



K.S. SCHOOL OF ENGINEERING AND MANAGEMENT, BENGALURU - 560109  
DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE

SESSION: 2022-2023 (ODD SEMESTER)

LESSON PLAN

NAME OF THE STAFF : Ms. Madhusmita Mishra

SUBJECT CODE/TITLE : 21CS32/DATA STRUCTURES AND APPLICATIONS

SEMESTER/ SEC/ YEAR : III/II

Sl. No	Topic to be covered	Mode of Delivery	Teaching Aid	No. of Periods	Cumulative No. of Periods	Proposed Date	Delivery Date
<b>MODULE I</b>							
1	<b>Introduction:</b> Data Structures, Classifications (Primitive & Non-Primitive), Data structure Operations.	L+D	BB	1	1	31/10/2022	2/11/22
2	Review of Arrays. Structures: Array of structures, Self-Referential Structures and Unions.	L+D	BB	1	2	31/10/2022	2/11/22
3	Pointers and Dynamic Memory Allocation Functions.	L+D	BB	1	3	2/11/2022	3/11/22
4	Representation of Linear Arrays in Memory and Dynamically allocated arrays	L+D	BB	1	4	4/11/2022	4/11/22
5	<b>Array Operations:</b> Traversing, inserting, deleting, searching, and sorting. Multidimensional arrays.	L+D	BB	1	5	7/11/2022	4/11/22
6	Polynomials and Sparse Matrices.	L+D	BB	1	6	9/11/2022	7/11/22
7	<b>Strings:</b> Basic Terminology, Storing, Operations	L+D	BB	1	7	14/11/2022	8/11/22

8	Pattern Matching algorithm, Programming examples.	L+D	BB	1	8	14/11/2022	9/11/22
9	<b>Practical:</b> 1. Design, Develop and Implement a menu driven Program in C for the following Array Operations a. Creating an Array of N Integer Elements b. Display of Array Elements with Suitable Headings c. Exit. 2. Design, Develop and Implement a menu driven Program in C for the following Array operations a. Inserting an Element (ELEM) at a given valid Position (POS) b. Deleting an Element at a given valid Position (POS) c. Display of Array Elements d. Exit.	Practical	D	3	3	A3-2/11/2022 A2-3/11/2022 A1-4/11/2022  A3-9/11/2022 A2-10/11/2022 A1-18/11/2022	16/11/22 17/11/22 18/11/22  16/11/22 18/11/22 18/11/22
10	Tutorial	L+D	BB	2	-	16/11/2022 18/11/2022	10/11/22
<b>MODULE 2</b>							
11	<b>Stacks:</b> Definition, Stack Operations, Array Representation of Stacks	L+D	BB	1	9	21/11/2022	14/11/22
12	Stacks using Dynamic Arrays, Stack Applications: Polish notation, Infix to postfix conversion	L+D	BB	1	10	21/11/2022	14/11/22
13	Evaluation of postfix expression.	L+D	BB	1	11	23/11/2022	16/11/22
14	<b>Recursion</b> -Factorial, GCD, Fibonacci Sequence, Tower of Hanoi, Ackerman's function	L+D	BB	1	12	25/11/2022	21/11/22
15	<b>Queues:</b> Definition, Array Representation, Queue Operations,	L+D	BB	1	13	26/11/2022	21/11/22
16	Circular Queues.	L+D	BB	1	14	2/12/2022	23/11/22
17	Circular queues using Dynamic arrays	L+D	BB	1	15	2/12/2022	25/11/22
18	Dequeues, Priority Queues	L+D	BB	1	16	5/12/2022	26/11/22

19	<p><b>Practical:</b> 1. Design, Develop and Implement a menu driven Program in C for the following operations on STACK of Integers. a. Push an Element on to Stack b. Pop an Element from Stack c. Demonstrate Overflow and Underflow situations on Stack d. Display the status of Stack e. Exit.</p> <p>2. a. Design, Develop and Implement a Program in C for the following Stack Applications a. Evaluation of Suffix expression with single digit operands and operators: +, -, *, /, %, ^ b. Solving Tower of Hanoi problem with n disks.</p>	Practical	D	3	6	<p>A3-16/11/2022 A2-17/11/2022 A1-25/11/2022</p> <p>A3-23/11/2022 A2-24/11/2022 A1-2/12/2022</p>	<p>23/11/22 24/11/22 25/11/22</p> <p>26/11/22 27/11/22 28/11/22</p>
20	Tutorial	L+D	BB	5	-	<p>5/12/2022 7/12/2022 9/12/2022 12/12/2022</p>	<p>28/11/22 29/11/22 30/11/22 31/12/22</p>
<b>MODULE 3</b>							
21	Linked Lists: Definition, Classification of linked lists in Memory, Representation of linked lists in Memory.	L+D	BB	1	17	14/12/2022	9/12/21
22	Linked list operations: Traversing, Searching, Insertion	L+D	BB	1	18	16/12/2022	12/12/22
23	Deletion, Sorting and Concatenation operations.	L+D	BB	1	19	19/12/2022	12/12/22
24	Doubly Linked lists,	L+D	BB	1	20	19/12/2022	14/12/22
25	Circular linked lists	L+D	BB	1	21	21/12/2022	15/12/22
26	Header linked lists, Linked Stacks and Queues.	L+D	BB	1	22	23/12/2022	17/12/22
27	Applications of Linked lists – Polynomials,	L+D	BB	1	23	24/12/2022	24/12/22

