



## **POSTGRADUATE DEGREE PROGRAMME**

**Master of Computer Applications  
Two Years**

**CURRICULUM & SYLLABUS**

**REGULATION 2024**

**Choice Based Credit System  
(CBCS) &  
Outcome Based Education (OBE)**

**Effective from the Academic Year**

**2024 -2025**

**Department of Computer Applications  
School of Computing Sciences**



## DEPARTMENT OF COMPUTER APPLICATIONS

### VISION OF THE DEPARTMENT

To make the institute an epitome of excellence in higher education by effectively providing high

Quality education and rigorous training to students in multiple streams of choice with ample scope for all round development to make them excel in their profession for betterment of the society.

### MISSION OF THE DEPARTMENT

<b>M1</b>	Effectively imparting knowledge and inculcating innovative thinking.
<b>M2</b>	Facilitating skill enhancement through add on courses and hands on training.
<b>M3</b>	Doing original, socially relevant, high quality research.
<b>M4</b>	Facilitating appropriate co-curricular, extracurricular and extension activities.
<b>M5</b>	Instilling the spirit of integrity, equity, professional ethics and social harmony.

### PROGRAMME EDUCATIONAL OUTCOMES (PEO)

<b>PEO1</b>	To learn the formal and real time applications using the computer programming and the design principle.
<b>PEO2</b>	To experience their software skills with their creative design, develop team culture and to have effective communication in their work.
<b>PEO3</b>	To empower and inculcate entrepreneurship and managerial skills among the students in finding innovative solutions to real-world problems in collaboration with industry and professional societies.
<b>PEO4</b>	Students exhibit effective work ethics and be able to adapt to the challenges of a dynamic job environment and publish their research finding in indexed conferences and Journals

### PROGRAMME OUTCOMES (PO)

<b>PO1</b>	<b>Computational Knowledge:</b> Apply knowledge of computing fundamentals, computing specialization, mathematics, and domain knowledge appropriate for the computing specialization to the abstraction and conceptualization of computing models from defined problems and requirements.
<b>PO2</b>	<b>Problem Analysis:</b> Identify, formulate, research literature, and solve complex computing problems reaching Substantiated conclusions using fundamental principles of mathematics, computing sciences, and relevant domain disciplines.
<b>PO3</b>	<b>Design /Development of Solutions:</b> Design and evaluate solutions for complex computing problems, and design and evaluate systems, components, or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.
<b>PO4</b>	<b>Conduct Investigations of Complex Computing Problems:</b> Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
<b>PO5</b>	<b>Modern Tool Usage:</b> Create, select, adapt and apply appropriate techniques, resources, and modern computing tools to complex computing activities, with an understanding of the limitations.
<b>PO6</b>	<b>Professional Ethics:</b> Understand and commit to professional ethics and cyber regulations, responsibilities, and norms of professional computing practice.
<b>PO7</b>	<b>Life-long Learning:</b> Recognize the need, and have the ability, to engage in independent learning for continual Development as a computing professional.

<b>PO8</b>	<b>Project management and finance:</b> Demonstrate knowledge and understanding of the computing and management Principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
<b>PO9</b>	<b>Communication Efficacy:</b> Communicate effectively with the computing community, and with society at large, about complex computing activities by being able to comprehend and write effective reports, design documentation, make effective presentations, and give and understand clear instructions.
<b>PO10</b>	<b>Societal and Environmental Concern:</b> Understand and assess societal, environmental, health, safety, legal, and cultural issues within local and global contexts, and the consequential responsibilities relevant to professional computing practice.

### **PROGRAMME SPECIFIC OUTCOMES (PSO)**

<b>PSO1</b>	Be well versed in the various software and logical skills like Java Programming, Python Programming, Database concepts etc.
<b>PSO2</b>	Be competent in the fundamentals of software and hardware concepts and the emerging technologies in networks, recent trends in computer science field.

## **BOARD OF STUDIES**

### **List of Members Department of Computer Applications**

<b>S. No.</b>	<b>Name &amp; Designation</b>	<b>Address</b>	<b>Role</b>
1.	Dr. P. Magesh Kumar, Director	School of Computing Sciences VISTAS.	Chair Person
2.	Dr.G.Kavitha, Associate Professor	Department of CSE, B.S.A.Crescent Institute Of Science & Technology, Chennai	External Member (Academic Expert)
3.	Dr.D.Ethiraj Director I/C	C-DAC, Chennai	External Member (Industry Expert )
4.	Dr.R.PriyaAnand Professor & Head	Department of Computer Applications-PG VISTAS	Internal Member
5.	Dr.S.Prasanna Professor	Department of Computer Applications-PG VISTAS	Internal Member
6.	Dr.V.Sumalatha Associate Professor	Department of Computer Applications-PG VISTAS	Internal Member
7.	Dr. C.Meenakshi Associate Professor	Department of Computer Applications-PG VISTAS	Internal Member
8.	Dr.S.Nagasundaram Assistant Professor	Department of Computer Applications-PG VISTAS	Internal Member
9.	Dr.LipsaNayak Assistant Professor	Department of Computer Applications-PG, VISTAS	Internal Member
10.	Mr.M.Lokesh Operations Manager	KauveryHospital, Chennai	Alumni, VISTAS

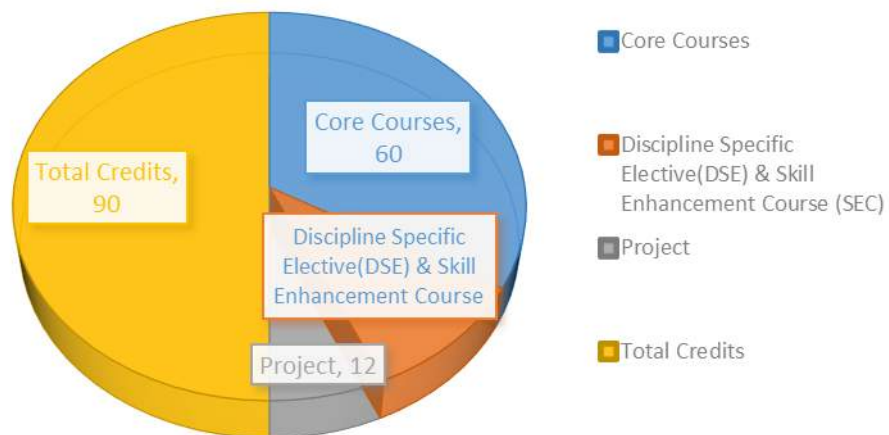
## **CREDIT DISTRIBUTION**

**Master of Computer Applications Minimum credits to be earned: 90**

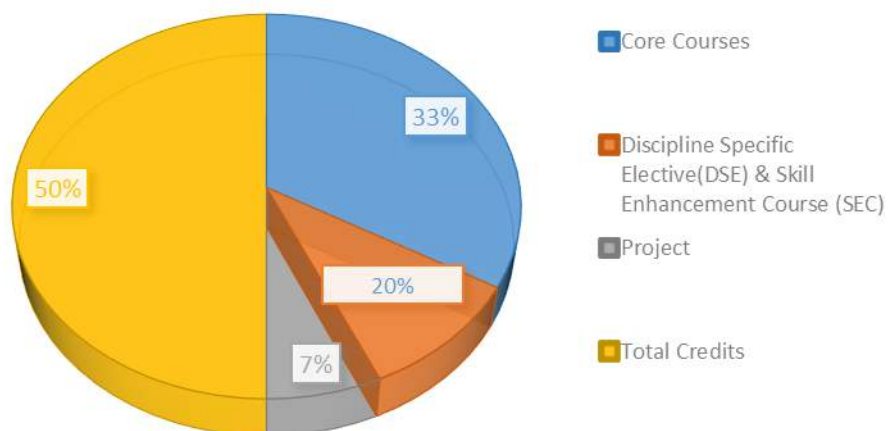
<b>Component</b>	<b>I Sem</b>	<b>II Sem</b>	<b>III Sem</b>	<b>IV Sem</b>	<b>Total Credits</b>
<b>CORE Courses</b>	<b>24</b>	<b>18</b>	<b>18</b>	<b>-</b>	<b>60</b>
<b>Discipline Specific Elective(DSE) &amp; Skill Enhancement Course (SEC)</b>	<b>2</b>	<b>8</b>	<b>8</b>	<b>-</b>	<b>18</b>
<b>Project</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>12</b>	<b>12</b>
<b>Total Credits</b>	<b>26</b>	<b>26</b>	<b>26</b>	<b>12</b>	<b>90</b>



