L. J. Institute of Engineering & Technology

Department: Information Technology / Information & Communication Technology

Semester: V

Subject: OOPJ (2150704)

First Mid-Semester Exam Syllabus [Higher]

MSE – 1 Syllabus			
SECTION - A			
Unit No.	**Chapter Name**	**Topics**	**Weightage (+/- 10)**
1	**Basics of Java**	Features of Java, Byte Code and Java Virtual Machine, JDK, Data types, Operator, Control Statements – If , else, nested if, if-else ladders, Switch, while, do-while, for, for-each, break, continue.	9
2	**Array and String**	Single and Multidimensional Array, String class, StringBuffer class, Operations on string, Command line argument, Use of Wrapper Class.	9
3	**Classes, Objects and Methods**	Class, Object, Object reference, Constructor, Constructor Overloading, Method Overloading, Recursion, Passing and Returning object form Method, new operator, this and static keyword, finalize() method, Access control, modifiers, Nested class, Inner class, Anonymous inner class, Abstract class.	27
SECTION - B			
Unit No.	**Chapter Name**	**Topics**	**Weightage (+/- 10)**
4	**Inheritance and Interface**	Use of Inheritance, Inheriting Data members and Methods, constructor in inheritance, Multilevel Inheritance – method overriding Handle multilevel constructors – super keyword,Stop Inheritance - Final keywords, Creation and Implementation of an interface, Interface reference, instanceof operator, Interface inheritance, Dynamic method dispatch ,Understanding of Java Object Class,Comparison between Abstract Class and interface, Understanding of System.out.println statement	20
5	**Package**	Use of Package, CLASSPATH, Import statement, Static import, Access control	5
11	**Basics of UML**	Introduction to Object orientation, Modeling as a Design Technique Modeling Concepts, abstraction, The three models, Class Model, State model and Interaction model.	5
12	**Class Modeling**	Object and class concepts, link and association, Generalization and Inheritance	5
13	**Advanced Class Modeling**	Advanced Object and class concepts, Association Ends, N-ary associations, aggregation, abstract classes, multiple inheritance, Metadata, Constraints, Derived data, Packages.	10

L. J. Institute of Engineering & Technology

Department: Information Technology / Information & Communication Technology

Semester: V

Subject: OOPJ (2150704)

First Mid-Semester Exam Syllabus [Lower]

MSE – 1 Syllabus			
SECTION - A			
Unit No.	**Chapter Name**	**Topics**	**Weightage (+/- 10)**
1	**Basics of Java**	Features of Java, Byte Code and Java Virtual Machine, JDK, Data types, Operator, Control Statements – If , else, nested if, if-else ladders, Switch, while, do-while, for, for-each, break, continue.	11
3	**Classes, Object and Methods**	Class, Object, Object reference, Constructor, Constructor Overloading, Method Overloading, Recursion, Passing and Returning object form Method, new operator, this and static keyword, finalize() method, Access control, modifiers, Nested class, Inner class, Anonymous inner class, Abstract class.	34
SECTION - B			
Unit No.	**Chapter Name**	**Topics**	**Weightage (+/- 10)**
2	**Array and String**	Single and Multidimensional Array, String class, StringBuffer class, Operations on string, Command line argument, Use of Wrapper Class.	10
4	**Inheritance and Interface**	Use of Inheritance, Inheriting Data members and Methods, constructor in inheritance, Multilevel Inheritance – method overriding Handle multilevel constructors – super keyword,Stop Inheritance - Final keywords, Creation and Implementation of an interface, Interface reference, instanceof operator, Interface inheritance, Dynamic method dispatch ,Understanding of Java Object Class,Comparison between Abstract Class and interface, Understanding of System.out.println statement	23
5	**Package**	Use of Package, CLASSPATH, Import statement, Static import, Access control	7
11	**Basics of UML**	Introduction to Object orientation, Modeling as a Design Technique Modeling Concepts ,abstraction, The three models, Class Model, State model and Interaction model.	5

L. J. Institute of Engineering & Technology

Department: Information Technology / Information & Communication Technology

Semester: V

Subject: Analysis and Design of Algorithms (2150703)

Mid-Semester Exam Syllabus [Higher]