38	Application of Trees-Evaluation of Expression	L+D	BB+LCD	1	32	13/1/2023
39	<p><b>Practical:</b> 1. Given an array of elements, construct a complete binary tree from this array in level order fashion. That is, elements from left in the array will be filled in the tree level wise starting from level 0. Ex: Input : arr[] = {1, 2, 3, 4, 5, 6}.</p> <p>2. Design, Develop and Implement a menu driven Program in C for the following operations on Binary Search Tree (BST) of Integers a. Create a BST of N Integers b. Traverse the BST in Inorder, Preorder and Post Order</p>	Practical	D	3	12	A3-21/12/2022 A2-29/12/2022 A1-06/01/2023  A3-24/12/2022 A2-05/01/2023 A1-13/1/2023  28/01/23
40	Tutorial	L+D	BB	1	-	16/1/2023
<b>MODULE 5</b>						
41	<b>Trees 2:</b> AVL tree, Red-black tree	L+D	BB+LCD	1	33	16/1/2023
42	Splay tree, B-tree.	L+D	BB+LCD	1	34	18/1/2023
43	<b>Graphs:</b> Definitions, Terminologies	L+D	BB+LCD	1	35	20/1/2023
44	Matrix and Adjacency List Representation of Graphs, Elementary Graph operations	L+D	BB+LCD	1	36	23/1/2023
45	Traversal methods: Breadth First Search and Depth First Search	L+D	BB+LCD	1	37	23/1/2023
46	<b>Hashing:</b> Hash Table organizations,	L+D	BB+LCD	1	38	25/1/2023
47	Hashing Functions	L+D	BB+LCD	1	39	27/1/2023
48	Static and Dynamic Hashing	L+D	BB+LCD	1	40	28/1/2023
49	<p><b>Practical:</b> 1. Design, Develop and implement a program in C for the following operations on Graph (G) of cities a. Create a Graph of N cities using Adjacency Matrix. b. Print all the nodes reachable from a given starting node in a diagraph using DFS/BFS method.</p>	Practical		3	15	A3-28/12/2022 A2-12/1/2023 A1-20/1/2023  28/01/23 12/01/23 27/01/23  1/02/23 3/02/23 6/02/23 8/02/23 10/02/23 10/02/23 28/01/23 12/01/23 27/01/23  1/02/23

	2. Design and develop a program in C that uses Hash Function $H:K \rightarrow L$ as $H(K) = K \bmod m$ (reminder method) and implement hashing technique to map a given key K to the address space L. Resolve the collision (if any) using linear probing.	D			18/1/2023 A2-19/1/2023 02/2/2023 A1-27/1/2023 03/2/2023 30/1/2023 30/1/2023 1/2/2023 08/2/2023 10/2/2023	8/02/23 19/02/23 24/02/23 19/02/23 08/03/23 11/02/23 13/02/23 16/02/23 TO 31/03/23
50	Tutorial	L+D	BB	2		
	Revision	L+D	BB	3		

Week		Remarks
Assignment 1	4 <sup>th</sup> Week - 26/11/2022	Mode of Assignment – Written Assignment
Assignment 2	6 <sup>th</sup> Week- 03/01/2023	

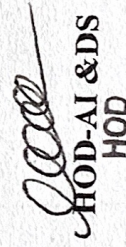
Total No. of Lecture Hours = 40

Total No. of Tutorial Hours = 13

Total No. of Practical Hours = 20



Course In charge

  
HOD-AI & DS  
HOD

Dept. of Artificial Intelligence & Data Science  
K.S. School of Engineering & Management  
Bangalore - 560 109.



IQAC Coordinator

  
Principal



**K.S. SCHOOL OF ENGINEERING AND MANAGEMENT, BENGALURU - 560109**

**DEPARTMENT OF COMPUTER SCIENCE AND BUSINESS SYSTEMS**

**SESSION: 2023-2024 (ODD SEMESTER)**

**LESSON PLAN**

**NAME OF THE STAFF : RAMESH BABU N**

**COURSE CODE/TITLE : BCS306A/ OBJECT ORIENTED PROGRAMMING WITH JAVA**

**SEMESTER/YEAR : III / II**

Sl. No.	Topic to be covered	Mode of Delivery	Teaching Aid	No. of Periods	Cumulative No. of Periods	Proposed Date	Engaged Date
<b>MODULE 1</b>							
1	<b>An Overview of Java:</b> Object-Oriented Programming (Two Paradigms, Abstraction, The Three OOP Principles), Using Blocks of Code	L + D	BB + LCD	1	1	15-11-2023	15-11-23
2	Lexical Issues (Whitespace, Identifiers, Literals, Comments, Separators, The Java Keywords).	L + D	BB + LCD	1	2	16-11-2023	16-11-23
3	<b>Data Types, Variables, and Arrays:</b> The Primitive Types (Integers, Floating-Point Types, Characters, Booleans), Variables, Type Conversion and Casting,	L + D	BB + LCD	1	3	17-11-2023	20-11-23
4	Automatic Type Promotion in Expressions, Arrays, Introducing Type Inference with Local Variables.	L + D	BB + LCD	1	4	20-11-2023	21-11-23
5	<b>Operators:</b> Arithmetic Operators, Relational Operators, Boolean Logical Operators,	L + D	BB + LCD	1	5	22-11-2023	22-11-23