## TOTAL CREDITS



## CREDIT PERCENTAGE DISTRIBUTION



## ABBREVIATIONS

<b>CC</b>	Core Course
<b>SEC</b>	Skill Enhancement Course
<b>DSE</b>	Disciplinary Specific Elective
<b>VAC</b>	Value Added Course

## CURRICULUM STRUCTURE

### Master of Computer Applications

**Total number of Credits: 90**

Master of Computer Applications										
Hours/Week				Maximum Marks						
SEMESTER 1										
Category	Code	Course	L	T	P	O	C	CIA	SEE	Total
CC	24CMCA11	Mathematical Foundations of Computer Science	4	1	0	2	5	40	60	100
CC	24CMCA12	C Programming and Data Structures	4	1	0	2	5	40	60	100
CC	24CMCA13	Relational Database Systems	4	0	0	2	4	40	60	100
CC	24CMCA14	Operating Systems	3	0	0	2	3	40	60	100
CC	24CMCA15	Software Engineering	3	0	0	2	3	40	60	100
SEC	24SSKU11	Soft skill - I	2	0	0	2	2	40	60	100
CC LAB	24PMCA11	C Programming and Data Structures Laboratory	0	0	4	2	2	40	60	100
CC LAB	24PMCA12	Relational Database Systems Laboratory	0	0	4	2	2	40	60	100
Total			20	-	8	-	26	-	-	

CIA - Continuous Internal Assessment

SEE - Semester End Examination

\*L – Lecture, \*T- Tutorial, \*P- Practical, \*O – Outside the class effort / self-study



<b>Master of Computer Applications</b>										
<b>Hours/Week</b>					<b>Maximum Marks</b>					
<b>SEMESTER 2</b>										
<b>Category</b>	<b>Code</b>	<b>Course</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>O</b>	<b>C</b>	<b>CIA</b>	<b>SEE</b>	<b>Total</b>
<b>CC</b>	24CMCA21	Business Intelligence using Statistical Methods	4	0	0	2	4	40	60	100
<b>CC</b>	24CMCA22	Programming in Java	4	0	0	2	4	40	60	100
<b>CC</b>	24CMCA23	Data Science	4	0	0	2	4	40	60	100
<b>DSE</b>	24DMCA2-	Discipline Specific Elective – I	3	0	0	2	3	40	60	100
<b>DSE</b>	24DMCA2-	Discipline Specific Elective – II	3	0	0	2	3	40	60	100
<b>SEC</b>	24SSKU12	Soft skill - II	2	0	0	2	2	40	60	100
<b>CC LAB</b>	24PMCA21	Java Programming and Networks Laboratory	0	0	4	2	2	40	60	100
<b>CC LAB</b>	24PMCA22	Data Science Laboratory	0	0	4	2	2	40	60	100
<b>CC</b>	24IMCA-	Internship/In plant Training	0	0	2	1	2	-	-	-
		<b>Total</b>	16	-	10	-	26	-	-	-

**CIA - Continuous Internal Assessment**

**SEE - Semester End Examination**

**\*L – Lecture, \*T- Tutorial, \*P- Practical, \*O – Outside the class effort / self-study**

Master of Computer Applications										
Hours/Week					Maximum Marks					
SEMESTER 3										
Category	Code	Course	L	T	P	O	C	CIA	SEE	Total
CC	24CMCA31	Advanced Java Programming	4	1	0	2	5	40	60	100
CC	24CMCA32	Financial and Management Accounting	4	1	0	2	5	40	60	100
CC	24CMCA33	Cloud Computing	4	0	0	2	4	40	60	100
DSE	24DMCA3-	Discipline Specific Elective III	3	0	0	2	3	40	60	100
DSE	24DMCA3-	Discipline Specific Elective IV	3	0	0	2	3	40	60	100
SEC	24SSKU13	Personality Development	2	0	0	2	2	40	60	100
CC LAB	24PMCA31	Advanced Java Programming Laboratory	0	0	4	2	2	40	60	100
CC LAB	24PMCA32	Cloud Computing Laboratory	0	0	4	2	2	40	60	100
		Total	20	-	8	-	26	-	-	-

CIA - Continuous Internal Assessment

SEE - Semester End Examination

\*L – Lecture, \*T- Tutorial, \*P- Practical, \*O – Outside the class effort / self-study

Master of Computer Applications										
Hours/Week					Maximum Marks					
SEMESTER 4										
Category	Code	Course	L	T	P	O	C	CIA	SEE	Total
CC	24CMCA41	Main Project	0	0	6	2	12	40	60	100
		Total	0	0	6	-	12	-	-	-

CIA - Continuous Internal Assessment

SEE - Semester End Examination

\*L – Lecture, \*T- Tutorial, \*P- Practical, \*O – Outside the class effort / self-study

## CORE COURSES

Category	Code	Course	L	T	P	O	C
CC	24CMCA11	Mathematical Foundations of Computer Science	4	1	0	2	5
CC	24CMCA12	C Programming and Data Structures	4	1	0	2	5
CC	24CMCA13	Relational Database Systems	4	0	0	2	4
CC	24CMCA14	Operating Systems	4	0	0	2	4
CC	24CMCA15	Software Engineering	4	0	0	2	4
CC LAB	24PMCA11	C Programming and Data Structures Laboratory	4	0	0	2	4
CC LAB	24PMCA12	Relational Database Systems Laboratory	4	0	0	2	4
CC	24CMCA21	Business Intelligence using Statistical Methods	4	0	0	2	4
CC	24CMCA22	Programming in Java	4	0	0	2	4
CC LAB	24CMCA21	Java Programming and Networks Laboratory	4	0	0	2	4
CC LAB	24PMCA22	Data Science Laboratory	4	0	0	2	4
CC	24IMCA--	Internship/In plant Training	4	0	0	2	4
CC	24CMCA31	Advanced Java Programming	4	1	0	2	5
CC	24CMCA32	Financial and Management Accounting	4	1	0	2	5
CC	24CMCA33	Cloud Computing	4	0	0	2	4
CC LAB	24PMCA31	Advanced Java Programming Laboratory	4	0	0	2	4
CC LAB	24PMCA32	Cloud Computing Laboratory	4	0	0	2	4
CC	24CMCA41	Main Project	0	0	6	2	12