MSE – 1 Syllabus [50%]			
SECTION-A			
Unit No.	**Chapter Name**	**Topics**	**Marks**
1	**Basics of Algorithms and Mathematics**	What is an algorithm? Mathematics for Algorithmic Sets, Functions and Relations, Vectors and Matrices, Linear Inequalities and Linear Equations.	10(±10)
2	**Analysis of Algorithm**	The efficient algorithm, Average, Best and worst case analysis, Amortized analysis , Asymptotic Notations, Analyzing control statement, Loop invariant and the correctness of the algorithm, Sorting Algorithms and analysis: Bubble sort, Selection sort, Insertion sort, Shell sort Heap sort, Sorting in linear time : Bucket sort, Radix sort and Counting sort	25(±10)
4	**Dynamic Programming**	Introduction, The Principle of Optimality, Problem Solving usingDynamic Programming -- Longest Common Subsequence	10(±10)
SECTION – B			
Unit No.	**Chapter Name**	**Topics**	**Marks**
3	**Divide and Conquer Algorithm**	Introduction, Recurrence and different methods to solve recurrence, Multiplying large Integers Problem, Problem Solving using divide and conquer algorithm - Binary Search, Max-Min problem, Sorting (Merge Sort, Quick Sort), Matrix Multiplication, Exponential.	22(±10)
5	**Greedy Algorithm**	General Characteristics of greedy algorithms, Problem solving using Greedy Algorithm - Activity selection problem, Elements of Greedy Strategy, Minimum Spanning trees (Kruskal's algorithm, Prim's algorithm), Graphs: Shortest paths, The Knapsack Problem, Job Scheduling Problem, Huffman code.	23(±10)

L. J. Institute of Engineering & Technology

Department: Information Technology / Information & Communication Technology
Semester: V
Subject: Analysis and Design of Algorithms (2150703)
Mid-Semester Exam Syllabus[Lower]

MSE – 1 Syllabus [45%]			
SECTION – A			
Unit No.	**Chapter Name**	**Topics**	**Marks**
1	**Basics of Algorithms and Mathematics**	What is an algorithm? Mathematics for Algorithmic Sets, Functions and Relations, Vectors and Matrices, Linear Inequalities and Linear Equations.	15(±10)
2	**Analysis of Algorithm**	The efficient algorithm, Average, Best and worst case analysis, Amortized analysis , Asymptotic Notations, Analyzing control statement, Loop invariant and the correctness of the algorithm, Sorting Algorithms and analysis: Bubble sort, Selection sort, Insertion sort, Shell sort Heap sort, Sorting in linear time : Bucket sort, Radix sort and Counting sort	30(±10)
SECTION – B			
Unit No.	**Chapter Name**	**Topics**	**Marks**
3	**Divide and Conquer Algorithm**	Introduction, Recurrence and different methods to solve recurrence, Multiplying large Integers Problem, Problem Solving using divide and conquer algorithm - Binary Search, Max-Min problem, Sorting (Merge Sort, Quick Sort), Matrix Multiplication, Exponential	23(±10)
5	**Greedy Algorithm**	General Characteristics of greedy algorithms, Problem solving using Greedy Algorithm - Activity selection problem, Elements of Greedy Strategy, MinimumSpanning trees (Kruskal's algorithm, Prim's algorithm), Graphs: Shortest paths, The Knapsack Problem, Job Scheduling Problem, Huffman code.	22(±10)

L. J. Institute of Engineering & Technology

Department:Information Technology / Information & Communication Technology

Semester: V

Subject: System Programming (2150708)

First Mid-Semester Exam Syllabus [Higher]

MSE -1 Syllabus [50%]			
SECTION – A			
Unit No.	**Chapter Name**	**Topics**	**Marks**
2	**Overview of Language Processors**	Programming Languages and Language Processors, Language Processing Activities, Program Execution, Fundamental of Language Processing, Symbol Tables Data Structures for Language Processing: Search Data structures, Allocation Data Structures.	15(±10)
6	**Scanning and Parsing**	Programming Language Grammars, Classification of Grammar, Ambiguity in Grammatic Specification, Scanning, Parsing, Top Down Parsing	30(±10)
SECTION – B			
Unit No.	**Chapter Name**	**Topics**	**Marks**
1	**Overview of System Software**	Introduction, Software, Software Hierarchy, Systems Programming, Machine Structure, Interfaces, Address Space, Computer Languages, Tools, Life Cycle of a Source Program, Different Views on the Meaning of a Program, System Software Development, Recent Trends in Software Development, Levels of System Software	15(±10)
4	**Macro and Macro Processors**	Introduction, Macro Definition and Call, Macro Expansion, Nested Macro Calls, Advanced Macro Facilities, Design Of a Macro Pre-processor, Design of a Macro Assembler, Functions of a Macro Processor, Basic Tasks of a Macro Processor, Design Issues of Macro Processors, Features, Macro Processor Design Options, Two-Pass Macro Processors, One-Pass Macro Processors	30(±10)

