

SCHEME OF COURSEWORK

CourseDetails:

CourseTitle	:EmbeddedSystems-1		
CourseCode	:15CT1117	L T P C	: 3 0 0 3
Program:	: B.Tech		
Specialization:	:ComputerScience&Engineering InformationTechnology		
Semester	:V		
Prerequisites	:ElectronicDevices andCircuits,DigitalLogicDesign,ComputerOrganizati n		
Coursestowhichitis a prerequisite	: EmbeddedSystems-2		

CourseOutcomes(COs):

At the end of the course the student will be able to

CO No.	Courseoutcomes
CO1	Understand theINTEL8051 architectureand instruction set.
CO2	UnderstandtheINTEL8051peripheraldevicesandexternaldevicesinterfacing,WriteprogramsinassemblyandClanguageforrealtimeproblems
CO3	Understand the ATMEGA 8535 architecture, instruction set
CO4	UnderstandtheATMEGA8535peripheraldevicesandexternaldevicesinterfacing
CO5	Understand the serialcommunicationbuses

CourseOutcome versusProgramOutcomes:

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO-1	3	3	2	2	3	2							2		
CO-2	2	3											2		
CO-3	3	3	2	3	3								2		
CO-4	3	3	3	2	2								2		
CO-5	3	3	3		3								2		

S -Strongly correlated,M-Moderately correlated,Blank-No correlation

Assessment Methods:	Assignment/ Quiz /Seminar/ Case Study/ Mid-Test / EndExam
---------------------	---

Teaching-Learning and Evaluation

Week	Topic/Contents	Course Outcomes	Sample Questions	Teaching-Learning Strategy	Assessment Method & Schedule
1	UNIT-1:INTEL8051MICROCONTROLLER Microcontrollersandembeddedprocessors,IntroductiontoClassic8051familyArchitecture,VonNeumannArchitectureandHarvardarchitecture.	CO1	1) Whatisthedifferencebetween microprocessorsandcontroller s? Whatisthedifferencebetwee nVonNeumannandHarvardA rchitecture?	=Lecture =WorkingExamples =ProgramWriting	Quiz1Mid-1
2	AddressanddatabusbithmultiplexedI/Opins.Addressingmodes,instructionset.	CO1	1) Whatisindirectaddressing mode? Whatarethevarioustypesofinstructions?	=Lecture =WorkingExamples =ProgramWriting	Quiz-1Mid-1 Assignment-
3	I/OprogrammingandotherapplicationprogramminginAssemblyandClanguage.	CO1	1) WhatisI/Oprogramming? 2) Writeaprogramtocomplimentthebitsofanyport.	=Lecture =WorkingExamples =ProgramWriting	Quiz1Mid-1
4	UNIT-II:PERIPHERALSANDINTERFACING Timers,Countersandtheirmodeofoperationsprogramming,serialportprogramming,Interrupts.HardwareConnectionandHexFile,	CO2	1) Whatarethecontrolregistersrequiredtoautomatethetimer/counteroptions? 2) Whatisinterrupt?	=Lecture =WorkingExamples =ProgramWriting	Quiz-1Mid-1 Assignment-
5	LCD and key boardInterfacing and theirprogramming.MotorControl	CO2	1) Whatarethe steps to be followed while dealing with interfacing hardware with	=Lecture =WorkingExamples =ProgramWriting	Quiz1Mid-1
6	UNIT-IIIATMEGA8535: OverviewofAVRfamily,AVRMicrocontrollerarchitecture,Registers, AVRstatusregister,ROMspaceandotherhardwaremodules.AddressingmodesofAVR	CO3	1) ExplainAVRArchitecture. 2) ExplainAVRStatusRegister.	=Lecture =WorkingExamples =ProgramWriting	Quiz-1Mid-1 Assignment-
7	MIDTEST-1				1
8	Datatransfer,Arithmetic,LogicandCompare,RotateandShift,BranchandCallinstructions.AVRAssemblylanguageprograms,Timedelayloop,BCD,ASCIIconversionProgram,Lookuptable,Bitaddressability,MACROs.	CO3	1) ExplainLogicalandRotateinstructions. WriteaprogramforBCDASCIIConversion. 2)	=Lecture =WorkingExamples =ProgramWriting	Quiz-2Mid-2 Assignment-
9	UNIT-IV:PERIPHERALSYSTEMSINATMEGA8535 (a) DigitalInputandOutputProgramming,	CO4	1) ExplainAnodeandcathodebasedSevenSegmentDisplay. 2) ExplaintheoperationsofTimer0.	=Lecture =WorkingExamples =ProgramWriting	2 Quiz2Mid-2
10	(c) CaptureControlandPWMandtheirprogramming (d) Analog toDigital Converters and theirProgramming	CO4	1) Writeaprogramthatgeneratesa PWMfrequencyof1.44KHzwith XTAL=22MHz 2) ExplaintheworkingofADC.	=Lecture =WorkingExamples =ProgramWriting	Quiz2Mid-2
11	UNIT-5:SERIALCOMMUNICATIONBUSSES (a) USART,withaddressablecommunicationfeature (b) SPIbus,antsspeedandversatility	CO5	1) ExplainUSART. ExplainSPIBus. 2)	=Lecture =WorkingExamples =ProgramWriting	Quiz2Mid-2

12	(c) I2c(interintegratedbus]thetwowireco mmunicationbus. (d) IntroductiontoUSBbusanditsfe aturesforsynchronouscommuni cation.	CO5	1) ExplaintheworkingofI2CBus 2) ExplaintheUSBbusc haracteristicsand	=Lecture	Quiz- 2Mid- 2 Assigment2
13	MIDTEST-2				
14/15	ENDEXAM				