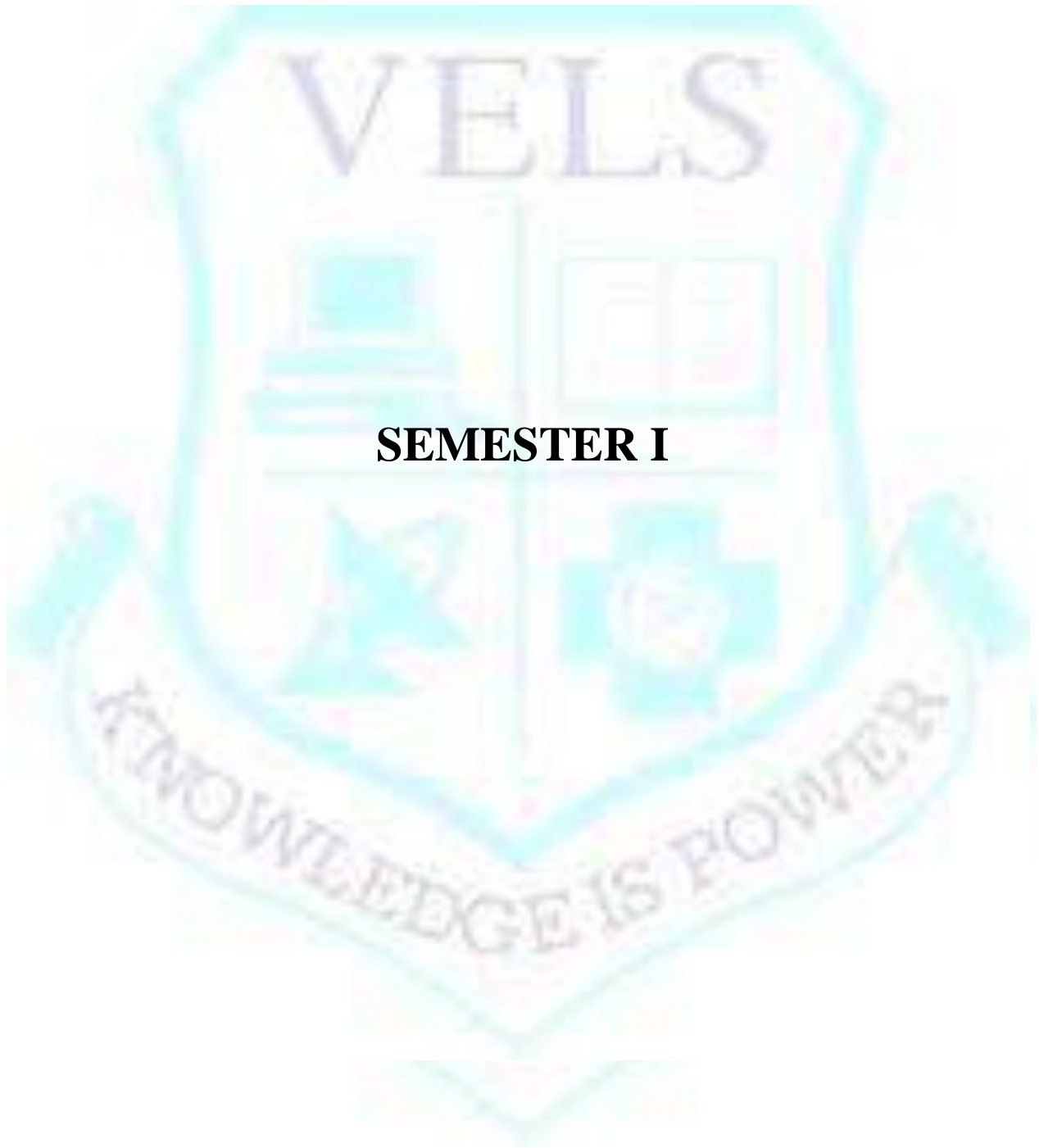
## DISCIPLINE SPECIFIC ELECTIVE COURSES

Category	Code	Course	L	T	P	O	C
<b>DSE 1</b>	DSE001	Blockchain Technologies	4	0	0	2	4
<b>DSE 2</b>	DSE002	Ethical Hacking	4	0	0	2	4
<b>DSE 3</b>	DSE003	Big Data with R	4	0	0	2	4
<b>DSE 4</b>	DSE004	Full Stack Development	4	0	0	2	4
<b>DSE 5</b>	DSE005	Introduction to Machine Learning	4	0	0	2	4
<b>DSE 6</b>	DSE006	E-Learning Techniques	4	0	0	2	4
<b>DSE 7</b>	DSE007	Software Testing	4	0	0	2	4
<b>DSE 8</b>	DSE008	Deep Learning Techniques and Applications	4	0	0	2	4
<b>DSE 9</b>	DSE009	Game Programming Techniques	4	0	0	2	4
<b>DSE 10</b>	DSE010	Multimedia Technologies	4	0	0	2	4
<b>DSE 11</b>	DSE011	Data Visualization Techniques	4	0	0	2	4
<b>DSE 12</b>	DSE012	UNIX Programming	4	0	0	2	4
<b>DSE 13</b>	DSE013	C# and .NET Programming	4	0	0	2	4
<b>DSE 14</b>	DSE014	Software Project Management	4	0	0	2	4
<b>DSE 15</b>	DSE015	Digital Image Processing and Applications	4	0	0	2	4
<b>DSE 16</b>	DSE016	Data Warehousing and Data Mining Techniques	4	0	0	2	4
<b>DSE 17</b>	DSE017	Software Quality Assurance	4	0	0	2	4
<b>DSE 18</b>	DSE018	IoT Applications	4	0	0	2	4
<b>DSE 19</b>	DSE019	Object Oriented Analysis and Design	4	0	0	2	4
<b>DSE 20</b>	DSE020	Artificial Intelligence	4	0	0	2	4

<b>DSE 21</b>	DSE021	Computer Graphics	4	0	0	2	4
<b>DSE 22</b>	DSE022	Wireless Sensor Networks & Protocols	4	0	0	2	4
<b>DSE 23</b>	DSE023	Next Generation Networks	4	0	0	2	4
<b>DSE 24</b>	DSE024	Cyber Security	4	0	0	2	4
<b>DSE 25</b>	DSE025	Python Web Development	4	0	0	2	4
<b>DSE 26</b>	DSE026	Computer Communication Networks	4	0	0	2	4
<b>DSE 27</b>	DSE027	Software Project Management and Quality Assurance	4	0	0	2	4
<b>DSE 28</b>	DSE028	Quantum Computing	4	0	0	2	4

### SKILL ENHANCEMENT COURSES

<b>Category</b>	<b>Code</b>	<b>Course</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>O</b>	<b>C</b>
<b>SEC 1</b>	24SSKU11	Soft Skills I	2	0	0	1	2
<b>SEC 2</b>		Orientation Programme / Industrial Visit	-	-	-	-	-
<b>SEC 3</b>	24SSKU12	Soft Skills II	2	0	0	1	2
<b>SEC 4</b>	24SSKU13	Personality Development	2	0	0	2	2



**SEMESTER I**

L	T	P	O	C
4	1	0	2	5

**Course Objective:**

To study and understand the concepts of

1. Solving System of Equations
2. Eigen Values and Eigen Vectors, Functions - injective, surjective and bijective functions Functionally complete set of connectives - Normal forms
3. Proofs in Propositional calculus - Predicate calculus
4. Equivalence of DFA and NFA  
Equivalence of NFA and Regular Languages.

