SRI VASAVI ENGINEERING COLLEGE (Autonomous)

(Permanent Affiliation to JNTUK, Kakinada),
PEDATADEPALLI, TADEPALLIGUDEM-534 101

A.Y: 2023-24

III SEM CST Handbook

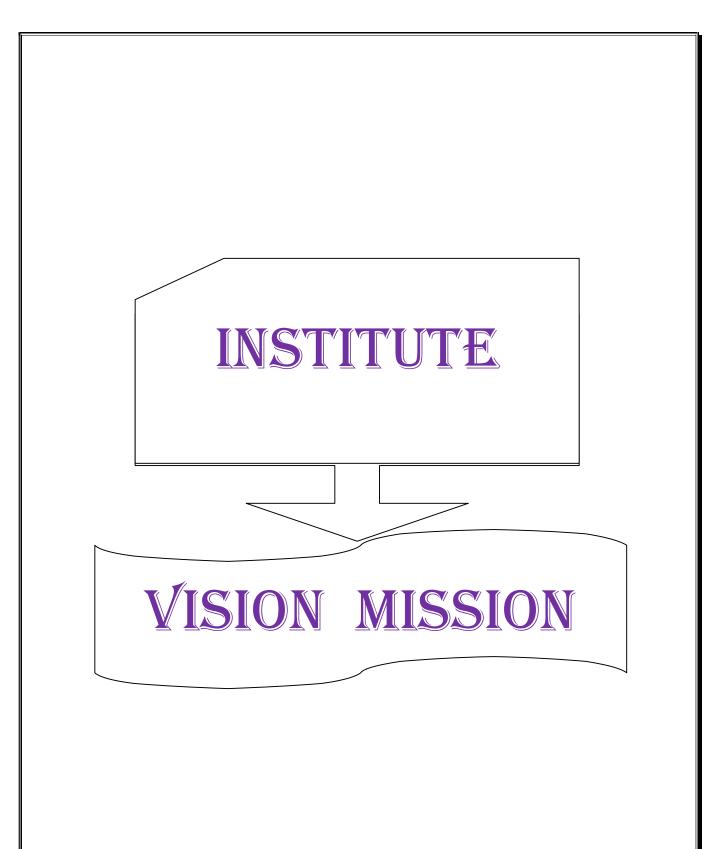### (V20 Regulation)

Department of Computer Science and Technology

Pedatadepalli, Tadepalligudem-534101, A.P

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INSTITUTE

Vision Mission

INSTITUTE VISION AND MISSION

VISION

To be a premier technological institute striving for excellence with global perspective and commitment to the nation.

MISSION

➢ To produce engineering graduates of professional quality and global perspective through Learner Centric Education.

➢ To establish linkages with government, industry and research laboratories to promote R&D activities and to disseminate innovations.

➢ To create an eco-system in the institute that leads to holistic development and ability for life-long learning.

DEPARTMENT

VISION

MISSION

DEPARTMENT
VISION AND MISSION

Vision:

- To evolve as a centre of academic and research excellence in the area of Computer Science and Technology.

Mission :

➢ To utilize innovative learning methods for academic improvement.

➢ To encourage higher studies and research to meet the futuristic requirements of Computer Science and Technology.

➢ To inculcate Ethics and Human values for developing students with good character

PROGRAMME EDUCATIONAL OBJECTIVES, PROGRAMME OUTCOMES & PROGRAMME SPECIFIC OUTCOMES

Programme Educational Objectives (PEOs)

Graduates of this programmewill :

PEO 1: Adapt to evolving technology.

PEO 2: Provide optimal solutions to real time problems.

PEO 3: Demonstrate his/her abilities to support service activities with due consideration for Professional and Ethical Values.

Programme Specific Outcomes (PSO s):

A graduate of the Computer Science and Technology Program will be able to:

PSO 1: Use Mathematical Abstractions and Algorithmic Design along with Open Source Programming tools to solve complexities involved in Programming. [K3]

PSO 2: Use Professional engineering practices and strategies for development and maintenance of software. [K3]

Programme Outcomes (POs):

Computer Science & Technology Graduates will be able to:

1. **Engineering knowledge**: Apply the knowledge of Mathematics, Science, Engineering Fundamentals and Concepts of Computer Science Engineering to the solution of complex Engineering problems. **[K3]**
2. **Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of Mathematics, Natural Sciences and Computer Science. **[K4]**
3. **Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specific needs with appropriate consideration for the public health and safety, and the cultural, societal and environmental considerations. **[K5]**
4. **Conduct investigations of complex problems**: 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. **[K5]**
5. **Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex Engineering activities with an understanding of the limitations**. [K3]**
6. **The Engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional Engineering practice. **[K3]**
7. **Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development. **[K3]**
8. **Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the Engineering practice. **[K3]**
9. **Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings. **[K6]**
10. **Communication**: Communicate effectively on complex Engineering activities with the Engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions. **[K2]**
11. **Project management and finance**: Demonstrate knowledge and understanding of the Engineering 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. **[K6]**
12. **Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change. **[K1]**

ACADEMIC CALENDAR

Principal's Office
Date: 26-07-2023

Academic Calendar
For II B.Tech (III and IV Semesters), Academic Year 2023-24

III Semester			
Description	From	To	Weeks
Commencement of Class Work	28.08.2023		
I Unit of Instructions	28.08.2023	21.10.2023	8 W
I Mid Examinations	23.10.2023	28.10.2023	1 W
II Unit of Instructions	30.10.2023	23.12.2023	8 W
II Mid Examinations	25.12.2023	30.12.2023	1 W
Preparation & Practicals	01.01.2024	06.01.2024	1 W
End Examinations	08.01.2024	20.01.2024	2 W
Commencement of Next Semester Class Work (IV Semester)	22.01.2024		
IV Semester			
I Unit of Instructions	22.01.2024	16.03.2024	8 W
I Mid Examinations	18.03.2024	23.03.2024	1 W
II Unit of Instructions	25.03.2024	18.05.2024	8 W
II Mid Examinations	20.05.2024	25.05.2024	1 W
Preparation & Practicals	27.05.2024	01.06.2024	1 W
End Examinations	03.06.2024	15.06.2024	2 W
Summer Internship / Mini Project	17.06.2024	20.07.2024	
Commencement of Next Semester Class Work (V Semester)	22.07.2024		

PRINCIPAL

Copy to : ALL

Vision
To be a premier technological institute striving for excellence with global perspective and commitment to the nation.
Mission
• To produce Engineering graduates of professional quality and global perspective through learner-centric education.
• To establish linkages with government, industry and Research laboratories to promote R&D activities and to disseminate innovations.
• To create an eco-system in the institute that leads to holistic development and ability for life-long learning.

