

Semester	7
Course	MAJOR
Paper Code	
Paper Title	Machine Learning and Data Mining
No. of Credits	6
Theory / Practical / Composite	COMPOSITE
Minimum No. of preparatory hours per week a student has to devote	5
Number of Modules	ONE
Syllabus	Introduction: Concepts and Types of Translators: Assembler, Compiler, Cross Assemblers and Compilers, Interpreter, Loader; Linker. Grammars, Languages – types of grammars and their recognizers. Different phases of compilation. Lexical Analysis: Concepts, Tokens, Schemas, Design using FSM. Syntax Analysis: Top down and Bottom-up parser; Operator precedence; Recursive descent; LL (1); SLR (1); Intermediate Code Generation: Three Address Code, Representation of three address code – Quadruples, Triples and Indirect Triples. Syntax directed translation: Attributes, Semantic Actions, Translation schemes. Code Optimization: Basic blocks, loop optimization, flow graph, DAG representations of basic blocks. Code Generation: Object Programs, Problems in Code generation. Error handling: detection, reporting, recovery and repair Table management: Symbol table, Organization and management techniques. Runtime storage management: static allocation; dynamic allocation, activation records; heap allocation, recursive procedures
Course description / objectives	On completion of this course, the students will be able to: 1. specify and analyse the lexical, syntactic and semantic structures of advanced language features 2. separate the lexical, syntactic and semantic analysis into meaningful phases for a compiler to undertake language translation 3. turn fully processed source code for a novel language into machine code for a novel computer 4. describe techniques for intermediate code and machine code optimisation 5. design the structures and support required for compiling advanced language features. understand the target machine's run time environment, its instruction set for code generation and techniques used for code optimisation

Reading/Reference Lists	1. Alfred V. Aho and Jeffrey D. Ullman, Principles of Compiler Design, Narossa Publication 2. Aho, Sethi and Ullman, Compilers – Principles, Techniques and Tools, Narossa Publication 3. Peter Linz, Formal Language and Automata Theory, Narossa Publication 4. Systems Programming and Operating System, D. M. Dhamdhare, Tata McGraw Hills 5. Systems Programming, John J Donovan, Tata McGraw Hills
Evaluation	Total – 100 CIA – 30, Semester Examination – 70