

# SWARNANDHRA

## COLLEGE OF ENGINEERING & TECHNOLOGY

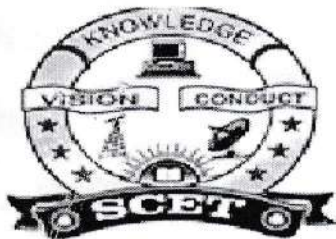
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Accredited by National Board of Accreditation, AICTE, New Delhi, Accredited by  
NAAC with "A" Grade – 3.32 CGPA, Recognized under 2(f) & 12(B) of UGC Act 1956,  
Approved by AICTE, New Delhi, Permanent Affiliation to JNTUK, Kakinada  
Seetharampuram, 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	IT	6	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  Power point presentations  Assignment  Test
		1.2	Introduction to Edge Computing Scenario'	T1	1	
		1.3	sand Use cases-Edge computing purpose and definition	T1	1	
		1.4	Edge computing use cases	T1	1	
		1.5	Edge computing hardware architectures,	T1	1	
		1.6	Edge platforms	T1	1	
		1.7	Edgevs Fog Computing	T1	1	
		1.8	Communication Models-Edge	T1	1	
		1.9	FogandM2M.	T3	1	
	Content beyond syllabus		1.10	IoT and Edge	T3	1
Total					10	
II		2.1	A connected ecosystem,	T3	1	Chalk & Board
		2.2	IoT versus machine-to-	T3	1	
		2.3	machine versus	T3	1	
		2.4	SCADA	T3	1	
		2.5	The value of a network and Metcalfe's and	T3	1	



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	CO – 2		Backstrom’s laws			Power point presentations
		2.6	IoT and edge architecture	T3	1	
		2.7	Role of an architect	T3	1	
		2.8	Understanding Implementations with examples-Example use case and deployment	T3	1	Assignment  Test
		2.9	Case study Telemedicine palliative care	T3	1	
		2.10	Requirements	T3	1	
		2.11	Implementation,	T3	1	
		2.12	Use case retrospective.	T3	1	
Content beyond syllabus		2.13	IoT Architecture and Core IoT Modules	T3	1	
Total				13		
III	CO – 3	3.1	cPi: Introduction to RaspberryPi	T3	1	Chalk & Board  Power point presentations  Assignment  Test
		3.2	About the RaspberryPi Board	T3	1	
		3.3	Hardware Layout and Pinouts	T3	1	
		3.4	Operating Systems on RaspberryPi,	T3	1	
		3.5	Configuring RaspberryPi	T3	1	
		3.6	Programming RaspberryPi	T3	1	
		3.7	Connecting Raspberry Pi via SSH	T3	1	
		3.8	Remote access tools, Interfacing DHT Sensor with Pi,	T3	1	
		3.9	Pias Webserver	T3	1	
		3.10	PiCamera, Image& Video Processing using Pi.	T3	1	
	Content beyond syllabus		3.11	cPi	T3	1
Total				11		
IV	CO – 4	4.1	Implementation of Microcomputer RaspberryPi	T3	1	Chalk & Board  Power point presentations  Assignment
		4.2	device Interfacing	T3	1	
		4.3	Edge to Cloud Protocols- Protocols	T3	1	
		4.4	MQTT	T3	1	
		4.5	MQTT publish-	T3	1	



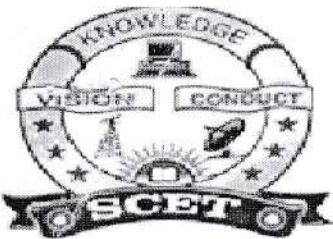
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			subscribemethods			Test
		4.6	MQTT architecture details	T3	1	
		4.7	MQTT state transitions	T3	1	
		4.8	MQTTpacketstructure	T3	1	
		4.9	MQTTdatatypes	T3	1	
		4.10	MQTTcommunicationfor mats	T3	1	
		4.11	MQTT3.1.1wo rking example.	T3	1	
		4.12	Security standards	T3	1	
Content beyond syllabus		4.13	RaspberryPi			
Total					13	
V	CO – 5	5.1	Edge computing with RaspberryPi,	T3	1	Chalk & Board  Power point presentations  Assignment
		5.2	Industrial and Commercial IoT and Edge	T3	1	
		5.3	Edge computing and solutions.	T3	1	
Content beyond syllabus		5.4	Edge computing Industrial	T3	1	Test
Total					4	
CUMULATIVE PROPOSED PERIODS					51	
Text Books:						
S.No.	AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION					
1	IoT and Edge Computing for Architects-Second Edition, by Perry Lea, Publisher: PacktPublishing,2020, ISBN: 9781839214806					
2	RaspberryPiCookbook,3rdEdition, by Simon Monk, Publisher: O'ReillyMedia, Inc.,2019,ISBN: 978149204322.					
Reference Books:						
S.No.	AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION					
1	Fog and Edge Computing: Principles and Paradigms by Rajkumar Buyya, Satish Narayana Sriram, 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	Ms. U Jenny Grace	U. Jenny 20/6/24
ii. Module Coordinator	Ms. U Jenny Grace	U. Jenny 21/6/24
iii. Programme Coordinator	Dr. RVVSV Prasad	RVVSV Prasad 21/6/24

  
Principal