CLASS CONSOLIDATED TIME TABLE

Class: III SEM   **Class Coordinator:** Mr. P. Rajesh   **Room: B-203**

Periods	1	2	3	4	1:00PM 2:00PM	5	6	7
Time Day	(09.30 AM-10.30 AM)	(10.30 AM-11.20 AM)	(11.20 AM-12.10 PM)	(12.10 PM-01.00 PM)		(02.00 PM-02.50 PM)	(02.50 PM-03.40 PM)	(03.40 PM-04.30 PM)
Mon	OOP	OOP LAB			LUNCH BREAK	MFCS	COA	DS
Tue	OOP	MEFA	DS			PCS-I	PCS-I	MEFA
Wed	LSS LAB					OOP	MFCS	COA
Thu	COA	DS	MFCS	MFCS		OOP	PCS-I	DS
Fri	MFCS	MEFA	COA	DS		OOP	OOP	Sports
Sat	DS LAB			MEFA		COA	MFCS	LIBRARY

Staff Details:

S. No.	Course Code	Course Name	Faculty Name
1.	V20MBT51	Managerial Economics and Financial Analysis **(MEFA)**	Mr. T.Dileep
2.	V20MAT0	Mathematical Foundation Of Computer Science **(MFCS)**	Mr. D. Satya Prasad
3.	V20CST03	OOPs Through C++**(OOPS)**	Mr. P. Rajesh
4.	V20CST04	Data Structures**(DS)**	Ms. G. Nagavallika
5.	V20CST05	Computer Organization and Architecture**(COA)**	Dr.G. Loshma
6.	V20CSL03	OOPs Through C++ Lab**(OOPs Lab)**	Mr. P. Rajesh
7.	V20CSL04	Data Structures Lab**(DS Lab)**	Ms. G. Nagavallika
8.	V20CSL05	Linux Shell Scripting Lab**(LSS Lab)**	Mrs. N.Hiranmayee
9.	V20COSP01	Community Service Project	Mrs. D SanthiRupa
10.	V20SOC01	Skill Oriented Course – I	As Part of Curriculum you have to study **Skill Oriented Course-I** also, It will be conducted **any 1**
11.	V20ENT02	Professional Communication Skills –I**(PCS-I)**	Mrs. ChTanuja/ Mr. M VenkataRamana

Lab Venues:

S.No.	Name of the Lab	Lab Venue
1	OOPs Through C++ Lab**(OOPs Lab)**	**PG CP Lab**(G Block Second Floor)
2	Data Structures Lab**(DS Lab)**	
3	Linux Shell Scripting Lab**(LSS Lab)**	

Head of the Department

COURSE STRUCTURE

III Semester

SEMESTER-III (SECOND YEAR)

S.No.	Code	Name of the Course	L	T	P	C
1	V20MBT51	Managerial Economics and Financial Analysis	3	-	-	3
2	V20MAT07	Mathematical Foundation Of Computer Science	3	-	-	3
3	V20CST03	OOPs Through C++	3	-	-	3
4	V20CST04	Data Structures	3	-	-	3
5	V20CST05	Computer Organization and Architecture	3	-	-	3
6	V20CSL03	OOPs Through C++ Lab	-	-	3	1.5
7	V20CSL04	Data Structures Lab	-	-	3	1.5
8	V20CSL05	Linux Shell Scripting Lab	-	-	3	1.5
9		Skill Oriented Course - I	1	0	2	2
10	V20ENT02	Professional Communication Skills -I	2	-	-	0
		Total:	**18**	**0**	**11**	**21.5**

Total ContactHours:29   **Total Credits:**21.5

LESSON PLANS

Managerial Economics and Financial Analysis

Academic Year: 2023-24   **Programme: B.Tech**
Year/ Semester: III   **Section: -**
Name of the Course: Managerial Economics and Financial Analysis
Course Code: V20MBT51

LESSON PLAN

Course Outcomes (Along with Knowledge Level):

After completion of this course, Student will be able to:

S. No.	CO. No.	Course Outcome	BTL
1.	CO1	Estimate the demand for a product and the relationship between price and demand	K2
2.	CO2	Interpret production concept, least cost combinations and various costs concepts in decision making.	K3
3.	CO3	Differentiate various Markets and Pricing methods along with Business Cycles.	K2
4.	CO4	Prepare financial statements and its analysis.	K3
5.	CO5	Assess various investment project proposals with the help of Capital Budgeting techniques for decision making	K3

Text Books:

1. Dr. N. AppaRao, Dr. P. Vijay Kumar: 'Managerial Economics and Financial Analysis', Cengage Publications, New Delhi – 20112.
2. Dr. A. R. Aryasri – Managerial Economics and Financial Analysis, TMH 2011

Reference Books:

1.   Dr. B. Kuberudu and Dr. T. V. Ramana: Managerial Economics &Financial Analysis, Himalaya Publishing House, 2014
2.   S. A. Siddiqui; A. S. Siddiqui: Managerial Economics and Financial Analysis, New Age International Publishers, 2012.

Targeted Proficiency and attainment Levels (for each Course Outcome):

Cos		CO1	CO2	CO3	CO4	CO5
Targeted Proficiency Level		60	60	60	60	60
Targeted level of Attainment	Level 3	60	60	60	60	60
	Level 2	50	50	50	50	50
	Level 1	40	40	40	40	40

Lecture Plan:

S.No	Course Outcome	Intended learning outcomes (ILO)	Knowledge level of ILO	No. of Hours required	Pedagogy	Teaching aids
		UNIT–I:Introduction to managerial economics		11		
1	Estimate the demand for a product and the relationship between price and demand.	Define managerial economics	K1	1	Lecture Discuss	Blackboard
2		Describe ME with other disciplines	K1	1	Lecture	Blackboard
3		Explain Nature and scope of managerial economics	K2	1	Lecture	Blackboard
4		Define Demand	K1	1	Lecture Discuss	Blackboard
5		Describe law of demand	K2	1	Lecture	Blackboard
6		Explain Elasticity of demand	K2	2	Lecture	Blackboard
7		Find the of elasticity of demand	K2	2	Lecture	Blackboard
8		Explain Demand forecasting, methods.	K2	2	Lecture Discuss	Blackboard
		UNIT–II: Production analysis and cost analysis		8		
1	Interpret production concept, least cost combinations and various costs concepts	State Production function	K1	1	Lecture	Blackboard
2		State Isocost	K1	1	Lecture	Blackboard
3		State Iso quants	K1	1	Lecture	Blackboard
4		Explain Cob-Douglas production function	K2	1	Lecture Discuss	Blackboard
5		Describe economies of scale	K2	1	Lecture	Blackboard
		Enumerate various cost concepts	K1	1	Lecture	Blackboard
		Solve break even analysis problems	K3	2	Lecture	Blackboard
		UNIT–III: market structures, Forms of Business organizations		14		
1	Differentiate various Markets and Pricing methods along with Business Cycles.	Describe Different types of market structures	K1	3	Lecture	Blackboard
2		Explain Price-output determination under different market structures	K2	4	Lecture	Blackboard
3		ExplainPricing objectives,Cost and demand based Pricing methods	K2	2	Lecture	Blackboard
4		Describe competition,strategy based pricing methods.	K2	2	Lecture	Blackboard
5		State the meaning and features of business cycles	K1	1	Lecture	Blackboard
6		Describe the Phases of business Cycles.	K2	2	Lecture	Blackboard

