C. U. SHAH UNIVERSITY – WADHWAN CITY

FACULTY OF TECHNOLOGY AND ENGINEERING
DEPARTMENT OF COMPUTER ENGINEERING
M. TECH. SEMESTER: - II

SUBJECT NAME: Language Processor Designing (LPD)
SUBJECT CODE: 5TE02LPD1

Teaching & Evaluation Scheme: -

Subject Code	Subject Name	Teaching Scheme (Hours)				Credits	Evaluation Scheme							Total
							Theory				Practical (Marks)			
		Th	Tu	Pr	Total		Sessional Exam		University Exam		Internal		University	
							Marks	Hours	Marks	Hours	Pr/Viva	TW	Pr	
5TE02LPD1	Language Processor Designing	4	0	2	6	5	30	1.5	70	3.0	-	20	30	150

Objectives:
- Main Objective to study this subject is to get knowledge about whole compilation process along with assemblers, linker and loader.

Prerequisites:
- Basic Awareness of compiler, Assembler, interpreter and C programming and knowledge of Data Structure is required.

Course outline:

Sr. No.	Course Contents
1	**Language Processors:** Language Processing Activities, Fundamentals of Language Processing and Fundamentals of Language Specification, Data Structures used for Language Processing
2	**Overview of the assembly process:** Design of two pass assembler- Single pass assembler, Macros, Macro definition and usage-schematics for Macro expansion, Design of a Macro pre-processor, Macro Assembler
3	**Compilers and Translators:** Structure of a compiler, lexical analysis - Lex and YACC Tools, Syntax analysis, context free grammars, Basic parsing techniques, Top down and Bottom up parsing. Syntax Directed Definitions and Translations, Type checking, Error Handling.
4	**Data descriptors:** Static and Dynamic storage allocation, Storage allocation and access in block structured programming languages, Array allocation and access, Compilation of expressions, Handling operator priorities, Intermediate code forms for expressions, Code generator.

5	**Control transfer:** Conditional and Iterative constructs, Procedure calls, Code optimization, Optimization transformations, Local optimization and global optimization, Compiler writing tools, Incremental Compilers.
6	**Linker & Loaders:** Program relocatability, Linking, Various loading schemes, Linkage editing, Design of linkage editor, Dynamic loading, Overlays, Dynamic linking.

Learning Outcomes:

1. A successful student will have acquired the skills to understand, develop, and analyze recognizers for programming languages.
2. The student will also be able to deploy efficient and methodical techniques for integrating semantic analysis into the afore-mentioned recognizers, and generate low-level code for most constructs that characterize imperative and functional programming languages.

Books Recommended:

1. System Programming and Operating Systems, **Dhamdhere**; McGraw Hill publication.3rd Edition, 2012.
2. Compilers Principles Techniques And Tools **Aho, Sethi, Ullman**; Pearson Education Asia.