SWARNANDHRA
COLLEGE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

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/ Regulation	Branch	Contact Periods /Week	Academic Year	Date of commencement of Semester
20IT5E01	COMPILER DESIGN	V/(R20)	IT	6	2023-2024	03-07-2023

COURSE OUTCOMES

1	Understand about language processors and its phases.
2	Demonstrate about scanning of tokens.
3	Perform the syntax analysis by using parsing techniques.
4	Compare different memory Management techniques in runtime environment.
5	Ascertain optimization techniques for intermediate code forms and code generation

UNIT	Out Comes / Bloom's Level	Topics No.	Topics/ Activity	Text Book/ Reference	Contact Hour	Delivery Method
I	CO – 1	1.1	Overview of language processing	T1,T2	1	Chalk & Board Power point presentations Assignment Test
		1.2	preprocessors	T1,T2	1	
		1.3	compiler	T1,T2	1	
		1.4	assembler	T1,T2	1	
		1.5	Linkers & loaders	T1,R1	1	
		1.6	difference between compiler and interpreter	T1,R1	1	
		1.7	structure of a compiler	T1,R1	1	
		1.8	phases of a compiler	T1,R1	1	
		1.9	Lexical Analysis: Role of Lexical Analysis	T1,R1	1	
		1.10	Input Buffering	T1,R1	1	
		1.11	Specification of Tokens	T1,T2	1	
		1.12	Recognition of Token	T1,T2	1	
		1.13	The Lexical Analyzer Generator Lex	T1,T2	1	
Content beyond syllabus		1.14	Bootstrapping	R2	1	
					14	
II	CO – 2	2.1	Syntax Analysis:	T1,R2	1	Chalk & Board
		2.2	Role of a parser	T1,R2	1	
		2.3	Context Free Grammar	T1,R2	1	

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		2.4	Top down Parsing	T1,R2	1	Power point presentations
		2.5	Recursive Descent Parsing	T1,R2	1	
		2.6	Non recursive Predictive Parsing	T1,R2	1	Assignment
		2.7	FIRST and FOLLOW	T1,R2	1	
		2.8	LL(1) Grammar	T1,R2	1	Test
		2.9	Error Recovery in Predictive Parsing	T1,R2	1	
Content beyond syllabus		2.10	Elimination of ambiguity	R1	1	
					10	
III	CO – 3	3.1	**Bottom up Parsing**	T1,R2	1	Chalk & Board Power point presentations Assignment Test
		3.2	Reductions	T1,R2	1	
		3.3	Handle Pruning	T1,R2	1	
		3.4	Shift Reduce Parsing	T1,R2	1	
		3.5	Introduction to simple LR	T1,R2	1	
		3.6	Why LR Parsers	T1,R2	1	
		3.7	Model of an LR Parsers	T1,R2	1	
		3.8	Construction of SLR Tables	T1,R2	1	
		3.9	More powerful LR parsers	T1,T2	1	
		3.10	Construction of CLR (1)	T1,T2	1	
		3.11	LALR Parsing tables	T1,R2	1	
Content beyond syllabus		3.12	Operator precedence parsing	R2	1	
				Total	12	
IV	CO – 4	4.1	**Intermediate code**	T1,R2	1	Chalk & Board Power point presentations Assignment Test
		4.2	DAG	T1,R2	1	
		4.3	Three address code	T1,R2	1	
		4.4	Quadruples	T1,R2	1	
		4.5	Triples	T1,R2	1	
		4.6	Indirect Triples	T1,R2	1	
		4.7	**Basic Blocks**	T1,R2	1	
		4.8	DAG representation of Block	T1,R2	1	
		4.9	**Runtime Environment**	T1,R2	1	
		4.10	Storage organization	T1,R2	1	
		4.11	Stack allocation	T1,R2	1	
		4.12	Static allocation	T1,R2	1	
		4.13	Heap management	T1,R2	1	
		4.14	Parameter passing	T1,R2	1	

SWARNANDHRA
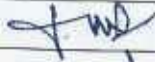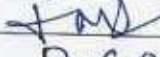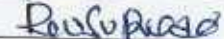## COLLEGE OF ENGINEERING & TECHNOLOGY
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			mechanisms			
Content beyond syllabus	4.15		Syntax directed translation	R3	1	
		Total			15	
CO-5	5.1		Machine independent code optimization	T1,T2	1	Chalk & Board Power point presentations Assignment Test
	5.2		Common sub expression elimination	T1,T2	1	
	5.3		Constant folding	T1,T2	1	
	5.4		Copy propagation	T1,T2	1	
	5.5		Dead code elimination	T1,T2	1	
	5.6		Strength reduction	T1,T2	1	
	5.7		Loop optimization	T1,T2	1	
	5.8		Machine dependent code optimization	T1,T2	1	
	5.9		Peephole optimization	T1,T2	1	
	5.10		Code Generation: Register allocation	T1,T2	1	
	5.11		Instruction scheduling	T1,T2	1	
	5.12		Inter Procedural Optimization	T1,T2	1	
	5.13		Garbage collection via reference counting	T1,T2	1	
		Total			13	
		CUMULATIVE PROPOSED PERIODS			64	

Text Books:

S.No	AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION
1	Alfred V. Aho, Monica S. Lam, Ravi Sethi, Jeffrey D. Ulman: Compilers: Principles, Techniques and Tools: 2nd Edition, Pearson Education., 2018.
2	Andrew N. Appel, Modern Compiler Implementation in C- Revised edition, Cambridge University Press,2004.

Reference Books:

S.No.	AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION
1	Dick Grune, Henry E. Bal, Cariel T. H. Jacobs, Modern Compiler Design, 2nd edition, Wiley ream tech ,2017.
2	Cooper & Linda, Engineering a Compiler, 3rd edition, Elsevier , 2014.
3	Louden, Thomson, Compiler Construction, International Edition, PWS Publishing Company,2016.
4	V. Raghavan , Principles of compiler design, , 2nd edition, TMH, 2011.

Web Details:

1	https://www.geeksforgeeks.org/compiler-design-tutorials/
2	https://www.guru99.com/compiler-design-tutorial.html
3	https://www.tutorialspoint.com/compiler_design/compiler_design_overview.htm
4	https://www.greatlearning.in/academy/learn-for-free/courses/compiler-design

		Name	Signature with Date
i.	Faculty	Mr. M.N.V.L.NARAYANA	
ii.	Module Coordinator	Mr. M.N.V.L.NARAYANA	
iii.	Programme Coordinator	Dr. RVVSV Prasad	

Principal