		Unit–IV: financial accounting		13		
1		Describe double entry system	K2	3	Lecture	Blackboard
2	Prepare the financial statements to gains	Preparation of financial statements	K3	4	Lecture	Blackboard
3		Interpretation of financial statements by using, Ratios.	K3	6	Lecture	Blackboard
		UNIT–V: capital budgeting		08		
1		Define Capital	K1	1	Lecture	Blackboard
2	Assess various investment project proposals with the help of	Enumerate types of capital	K1	1	Lecture	Blackboard
3		Explain capital budgeting, Process	K2	4	Lecture	Blackboard
4		Apply capital budgeting techniques	K3	4	Lecture	Blackboard

Total No. of Classes: 58

Mathematical Foundation of Computer Science

Academic Year: 2023-24   **Programme: B.Tech**

Year/ Semester: III   **Section: -**

Name of the Course: Mathematical Foundation of Computer Science

Course Code: V20MAT07

LESSON PLAN

Course Outcomes (Along with Knowledge Level):

After completion of this course, Student will be able to:

S. No	CO.No	Course Outcomes	BTL
1	CO1	Demonstrate the concepts associated with propositions and mathematical logic	**K3**
2	CO2	Demonstrate the basic concepts associated with relations, functions and their applications	**K3**
3	CO3	Solve recurrence relations using various methods	**K3**
4	CO4	Apply techniques of graphs for real-time problems	**K3**
5	CO5	Construct minimal spanning tree by using different algorithms	**K3**

TEXT BOOKS:
1. Discrete Mathematical Structures with Applications to Computer Science, J. P. Tremblay and   P. Manohar, 1st Edition, Tata McGraw Hill.
2. Discrete Mathematics and its Applications with Combinatorics and Graph Theory, K. H.Rosen, 7th Edition, Tata McGraw Hill.
3. Discrete Mathematics for Computer Scientists and Mathematicians, J. L. Mott, A. Kandel, T.P. Baker, 2nd Edition, Prentice Hall of India.

REFERENCE BOOKS:
1. Elements of Discrete Mathematics -A Computer Oriented Approach, C. L. Liu and D. P. Mohapatra, 3rdEdition, Tata McGraw Hill.
2. Discrete Mathematics with Combinatorics and Graph Theory, Santha, 1st Edition Cengage Learning.

Targeted Proficiency and attainment Levels (for each Course Outcome):

Cos		CO1	CO2	CO3	CO4	CO5
Targeted Proficiency Level		60	60	60	60	60
Targeted level of Attainment	Level 3	60	60	60	60	60
	Level 2	50	50	50	50	50
	Level 1	40	40	40	40	40

Lecture Plan:

UNIT-1

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours Required	Pedagogy	Teaching aids
1		Dissemination of Vision, Mission, PEOs,POs,PSOs		1	Lecture	ICT
2		**Mathematical Logic:** Define Statements and their Notations, Connectives	K1	1	Lecture	BB
3		Describe Well Formed Formulas, Truth Tables, Tautologies	K2	1	Lecture with Discussion	BB
4		Explain equivalence of Formulas	K2	2	Lecture	BB
5	CO1	State duality Law, Tautological implications	K1	1	Lecture with Discussion	BB
6		Explain normal forms	K2	2	Lecture	BB
7		Illustrate theory of inference for statement calculus	K3	2	Lecture	BB
8		Practice indirect method of proof	K3	2	Lecture	BB
9		Identify statement functions, variables and quantifiers, free and bound Variables	K2	1	Lecture	BB
10		Recognize theory for predicate calculus- Predicates, quantifiers, universe of discourse	K2	2	Lecture	ICT
11		Total		**15**		

UNIT-2

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours Required	Pedagogy	Teaching aids
1		**Set Theory and Relations:** Define basic concepts	K1	1	Lecture	ICT
2		Illustrate operations on binary sets	K2	1	Lecture	ICT
3	CO 2	Use principle of inclusion and exclusion	K3	1	Lecture	ICT
4		Describe Relation and properties of binary relations on a set and Transitive Closure	K2	1	Lecture	BB
5		Sketch out relation matrix and digraph	K3	1	Lecture with Discussion	BB

S.No		Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours Required	Pedagogy	Teaching aids
6		Practice equivalence, and partial ordering relations	K3	2	Lecture with Discussion	BB
7		Construct hasse diagrams, lattice and state its properties.	K3	2	Lecture	BB
8		Illustrate Functions, bijective functions, composition of functions	K3	1	Lecture	BB
9		Total		**10**		

UNIT-3

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours Required	Pedagogy	Teaching aids
1		**Recurrence Relations** Explain Generating of functions	K2	2	Lecture	ICT
2		Calculate Coefficient of generating functions	K3	2	Lecture	BB
3		Explain Recurrence relations	K2	1	Lecture with discussion	BB
4	CO3	Solve homogeneous Recurrence relations by method of substitution	K3	1	Lecture	ICT
5		Solve homogeneous Recurrence relations by Generating functions	K3	2	Lecture with discussion	BB
6		Solve Recurrence relations by method of characteristic roots	K3	2	Lecture with discussion	BB
7		Solve inhomogeneous recurrence relations	K3	3	Lecture	BB
8		Total		**13**		

UNIT-4

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours Required	Pedagogy	Teaching aids
1		Describe basic concepts of graphs	K1	2	Lecture with Discussion	ICT
2		Illustrate matrix representation of graphs, Adjacency matrices, Incidence matrices	K2	1	Lecture	BB
3		Find subgraph, isomorphic graphs, paths and circuits	K3	2	Lecture	ICT
4	CO 4	Demonstrate Eulerian and Hamiltonian Graphs, Multigraphs	K3	2	Lecture with Discussion	BB
5		Use Euler's Formula for Planar Graphs	K3	1	Lecture with Discussion	BB
6		Explain Graph Colouring and Chromatic Number	K2	1	Lecture with Discussion	BB
7		Total		**9**		

UNIT-5

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours Required	Pedagogy	Teaching aids
1		Explain tree and spanning trees	K2	2	Lecture	BB
2		Sketch Minimal spanning trees using Kruskal's algorithms	K3	2	Lecture	BB
3		Sketch Minimal spanning trees using Prim's algorithms	K3	2	Lecture	BB
4	CO 5	Construct BFS	K3	2	Lecture	BB
5		Construct DFS	K3	2	Lecture	BB
6		Explain binary trees	K2	2	Lecture	BB
		Explain Planar Graphs	K2	1	Lecture	BB
9		Total		**13**		

Total No. of Classes: 60

OOPs Through C++

Academic Year: 2023-24   **Programme: B.Tech**
Year/ Semester: III   **Section: -**
Name of the Course: OOPs Through C++   **Course Code: V20CST03**

LESSON PLAN

COURSE OUTCOMES (Along with Knowledge Level):
After completion of this course, the students will be able to:

S.No.	CO No.	Course Outcome	BTL
1.	CO1	Differentiate Procedural Oriented Programming and Object-Oriented Programming.	K2
2.	CO2	Develop programs using Classes and Objects.	K3
3.	CO3	Demonstrate Constructors, destructors & Operator-Overloading.	K3
4.	CO4	Construct Classes using inheritance and Exceptions.	K3
5.	CO5	Demonstrate Files and Generic Programming.	K3

Text Books:

1. Programming in C++, Ashok N Kamthane, 2nd Edition, Pearson.
2. C++ How to Program, Paul J. Deitel, Harvey Deitel, 6th edition, PHI publication.