**Unit 1 MATRIX ALGEBRA****12**

Matrices, Rank of Matrix, Solving System of Equations-Eigen Values and Eigen Vectors-Inverse of a Matrix - Cayley Hamilton Theorem

**Unit II BASIC SET THEORY****12**

Basic Definitions - Venn Diagrams and set operations - Laws of set theory - Principle of inclusion and exclusion - partitions- Permutation and Combination - Relations- Properties of relations - Matrices of relations - Closure operations on relations - Functions - injective, surjective and bijective functions.

**Unit III MATHEMATICAL LOGIC****12**

Propositions and logical operators - Truth table - Propositions generated by a set, Equivalence and implication - Basic laws- Some more connectives - Functionally complete set of connectives- Normal forms - Proofs in Propositional calculus - Predicate calculus.

**Unit IV. FORMAL LANGUAGES -****12**

Languages and Grammars-Phrase Structure Grammar-Classification of Grammars-Pumping Lemma for Regular Languages-Context Free Languages.

Finite State Automata-Deterministic Finite State Automata(DFA), Non Deterministic Finite State Automata (NFA)-Equivalence of DFA and NFA-Equivalence of NFA and Regular Languages.

Total No. of Periods: 60 hours

**COURSE OUTCOME:** At the end of this course the students will be able to,

CO1: Solve problems using Rank of Matrix, Solving System of Equations-Eigen Values and Eigen Vectors, Inverse and Cayley Hamilton Theorem.

CO2: Solve problems using Laws of set theory - Permutation and Combination - Relations- Properties of relations - Functions - injective, surjective and bijective functions.

CO3: Apply the logical structure of proofs and work symbolically with connectives and quantifiers to produce logically valid, correct and clear arguments, Perform set operations on finite and infinite collections of sets and be familiar with properties of set operations, Determine equivalence relations on sets and equivalence classes, Work with functions and in particular bijections, direct and inverse images and inverse functions.

CO4: Explain and manipulate the different concepts in automata theory and formal languages such as formal proofs, regular expressions, regular languages, context – free grammars and explain the power and the limitations of regular languages, context – free languages.

CO5: To develop a strong background in reasoning about finite state automata and formal languages. Understanding minimization of deterministic and non-deterministic finite automata.

**TEXT BOOKS:**

1. Kenneth H.Rosen, "Discrete Mathematics and Its Applications", Tata McGraw Hill, Fourth Edition, 2002 (Unit 1,2 & 3).

2. Hopcroft and Ullman, "Introduction to Automata Theory, Languages and Computation", Narosa Publishing House, Delhi, 2002. (Unit 4,5)

**REFERENCES:**



1. A.Tamilarasi&A.M.Natarajan, "Discrete Mathematics and its Application", Khanna Publishers, 2nd Edition 2005.

2. M.K.Venkataraman "Engineering Mathematics", Volume II, National Publishing Company, 2nd Edition,1989.

**e-Resources:**

1. <https://www.w3schools.in/c-tutorial>.
2. <https://nptel.ac.in>
3. <https://www.wikipedia.org>

L	T	P	O	C
4	1	0	2	5

**Course Objective:**

1. This course introduces the basic concepts of programming in C and various programming statements of the C languages.
2. This Course introduces Data structures and types of data structures namely linear and non-linear types.

**UNIT – I INTRODUCTION****12**

Program development steps: Algorithm, flowchart, structure of C program, A Simple C program, identifiers, basic data types and sizes, Constants, variables, Operators, expressions, type conversions, conditional expressions, Input-output statements  
statements and blocks: if and switch statements, loops- while, do-while and for statements, break, continue, goto and labels, programming examples.

**UNIT – II ARRAYS AND FUNCTIONS****12**

Arrays – types: one- dimensional, multi-dimensional, Designing structured programs: Functions, user defined functions, standard library functions, recursive functions, C program examples.

**UNIT – III STRUCTURES AND UNIONS****12**

Derived types: structures, nested structures, self-referential structures, unions, typedef, pointers-dynamic memory managements functions, command line arguments, C program examples.

**UNIT – IV LINEAR DATA STRUCTURES****12**

Introduction to data structures: Linear Data structures – Array, Stack, Queue - Applications of Array :Searching - Linear and binary search methods, sorting- Application of stack: Postfix evaluation.

**UNIT – V NON-LINEAR DATA STRUCTURES****12**

Non Linear Datatypes: Trees- Binary trees, terminology, representation, traversals, graphs-terminology, representation, graph traversals (DFS& BFS )

TOTAL No. of Periods: 60 hrs.

**COURSE OUTCOME:**

At the end of this course the students will be able to,

- CO1: Define the various operators and library functions in C.
- CO2: Write programs using the various control structures and functions.
- CO3: Solve problems using arrays and strings.
- CO4: Develop programs based on pointers.
- CO5: Implement types of data structures in C.

TEXT BOOKS:

1. Computer science, A structured programming approach using C, B.A. Forouzan and R.F.Gilberg, Third edition, Thomson
2. DataStructures Using C - A.S.Tanenbaum, Y. Langsam, and M.J. Augenstein, PHI/Pearson education.

REFERENCES:

1. The C Programming Language, B.W. Kernighan, Dennis M.Ritchie, PHI/Pearson Education.
2. C Programming with problem solving, J.A. Jones & K. Harrow, Dreamtech Press Programming in C - Stephen G. Kochan, III Edition, and Pearson Education.

e-Resources:

1. <https://www.w3schools.in/c-tutorial>.
2. <https://en.cppreference.com/w/>.
3. <https://nptel.ac.in>
3. <https://www.wikipedia.org>
4. <http://ebooks.lpude.in>



<b>L</b>	<b>T</b>	<b>P</b>	<b>O</b>	<b>C</b>
<b>4</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>4</b>

**Course Objective:**

1. To introduce basic concepts of RDBMS
2. To introduce basic concepts of SQL
3. To introduce the concept of transaction processing
4. To implement the database normalization using normal forms

**UNIT I INTRODUCTION TO DATABASE SYSTEMS****12**

Overview – Data Models – Database System Architecture – Entity Relationship Model Basic Concepts – Constraints – keys – Design Issues – Entity Relationship Diagram – Weak Entity Sets – Extended E–R Features – Design of an E–R Database Schema – Reduction of E–R Schema to Tables –UML.

**UNIT II RELATIONAL MODEL****12**

Relational Algebra – Extended Relational Algebra Operations – Modification of Database – views – SQL fundamentals – Advanced SQL Features – Embedded QL – Dynamic SQL – QBE.

**UNIT III NORMAL FORMS****12**

Integrity and Security Domain Constraints – referential Integrity – Assertions – Triggers – Security and Authorization – Authorization in SQL – Encryption and Authentication. Relational – Database Design Pitfalls in relational – Database Design – Function Dependencies– Decomposition – Desirable Properties of Decomposition – Normal Forms – Boyce – Codd Normal Forms.

**UNIT IV FILE ORGANIZATION****12**

Storage and File Structures Overview of Physical Storage media – magnetic Disks – RAID – Tertiary Storage – Storage Access – File Organization – Organization of Records in Files – Data – Dictionary Storage – Indexing and hashing.

Introduction to Oracle – DDL,DML and DCL – Aggregate functions – sub queries – join Operations – Views – PL/SQL Block – decision making and Control Structures – Procedure – functions – Sequences – Cursors and Triggers – Example Database Programs.

TOTAL : 60 Hrs.

**Course Outcome:**

CO1: Demonstrate the basic elements of a relational database management system.

CO2: Identify data models for relevant problems.

CO3:Design entity relationship and convert entity relationship diagrams into RDBMS and formulate SQL queries on the respect data.