6	The Assignment Operator, The ? Operator, Operator Precedence, Using Parentheses.	L + D	BB + LCD	1	6	23-11-2023	25-11-23
7	<b>Control Statements:</b> Java's Selection Statements (if, The Traditional switch), Iteration Statements (while, do-while, for, The For-Each Version of the for Loop, Local Variable Type Inference in a for Loop, Nested Loops),	L + D + PS	BB + LCD	1	7	24-11-2023	25-11-23
8	Jump Statements (Using break, Using continue, return).	L + D	BB + LCD	1	8	25-11-2023	27-11-23
<b>MODULE 2</b>							
9	<b>Introducing Classes:</b> Class Fundamentals, Declaring Objects, Assigning Object Reference Variables,	L + D	BB + LCD	1	9	27-11-2023	27-11-23
10	Introducing Methods, Constructors	L + D + PS	BB + LCD	1	10	29-11-2023	29-11-23
11	The this Keyword, Garbage Collection	L + D + PS	BB + LCD	1	11	01-12-2023	01-12-23
12	<b>Methods and Classes:</b> Overloading Methods, Objects as Parameters	L + D + PS	BB + LCD	1	12	04-12-2023	04-12-23
13	Argument Passing, Returning Objects,	L + D + PS	BB + LCD	1	13	06-12-2023	04-12-23
14	Recursion, Access Control,	L + D	BB + LCD	1	14	07-12-2023	06-12-23
15	Understanding static, Introducing final,	L + D	BB + LCD	1	15	08-12-2023	07-12-23
16	Introducing Nested and Inner Classes.	L + D	BB + LCD	1	16	11-12-2023	08-12-23
<b>MODULE 3</b>							
17	<b>Inheritance:</b> Inheritance Basics,	L + D	BB + LCD	1	17	13-12-2023	20-12-23
18	Using super,	L + D + PS	BB + LCD	1	18	14-12-2023	22-12-23
19	Creating a Multilevel Hierarchy, When Constructors Are Executed,	L + D + PS	BB + LCD	1	19	15-12-2023	22-12-23
20	Method Overriding, Dynamic Method Dispatch,	L + D + PS	BB + LCD	1	20	18-12-2023	28-12-23
21	Using Abstract Classes, Using final with Inheritance	L + D + PS	BB + LCD	1	21	20-12-2023	29-12-23

22	Local Variable Type Inference and Inheritance, The Object Class.	L + D	BB + LCD	1	22	21-12-2023	30-12-23
23	<b>Interfaces:</b> Interfaces, Default Interface Methods,	L + D	BB + LCD	1	23	22-12-2023	30-12-23
24	Use static Methods in an Interface, Private Interface Methods.	L + D	BB + LCD	1	24	23-12-2023	01-01-24
<b>MODULE 4</b>							
25	<b>Packages:</b> Packages, Packages and Member Access,	L + D	BB + LCD	1	25	27-12-2023	10-1-24
26	Importing Packages.	L + D + PS	BB + LCD	1	26	28-12-2023	11-1-24
27	<b>Exceptions:</b> Exception-Handling Fundamentals, Exception Types, Uncaught Exceptions,	L + D + PS	BB + LCD	1	27	29-12-2023	11-1-24
28	Assignment 1: Problem Solving	PS	BB + LCD	0	27	30-12-2023	12-1-24
29	Using try and catch, Multiple catch Clauses,	L + D + PS	BB + LCD	1	28	04-01-2024	17-1-24
30	Nested try Statements, throw, throws, finally,	L + D + PS	BB + LCD	1	29	05-01-2024	18-1-24
31	Java's Built-in Exceptions,	L + D	BB + LCD	1	30	08-01-2024	24-1-24
32	Creating Your Own Exception Subclasses,	L + D + PS	BB + LCD	1	31	10-01-2024	25-1-24
33	Chained Exceptions.	L + D	BB + LCD	1	32	11-01-2024	27-1-24
<b>MODULE 5</b>							
34	<b>Multithreaded Programming:</b> The Java Thread Model, The Main Thread,	L + D	BB + LCD	1	33	12-01-2024	27-1-24
35	Creating a Thread, Creating Multiple Threads,	L + D + PS	BB + LCD	1	34	17-01-2024	29-1-24
36	Using isAlive() and join(),	L + D + PS	BB + LCD	1	35	18-01-2024	31-1-24
37	Thread Priorities, Synchronization,	L + D + PS	BB + LCD	1	36	19-01-2024	2-2-24
38	Interthread Communication, Suspending, Resuming, and Stopping Threads, Obtaining a Thread's State.	L + D + PS	BB + LCD	1	37	22-01-2024	5-2-24



39	<b>Enumerations, Type Wrappers and Autoboxing:</b> Enumerations (Enumeration Fundamentals, The values() and valueOf() Methods),	L + D	BB + LCD	1	38	24-01-2024	7-2-24
40	Type Wrappers (Character, Boolean, The Numeric Type Wrappers),	L + D	BB + LCD	1	39	25-01-2024	14-2-24
41	Autoboxing (Autoboxing and Methods, Autoboxing/Unboxing Occurs in Expressions, Autoboxing/Unboxing Boolean and Character Values).	L + D	BB + LCD	1	40	27-01-2024	15-2-24
42	Revision	L + D	BB + LCD	1	41	29-01-2024	
43	Revision	L + D	BB + LCD	1	42	31-01-2024	
44	Revision	L + D	BB + LCD	1	43	01-02-2024	
45	Revision	L + D	BB + LCD	1	44	02-02-2024	
46	Revision	L + D	BB + LCD	1	45	05-02-2024	
47	Assignment 2: Problem Solving	PS	BB + LCD	0	45	07-02-2024	

L – Lecture    D – Demo    PS - Problem Solving    BB - Blackboard    LCD - Slides

Total No. of Lecture Hours = 40

Total No of Tutorial Hours(Assignments) = 02

Total No. of Revision Hours = 05

	Mode of Assignment and instructions	Date
Assignment 1	Written Assignment	01-01-2024
Assignment 2	Written Assignment	08-02-2024

*N. Dey* 10/1/23  
Course In-charge

*N. M.* 10/1/23  
Head of the Department

*K. R. Mohan*  
Principal



K.S. SCHOOL OF ENGINEERING AND MANAGEMENT, BENGALURU - 560109

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

SESSION: 2023-2024 (ODD SEMESTER)