Reference Books:

1. Object Oriented Programming C++, Joyce Farrell, Cengage.
2. Mastering C++, Venugopal, Raj Kumar, Ravi Kumar, TMH.
3. The Complete Reference C++, HerbertSchildt, 4th Edition, Mcgraw Hill.
4.Object Oriented Programming With C++, R. Subburaj, Vikas Publishing House.

Targeted Proficiency and attainment Levels (for each Course Outcome):

Cos		CO1	CO2	CO3	CO4	CO5
Targeted Proficiency Level		60	60	60	60	60
Targeted level of Attainment	Level 3	60	60	60	60	60
	Level 2	55	55	55	55	55
	Level 1	50	50	50	50	50

Lecture Plan:

UNIT-1

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1		Define Object-Oriented Programming	K1	1	Lecture	BB/ICT
2		Describe about Data Types, Variables, Constants, Operators.	K2	1	Lecture	BB/ICT
3		Explain decision Statements &Control Structures with examples	K2	1	Lecture	BB/ICT
4	CO1	Discuss about Arrays, Namespace, Default Arguments, Constant Arguments	K2	1	Lecture	BB/ICT
5		Discuss Parameter Passing Techniques	K2	2	Lecture	BB/ICT
6		Explain about Features of Object Oriented Programming	K2	1	Lecture+ Discussion	BB/ICT
7		Discussthe example programs using arrays.	K2	2	Lecture	BB/ICT
8		Total		9		

UNIT-2

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1		Define class and object with examples	K1	2	Lecture	BB/ICT
2		Explain about Access specifiers, Scope Resolution Operator,Static Member variables	K2	1	Lecture	BB/ICT
3		Describe about Static Member Functions, Array of Objects with examples	K2	2	Lecture+ Discussion	BB/ICT
4		Illustrate Inline Functions, Overloading Member Functions with example programs.	K2	1	Lecture	BB/ICT
5	CO2	Explain about Objects as Function Arguments with examples.	K2	1	Lecture	BB/ICT
6		Explain about Friend Functions, Friend Class with an example program.	K2	1	Lecture	BB/ICT
7		Construct Local Class, Empty Class with an example program.	K3	2	Lecture+ Discussion	BB/ICT
8		Construct Nested Classes with an example program and explain.	K3	1	Lecture	BB/ICT
9		Develop a program using the concept Return by Reference	K3	1	Lecture	BB/ICT
10		Total		12		

UNIT-3

1		Define Constructor	K1	1	Lecture	BB/ICT
2		Explain the characteristics of a constructor.	K2	1	Lecture	BB/ICT
3		Demonstrate about Constructor with default arguments, Parameterized constructors,	K3	2	Lecture	BB/ICT
4		Illustrate about Overloading constructors, Copy constructors with an example.	K3	1	Lecture	BB/ICT
5		Construct Dynamic Constructors and Destructors	K3	1	Lecture	BB/ICT
6	CO3	Explain about Anonymous Objects.	K2	1	Lecture	BB/ICT
7		Explain Operator overloading and its rules with an example.	K2	1	Lecture	BB/ICT
8		Demonstrate unary and binary operators	K3	2	Lecture+ Discussion	BB/ICT
9		Demonstrate about this keyword, Constraint on Increment and Decrement Operators	K3	1	Lecture	BB/ICT
10		Illustrate Overloading with Friend Functions with an example	K3	1	Lecture	BB/ICT
11		Explain about Type Conversions	K2	1	Lecture	BB/ICT
12		Total		13		

UNIT-4

1		Define inheritance	K1	1	Lecture	BB/ICT
2		Explain about types of inheritances(Single Inheritance, Multiple Inheritance, Multilevel Inheritance, Hierarchical Inheritance, Hybrid Inheritance)	K2	1	Lecture	BB/ICT
3		Illustrate example programs on Single Inheritance, Multiple Inheritance, Multilevel Inheritance, Hierarchical Inheritance, Hybrid Inheritance	K3	3	Lecture	BB/ICT
4		Demonstrate Virtual Base Classes with example programs.	K3	2	Lecture	BB/ICT
5	CO4	Explain about Constructor in Derived Classes. qualifier classes and inheritance.	K2	2	Lecture	BB/ICT
6		Explain about Early Vs Late Binding, Pure Virtual Functions, Virtual Destructor		1	Lecture	BB/ICT
7		Define Exception handling	K1	1	Lecture	BB/ICT
8		Explain about the keywords in exception handling with an example	K2	1	Lecture	BB/ICT
9		Demonstrate Multiple Catch Statements.	K3	1	Lecture	BB/ICT
10		Illustrate about Catching Multiple Exceptions with an example.	K3	1	Lecture	BB/ICT
11		Explain about Re-throwing Exception	K2	1	Lecture	BB/ICT
12		Total		15		

UNIT-5

1		Define file and file mode parameters.	K1	1	Lecture	BB/ICT
2		Explain about File Opening Modes, File Stream Classes, I/O manipulators	K2	1	Lecture	BB/ICT
3		Describe about Classes for File Handling	K2	1	Lecture	BB/ICT
4		Explain Sequential Access Files, Random Access Files with suitable examples.	K2	1	Lecture	BB/ICT
5	CO 5	Explain about Error Handling Functions	K2	1	Lecture	BB/ICT
6		Define Template, Class Template and Function Template.	K1	2	Lecture	BB/ICT
7		Demonstrate about Class Templates and function Templates.	K3	1	Lecture	BB/ICT
8		Explain about Standard Template Library.	K2	2	Lecture	BB/ICT
9		Explain about Sequential Containers & Associative Containers.	K2	2	Lecture	BB/ICT
10		Total		12		

Total No. of Classes: 61

Data Structures

Academic Year: 2023-24   **Programme: B.Tech**
Year/ Semester: III   **Section: -**
Name of the Course: Data Structures   **Course Code: V20CST04**

LESSON PLAN

COURSE OUTCOMES (Along with Knowledge Level):
After completion of this course, the students will be able to:

S. No	CO.No	Course Outcomes	BTL
1	CO1	Illustrate the time and space complexities for searching and sorting algorithms.	**K2**
2	CO2	Demonstrate linked lists and their applications.	**K3**
3	CO3	Demonstrate Stacks and Queues.	**K3**
4	CO4	Illustrate basic operations on binary trees.	**K3**
5	CO5	Demonstrate Graphs and their applications.	**K3**

Text Books:
1. Data Structures, algorithms and applications in C, SartajSahni, Universities press, Second Edition.
2. Fundamentals of Data Structures in C, Ellis Horowitz, SartajSahni and Dinesh Mehta, 2nd Edition,Universities Press (India) Pvt. Ltd.

