SCHEME OF COURSEWORK

DepartmentofInformationTechnology

Course Details:

COURSE TITLE	DIGITALLOGICDESIGN
COURSE CODE	15EC1105
PROGRAM	B.TECH
SPECIALIZATION	Information Technology
SEMESTER	III
PREREQUISITES	N/A
COURSESTO WHICHIT IS A PREREQUISITE	N/A

Course Outcomes(COs):

Convert a numberfrom one numbersystem to other Numbersystem
ImplementlogiccircuitsusingbasicLogicgatesoruniversalLogicgatesandsimplifylogicexpressionsus ingbasictheorems,K-mapandTabularmethod
ExplaintheconceptofCombinationallogicdesignandRealizelogicexpressionsusingMUX,Decoderan dPLDs
Illustratetheconceptofsequentiallogicdesign,analyzetheoperationofflipflopanddesignvarioustypesofsequentialcircuits.
DifferentiateMealy&MooremodelsandSimplifyandDesignSequentialmachines

CourseOutcomeversusProgramOutcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2		3	2								2		
CO2	2			3	3								2	2	
CO3	2			2	3								2	2	
CO4	2			2	3								2		
CO5					2								2		

S -Stronglycorrelated,M -Moderatelycorrelated,Blank -No correlation

AssessmentMethods	Assignment/Quiz/Surprise test

Teaching-Learning &Evaluation

Week	Topic/Contents	Course Outcomes	Samplequestions	Teaching learning strategy	Assessment method&sc hedule
1	Number system conversions,compl	CO1	Examplesonvariousnumbers ystemconversions,Problemso ncomplements	Lecturing,probl emsolving	Assignment1,Test1Quiz-1
2	Subtractionusingcom plements,8421, 24-2-1,excess-3,graycodeandBCD codeandBCD Addition	CO1	Performsubtractionusing2'sc omplement,10'scomplement	Lecturing,probl emsolving	Assignment1,Test1Quiz-1

3	ASCIIcharactercode, errordetection codes,binary logic- AND,OR,NOT, representations, truth tables, Boolean algebra, basic theorems	CO1,CO2	WritetruthtablesforAND,OR&NOT StateandprovevariousBooleanalgebralawswithrespectto AND&OR	Lecturing,problemsolving	Assignment1,Test1Quiz-1
4	Complementofafunction,standardandcanoni calforms	CO2	ExamplesofconvertingvariousBooleanfunctionsintosumofproductsformandproductofsumsform	Lecturing,problemsolving	Assignment1,Test1Quiz-1
5	Gatelevelminimization,2,3,4variablekmaps	CO2	MinimizingvariousBooleanfunctionsusing2,3,and4variablek-maps	Lecturing,problemsolving	Assignment1,Test1Quiz-1
6	5-variablemaps,primeimplicantsandessentialprimeimplicants,don'tcareconditions,nandandnorimplementations,exorimplementations,Quine-McCluskeyMethodortabularmethod	CO2	MinimizingBooleanfunctionsbyidentifyingprimeimplicantsandessentialprimeimplicantsusingtabularmethod,	Lecturing,problemsolving	Assignment1,Test1Quiz-1
7	Introductiontocombinationallogiccircuit,halfandfulladders	CO3	Designafulladder using2halfaddersandanorgate	Lecturing,problemsolving	Assignment-1,2,Quiz-1, Test-1,2
8	Subtractorshalfandfullsubtractors,binary/parralleladde	CO3	Designafullsubtractorusing2halfsubtractorsandANDgate	Lecturing,problemsolving	Assignment-2,Test-2,Quiz-2
9	Test1				
10	Decoders,encoders, multiplexers,codeconverters,	CO3	Implementinghighlevelcoderswithlowerleveldecoders ImplementingBoolean	Lecturing,problemsolving	Assignment-2,Test2,Quiz-2

			functionsusingvarioustypeso fmultiplexers Designingvariouscodec onverters		
11	Programmablelogicand memory,hammingcode ,typesofROM	CO3	Identifyingerrorsinthem essageusinghammingco de	Lecturing,probl emsolving	Assignment-2,Test2,Quiz-2
12	DesignofPLA,PAL &PROMCircuits	CO3	DesigningPLA&PALcircui tsforvariousBooleanfunctio ns		
12	Introductiontoseque ntialcircuits,latches,f lipflops,characteristi ctablesandexcitationt ablesofflipflops	CO4	Writethecharacteristictablesa ndexcitationsof SR,JK,D &TFlipFlops	Lecturing,probl emsolving	Assignment-2,Test2,Quiz-2
13	Flipflopconversions,c ounters-designofripplecounter sandsynchronouscount ers,asynchronouscoun	CO4	Designmodncountersofbothrippleandsy nchronoustypes	Lecturing,probl emsolving	Assignment-2,Test2,Quiz-2
14	Registers,shiftregister s,SISO,PISO,SIPO,PI PO, bidirectionalanduniv ersalshiftregisters,rin gcounters,twistedrin gcounters	CO4	Writeaboutuniversalshiftregi sterswithaneatdiagramDesign ringcounterandtwistedringco unterforsomearbitrarysequen ceanddesiredsequence	Lecturing,probl emsolving	Assignment-2,Test2,Quiz-2
15	Introductiontofinitest atemachines,mealyan dmooremachines,seri albinaryadderrealizationusingmeal yandmooremachines, sequencedetector	CO5	Distinguishmealyandmoorem achineswiththehelpofexampl es Designasequencedetectorf or10010usingmealymachin e	Lecturing,probl emsolving	Assignment-2,Test2,Quiz-2

16	Equivalencebetweenstates,stateminimizationusingpartitioningtechnique,mergergraphs,mergertables,	CO5	Minimizingthestatetableusingpartitioningtechniques	Lecturing,problemsolving	Assignment-2,Test2,Quiz-2
17	Test 2				