LESSON PLAN

NAME OF THE STAFF : Sushmitha Suresh

COURSE CODE/TITLE : 21RMI56 / RESEARCH METHODOLOGY & INTELLECTUAL PROPERTY RIGHTS

SEMESTER/YEAR : V/III – A Sec

Sl. No.	Topic to be covered	Mode of Delivery	Teaching Aid	No. of Periods	Cumulative No. of Periods	Proposed Date	Delivery Date
<b>MODULE 1</b>							
1	<b>Introduction:</b> Meaning of Research, Objectives of Engineering Research	L+D	BB+LCD	1	1	27/11/2023	27/11/23
2	Motivation in Engineering Research, Types of Engineering Research	L+D	BB+LCD	1	2	29/11/2023	29/11/23
3	Finding and Solving a Worthwhile Problem, Ethics in Engineering Research	L+D	BB+LCD	1	3	01/12/2023	4/12/23
4	Ethics in Engineering Research Practice, Types of Research Misconduct	L+D	BB+LCD	1	4	04/12/2023	6/12/23
5	Ethical Issues Related to Authorship	L+D	BB+LCD	1	5	06/12/2023	7/12/23
6	Tutorial	L+D	BB+LCD	5	-	07/12/2023 08/12/2023 11/12/2023 13/12/2023 14/12/2023	8/12/23
<b>MODULE 2</b>							

7	<b>Literature Review and Technical Reading:</b> New and Existing Knowledge, Analysis and Synthesis of Prior Art Bibliographic Databases, Web of Science, Google and Google Scholar	L+D	BB+LCD	1	6	15/12/2023	18/12/23
8	Effective Search: The Way Forward Introduction to Technical Reading Conceptualizing Research, Critical and Creative Reading, Taking Notes While Reading, Reading Mathematics and Algorithms, Reading a Datasheet	L+D	BB+LCD	1	7	18/12/2023	20/12/23
9	Attributions and Citations: Giving Credit Wherever Due, Citations: Functions and Attributes, Impact of Title and Keywords on Citations, Knowledge Flow through Citation	L+D	BB+LCD	1	8	20/12/2023	23/12/23
10	Citing Datasets, Styles for Citations, Acknowledgments and Attributions, What Should Be Acknowledged	L+D	BB+LCD	1	9	21/12/2023	27/12/23
11	Acknowledgments in, Books Dissertations, Dedication or Acknowledgments	L+D	BB+LCD	1	10	22/12/2023	28/12/23
12	Tutorial	L+D	BB+LCD	5	-	23/12/2023 29/12/2023 30/12/2023 01/01/2024 03/01/2024	29/12/23
<b>MODULE 3</b>							
13	<b>Introduction To Intellectual Property:</b> Role of IP in the Economic and Cultural Development of the Society, IP Governance, IP as	L+D	BB+LCD	1	11	04/01/2024	01/01/24

	a Global Indicator of Innovation, Origin of IP History of IP in India. Major Amendments in IP Laws and Acts in India						
14	Patents: Conditions for Obtaining a Patent Protection To Patent or Not to Patent an Invention. Rights Associated with Patents. Enforcement of Patent Rights. Inventions Eligible for Patenting Non-Patentable Matters. Patent Infringements. Avoid Public Disclosure of an Invention before Patenting.	L+D	BB+LCD	1	12	05/01/2024	08/11/24
15	Process of Patenting. Prior Art Search. Choice of Application to be Filed. Patent Application Forms Jurisdiction of Filing Patent Application. Publication. Pre-grant Opposition. Examination. Grant of a Patent.	L+D	BB+LCD	1	13	08/01/2024	10/11/24
16	Validity of Patent Protection. Post-grant Opposition .Commercialization of a Patent. Need for a Patent Attorney/Agent. Can a Worldwide Patent be Obtained. Do I Need First to File a Patent in India.	L+D	BB+LCD	1	14	10/01/2024	11/11/24
17	Patent Related Forms. Fee Structure Types of Patent Applications. Commonly Used Terms in Patenting.	L+D	BB+LCD	1	15	11/01/2024	12/11/24

	National Bodies Dealing with Patent Affairs. Utility Models.						
18	Tutorial	L+D	BB+LCD	5	-	12/01/2024 17/01/2024 18/01/2024 19/01/2024 22/01/2024	17/1/24
<b>MODULE 4</b>							
19	<b>Copyrights and Related Rights:</b> Classes of Copyrights. Criteria for Copyright. Ownership of Copyright. Copyrights of the Author. Copyright Infringements. Copyright Infringement is a Criminal Offence. Copyright Infringement is a Cognizable Offence	L+D	BB+LCD	1	16	24/01/2024	18/1/24
20	Fair Use Doctrine. Copyrights and Internet. Non-Copyright Work. Copyright Registration. Judicial Powers of the Registrar of Copyrights. Fee Structure. Copyright Symbol. Validity of Copyright. Copyright Profile of India. Copyright and the word 'Publish	L+D	BB+LCD	1	17	25/01/2024	19/1/24
21	Transfer of Copyrights to a Publisher. Copyrights and the Word 'Adaptation'. Copyrights and the Word 'Indian Work'. Joint Authorship. Copyright Society. Copyright Board. Copyright Enforcement Advisory Council (CEAC). International Copyright	L+D	BB+LCD	1	18	27/01/2024	22/1/24