Reference Books:
1. An Introduction to Data Structures with Application, Jean-Paul Tremblay , Paul Sorenson, Second Edition.
2. Fundamentals of Data Structures and algorithms by C V Sastry, Rakesh Nayak, Ch. Raja Ramesh, IK Publications, new Delhi.
3. Data structures using C and C++, Langsam, Augenstein and Tanenbaum, PHI.
4. Problem solving with C++, The OOP, Fourth edition, W.Savitch, Pearson education.

Targeted Proficiency Level and Targeted level of Attainment (for each Course Outcome):

Cos		**CO1**	**CO2**	**CO3**	**CO4**	**CO5**
Targeted Proficiency Level		60	60	60	60	60
Targeted level of Attainment	Level 3	65	65	65	60	60
	Level 2	60	60	60	55	55
	Level 1	55	55	55	50	50

LESSON PLAN

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1		Dissemination of Vision, Mission of the Dept. And PEOs ,PO's & PSOs of the Programme	-	1	Lecture	BB
2		Define Data Structure, Algorithm and types of Data Structure.	K1	1	Lecture	BB
3		Explain Performance Analysis: Space complexity and Time complexity	K2	1	Lecture with Discussion	BB
4		Explain Asymptotic Notations: Big oh, Big Omega, Big Theta notations	K2	2	Lecture with Discussion	BB
5	CO 1	Explain Linear Search, Binary Search and Fibonacci Search	K2	2	Lecture with Discussion	BB+ICT
6		Explain Bubble Sort Algorithm	K2	1	Lecture with Discussion	BB+ICT
7		Explain Selection Sort Algorithm	K2	1	Lecture with Discussion	BB
8		Explain Insertion Sort Algorithm	K2	1	Lecture with Discussion	BB
9		Explain Radix Sort Algorithm	K2	1	Lecture with Discussion	BB+ICT
10		Explain Quick Sort Algorithm	K2	1	Lecture with Discussion	BB+ICT
11		Explain Merge Sort Algorithm	K2	1	Lecture with Discussion	BB+ICT

S. No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1		Define Node and Self Referential structure	K1	1	Lecture with Discussion	BB
2	CO2	Explain operations on Single Linked List	K2	3	Lecture with Discussion	BB
3		Demonstrate operations like insert delete and display in Double linked list	K3	3	Lecture with Discussion in class	BB+ICT

S. No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
4		Demonstrate Circular linked list operations	K3	3	Lecture with Discussion in class	BB+ICT

S. No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1		Define Stack, Stack ADT	K1	1	Lecture	BB
2		Explain array representation of Stack	K2	2	Lecture with Discussion	BB
3		Explain linked list representation of Stack	K2	2	Lecture with Discussion	BB
4		Demonstrate Towers of Hanoi problem	K3	1	Lecture with Discussion	BB+ICT
5		Explain infix to postfix conversion	K2	2	Lecture with Discussion	BB+ICT
6		Explain Expression Evaluation	K2	1	Lecture with Discussion	BB+ICT
7	CO3	Define Queue, Queue ADT	K1	1	Lecture with Discussion	BB+ICT
8		Explain array representation of Queue	K2	2	Lecture with Discussion	BB+ICT
9		Explain Linked List representation of Queue	K2	2	Lecture with Discussion	BB+ICT
10		Explain Applications of Queue	K2	1	Lecture with Discussion	BB+ICT
11		Demonstrate Circular Queue operations	K3	2	Lecture	BB+ICT

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1	CO4	Define Trees, terminology of Trees	K1	1	Lecture	BB
2		Demonstrate Tree representations	K2	1	Lecture	BB
3		Define Binary Tree and Binary Tree ADT	K1	1	Lecture	BB+ICT
4		Explain Properties and Representations of binary Trees	K2	2	Lecture with Discussion	BB+ICT
5		Demonstrate Tree Traversals techniques– In order, Pre Order, Post order	K3	2	Lecturewith Discussion	BB+ICT
6		ExplainBinary Search Tree and its properties	K2	1	Lecture	BB+ICT
7		Demonstrate operations of Binary Search Tree	K3	3	Lecture	BB+ICT

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1	CO 5	Define Graphs and Graph Representation and its properties and types	K1	2	Lecture with Discussion	BB
2		Explain Graph Operations	K2	1	Lecture with Discussion	BB
3		Demonstrate Graph Traversal techniques: Depth First Search	K3	1	Lecture with Discussion	BB+ICT
4		Demonstrate Graph Traversal techniques: Breadth First Search	K3	1	Lecture with Discussion	BB+ICT
5		Define Spanning Trees and minimum cost spanning trees	K1	1	Lecturewith Discussion	BB+ICT
6		Demonstrate Prim's Algorithm	K3	1	Lecture with Discussion	BB+ICT
7		Demonstrate Kruskal's Algorithm	K3	1	Lecture with Discussion	BB+ICT

| 8 | | Demonstrate Single Source Shortest Path Problem | K3 | 1 | Lecture with Discussion | BB+ICT |
| 9 | | Demosntrate All Pairs Shortest Path Problem | K3 | 1 | Lecture with Discussion | BB+ICT |

Total No. of Classes: 61

Computer Organization and Architecture

Academic Year: 2023-24   **Programme: B.Tech**
Year/ Semester: III   **Section: -**
Name of the Course: Computer Organization and Architecture Course Code: V20CST05

LESSON PLAN

COURSE OUTCOMES (Along with Knowledge Level):
After completion of this course, the students will be able to:

S.No.	CO No.	Course Outcome	BTL
1.	CO1	Illustrate Basic structure of Computers, Instruction types and their addressing modes	K2
2.	CO2	Describe the different modes of Input / Output transfer.	K2
3.	CO3	Illustrate different types of Memory.	K2
4.	CO4	Describe the different types of Control Unit techniques	K2
5.	CO5	Explain the concept of Pipelining and Parallel processing.	K2

1.   Computer Organization, Carl Hamacher, ZvonkoVranesic, SafwatZaky, 5th Edition, McGraw Hill Education.
2.   Computer System Architecture, M. Morris Mano, 3rd Edition, Pearson Education.
3.   David A. Patterson and John L. Hennessy, Computer Organization and Design: The Hardware/Software Interface, Fifth Edition, Morgan Kaufmann / Elsevier, 2014.