CO4: Apply normalization for the development of application software's.

CO5: Design and implement a full real size database system

**Text Books:**

1. A.Silberchatz, H.Korth, Subarshan, "Database System Concepts", McGraw – Hill Higher Education, 5<sup>th</sup> Edition, 2012.
2. Koch and Liney, "Oracle9iThe Complete reference", McGraw–Hill, 2002.

**References:**

1. C.J.Date, "An Introduction to Database Systems", Pearson Education, Seventh Edition, 2003.
2. Elmasri, Navathe, "Fundamentals of Database Systems, Addison Wesley", 3rd Edition, 2000.
3. Jeffrey D. Ullman, Jenifer Wisdom, "A First Course in Database Systems", Pearson Education Asia, 2001.
4. Bipin C. Desai, "An Introduction to Database Systems", Galgotia Publications Pvt. Limited, 2001.
5. Oracle Database Handbook (Oracle Press) 2007.

**e-Resources:**

NPTEL & MOOC courses titled Relational Database Management Systems

- 1.<https://nptel.ac.in/courses/106106093/>
- 2.<https://nptel.ac.in/courses/106106095/>
- 3.<https://www.wikipedia.org>
- 4.<http://ebooks.lpude.in>

L	T	P	O	C
3	0	0	2	3

**COURSE OBJECTIVE**

1. To provide an understanding of the major operating system components.
2. To describe the services an operating system provides to users, processes and other systems.
3. To describe various features of processes including scheduling, creation and termination.
4. To present both software and hardware solutions of the critical section problems.
5. To explain the functions of file system and performance aspects of I/O hardware and software.

**UNIT I INTRODUCTION TO OPERATING SYSTEMS****9**

Operating System – Role of an Operating System – Types of Operating System – Major OS Components – Operating System Operations – Operating System Services – System calls – System Programs – Operating System Structure – Process Concept – Process Scheduling – Operations on Processes – Interprocess Communication.

**UNIT II THREADS AND CPU SCHEDULING****9**

Threads – Multithreading Models – Thread Libraries – Threading Issues – Basic Concepts of Scheduling – Scheduling Criteria – Scheduling Algorithms – FCFS – SJF – Round Robin – Multiprocessor Scheduling – Real-Time CPU Scheduling.

**UNIT III PROCESS SYNCHRONIZATION****9**

Background – Critical Section Problem – Synchronization Hardware – Mutex Locks – Semaphores – Semaphores Usage – Semaphores Implementation – Monitors – Monitors Usage – Dining Philosophers Solutions Using Monitors – Implementation of Monitor Using Semaphores.

**UNIT IV MEMORY MANAGEMENT****9**

Background – Swapping – Contiguous Memory Allocation – Paging – Segmentation – Virtual Memory – Demand Paging – Copy-on-Write – Page Replacement Policies: FIFO, Optimal, LRU – Allocation of Frames – Thrashing.

I/O Hardware – Application I/O Interface – Kernel I/O Subsystem – Communication with I/O devices – STREAMS.

TOTAL : 45 HRS

### **COURSE OUTCOME**

- CO1: Describe how operating systems have evolved over time from primitive batch systems to sophisticated multi-user systems.
- CO2: Understand the basic concepts of operating system process control, synchronization, and scheduling.
- CO3: Explain the basic structure and functions of operating systems.
- CO4: Identify the problems related to process management and synchronization and apply learned methods to solve basic problems.
- CO5: Demonstrate knowledge in applying system software and tools available in modern operating systems.

### **TEXT BOOKS:**

1. Silberschatz, Abraham, Greg Gagne and Peter B. Galvin, “Operating System Concepts”, Ninth Edition, Wiley, 2012.
2. William Stallings, “Operating Systems: Internals and Design Principles”, Seventh Edition, Pearson Education, 2013.
3. Andrew S. Tanenbaum, “Modern Operating Systems”, Addison Wesley, 2009.

### **REFERENCES:**

1. Russ Cox, Frans Kaashoek and Robert Morris, “xv6: A Simple, Unix – like Teaching Operating System”, Revision 11. (<https://pdos.csail.mit.edu/6.828/2018/xv6/book-rev11.pdf>)
2. B. Molay, “Understanding Unix/Linux Programming: A Guide to Theory and Practice”, Third Edition, Prentice Hall, 2003.
3. H. M. Deital, P. J. Deital, D. R. Choffnes, “Operating Systems”, Third Edition, Pearson Education, 2015.

### **e-Resources:**

1. <https://www.w3schools.in/ostutorial>.
2. <https://nptel.ac.in/courses/106106144/>
3. <https://www.wikipedia.org>
4. [http://ebooks.lpude.in.operating system](http://ebooks.lpude.in.operating%20system)



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## COURSE OBJECTIVE

1. To understand the concepts of software processes, process models and fundamental process activities.
2. To understand the fundamental concepts of requirements engineering & requirements specification and documents.
3. To be aware of testing processes, techniques and debugging to solve program defects.
4. To learn how to use software metrics, manage risk, apply basic software quality assurance practices.
5. To ensure that software designs, development, and maintenance meet or exceed applicable standards.

## UNIT 1 PROCESS

9

Product and Process – Evolution Process and Activities – Software Development Lifecycle Models: Waterfall Model – Incremental Models – Evolutionary Models – Spiral Model – Unified model – Prototype model – Agile methods.

## UNIT II SOFTWARE REQUIREMENTS

9

Functional and Non-Functional Requirements – Software Requirements Document – Requirements Specification – Requirements Engineering Processes – Requirements Elicitation & Analysis – Requirements Validation – Requirements Management.

## UNIT III ANALYSIS AND DESIGN

9

Analysis Modeling Approaches: Scenario Based Modeling – UML Models – Data Modeling Concepts: Class Based Modeling, Flow Oriented Modeling – Design Process and Concepts– Design Model – Architectural Design – Pattern Based Design – Web App Design – Real Time Software Design – System Design – Data flow Oriented Design – Designing for Reuse- User Interface Design: Interface analysis, Interface Design – Component level Design: Designing Class Based Components, Traditional Components.

## **UNIT IV SOFTWARE TESTING**

**9**

Software Testing Strategies – White Box Testing – Black Box Testing – Basis Path Testing – Control Structure Testing – Regression Testing – Unit testing – Integration Testing – Validation Testing – System testing – Art of Debugging.

## **UNIT V MANAGEMENT AND METRICS**

**9**

Software Configuration Management – Project management concepts – Process and Project Metrics – Software Cost Estimation – Project scheduling – Risk Management – Software Quality Assurance – Maintenance and Re – engineering – CASE Tools.

Total : 45 hrs.

### **COURSE OUTCOME:**

- CO1: Understand of the role and impact of software engineering in contemporary business, global, economic, environmental and societal context.
- CO2: Elicit the requirements for real, time problems. Analyze and use open source tools for project designing.
- CO3: Develop User Interface design for the given system.
- CO4: Analyze and resolve information technology problems through the application of systematic approaches and diagnostic tools.
- CO5: Estimate the cost of software and apply software management principles.

### **TEXT BOOKS :**

1. Roger S. Pressman, “Software Engineering: A Practitioner’s Approach”, Seventh Edition, McGraw Hill International edition, 2009.
2. Ian Sommerville, “Software Engineering, Ninth Edition”, Pearson Education, 2008.
3. Watts S.Humphrey, “A Discipline for Software Engineering”, Pearson Education, 2007.