	Agreements, Conventions and Treaties.						
22	Interesting Copyrights Cases. Trademarks: Eligibility Criteria. Who Can Apply for a Trademark. Acts and Laws. Designation of Trademark Symbols. Classification of Trademarks. Registration of a Trademark is Not Compulsory	L+D	BB+LCD	1	19	01/02/2024	25/1/24
23	Validity of Trademark. Types of Trademarks Registered in India. Trademark Registry. Process for Trademarks Registration. Prior Art Search. Famous Case Law: Coca-Cola Company vs. Bisleri International Pvt. Ltd.	L+D	BB+LCD	1	20	02/02/2024	27/1/24
24	Tutorial	L+D	BB+LCD	5	-	05/02/2024 07/02/2024 08/02/2024 09/02/2024 10/02/2024	29/1/24
<b>MODULE 5</b>							
25	<b>Industrial Designs:</b> Eligibility Criteria. Acts and Laws to Govern Industrial Designs. Design Rights. Enforcement of Design Rights. Non-Protectable Industrial Designs India. Protection Term. Procedure for Registration of Industrial Designs. Prior Art Search	L+D	BB+LCD	1	21	12/02/2024	31/1/24
26	Application for Registration. Duration of the Registration of a Design. Importance of Design	L+D	BB+LCD	1	22	14/02/2024	5/2/24

	Registration. Cancellation of the Registered Design. Application Forms. Classification of Industrial Designs. Designs Registration Trend in India. International Treaties. Famous Case Law: Apple Inc. vs. Samsung Electronics Co.						
27	Geographical Indications: Acts, Laws and Rules Pertaining to GI. Ownership of GI. Rights Granted to the Holders. Registered GI in India. Identification of Registered GI. Classes of GI	L+D	BB+LCD	1	23	15/02/2024	12/2/24
28	Non-Registerable GI Protection of GI. Collective or Certification Marks. Enforcement of GI Rights. Procedure for GI Registration Documents Required for GI Registration. GI Ecosystem in India	L+D	BB+LCD	1	24	16/02/2024	15/2/24
29	Case Studies on Patents. Case study of Curcuma (Turmeric) Patent, Case study of Neem Patent, Case study of Basmati patent. IP Organizations In India. Schemes and Programmes	L+D	BB+LCD	1	25	19/02/2024	16/2/24
30	Tutorial	L+D	BB+LCD	5	-	21/02/2024 22/02/2024 23/02/2024 24/02/2024 06/03/2024	16/2/24 21/2/24
31	Revision	L+D	BB+LCD	2	-	07/03/2024 09/03/2024	22/2/24 23/2/24

	Week	Remarks
Assignment 1	4 <sup>th</sup> Week -18/12/2023	Mode of Assignment – Written Assignment
Assignment 2	9 <sup>th</sup> Week- 22/01/2024	

Total No. of Lecture Hours = 25

Total No. of Tutorial Hours =27

*Sushmitha*  
Course In charge

*[Signature]*  
Head of Dept  
HOD  
Department of Computer Science Engineering  
K.S School of Engineering & Management  
Bangalore-560109

*[Signature]*  
IQAC Coordinator

*[Signature]*  
Principal  
Dr. K. RAMA NARASIMHA  
Principal/Director  
K S School of Engineering and Management  
Bengaluru - 560 109





K.S. SCHOOL OF ENGINEERING AND MANAGEMENT, BENGALURU - 560109

DEPARTMENT OF CIVIL ENGINEERING

SESSION: 2023-2024 (ODD SEMESTER)

LESSON PLAN

NAME OF THE STAFF : Mrs. AMRUTHA DHIRAJ / Mr. Naveena MP

COURSE CODE/TITLE : BCV301/ STRENGTH OF MATERIALS

SEMESTER/YEAR : III / II


Sl. No.	Topic to be covered	Mode of Delivery	Teaching Aid	No. of Periods	Cumulative No. of Periods	Proposed Date	Delivery Date
<b>MODULE 1</b>							
1	Tutorials	L+D	BB	0	0	15/11/2023	15/11/23
2	<b>Simple Stresses and Strain:</b> Introduction, Properties of Materials, Stress, Strain, Hooke's law, Poisson's Ratio	L+D	BB	1	1	20/11/2023	20/11/23
3	Stress - Strain Diagram for structural steel, Principles of superposition	L+D	BB	1	2	21/11/2023	21/11/23
4	Tutorials	L+D, PS	BB	0	2	22/11/2023	22/11/23
5	Tutorials	L+D, PS	BB	0	2	25/11/2023	25/11/23
6	Total elongation of tapering bars of circular cross section	L+D	BB	1	3	27/11/2023	27/11/23
7	Total elongation of tapering rectangular cross section	L+D	BB	1	4	28/11/2023	28/11/23
8	Tutorials	L+D, PS	BB	0	4	29/11/2023	29/11/23
9	Composite section, Volumetric strain, expression for volumetric strain	L+D	BB	1	5	04/12/2023	23/12/23
10	Elastic constants, relationship among elastic constants	L+D	BB	1	6	05/12/2023	26/12/23
11	Tutorials	L+D, PS	BB	0	6	06/12/2023	26/12/23
12	Thermal stress and strains	L+D	BB	1	7	11/12/2023	27/12/23
13	Compound bars subjected to thermal stresses, state of	L+D, PS	BB	1	8	12/12/2023	11/124