REFERENCE BOOKS:

1.   Computer Organization and Architecture, William Stallings, 10th Edition, Pearson Education.
2.   Computer Architecture and Organization, John P. Hayes, 3rd Edition, McGraw Hill Education.

Targeted Proficiency and attainment Levels (for each Course Outcome):

Cos		CO1	CO2	CO3	CO4	CO5
Targeted Proficiency Level		65	65	65	65	65
Targeted level of Attainment	**Level 3**	65	65	65	65	65
	Level 2	60	60	60	60	60
	Level 1	55	55	55	55	55

Lecture Plan:

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1	**CO 1:** **Introduction & Instruction Sequencing and Addressing Modes**	Dissemination of Vision, Mission of the Dept. and PEOs, Pos, & PSOs of the Programme, CO'S and syllabus.		1	Lecture	ICT
2		Describe various Functional units of a computer	K1	1	Lecture	BB
3		Illustrate the Basic Operational concepts	K2	2	Lecture with Discussion	BB/ICT
4		Discuss the Bus structures of computers.	K2	2	Lecture with Discussion	BB/ICT
5		Explain the instructions and instruction sequencing.	K2	2	Lecture with Discussion	BB/ICT
6		Illustrate the various addressing modes of instructions.	K2	3	Lecture with Discussion	BB/ICT
7		Discuss the basic input/output operation of computers.	K2	2	Lecture with Discussion	BB/ICT

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1	**CO 2:** **Input/output Organization**	Describe the Accessing Input/output devices	K1	2	Lecture	BB/ICT
2		Describe the Interrupts	K2	2	Lecture with Discussion	BB/ICT
3		Discuss the Handling Multiple Devices	K2	1	Lecture with Discussion	BB/ICT
4		Explain the Direct Memory Access.	K2	4	Lecture with Discussion	BB/ICT
5		Explain the Buses and its types.	K2	3	Lecture with Discussion	BB/ICT

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1		Describe the memory hierarchy	K1	1	Lecture	BB/ICT
2		Explain the main memory	K2	2	Lecture with Discussion	BB/ICT
3	CO 3: Memory Organization	Illustrate the auxiliary memory	K2	2	Lecture with Discussion	BB/ICT
4		Illustrate the Associative memory.	K2	3	Lecture with Discussion	BB/ICT
5		Illustrate the cache memory	K2	3	Lecture with Discussion	BB/ICT

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1		Describe the Fundamental Concepts in execution of instruction.	K1	1	Lecture	BB/ICT
2		Describe the Execution of a Complete Instruction	K2	2	Lecture with Discussion	BB/ICT
3	CO 4: Processing Unit	Explain the Multiple-Bus Organization	K2	2	Lecture with Discussion	BB/ICT
4		Discuss the Hardwired Control unit	K2	2	Lecture with Discussion	BB/ICT
5		Discuss the Micro Programmed Control unit	K2	3	Lecture with Discussion	BB/ICT

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1		Describe the basic concepts of pipelining.	K2	1	Lecture with Discussion	BB/ICT
2		Discuss the data hazards.	K2	1	Lecture with Discussion	BB/ICT
3		Discuss the instruction hazards	K2	1	Lecture with Discussion	BB+ICT
4		Discuss the parallel processing challenges	K2	1	Lecture with Discussion	BB/ICT
5		Discuss the Flynn's classification	K2	2	Lecture with Discussion	BB/ICT
6	CO 5: Pipelining & Parallelism	Discuss the Vector Architectures	K2	1	Lecture with Discussion	BB/ICT
7		Discuss the Hardware multithreading	K2	1	Lecture with Discussion	BB/ICT
8		Discuss the Multi-core processors and other Shared Memory Multiprocessors	K2	2	Lecture with Discussion	BB/ICT
9		Discuss the Introduction to Graphics Processing Units, Clusters	K2	2	Lecture with Discussion	BB/ICT
10		Discuss the Warehouse Scale Computers and other Message-Passing Multiprocessors.	K2	2	Lecture with Discussion	BB/ICT

Total No. of Classes: 60

OOPs Through C++ Lab (OOPs Lab)

Academic Year: 2023-24   **Programme: B.Tech**
Year/ Semester: III   **Section: -**
Name of the Course: OOPs Through C++ Lab (OOPs Lab)   **CourseCode: V20CSL03**

LESSON PLAN

COURSE OUTCOMES (Along with Knowledge Level):
After completion of this course, the students will be able to:

S.No.	CO No.	Course Outcome	BTL
1.	CO1	Develop Programs on Classes and Objects.	K3
2.	CO2	Demonstrate Constructors, Destructors and Operator-Overloading, Inheritance and Polymorphism.	K3
3.	CO3	Develop programs to handle Exceptions & Files.	K3
4.	CO4	Demonstrate Generic Programming.	K3

Text Books:

3. Programming in C++, Ashok N Kamthane, 2nd Edition, Pearson.
4. C++ How to Program, Paul J. Deitel, Harvey Deitel, 6th edition, PHI publication.

Targeted Proficiency and attainment Levels (for each Course Outcome):

Cos		CO1	CO2	CO3	CO4
Targeted Proficiency Level		65	65	65	65
Targeted level of Attainment	Level 3	65	65	65	65
	Level 2	55	55	55	55
	Level 1	45	45	45	45

Lecture Plan:

S.NO	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours required	Pedagogy	Teaching aids
1	CO1	Demonstrate how to debug basic programs using GDB compiler	K3	1	Lecture With Discussion	ICT
2	CO1	Develop programs on control structures	K3	1	Lecture With Discussion	ICT
3	CO1	Construct programs for following concepts. a) Default Arguments b) Constant Arguments c) Reference Arguments	K3	3	Lecture With Discussion	ICT
4	CO2	Construct programs for following concepts. a) Classes & Objects b) Inline functions c) Static Member functions d) Overloading of Member Functions	K3	3	Lecture With Discussion	ICT
5	CO2	Develop programs for following concepts. a) Objects as Function Arguments b) Friend Functions, Friend class c) Local class d) Empty Class& Nested Classes	K3	3	Lecture With Discussion	ICT
6	CO3	Develop programs for following concepts. a) Default constructor b) Constructor with arguments c) Copy constructor	K3	3	Lecture With Discussion	ICT
7	CO3	Construct programs for following concepts. a) Binary b) Unary c) new d) delete	K3	3	Lecture With Discussion	ICT
8	CO3	Construct programs for following concepts. a) Single b) Multilevel c) Hierarchical d) Hybrid	K3	3	Lecture With Discussion	ICT
9	CO3	Demonstrate the use of Virtual Functions &Virtual Base class	K3	3	Lecture With Discussion	ICT
10	CO3	Develop programs to handle following Exceptions. a) Division-by-zero b) Overflow in an array	K3	1	Lecture With Discussion	ICT