L. J. Institute of Engineering & Technology

Department:Information Technology / Information & Communication Technology

Semester: V

Subject: System Programming (2150708)

First Mid-Semester Exam Syllabus [Lower]

MSE -1 Syllabus [40%]			
SECTION – A			
Unit No.	**Chapter Name**	**Topics**	**Marks**
2	**Overview of Language Processors**	Programming Languages and Language Processors, Language Processing Activities, Program Execution, Fundamental of Language Processing, Symbol Tables Data Structures for Language Processing: Search Data structures	15(±10)
6	**Scanning and Parsing**	Programming Language Grammars, Classification of Grammar, Ambiguity in Grammatic Specification, Scanning, Parsing, Top Down Parsing	30(±10)
SECTION – B			
Unit No.	**Chapter Name**	**Topics**	**Marks**
1	**Overview of System Software**	Introduction, Software, Software Hierarchy, Systems Programming, Machine Structure, Interfaces, Address Space, Computer Languages, Tools, Life Cycle of a Source Program, Different Views on the Meaning of a Program, System Software Development, Recent Trends in Software Development	15(±10)
4	**Macro and Macro Processors**	Introduction, Macro Definition and Call, Macro Expansion, Nested Macro Calls, Advanced Macro Facilities, Design Of a Macro Pre-processor, Design of a Macro Assembler, Functions of a Macro Processor, Basic Tasks of a Macro Processor, Design Issues of Macro Processors, Features, Macro Processor Design Options, Two-Pass Macro Processors, One-Pass Macro Processors	30(±10)

L. J. Institute of Engineering & Technology
Department: Information Technology
Semester: V
Subject: Computer Graphics (2151603)
First Mid-Semester Exam Syllabus [Higher]

MSE – 1 Syllabus[50%]			
SECTION: A			
Unit No.	**Chapter Name**	**Topics**	**Marks**
1	Basic of Computer Graphics	Basic of Computer Graphics, Applications of computer graphics, Display devices, Random and Raster scan systems, Graphics input devices, Graphics software and standards	15 ($\pm$ 10)
2	Graphics Primitives	Points, lines, circles and ellipses as primitives, scan conversion algorithms for primitives, Fill area primitives including scan-line polygon filling, inside-outside test, boundary and flood-fill	30($\pm$ 10)
SECTION: B			
Unit No.	**Chapter Name**	**Topics**	
2	Graphics Primitives	character generation, line attributes, area-fill attributes, character attributes	15 ($\pm$ 10)
3	2D transformation and viewing	Transformations (translation, rotation, scaling), matrix representation, homogeneous coordinates, composite transformations, reflection and shearing, viewing pipeline and coordinates system, window-to-viewport transformation, clipping including point clipping,	30 ($\pm$ 10)

L. J. Institute of Engineering & Technology
Department: Information Technology
Semester: V
Subject: Computer Graphics (2151603)
First Mid-Semester Exam Syllabus [Middle]

MSE – 1 Syllabus [40%]			
SECTION: A			
Unit No.	**Chapter Name**	**Topics**	**Marks**
1	Basic of Computer Graphics	Basic of Computer Graphics, Applications of computer graphics, Display devices, Random and Raster scan systems, Graphics input devices	15 ($\pm$ 10)
2	Graphics Primitives	Points, lines, circles and ellipses as primitives, scan conversion algorithms for primitives, Fill area primitives including scan-line polygon filling, inside-outside test, boundary and flood-fill,	30($\pm$ 10)
SECTION: B			
Unit No.	**Chapter Name**	**Topics**	
2	Graphics Primitives	character generation, line attributes, area-fill attributes, character attributers	15 ($\pm$ 10)
3	2D transformation and viewing	Transformations (translation, rotation, scaling), matrix representation, homogeneous coordinates, composite transformations, reflection and shearing, viewing pipeline and coordinates system	30 ($\pm$ 10)