

GUJARAT TECHNOLOGICAL UNIVERSITY

B. E. SEMESTER: VI Computer Engineering

Subject Name: **System Programming**

Subject Code: **160706**

Teaching Scheme				Evaluation Scheme		
Theory	Tutorial	Practical	Total	University Exam (Theory) (E)	Mid Sem Exam (Theory) (M)	Practical (I)
2	0	2	4	70	30	50

Sr. No	Course Content	Total Hrs.
1.	Language Processors: Language Processing Activities, Fundamental of Language Processing (phases and passes of compiler and role of each analyzer), Fundamental of Language Specification	04
2.	Scanning and Parsing: Regular Grammars and Regular Expression, Finite state automata, Building DFAs, The Scanning Process, An Elementary Scanner Design and Its Implementation, The role of a parser, Top down parsing-naïve approach, Recursive descent parser, LL (1) parser, Bottom up parsing-naïve approach, simple precedence grammars, Operator Precedence Parsing	06
3.	Assemblers: Elements of Assembly Language Programming, Assembly Scheme, single pass Assembler, Detailed Design of two pass assembler, Comparison of single pass and two pass compiler, Output interface of assembler	06
4.	Macro Processors: Macro Definition and Call, Macro Expansion, Nested Macro Calls, Advanced Macro Facilities, Design Of Macro Preprocessor, Design of macro assembler	08
5.	Loader & Linkers: Relocation of Linking Concept, Design of Linker, Linker for MS DOS, Linking for overlays, Design of absolute loaders, Design of direct linking loaders	05
6.	Introduction To Compilers: Aspects of Compilation, Memory Allocation, Compilation of Expression and Control Structure, Code Optimization, Interpreters	03

Text Book:

1. System Programming & Operating System, Dhamdhere, TMH

Reference Books:

1. System Programming, John J. Donovan, TMH
2. System Software, 3rd Ed., Beck & Manjula, Pearson Education
3. System Programming and Compiler Construction, R.K. Maurya, Wiley-dreamtech