11	CO3	Develop programs for following file handling operations. a) Copying text files b) Displaying the contents of the file	K3	3	Lecture With Discussion	ICT
12	CO4	Demonstrate Class template and Function Template.	K3	3	Lecture With Discussion	ICT
13	CO4	Demonstrate Sequential Containers & Associative Containers	K3	3	Lecture With Discussion	ICT

Total Hours: 33

Data Structures Lab

Academic Year: 2023-24   **Programme: B.Tech**
Year/ Semester: III   **Section: -**
Name of the Course: Data Structures Lab   **CourseCode: V20CSL04**

LESSON PLAN

COURSE OUTCOMES (Along with Knowledge Level):
After completion of this course, the students will be able to:

S. No.	CO No.	Course Outcome	BTL
1.	CO1	Construct programs on sorting and searching techniques.	[K3]
2.	CO2	Illustrate various operations on Linked Lists.	[K3]
3.	CO3	Develop programs on Stacks,Queues and their applications.	[K3]
4.	CO4	Develop Various Operations on Trees and Graphs	[K3]

Text Books:

1. Data Structures, algorithms and applications in C, SartajSahni, Universities press, Second Edition.

2. Fundamentals of Data Structures in C, Ellis Horowitz, SartajSahni and Dinesh Mehta, 2nd Edition, Universities Press (India) Pvt. Ltd.

Reference Books:
1. An Introduction to Data Structures with Application, Jean-Paul Tremblay , Paul Sorenson, Second Edition.
2. Fundamentals of Data Structures and algorithms by C V Sastry, RakeshNayak, Ch. Raja Ramesh, IK Publications, new Delhi.

Targeted Proficiency Level and Targeted level of Attainment (for each Course Outcome):

Cos		CO1	CO2	CO3	CO4
Targeted Proficiency Level		75	75	75	75
Targeted level of Attainment	Level 3	70	70	70	70
	Level 2	65	65	65	65
	Level 1	55	55	55	55

Lecture Plan:

S.NO	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours required	Pedagogy	Teaching aids
1	CO 1	Dissemination of Department Vision, Mission, PEOs, POs, PSOs	-	-	-	
		Illustrate the Program for Selection sort	K3	3	Lecture With Discussion	ICT
		Illustrate the Program for Quick Sort	K3	3	Lecture With Discussion	ICT
		Illustrate the Program for merge sort	K3	3	Lecture With Discussion	ICT
2		Illustrate the Programs for (a) Linear search (b) Binary search.	K3	3	Lecture With Discussion	ICT

S.No	Course Outcome	Intended Learning Outcomes(ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1	CO 2	Demonstrate Program for Single Linked List Insertion Operations	K3	3	Lecture with Discussion	ICT
2		Demonstrate Program for Single Linked List Delete and Display Operations	K3	3	Lecture with Discussion	ICT
3		Demonstrate Program for Double Linked List and its Operations	K3	3	Lecture with Discussion	ICT
4		Demonstrate Program for Double Linked List Delete and Display Operations	K3	3	Lecture with Discussion	ICT

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1	CO 3	Illustrate Programs for Stack and Queue Operations using Arrays	K3	3	Lecture with Discussion	Black Board
2		Illustrate Program for Circular Queue	K3	3	Lecture with Discussion	Black Board
3		Illustrate Program for Queue Operations using Linked List	K3	3	Lecture with Discussion	Black Board

S. No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1	CO 4	Demonstrate the Programs for Depth First Search(DFS) and Breadth First Search(BFS)	K3	3	Lecture with Discussion	ICT
2		Demonstrate the Programs for Spanning Tree using Prim's Algorithm	K3	3	Lecture with Discussion	ICT
3		Demonstrate the Programs for Spanning Tree using Kruskal's Algorithm	K3	3	Lecture with Discussion	ICT

Total No. of Classes:42

Linux Shell Scripting Lab

Academic Year: 2023-24   **Programme: B.Tech**
Year/ Semester: III   **Section: -**
Name of the Course: Linux Shell Scripting Lab   **CourseCode: V20CSL05**

LESSON PLAN

COURSE OUTCOMES (Along with Knowledge Level):
After completion of this course, the students will be able to:

S. No	CO. No	Course Outcomes	BTL
1	CO1	Demonstrate the basic knowledge of Linux commands and utilities by using Linux shell environment	**K3**
2	CO2	Experiment with the Concept of shell Programming on Files and Directories	**K3**
3	CO3	Experiment with the Concept of shell Programming on File Permissions	**K3**
4	CO4	Experiment with the Concept of shell Programming on Conditional Statements	**K3**
5	CO5	Experiment with the Concept of shell Programming on Looping Statements	**K3**

Targeted Proficiency and Attainment Levels (for each Course Outcome):

COs		CO1	CO2	CO3	CO4	CO5
Targeted Proficiency Level		75	75	75	75	75
Targeted level of Attainment	Level 3	70	70	70	70	70
	Level 2	65	65	65	65	65
	Level 1	55	55	55	55	55

Lecture Plan:

S. No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1	CO 1	Dissemination of Department Vision, Mission, PEOs, POs, PSOs	-	1	Lecture With Discussion	ICT
		Demonstrate Linux Commands overview and how to interact with Putty Server.	K3	2	Lecture With Discussion	ICT
2		Experiment basics of Linux Commands.	K3	3	Lecture With Discussion	ICT
3		Experiment General Purpose Utilities.	K3	3	Lecture With Discussion	ICT
4		Experiment Displaying Commands.	K3	3	Lecture With Discussion	ICT
5		Experiment Commands on Filters.	K3	3	Lecture With Discussion	ICT
6		Experiment Disk Handling Utilities.	K3	3	Lecture With Discussion	ICT

S. No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1	CO 2	Experiment Directory Handling Commands.	K3	3	Lecture With Discussion	ICT
2		Experiment File Handling Utilities.	K3	3	Lecture With Discussion	ICT
3		Develop a shell script to print the list of all sub directories in the current directory.	K3	3	Lecture with Discussion	ICT

S. No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1	CO 3	Develop a shell script that Changes Permissions of files in PWD as rwx for users.	K3	3	Lecture with Discussion	ICT

S. No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1	CO 4	Develop a Shell Program which receives any year from the keyboard and determine whether the year is leap year or not. If no argument is supplied the current year should be assumed.	K3	3	Lecture with Discussion	ICT
2		Develop a shell script which takes two file names as arguments-If their contents are same then delete the second file.	K3	3	Lecture with Discussion	ICT

S. No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1		Develop a shell program to a)Display all the words which are entered as command line arguments. b) Print the given number in the reversed order.	K3	3	Lecture with Discussion	ICT
2		Develop a shell script to delete all lines containing the word 'unix' in the files supplied as arguments.	K3	3	Lecture with Discussion	ICT
3	CO 5	Develop a shell script to print a)First 25 Fibbonacci numbers b)The Prime numbers between the specified range.	K3	3	Lecture with Discussion	ICT
4		Develop a shell script Menu driven i) contents of /etc/passwd ii) list of users who have currently logged in. iii) present working directory. iv) exit.	K3	3	Lecture with Discussion	ICT

