Assignment
		2.6	Role of an architect	T1	1	
		2.7	Understanding Implementations with examples-Example use case and deployment	T1	1	Test
		2.8	Case study Telemedicine palliative care	T1	1	
		2.9	Requirements	T1	1	
		2.10	Implementation	T1	1	
		2.11	Use case retrospective	T1	1	
Content beyond syllabus		2.12	Blockchain in IoT Modules	R2	1	
Total					12	
III	CO - 3	3.1	cPi: Introduction to RaspberryPi	T2	1	Chalk & Board
		3.2	About the RaspberryPi Board	T2	1	
		3.3	Hardware Layout and Pinouts	T2	1	
		3.4	Operating Systems on RaspberryPi	T2	1	
		3.5	Configuring RaspberryPi	T2	1	
		3.6	Programming RaspberryPi	T2	1	Power point presentations
		3.7	Connecting Raspberry Pi via SSH	T2	1	
		3.8	Remote access tools	T2	1	Assignment
		3.9	Interfacing DHT Sensor with Pi	T2	1	
		3.10	Pias Webserver	T2	1	
		3.11	PiCamera, Image & Video Processing using Pi	T2	1	
		Content beyond syllabus		3.12	LoRa + Pi for Long-Range IoT	
Total					12	
IV	CO - 4	4.1	Implementation of Microcomputer RaspberryPi	T2	1	Chalk & Board
		4.2	Device Interfacing	T2	1	
		4.3	Edge to Cloud Protocols-Protocols	R2	1	Power point presentations



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		4.4	MQTT	T3	1	Assignment Test
		4.5	MQTT publish-subscribe methods	R2	1	
		4.6	MQTT architecture details	R2	1	
		4.7	MQTT state transitions	R2	1	
		4.8	MQTT packet structure	R2	1	
		4.9	MQTT data types	R2	1	
		4.10	MQTT communication formats	R2	1	
		4.11	MQTT3.1.1working example	R2	1	
Content beyond syllabus		4.12	MQTT over TLS	R2	1	
Total					12	
V	CO - 5	5.1	Edge computing with RaspberryPi	T2	1	Chalk & Board
		5.2	Industrial and Commercial IoT and Edge	R2	1	Power point presentations
		5.3	Edge computing and solutions.	R1	1	Assignment
Content beyond syllabus		5.4	Federated Edge Learning	R2	1	Test
Total					4	
CUMULATIVE PROPOSED PERIODS					50	
Text Books:						
S.No.	AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION					
1	Perry Lea, "IoT and Edge Computing for Architects" Second Edition, Publisher: PacktPublishing,2020, ISBN: 9781839214806					
2	Simon Monk "Raspberry Pi Cookbook" 3rdEdition, Publisher: O'ReillyMedia, Inc.,2019, ISBN: 978149204322.					
Reference Books:						
S.No.	AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION					
1	Rajkumar Buyya, Satish Narayana Sriram, "Fog and Edge Computing: Principles and Paradigms", Wiley publication, 2019, ISBN: 9781119524984					
2	David Jensen, "Beginning Azure IoT Edge Computing: Extending the Cloud to the Intelligent Edge", MICROSOFTAZURE,2019					
Web Details:						
1	https://www.javatpoint.com/ Edge -computing -tutorial					
2	https://www.geeksforgeeks.org/cloud computing tutorials/					



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		Name	Signature with Date
i.	Faculty	Mr. Ch Praveen	ch praveen
ii.	Module Coordinator	Ms. U Jenny Grace	U. Jenny Grace
iii.	Programme Coordinator	Dr. RVVSV Prasad	Dr. RVVSV Prasad


Principal