SCHEMEOFCOURSEWORK

DepartmentofInformationTechnology

CourseDetails:

COURSE TITLE	CompilerDesign		
COURSE CODE	15IT11M1	L T P C	3 0 0 3
PROGRAM	B.TECH		
SPECIALIZATION	IT		
SEMESTER	V		
PREREQUISITES	N/A		
COURSES TOWHICHITISA PREREQUISITE	N/A		

CourseOutcomes(COs):

1	Understand the phases inthe designofcompiler
2	Design top-down and bottom-up parsers
3	Identifysynthesis and inherited attributes
4	Develop syntaxdirectedtranslationschemes
5	Developalgorithms to generatecode for atargetmachine

CourseOutcome versusProgramOutcomes

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

Week	Topic/ Contents	Course Outcomes	Sample questions	Teaching learning strategy	Assessment method&schedule
1	Compilerstructure:analysis-synthesismodelofcompilation,various	1	1. Whatarethevariousphasesofcompiler? 2. Whatisacompilerand interpreter?	BlackBoard	Assignment-1,Test1Quiz-1

S -Stronglycorrelated,M- Moderatelycorrelated,Blank-Nocorrelation

Assessment Methods	Assignment/Quiz /Mid-Test

Teaching- Learning&Evaluation

	phases ofacompiler,tool basedapproach tocompilerconstruction.				
2	Lexicalanalysis:interfacewith input,parser andsymboltable,token, lexemeand patterns,difficulties inlexicalanalysis,	1	1. WhatisLexicalanalysis? 2. Listvariouscompilerconstructiontools 3. Whatisthedifferencebetweentokenandlexeme?	BlackBoard	Assignment-1,Test1Quiz-1
3	Errorreporting andimplementation. Regular definition,Transition	1	1. Writeaboutlex? 2. Defineregular expressions?	BlackBoard	Assignment-1,Test1Quiz-1
4	Syntaxanalysis:contextfreegrammars,ambiguity, associativity,precedence,topdown parsing	2	1. Whatissyntaxanalysis? 2. Whatisaparser?Statedifferenttypesofparsers/	BlackBoard	Assignment-1,Test1Quiz-1
5	recursivedescentparsing,transformationonthe grammars,predictiveparsing,Bottomupparsing	2	1. Whatarecontextfreegrammars? 2. Whataretopdownparsers?Statedifferenttypesoftopdownparsers?	BlackBoard	Assignment-1,Test1Quiz-1
6	operatorprecedencegrammars,LRparsers(SLR,LALR,LR), YACC	2	1. Whataregrammars? 2. WriteaboutYACC	BlackBoard	Assignment-1,Test1Quiz-1

7	Syntaxdirecteddefinitions:inheritedandsynthesizedattributes,dependency graph,evaluationorder,	3	1. Definehandleandhandlepruning 2. Whatarethevariouserrorrecoverytechniquesinpredictivepaising?	BlackBoard	Assignment1,Quiz-1,Test1
8	bottomupandtopdown evaluationofattributes,L- and Sattributeddefinitions. Typechecking:typessystem,typeexpressi	3	1. Whatisoperatorprecedenceparsing? 2. DefineSattributesandL-attributes	BlackBoard	Assignment1,Test-1,Quiz1

	structuraland nameequivalence				
9	MID-1				
10	conversion,overloadedfunctions andoperators,polymorphicfunctions,Runtimesystem:storageorganization	3	1. Whatisconversionoverloadedfunctions? 2. Whatisstorageorganization?	BlackBoard	Assignment-2,Test2,Quiz-2
11	activationtree,activation record,parameterpassing,symboltable,dynamicstorageallocation	3	1. Whatisactivationtree? 2. Whatisparameterpassing?	BlackBoard	Assignment-2,Test2,Quiz-2
12	Intermediatecode generation:intermediaterepresentations,translationofdeclarations,assignments,IntermediateCodegenerationforcontrolflow	4	1. Writeaboutintermediatecodegeneration? 2. Writeintermediatecodegenerationforcontrolflow?	BlackBoard	Assignment-2,Test2,Quiz-2

13	booleanexpressions and procedureCalls,implementationissues,	4	1. WhatareBooleanexpressionstranslations? 2. Whatisasyntaxtree?	BlackBoard	Assignment-2,Test2,Quiz-2
14	DAG representationof programs, codegenerationfromdags,peep	4	1. Writeabout,codegenerationfromdags?	BlackBoard	Assignment-2,Test2,Quiz-2
15	code generatorgenerators,specificationsofmachine	4	1. Whatarevariousintermediatecodegenerationtechniques?	BlackBoard	Assignment-2,Test2,Quiz-2
16	Codeoptimization, sourceofoptimizations,optimizationof basic blocks,loops	5	1. Writeaboutthreeaddresscode 2. Statetheprincipalesofoptimization	BlackBoard	Assignment-2,Test2,Quiz-2
17	globaldataflowanalysis,solution to	5	1. Whatareflow	BlackBoard	Assignment-2,Test-2,
	iterativedataflow equations,		2. graphs? Discuss variousissuesin codegeneration		Quiz-2
18	Codeimprovingtransformations,dealing with aliases,data flowanalysisofstructured flowgraphs	5	1. Writeaboutstructuredflowgraphs?	BlackBoard	Assignment-2,Test2,Quiz-2
19	MID-2				