	simple shear.						
14	Tutorials	L+D, PS	BB	0	8	13/12/2023	21/1/24
<b>MODULE 2</b>							
15	Tutorials	L+D	BB	0	8	16/11/2023	16/11/23
16	<b>Bending moment and shear force diagrams in beams:</b> Definition of shear force and bending moment, Sign convention	L+D	BB	1	9	17/11/2023	17/11/23
17	Tutorials	L+D	BB	0	9	23/11/2023	23/11/23
18	Relationship between loading, shear force and bending moment, Shear force and bending moment equations	L+D	BB	1	10	24/11/2023	23/11/23
19	Development of Shear Force Diagram (SFD) and Bending Moment Diagram (BMD) with salient values for cantilever for point loads, UDL(Uniformly Distributed Load), UVL(Uniformly Varying Load) and Couple and their combinations	L+D,PS	BB	1	11	01/12/2023	24/11/23 1/12/23 6/12/23
20	Tutorials	L+D,PS	BB	0	11	07/12/2023	7/12/23
21	Development of Shear Force Diagram (SFD) and Bending Moment Diagram (BMD) with salient values for cantilever for point loads, UDL(Uniformly Distributed Load), UVL(Uniformly Varying Load) and Couple and their combinations	L+D,PS	BB	1	12	08/12/2023	8/12/23
22	Tutorials	L+D,PS	BB	0	12	14/12/2023	29/12/23
23	Development of Shear Force Diagram (SFD) and Bending Moment Diagram (BMD) with salient values for cantilever for point loads, UDL(Uniformly Distributed Load), UVL(Uniformly Varying Load) and Couple and their combinations	L+D,PS	BB	1	13	15/12/2023	30/12/23
24	Tutorials	L+D,PS	BB	0	13	21/12/2023	30/12/23
25	Development of Shear Force Diagram (SFD) and Bending Moment Diagram (BMD) with salient values for cantilever for point loads, UDL(Uniformly Distributed Load), UVL(Uniformly Varying Load) and Couple and their combinations	L+D,PS	BB	1	14	22/12/2023	11/1/24
26	Development of Shear Force Diagram(SFD) and Bending	L+D,PS	BB	1	15	29/12/2023	12/1/24

	Moment Diagram (BMD) with salient values for overhanging beams for point loads, UDL(Uniformly Distributed Load), UVL(Uniformly Varying Load) and Couple and their combinations						
27	Tutorials	L+D,PS	BB	0	15	04/01/2024	18/1/24
28	Development of Shear Force Diagram(SFD) and Bending Moment Diagram (BMD) with salient values for overhanging beams for point loads, UDL(Uniformly Distributed Load), UVL(Uniformly Varying Load) and Couple and their combinations	L+D,PS	BB	1	16	05/01/2024	19/1/24
<b>MODULE 3</b>							
29	<b>Bending and Shear Stresses in Beams:</b> Introduction, pure bending theory, Assumptions	L+D	BB	1	17	11/01/2024	25/1/24
30	Tutorials	L+D	BB	0	17	12/01/2024	29/1/24
31	Derivation of Simple bending equation	L+D	BB	1	18	18/01/2024	30/1/24
32	Tutorials	L+D	BB	0	18	19/01/2024	31/1/24
33	Modulus of rupture, section modulus, Flexural rigidity, Problems, Expression for transverse shear stress in beams	L+D,PS	BB	1	19	25/01/2024	5/2/24
34	Tutorials	L+D,PS	BB	0	19	01/02/2024	6/2/24
35	Bending and shear stress distribution diagrams for circular, rectangular, 'I', and 'T' sections	L+D,PS	BB	1	20	02/02/2024	7/2/24
36	<b>Torsion in Circular Shaft:</b> Introduction, pure torsion, Assumptions	L+D	BB	1	21	18/12/2023	10/1/24
37	Derivation of torsion equation for circular shafts	L+D	BB	1	22	19/12/2023	13/1/24
38	Tutorials	L+D	BB	0	22	20/12/2023	16/1/24
39	Torsional rigidity and polar modulus, Power transmitted by a shaft	L+D, PS	BB	1	23	01/01/2024	17/1/24
40	Numericals	L+D,PS	BB	1	24	02/01/2024	24/1/24
41	Tutorials	L+D,PS	BB	0	24	03/01/2024	27/1/24
<b>MODULE 4</b>							
42	<b>Deflection of Beams:</b> Definition of slope, Deflection and curvature, Sign conventions	L+D	BB	1	25	08/02/2024	18/2/24
43	Derivation of moment-curvature equation	L+D	BB	1	26	09/02/2024	18/2/24
44	Double integration method and Macaulay's method: Slope and deflection for standard loading cases.	L+D	BB	1	27	10/02/2024	16/2/24

45	Double integration method and Macaulay's method: Slope and deflection for determinate prismatic beams subjected to point loads, UDL, UVL and couple.	L+D,PS	BB	1	28	15/02/2024	16/2/24
46	<b>Columns and Struts:</b> Introduction, short and long columns. Euler's theory; Assumptions	L+D	BB	1	29	08/01/2024	12/2/24
47	Derivation for Euler's Buckling load for different end conditions	L+D	BB	1	30	09/01/2024	13/2/24
48	Tutorials	L+D	BB	0	30	10/01/2024	14/2/24
49	Limitations of Euler's theory. Rankine-Gordon's formula for columns	L+D,PS	BB	1	31	16/01/2024	16/2/24
50	Numericals	L+D,PS	BB	1	32	17/01/2024	27/2/24
<b>MODULE 5</b>							
51	<b>Compound Stresses:</b> Introduction, state of stress at a point	L+D	BB	1	33	06/02/2024	19/2/24
52	Tutorials	L+D,PS	BB	0	33	07/02/2024	20/2/24
53	General two dimensional stress system Principal stresses and principal planes	L+D,PS	BB	1	34	12/02/2024	20/2/24
54	Principal stresses and principal planes	L+D,PS	BB	1	35	13/02/2024	22/2/24
55	Mohr's circle of stresses	L+D,PS	BB	1	36	14/02/2024	21/2/24
56	<b>Thin and Thick Cylinders:</b> Introduction, Thin cylinders subjected to internal pressure; Hoop stresses, Longitudinal stress and change in volume	L+D	BB	1	37	22/01/2024	28/2/24
57	Thin cylinders subjected to internal pressure; Hoop stresses, Longitudinal stress and change in volume	L+D,PS	BB	1	38	23/01/2024	29/2/24
58	Tutorials	L+D,PS	BB	0	38	24/01/2024	29/2/24
59	Tutorials	L+D,PS	BB	0	38	27/01/2024	1/3/24
60	Thick cylinders subjected to both internal and external pressure; Lamé's equation, radial and hoop stress distribution	L+D	BB	1	48	31/01/2024	9/3/24
61	Numericals	L+D,PS	BB	1	50	05/02/2024	9/3/24

Total No. of Lecture Hours = 40; Total No. of Tutorial Hours = 21

  
Course In charge

  
Head of Dept.