### **e-Resources:**

- 1.<https://www.w3schools.in>
- 2.<https://nptel.ac.in/courses>
- 3.<https://www.wikipedia.org>.
- 4.<http://ebooks.lpude.in>

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**Course Objective:**

This lab provides detailed knowledge of Arrays, Pointers, Stack Operations, Doubly Linked list, Graphs and Recursion. Also provide knowledge in Prefix, Post Fix Expression evaluation and tree Traversal techniques using C programming

**Write C program for the followings:**

1. Implement PUSH, POP operations of stack using Arrays.
2. Implement PUSH, POP operations of stack using Pointers.
3. Implement add, delete operations of a queue using Arrays.
4. Implement add, delete operations of a queue using Pointers.
5. Conversion of infix to postfix using stack operations
6. Postfix Expression Evaluation.
7. Prefix Expression Evaluation
8. Addition of two polynomials using Arrays and Pointers.
9. Creation, insertion, and deletion in doubly linked list.
10. Binary tree traversals (in-order, pre-order, and post-order) using linked list.
11. Depth First Search for Graphs using Recursion.
12. Breadth first Search for Graphs using Recursion.

**Course Outcomes:**

- CO1: Create basic operations of PUSH, POP of stack using Arrays and pointers.
- CO2: Write simple and complex operations of Prefix and postfix in stack.
- CO3: To evaluate postfix and prefix operations using C Program.
- CO4: Use advanced features such as Binary tree traversals using linked list, stored procedures.
- CO5: Create and manipulate Depth First Search and Breadth first search for graphs.

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**Course Objective:**

This course will help students to learn and implement important commands in SQL, usage of nested and joint queries, procedures and procedural extensions of databases and to understand design and implementation of typical database applications.

**EXPERIMENTS**

1. Create a database table, add constraints (primary key, unique, check, Not null), insert rows, update and delete rows using SQL DDL and DML commands.
2. Create set of tables, add foreign key constraints and incorporate referential integrity.
3. Query the database tables using different 'where' clause conditions and also implement aggregate functions.
4. Query the database tables and explore sub queries and simple join operations.
5. Query the database tables and explore natural, equi and outer joins.
6. Write user defined functions and stored procedures in SQL.
7. Execute complex transactions and realize DCL and TCL commands.
8. Write SQL Triggers for insert, delete, and update operations in database table.
9. Create View and index for database tables with large number of records.
10. Develop a simple GUI based database application and incorporate all the above- mentioned features.

**Course Outcome:**

- CO1: Create databases with different types of key constraints.
- CO2: Write simple and complex SQL queries using DML and DCL commands.
- CO3: Realize database design using 3NF and BCNF.
- CO4: Use advanced features such as stored procedures and triggers and incorporate in GUI based application development.
- CO5: Create and manipulate data using NOSQL data

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**Course Objective**

To help the students understand interpersonal skills, to support them in building interpersonal skills, to better the ability to work with others.

**UNIT I PRONUNCIATION**

6

1. An Introduction to Phonetics
2. Sounds – Vowel Sounds, Consonant Sounds and Diphthongs
3. Speaking with the right pronunciation
4. Regional Slant and how to overcome the slant
5. Standard Pronunciation and Received Pronunciation (R.P.)
6. Correcting common errors of pronunciation

**UNIT II SPEAKING**

6

Learning to talk

**Different attitude–different concept–different orientation according to the situation, aim and talk**

1. Familiar Topics
2. Brain – storming, just a minute
3. Thinking Together
4. Finding the right word, Expressions, Usage, Mannerisms, Postures, Body– Language, Eye– Contact, Gestures.
5. Presenting points
6. Overcoming hesitations, Shyness and Nervousness  
[From a word to a sentence and then to a short speech]
7. Speech – Rhythm
  - Rising and falling Tone
  - Accent
  - Intonation
  - Word stress, Syllable Stress and Sentence Stress.

**UNIT III DRILLING IN THE LANGUAGE LAB**

6

8. Preparing a speech on a given Subject
9. Pattern of a speech to suit the audience

- addressing the audience, slowly introducing the topic, defining the topic, points 1,2,3,...and if there is a draw-back mention it, Conclusion ‘Thank You’.
10. Choose the right word for right meaning– expression to suit the thought
  11. Words – Derivatives, synonyms & Antonyms

**UNIT IV WRITING SKILLS[creative Writing] 6**

**I Narration and Story – Telling**

- 1) Narrating an incident, CoGENCY and Readability
- 2) Choosing the Tense
- 3) Plan of a story [Introducing the story, characters, incidents and proper end]

**DRILL IN LANGUAGE LAB**

**II Reports**

- 1) Agenda of a meeting
- 2) Circulars & Internal Memos
- 3) Reports of Meetings
- 4) Reports of Experiments
- 5) Business Report
- 6) Reporting for the media
- 7) Writing Press Reports
- 8) Conflict resolution – Adopting an agreed resolution

**UNIT V READING [READING TO UNDERSTAND] 6**

- 1) Reading with pauses
- 2) Reading with Intonation
- 3) Reading in a classroom
- 4) Reading to an assembly of Business men / Scientists
- 5) Quoting
- 6) Slogans in the reading material
- 7) Training for a News Reader/Corporate Spokesperson

Function of Commonly used Tenses

The function of the Parts of Speech in daily use in the corporate world

TOTAL: 30 HOURS

**References:**

- [www.tatamcgrawhill.com](http://www.tatamcgrawhill.com)  
[www.dictionary.cambridge.org](http://www.dictionary.cambridge.org)  
[www.wordsmith.org](http://www.wordsmith.org)

The logo of VELS University is a shield-shaped emblem. At the top, the word "VELS" is written in a large, serif font. The shield is divided into four quadrants: the top-left contains a stack of books, the top-right contains an open book, the bottom-left contains a stylized star or atom symbol, and the bottom-right contains a cross with a circular element in the center. A banner at the bottom of the shield contains the motto "KNOWLEDGE IS POWER" in a serif font.

VELS

**SEMESTER II**

KNOWLEDGE IS POWER

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**COURSE OBJECTIVES:**

1. To develop the skills of the students in the concepts of Statistics and Numerical Methods using excel.
2. To find the correlation between two variables using excel.
3. To quantify the linear relationship between an explanatory variable and response variable and implementation in excel.
4. To find numerical techniques for interpolation with equal and unequal intervals with excel functions.
5. To enhance our knowledge this course will serve as a prerequisite for post graduate and specialized studies and research.

**UNIT I INTRODUCTION TO STATISTICS****12**

Introduction - Scope of Statistics - Types of Data - Tabulation - Measures of Central Tendency - Mean , Median , Mode - Measures of Dispersion - Range - Standard Deviation.

**UNIT II CORRELATION & REGRESSION ANALYSIS****12**

Introduction - Types of Correlation- Properties of Correlation - Methods of Correlation - Scatter diagrams - Karl Pearson's Correlation Coefficient - Spearman's Rank Correlation coefficient - Regression coefficients - Properties - Regression Lines - Regression equations of X on Y - Regression equations of Y on X - Relation between correlation and Regression.

