SWARNANDHRA COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous)

Narsapur, West Godavari District, A.P. 534280

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

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TEACHING PLAN

Course Code	CourseTitle	Semester	Branch	Contact Period /Week	Academic Year	Semester Commencement Date
20EC7E06	EMBEDDEDSYSTEMS (R-20)	VII	ECE	5	2024-25	05-06-2024

COURSE OUTCOMES

After completion of the course student are able to

CO1	Demonstrate the fundamentals of Embedded Systems (K3)
CO2	Discriminate various components used in Embedded systems (K4)
CO3	Analyze the PIC, AVR controllers and Processors(K4)
CO4	Develop the case study of Embedded Systems(K3)

Unit No	Out Come/Bloom's Level		Topics/Activity	Reference Text book	Contact Periods	Delivery Method
1	CO-1: Demonstrate the fundamentals of Embedded Systems (K3)		**UNIT-1**			Chalk & Talk, PPT & Tutorial.
		1.1	Introduction to Embedded Systems	T1,T2,R1	1	
		1.2	Definition of Embedded System	T1,T2,R1	1	
		1.3	Embedded Systems Vs. General Computing Systems	T1,T2,R1	1	
		1.4	History of Embedded Systems,	T1,T2,R1	1	
		1.5	Classification of Embedded Systems	T1,T2,R1	1	
		1.6	Major Application Areas	T1,T2,R1	1	
		1.7	Purpose of Embedded Systems	T1,T2,R1	1	
		1.8	Characteristics of Embedded Systems	T1,T2,R1	1	
		1.9	Operational Quality Attributes of Embedded Systems,	T1,T2,R1	1	
		1.10	Non-Operational Quality Attributes of Embedded Systems	T1,T2,R1	1	
			Class Test		1	
				TOTAL	11	
	CO-2:Discriminate various components used in Embedded systems (K4)		**UNIT-II**			
		2.1	Core of the Embedded System:	T1,T2,R1	1	
		2.2	General Purpose and Domain Specific Processors,	T1,T2,R1	1	
		2.3	Microprocessors	T1,T2,R1	1	
		2.4	Microcontrollers	T1,T2,R1	1	

2		2.5	Application Specific Processors	T1,T2,R1	1	Chalk & Talk, PPT & Tutorial
		2.6	PLDs	T1,T2,R1	1	
		2.7	ASICs	T1,T2,R1	1	
		2.8	ASIP	T1,T2,R1	1	
		2.9	Commercial Off-The-Shelf Components (COTS)	T1,T2,R1	1	
		2.10	Memories: ROMs RAM	T1,T2,R1	1	
		2.11	Memory: RAMs	T1,T2,R1	1	
		2.12	Memory according to the type of Interface	T1,T2,R1	1	
		2.13	Memory Shadowing	T1,T2,R1	1	
		2.14	Memory selection for Embedded Systems	T1,T2,R1	1	
		2.15	Sensors			
		2.16	Actuators	T1,T2,R1	1	
		2.17	Onboard Communication Interfaces	T1,T2,R1	1	
		2.18	External Communication Interfaces	T1,T2,R1	1	
			Class Test		1	
				TOTAL	19	
3	CO-1:Demonstrate the basic knowledge about fundamentals of Embedded Systems (K3)		**UNIT-III**			Chalk & Talk, PPT & Tutorial
		3.1	Embedded Firmware	T2,R1	1	
		3.2	Reset Circuit,	T2,R1	1	
		3.3	Brown-out Protection Circuit,	T2,R1	1	
		3.4	Oscillator Unit,	T2,R1	1	
		3.5	Real Time Clock, Watchdog Timer,	T2,R1	1	
		3.6	Embedded Firmware Design	T2,R1	1	
		3.7	Approaches and Development Languages.	T2,R1	1	
		3.8	EXAMPLE PROGRAMS	T2,R1	1	
			Class Test		1	
				TOTAL	9	
4	CO-3: Analyze the PIC, AVR controllers and Processors(K4)		**UNIT-IV**			Chalk & Talk, PPT & Tutorial
		4.1	Overview of PIC,	T2,R1	1	
		4.2	Introduction to AVR controllers	T2,R1	1	
		4.3	Explanation on AVR controllers	T2,R1	1	
		4.4	Introduction to ARM processors:	T2,R1	1	
		4.5	Explanation on ARM processors	T2,R1	1	
		4.6	Introduction to PIC family of Microcontroller.	T2,R1	1	
		4.7	Explanation on PIC family of Microcontroller.	T2,R1	1	
		4.8	Introduction to ARM family Processors.	T2,R1	1	
		4.9	Explanation on ARM family Processors.	T2,R1	1	
			Class Test		1	

				TOTAL	10	
5	CO-4: Use design case study of Embedded Systems(K3)		UNIT-V			Chalk & Talk, PPT & Tutorial
		5.1	Design Case studies: Digital clock,	T2,R1	1	
		5.2	Design Case studies of Battery operated smartcard reader.	T2,R1	1	
		5.3	Design Case studies of Automated meter reading system	T2,R1	1	
		5.4	Design Case studies of Digital camera	T2,R1	1	
		5.5	Design of Vending Machine	T2,R1	1	
	Content beyond Syllabus	5.6	Developing digital alarm	T2,R1	1	
			Class Test		1	
				TOTAL	7	

CONTENT BEYOND SYLLABUS			
1.	Hardware software co-design techniques	1	Chalk & Talk, PPT & Tutorial
2.	Real time embedded Systems	1	
	TOTAL PROPOSED NO. OF CLASSES	58	

Text Books:

S.No.	AUTHORS/BOOK TITLE/EDITION(latest)/PUBLISHER/YEAR OF PUBLICATION
1	1. Shibu K.V, "Introduction to Embedded Systems", McGraw Hill, 2017 (Unit I-V)
2	1. Raj Kamal, "Embedded Systems", TMH.2018

Reference Books:

S.No.	AUTHORS/BOOK TITLE/EDITION(latest)/PUBLISHER/YEAR OF PUBLICATION
1	KENNETHAYYALA. "The 8051 Microcontroller", Cingarelearning India 2018
2	David E Simon, "An Embedded Software Primer", Pearson Education, 2018.

Web Details

1	www.nptel.ac.in
2	https://www.youtube.com/watch?v=8-gUa7h5wzk&list=PLXnsjPD8-xuuIC5GyfL8Iy6xysO2x4eMt

		Name	Signature
i.	Faculty	Mr.I.V.Ravi Kumar	
ii.	Course Coordinator	Mr.I.V.Ravi Kumar	
iii.	Module Coordinator	Dr.B.Ramana Kumar	
iv.	Programme Coordinator	Dr.B.S.RAO	

Principal
Dr. S. Suresh Kumar