  
IQAC Coordinator

Professor & Head  
Dept. of Civil Engineering  
K.S. Group of Institutions  
K.S. School of Engineering & Management  
Bangalore-560 062.

  
Principal  
Dr. K. RAMA NARASIMHA  
Principal/Director  
K S School of Engineering and Management  
Bengaluru - 560 109



**K.S. SCHOOL OF ENGINEERING AND MANAGEMENT, BENGALURU - 560109**  
**DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING**  
**SESSION: 2023-2024 (ODD SEMESTER)**  
**LESSON PLAN**

**NAME OF THE STAFF** : K. SENTHIL BABU  
**COURSE CODE/TITLE** : 18EC71/COMPUTER NETWORKS  
**SEMESTER/YEAR** : VII / IV

Sl. No.	Topic to be covered	Mode of Delivery	Teaching Aid	No. of Periods	Cumulative No. of Periods	Proposed Date	Execution Date
<b>MODULE 1</b>							
1	Data communication: Components, Data representation, Data flow	L+D	BB	1	1	13/9/23	13/9/23
2	Network, Network criteria, Physical Structures, Network types: LAN, WAN, Switching	L+D	BB	1	2	14/9/23	14/9/23
3	The Internet., <b>Network Models:</b> Protocol Layering: Scenarios	L+D	BB	1	3	19/9/23	19/9/23
4	Principles, Logical Connections	L+D	BB	1	4	20/9/23	20/9/23
5	TCP/IP Protocol Suite: Layered Architecture, Layers in TCP/IP suite	L+D	BB	1	5	21/9/23	21/9/23
6	Description of layers	L+D	BB	1	6	22/9/23	25/9/23
7	Encapsulation and Decapsulation, Addressing, Multiplexing and Demultiplexing,	L+D	BB	1	7	25/9/23	26/9/23
8	The OSI Model: OSI Versus TCP/IP.	L+D	BB	1	8	26/9/23	29/9/23
<b>MODULE 2</b>							
9	<b>Data-Link Layer:</b> Introduction: Nodes and Links, Services, Two Categories of link, Sublayers Link Layer addressing	L+D	BB	1	9	27/9/23	30/9/23
10	Types of addresses, ARP. Data Link Control (DLC) services	L+D	BB	1	10	30/9/23	4/10/23
11	Framing, Flow and Error Control,	L+D	LCD	1	11	3/10/23	9/10/23
12	Data Link Layer Protocols: Simple Protocol,	L+D	BB	1	12	4/10/23	10/10/23

20/9/23  
23/9/23  
8/10/23  
5/10/23


	Stop and Wait protocol, Piggybacking.						
13	Media Access Control: Random Access: ALOHA,	L+D	BB	1	13	5/10/23	11/10/23
14	CSMA, CSMA/CD	L+D	BB	1	14	9/10/23	12/10/23
15	CSMA/CA. Wired and Wireless LANs: Ethernet Protocol, Standard Ethernet.	L+D	LCD	1	15	10/10/23	25/10/23
16	Introduction to wireless LAN: Architectural Comparison, Characteristics, Access Control.	L+D	BB	1	16	11/10/23	25/10/23, 26/10/23
<b>MODULE 3</b>							
17	Network Layer: Introduction, Network Layer services: Packetizing, Routing and Forwarding, Other services	L+D	BB	1	17	12/10/23	30/10/23
18	Packet Switching: Datagram Approach, Virtual Circuit Approach, IPV4 Addresses: Address Space,	L+D	BB	1	18	19/10/23	31/10/23 2/11/23
19	Classful Addressing, Classless Addressing,	L+D	LCD	1	19	25/10/23	5/11/23
20	DHCP, Network Address Resolution, Forwarding of IP Packets: Based on destination Address and Label.	L+D	BB	1	20	26/10/23	7/11/23
21	Network Layer Protocols: Internet Protocol (IP): Datagram Format	L+D	BB	1	21	28/10/23	8/11/23
22	Fragmentation, Options, Security of IPV4 Datagrams	L+D	BB	1	22	30/10/23	9/11/23
23	Unicast Routing: Introduction, Routing Algorithms: Distance Vector Routing	L+D	LCD	1	23	31/10/23	15/11/23
24	Link State Routing, Path vector routing.	L+D	BB	1	24	2/11/23	16/11/23
<b>MODULE 4</b>							
25	Transport Layer: Introduction: Transport Layer Services	L+D	LCD	1	25	6/11/23	17/11/23
26	Connectionless and Connection oriented Protocols	L+D	BB+LCD	1	26	7/11/23	21/11/23
27	Transport Layer Protocols: Simple protocol, Stop and wait protocol,	L+D	LCD	1	27	8/11/23	22/11/23
28	Go-Back-N Protocol, Selective repeat protocol,	L+D	BB+LCD	1	28	9/11/23	22/11/23
29	User Datagram Protocol: User Datagram, UDP Services, UDP Applications	L+D	LCD	1	29	11/11/23	27/11/23
30	Transmission Control Protocol: TCP Services, TCP Features Segment, Connection	L+D	BB+LCD	1	30	12/11/23	28/11/23
31	State Transition diagram, Windows in TCP	L+D	BB+LCD	1	31	15/11/23	29/11/23
32	Flow control, Error control, TCP congestion control.	L+D	BB+LCD	1	32	16/11/23	4/12/23
<b>MODULE 5</b>							