**UNIT III INTRODUCTION TO EXCEL****12**

Overview of Microsoft Excel - Learn how to start Excel- Become familiar with the Excel workbook - Understand how to navigate worksheets - Examine how to edit data, auto fill data - how to adjust column widths and row heights in a worksheet - adjust column widths and row heights- insert, hide, delete columns/rows - move data to different locations in a worksheet - Entering, Editing, and Managing Data - Formatting and Data Analysis - Formulas

**UNIT IV FORMULAS AND FUNCTIONS IN EXCEL****12**

Use the SUM function to calculate totals - Use absolute references to calculate percent of totals - Use the COUNT function to count cell locations with numerical values- Use the AVERAGE function to calculate the arithmetic mean - Use the MAX and MIN functions to find the highest and lowest values in a range of cells - Learn how to copy and paste formulas without formats applied to a cell location - Learn how to set a multiple level sort sequence for data sets that have duplicate values or outputs - More on Formulas and Functions - Logical and Lookup Functions - Conditional Formatting – Pivot tables.

**UNIT V - PRESENTING DATA WITH CHARTS****12**



Choosing chart type - Construct a line chart to show a time series trend - Learn how to adjust the Y axis scale - Construct a line chart to present a comparison of two trends. - Learn how to use a column chart to show a frequency distribution - Create a separate chart sheet for a chart embedded in a worksheet - construct a column chart that compares two frequency distributions - Learn how to use a pie chart to show the percent of total for a data set - Construct a stacked column chart to show how a percent of total changes over time - using charts with Microsoft word and Microsoft power point

Total: 60 Hours

### **COURSE OUTCOMES:**

- CO1: Understand the key terminology, concepts tools and techniques used in Statistical Analysis.
- CO2: Recognize and evaluate the relationship between two quantitative variables Through simple linear Correlation, Interpret the formula and calculate the Regression measure of two variables.
- CO3: Apply various advanced functions using excel
- CO4: Explain and manipulate logical and lookup functions
- CO5: Develop a strong background for presenting data in various perspective

### **TEXT BOOKS**

1. Roger E. Kirk, *Statistics: An Introduction*, Thomson - Wadsworth Publication, Fifth Edition, 2008.
2. P. Sivaramakrishna Das, C. Vijayakumari, *Numerical Analysis*, Pearson Publication, 1st Edition, 2014.

### **REFERENCE BOOKS:**

1. E. Balagurusamy, *Numerical Methods*, McGraw Hill Education, July 2017.
2. S.P.Gupta, *Statistical Methods*, Sultan Chand & Sons, Forty Sixth Revised Edition,
3. Beginning Excel, First Edition, Barbara Lave, Diane Shingledecker, Julie Romey, Noreen Brown, Mary Schatz, Open Oregon Educational Resources, 2020

### **WEB SOURCES:**

1. <https://d3bxy9euw4e147.cloudfront.net/oscms/rod/media/documents/IntroductoryBusinessStatistics-OP.pdf>
2. <https://www.ddegjust.ac.in/studymaterial/mcom/mc-106.pdf>

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**Course Objective:**

1. This subject will help to improve the analytical skills of object oriented programming.
2. It gives formal introduction to Java programming language and helps in learning GUI based application development and network programming.
3. History of Java, Features of Java, Java Development Kit (JDK), Security in Java

**UNIT 1: INTRODUCTION TO JAVA****12**

Keywords; Working of Java; Including Comments; Data Types in Java; Primitive Data Types; Abstract / Derived Data Types; Variables in Java; Using Classes in Java; Declaring Methods in Java, Code to Display Test Value; The main() Method, Operators, Arithmetic Operators, Increment and Decrement Operators, Comparison Operators, Logical Operators, Operator Precedence.

**UNIT 2 CONTROL STATEMENTS, ARRAYS AND STRINGS****12**

Control Flow Statements, If-else Statement, Switch Statement, For Loop, While Loop, Do...While Loop, Break Statement Continue Statement.

Arrays; String Handling; Special String Operations; Character Extraction; String Comparison; Searching Strings; String Modification; StringBuffer methods.

**UNIT 3: INHERITANCE, PACKAGE AND INTERFACE****12**

Inheritance, Types of Relationships, What is Inheritance?, Significance of Generalization, Inheritance in Java, Access Specifiers, The Abstract Class; Packages, Defining a Package, CLASSPATH; Interface, Defining an Interface, Some Uses of Interfaces, Interfaces versus Abstract Classes

**UNIT 4: MULTITHREADING EXCEPTION HANDLING & APPLETS****12**

Multithreading - Thread Life cycle - Runnable interface, Thread synchronization Definition of an Exception; Exception Classes; Common Exceptions; Exception Handling Techniques Applets: What are Applets?; The Applet Class; The Applet and HTML; Life Cycle of an Applet; The Graphics Class; Painting the Applet; User Interfaces for Applet; Adding Components to user interface; AWT (Abstract Windowing Toolkit) Controls

Networking in Java; Manipulating URLs – Reading web pages – Using stream sockets – Datagrams – Broadcasting – Multicasting – Chat application.

Total Hrs : 60 Hrs.

**Course Outcomes:**

- CO1: Understand the structure and model of the Java programming language
- CO2: Implement object oriented concepts of Java programming
- CO3: Solve the inter-disciplinary applications using the concept of inheritance.
- CO4: Design and development of applications using multithreading, applets
- CO5: Create distributed applications using networking

**References**

1. “Core and Advanced Java, Black Book”, Dreamtech Press, 2018.
2. Paul J. Deitel, Harvey Deitel, “Java How to Program”, Eleventh Edition, Pearson, 2017.
3. Cay S. Horstmann, “Core Java Volume I & II”, Pearson Education, 2018.
4. Herbert Schildt , “Java The Complete Reference”, Eighth Edition, Tata McGraw Hill, 2011.
5. Balagurusamy, E. Programming with JAVA. Vol. 6. McGraw-Hill Education, 2019.
6. Paul Dietel, Harvey Dietel, Abbey Dietel, “Internet and World Wide Web”, Fifth Edition, Pearson Education, 2012.

**e-Resources:**

1. <http://ebooks.lpude.in.JAVA>.
2. <https://nptel.ac.in>
3. <https://www.wikipedia.org>
4. <https://www.w3schools.in/c-tutorial>.

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**Course Objective**

1. To provide a strong foundation for data science and application areas related to it.
2. To understand the underlying core concepts and emerging technologies in data science.

**Unit-1 Introduction****12**

Definition – Data Science – Why Data Science – Data Scientist – Data Science Process – Data Preparation – Data Exploration – Data Modelling

**Unit-2 Application areas****12**

Big Data – Characteristics of big data – general Techniques for Big Data - Machine Learning – Definition- Key Elements of machine learning - types machine learning algorithms- Deep Learning – Definition - Feed Forward Networks – Optimization for deep learning algorithms Applications for Data Science.

**Unit-3 Python Programming****12**

Introduction to python – Importance of learning python – Installing python – Setting up the python environment – choosing an IDE – Variables – Data Types – Numeric types – Strings – Lists – Tuples – Dictionaries – Sets –Input and output operations

**Unit-4 Data analysis with python****12**

NumPy ndarray - Vectorization Operation - Array Indexing and Slicing - Transposing Array and SwappingAxes - Saving and Loading Array - Universal Functions - Mathematical and Statistical Functions in Numpy .Series and DataFrame data structures in pandas - Creation of Data Frames Accessing the columns in a DataFrame - Accessing the rows in a Data Frame –Panda's Index objects -Reindexing Series and Data Frames -Dropping entries from Series and Data Frames - Indexing, Selection and Filtering in Series and Data Frames -Arithmetic Operations between Data Frames and Series - Function Application and Mapping.

**Unit-5 Data visualization with python****12**

Basic plotting with matplotlib – creating line plots- scatter plots – subplots – customize plots – adding annotation and text – adjusting axis limits and tick marks – using color maps

Total No. of Periods: 60 hrs.

