



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 ARTIFICIAL INTELLIGENCE & MACHINE LEARNING

TEACHING PLAN

Course Code	Course Title	Semester/Regulation	Branch	Contact Periods /Week	Academic Year	Date of commencement of Semester
20CS6T01	COMPILER DESIGN	VI/(R20)	AI&ML-A&B	6	2023-2024	18-11-2024
COURSE OUTCOMES						
1	Understand about language processors and its phases and demonstrate about scanning of tokens.					
2	Perform the syntax analysis by using parsing techniques					
3	Perform Semantic analysis using attribute grammar					
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	
					14	
II	CO – 2	2.1	Syntax Analysis:	T1,R2	1	Chalk &
		2.2	Role of a parser	T1,R2	1	



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		2.3	Context Free Grammar	T1,R2	1	Board Power point presentations Assignment Test
		2.4	Top down Parsing	T1,R2	1	
		2.5	Recursive Descent Parsing	T1,R2	1	
		2.6	Non recursive Predictive Parsing	T1,R2	1	
		2.7	FIRST and FOLLOW	T1,R2	1	
		2.8	LL(1) Grammar	T1,R2	1	
		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	



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
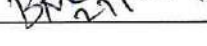
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	4.14	Parameter passing mechanisms	T1,R2	1	
Content beyond syllabus	4.15	Syntax directed translation	R3	1	
Total				15	
CO-5	5.1	Machine independent code optimization	T1,T2	1	Chalk & Board Power point presentations Assignment Test
	5.2	Common sub expression 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., 2022.				
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, 2 nd 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.				



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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	Dr G Sudhakar	
ii.	Module Coordinator	Dr G Sudhakar	
iii.	Programme Coordinator	Dr. B Ramakrishna	


Principal