Total No. of Classes: 48

Professional Communication Skills - I

Academic Year: 2023-24   **Programme: B.Tech**
Year/ Semester: III   **Section: -**
Name of the Course: Professional Communication Skills - I   **CourseCode:V20ENT02**

LESSON PLAN

COURSE OUTCOMES (Along with Knowledge Level):
After completion of this course, the students will be able to:

S. No.	CO No.	Course Outcome	BTL
1.	CO1	Use vocabulary in regular chores of life with accuracy, make meaningful sentences, and describe people and their traits vividly.	K3
2.	CO2	Distinguish between places of pilgrimage and holiday spots; describe incidents, things and process; and frame questions, statements and expressions.	K3
3.	CO3	Demonstrate their knowledge of idioms which are similar to those of native speakers while speaking and writing and use phrases clearly and precisely to articulate their views that compare and contrast indianisms with native expressions and avoid common errors.	K3
4.	CO4	Employ the vocabulary of netizens with ease and walk through the letters and emails for effective official correspondence and infer the accurate meaning of the homophones that are often confusing	K3
5.	CO5	Summarize their profile; introduce themselves as well as others by incorporating their accomplishments and Sketch stories and anecdotes in an interesting and engaging manner that arouses curiosity of the audience.	

Targeted Proficiency Level and Targeted level of Attainment (for each Course Outcome):

Course Outcome	Targeted Proficiency Level (% of Marks)	Targeted level of Attainment (% Students)
1	50	60
2	50	60
3	50	60
4	50	60
5	50	60

CO 1

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1		Find appropriate vocabulary to describe occupations, kitchen utensils and tools .**Ice-breaking session**	K3	1	Lecture& Discussion	BB/Handout
2		Find appropriate vocabulary to describe spices, vegetables, flowers, sciences of study and professions	K3	1	Lecture& Discussion	BB/Handout
3		Find appropriate vocabulary to describe spices, vegetables, flowers, sciences of study and professions	K3	1	Lecture & Discussion	BB/ Handout
4		Tool-based Activity		1		
5	CO 1	Construct questions , frame statements and use expressions related to vocabulary learnt **Activity**	K3	1	Lecture & Discussion	BB/ Handout.
6		Select suitable words and expressions to describe people and physical characteristics	K3	1	Lecture & Discussion	BB/ Handout.
7		Select suitable words and expressions to talk about mental attributes of people and various professions	K3	1	Lecture & Discussion	BB/ Handout.
8		Select suitable words and expressions to talk about mental attributes of people and various professions	K3	1	Lecture & Discussion	BB/ Handout.
9		Construct questions, frame statements and use expressions related to vocabulary learnt. **Activity**	K3	1	Lecture & Discussion	BB/ Handout
10		Tool-based Activity		1		

CO 2

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1		Describe favorite places and famous places using appropriate vocabulary	K2	1	Lecture& Discussion	BB/Handout
2		Describe places of pilgrimage and holiday spots	K2	1	Lecture& Discussion	BB/Handout
3		Describe places of pilgrimage and holiday spots. **Activity**	K2	1	Lecture & Discussion	BB/ Handout
4		Tool-based Activity		1		
5		Use suitable expressions to describe a thing and an incident	K3	1	Lecture & Discussion	BB/ Handout.
6	CO 2	Use suitable expressions to describe a thing and an event	K3	1	Lecture & Discussion	BB/ Handout.
7		Distinguish between the vocabulary and expressions used to describe a process and a recipe.	K3	1	Lecture & Discussion	BB/ Handout.
8		Distinguish between the vocabulary and expressions used to describe a process and a recipe.	K3	1	Lecture & Discussion	BB/ Handout.
9		Construct questions, frame statements and use expressions related to vocabulary learnt. **Activity**	K3	1	Lecture & Discussion	BB/ Handout
10		Tool-based Activity		1		

CO 3

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1		Use idioms and phrases in day to day conversation both in written and spoken	K3	1	Lecture& Discussion	BB/Handout
2		Use idioms and phrases in day to day conversation both in written and spoken	K3	1	Lecture& Discussion	BB/Handout
3	CO 3	Compare and contrast using "as…as" expressions. **Activity**	K4	1	Lecture & Discussion	BB/ Handout
4		Tool-based Activity		1		
5		Examine common mistakes in written and spoken.	K4	1	Lecture & Discussion	BB/ Handout.

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
6		Examine common mistakes in written and spoken.	K4	1	Lecture & Discussion	BB/ Handout.
7		Activity on common errors		1	Lecture & Discussion	BB/ Handout.
8		Compare and contrast Indianisms with native expressions	K4	1	Lecture & Discussion	BB/ Handout.
9		Compare and contrast Indianisms with native expressions	K4	1	Lecture & Discussion	BB/ Handout
10		Tool-based Activity		1		

CO 4

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1		Find the vocabulary of netizens	K3	1	Lecture& Discussion	BB/Handout
2		Use Acronyms and abbreviations that are often used by netizens.	K3	1	Lecture& Discussion	BB/Handout
3		Infer the meaning of the homophones that are often confusing.	K4	1	Lecture & Discussion	BB/ Handout
4		Activity related to Homophones		1		
5	CO 4	Tool-based Activity		1	Lecture & Discussion	BB/ Handout.
6		Use the correct format for writing both formal and informal letters	K3	1	Lecture & Discussion	BB/ Handout.
7		Organise ideas and draft emails (Business mail)	K3	1	Lecture & Discussion	BB/ Handout.
8		Organise ideas and draft emails (Project status mails, informative mails)	K3	1	Lecture & Discussion	BB/ Handout.
9		**Activity**(writing practice)		1	Lecture & Discussion	BB/ Handout
10		Tool-based Activity		1		

CO 5

S.No	Course Outcome	Intended Learning Outcomes (ILO)	Knowledge Level of ILO	No. of Hours	Pedagogy	Teaching aids
1		Summarize the strengths, weaknesses and goals	K5	1	Lecture& Discussion	BB/Handout
2		Summarize personal and academic achievements	K5	1	Lecture& Discussion	BB/Handout
3		**Activity**(Face to face Interviews)		1	Lecture & Discussion	BB/ Handout
4		Tool-based Activity		1		
5		Develop Resume	K3	1	Lecture & Discussion	BB/ Handout.
6	CO 5	Develop Resume(Practice)	K3	1	Lecture & Discussion	BB/ Handout.
7		Sketch stories and anecdotes in an interesting and engaging manner	K3	1	Lecture & Discussion	BB/ Handout.
8		Sketch stories and anecdotes in an interesting and engaging manner	K3	1	Lecture & Discussion	BB/ Handout.
9		**Activity**(Story narration)	K3	1	Lecture & Discussion	BB/ Handout
10		Tool-based Activity		1		

Total No. of Classes: 50