**Course Outcome**

CO1: Understand the fundamental concepts of data science

CO2: Evaluate the data analysis techniques for applications handling large data

CO3: Write programs using python

CO4: Perform data analysis and data visualization using python

CO5: understand the ethics and tools for data science.

**Text Books:**

1. “Practical Data Science with R”. Nina Zumel, John Mount. Manning, 2014
2. “Data Science for business”, F. Provost, T Fawcett, 2013
3. R cookbook: proven Recipes for data analysis, statistics and graphics, O’Reilly  
cookbook by teetor.

**Reference books**

1. Introducing Data Science, Davy Cielen, Arno D. B. Meysman, Mohamed Ali, Manning  
Publications Co., 1st edition, 2016.
2. Introduction to Python Programming Do Your First Steps Into Programming with Python  
By Greytower Corp · 2024
3. Data Visualization using Python Programming- A Technical Guide For Beginners,  
Researchers and Data Analyst, By Dr.Abhinav · 2023

**e-Resources:**

1. <http://ebooks.lpude.in>Data Science>.
2. <https://nptel.ac.in>
3. <https://www.wikipedia.org>
4. <https://www.w3schools.in/c-tutorial>

## 24PMCA21 JAVA PROGRAMMING AND NETWORKS LABORATORY

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**Course Objective:** To understand and apply the fundamentals of core Java and to implement inheritance, polymorphism, interfaces, multithreading, networking. Developing applications using client side and server side programming.

### EXPERIMENTS

1. Program to define a structure of a basic JAVA program.
2. Program to define operators, arrays and control structures.
3. Program to define class and constructors. Demonstrate constructors.
4. Program to define class, methods and objects.
5. Program to demonstrate method overloading.
6. Program to define inheritance and show method overriding.
7. Program to demonstrate Packages.
8. Program to demonstrate Exception Handling.
9. Program to demonstrate Multithreading.
10. Program to demonstrate Applet structure
11. Program to demonstrate Network Programming.
12. Java socket programming
  - a. Implementation of chat client-server application.
  - b. Implementation of simple http client/server application.
13. Reading websites using URL class

### Course Outcomes

- CO1: Identify classes, objects, members of a class and relationships among them needed for a specific problem
- CO2: Write Java application programs using OOP principles and proper program structuring Demonstrate the concepts of polymorphism and inheritance
- CO3: Create Java programs to implement error handling techniques using exception handling
- CO4: Design and develop GUI based applications
- CO5: Develop chat and file transfer applications

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**Course Objective:** To understand and apply the fundamentals of data science and to implement various concepts using python programming. Developing applications using python libraries.

### EXPERIMENTS

1. Write a program to demonstrate a) Different numeric data types and b) To perform different Arithmetic Operations on numbers in Python
2. Write a program to create, append, and remove lists in Python.
3. Write a program to demonstrate working with tuples and dictionaries in Python.
4. Write a program to compute correlation coefficient using python.
5. Write a program to demonstrate a) arrays b) array indexing such as slicing, integer array indexing and boolean array indexing along with their basic operations in NumPy.
6. Write a program to demonstrate Numpy mathematical functions.
7. Write a program to compute weighted averages in python or using Numpy
8. Write a program to create pandas dataframe using a list of elements.
9. Write a program to compute summary statistics such as mean, median, mode, standard deviation and variance using pandas.
10. Write a program to perform univariate data analysis.
11. Write a program to perform bivariate data analysis.
12. Write a program to demonstrate basic plots in python using Matplotlib

### Course Outcome:

CO1: Demonstrate to use Python in any OS (Windows / Mac /

Linux). CO2: Able to work with Python packages and their installation.

CO3: Demonstrate functions and mathematical built-in function.

CO4: Understand to produce effective plot graph for the given data set.

CO5: Implement and assess relevance and effectiveness of data reports.

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1. To help the students understand Speaking skills, to support them in building communication skills
2. To better the ability to work with others.

**UNIT I SPEAKING****6**

- 1) Speaking at an Interview – “Interviews”
- 2) Meeting People
- 3) Exchanging Greetings
- 4) Introducing Oneself
- 5) Introducing people to others
- 6) Debates and Group Discussions
- 7) At the Interview for a Job

**DRILL IN LANGUAGE LAB****UNIT II TELEPHONE CONVERSATION****6**

- 1) Etiquette & Manners
- 2) Answering the Telephone
- 3) Asking for someone
- 4) Taking and leaving messages
- 5) Making Enquiries

**DRILL IN LANGUAGE LAB****UNIT III PRESENTATION****6**

- 1) Presenting a matter for discussion
- 2) Presenting a problem for Support
- 3) Presenting a product among customers and inventors
- 4) Slogans for advertising
- 5) Proverbs Re-defined
- 6) Saying ‘No’ without saying ‘No’
- 7) Presenting a paper at a seminar/conference



## **DRILLING IN PRESENTATION [EXERCISES]**

### **UNIT IV WRITING SKILLS**

**6**

- 1) Letters [Different types of Letters]
- 2) Developing an argument, story or an article from hints
- 3) Note – Making
- 4) Drafting
- 5) Summary Writing
  - Method of Summarizing
  - Summarizing paragraphs, Essays, Stories, Incidents, Long articles, Speeches.

### **UNT V LISTENING SKILLS [LISTENING AND TAKING NOTES]**

**6**

- 1) Listening in a class – room
- 2) Listening to a Public – speaker
- 3) Listening to a Scientists
- 4) Listening to the news to pick–out the points
- 5) Listening in Corporate offices
- 6) Listening to a recorded speech – cassette of C.D.
- 7) The importance of listening in Business houses

## **DRILL IN LANGUAGE LAB**

### **VI PERSONALITY**

- 1) Personality – An Introduction –Roles of Heredity and Learning

**Identity Clothing/Speech/Age/Success/Reputation/Aspirations and Achievements.**

- 2) Attitude
  - Advantages of positive attitude Thought and Action
  - Appearance
  - Facial Expressions
  - Dress Code
  - Posture
  - Gesture
  - Know the impressions created.
- 3) Presenting Oneself – [Manner and matter]
  - Timing \* Being true to type

- Knowledge
- Skill and Competence
- Communication
- Behaviour
- Avoiding Anxiety
- Shrewdness
- \* Punctuality
- \* Self – confidence
- \* Assurance

#### 4) Path to greatness

- Self Confidence
- Self-Motivation
- Leadership Qualities
- Be Innovative and Original / Creativity

#### 5) The Impact of appearance

- Essentials of a good appearance
- Cleanliness and morals
- Importance of dress
- Overcome shyness / fear and Anxiety
- positive thinking
- career planning
- Etiquette & Manners
- Speech
- Character
- Integrity
- Wisdom
- Courage

#### 6) Interpersonal Skills

- Team work
- Concept of leadership
- The Virtues of a Leader
- Decision making
- Time Management

**Text Books:**

- Newspapers and Magazines
- Write to Communicate – GeethaNagaraj
- Spoken English – “A Self Learning Guide to Conversation Practice”, 34<sup>th</sup> Reprint, Tata McGraw Hill–New Delhi.
- Powell, In Company – Macmillan
- Personality Development – Elizabeth B. Hurlock

TOTAL: 30 HOURS

**References:**

- [www.tatamcgrawhill.com](http://www.tatamcgrawhill.com)
- [www.dictionary.cambridge.org](http://www.dictionary.cambridge.org)
- [www.wordsmith.org](http://www.wordsmith.org)