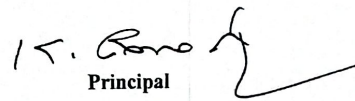
33	Introduction: providing services, Application- layer paradigms,	L+D	LCD	1	33	20/11/23	5/12/23
34	Standard Client –Server Protocols: World wide web, Hyper Text Transfer Protocol	L+D	LCD	1	34	21/11/23	6/12/23
35	FTP: Two connections, Control Connection, Data Connection,	L+D	BB	1	35	22/11/23	7/12/23
36	Electronic Mail: Architecture, Web Based Mail	L+D	BB+LCD	1	36	27/11/23	7/12/23
37	Telnet: Local versus remote logging.	L+D	LCD	1	37	28/11/23	9/12/23
38	Domain Name system: Name space, DNS in internet	L+D	BB	1	38	29/11/23	19/12/23
39	Resolution, DNS Messages, Registrars	L+D	BB	1	39	4/12/23	19/12/23
40	DDNS, security of DNS	L+D	BB	1	40	5/12/23	20/12/23
<b>REVISION</b>							
41	Module 1 & 2	L+D	BB+LCD	4		6-9/12/23	21/12/23
42	Module 3 & 4	L+D	BB+LCD	4		12-15/12/23	23/12/23
43	Module 5	L+D	BB+LCD	2		19-20/12/23	

Total No. of Lecture Hours = 40

Total No. of Revision Hours = 10

  
Course In charge

  
Head of the Department  
**Professor & Head**  
Dept. of Electronics & Communication Engineering  
K.S. School of Engineering & Management  
Bangalore - 560 109

  
Principal  
**Dr. K. RAMA NARASIMHA**  
Principal/Director  
K.S. School of Engineering and Management  
Bangalore - 560 109



K.S. SCHOOL OF ENGINEERING AND MANAGEMENT, BANGALORE - 560109  
DEPARTMENT OF MECHANICAL ENGINEERING

NAME OF THE STAFF : Dr. P N Jyothi  
SUBJECT CODE/TITLE : 18ME741/Additive Manufacturing  
SEMESTER/YEAR : VII / IV  
ACADEMIC YEAR : 2023-2024

Sl. No.	Topic to be covered	Mode of Delivery	Teaching Aid	No. of Periods	Cumulative No. of Periods	Proposed Date	Engaged Date
<b>MODULE 1</b>							
1	Introduction to AM, Need for Additive Manufacturing, Generic AM process	L	BB+LCD	1	1	11/9/23	20/9/23
2	3D printing, rapid proto typing ,the benefits of AM, distinction between AM and CNC machining	L	BB+LCD	1	2	12/9/23	21/9/23
3	Other related technologies	L	BB+LCD	1	3	13/9/23	25/9/23
4	Computers, computer-aided design technology, other associated technologies	L	BB+LCD	1	4	14/9/23	31/10/23
5	Classification of AM processes, metal systems, hybrid systems, milestones in AM development	L	BB+LCD	1	5	19/9/23	4/10/23
6	Eight steps in additive manufacture	L	BB+LCD	1	6	20/9/23	5/10/23
7	Eight steps in additive manufacture	L	BB+LCD	1	7	21/9/23	9/10/23
8	Variations from one AM machine to another ,metal systems	L	BB+LCD	1	8	23/9/23	10/10/23
9	Maintenance of equipment	L	BB+LCD	1	9	25/9/23	11/10/23
10	Materials handling issues & Application of AM	L	BB+LCD	1	10	26/9/23	12/10/23
<b>MODULE 2</b>							
11	Stereolithography (SL), Materials, SL resin curing process	L	BB+LCD	1	11	27/9/23	18/10/23
12	Micro-Stereolithography, Process Benefits and Drawbacks	L	BB+LCD	1	12	30/9/23	26/10/23
13	Applications of Photo polymerization Processes.	L	BB+LCD	1	13	8/10/23	27/10/23



14	Introduction, Selective laser Sintering (SLS)	L	BB+LCD	1	14	4/10/23	27/10/23
15	Materials, Powder fusion mechanism	L	BB+LCD	1	15	5/10/23	30/10/23
16	SLS Metal and ceramic part creation, Electron Beam melting	L	BB+LCD	1	16	9/10/23	31/10/23
<b>TEST I</b>							
17	Process Benefits and Drawbacks	L	BB+LCD	1	17	10/10/23	21/11/23
18	Applications of Powder Bed Fusion Processes	L	BB+LCD	1	18	11/10/23	31/11/23
19	Fused Deposition Modelling (FDM), Principles, Materials, Plotting and path control, Bio-Extrusion	L	BB+LCD	1	19	12/10/23	31/11/23
20	Process Benefits and Drawbacks, Applications of Extrusion-Based Processes	L	BB+LCD	1	20	19/10/23	4/11/23
<b>MODULE 3</b>							
21	Evolution of printing as an additive manufacturing process, research achievements in printing deposition	L	BB+LCD	1	21	25/10/23	6/11/23
22	Technical challenges of printing, printing process modeling	L	BB+LCD	1	22	28/10/23	7/11/23
23	Material modification methods, three-dimensional printing, advantages of binder printing	L	BB+LCD	1	23	30/10/23	8/11/23
24	Laminated Object Manufacturing (LOM), Ultrasonic Consolidation	L	BB+LCD	1	24	31/10/23	9/11/23
25	Gluing, Thermal bonding	L	BB+LCD	1	25	2/11/23	11/11/23
26	LOM and UC applications	L	BB+LCD	1	26	6/11/23	13/11/23
27	General beam deposition process	L	BB+LCD	1	27	7/11/23	15/11/23
28	BD systems, process parameters, typical materials and microstructure	L	BB+LCD	1	28	8/11/23	16/11/23
29	Processing-structure-properties relationships, BD benefits and drawbacks.	L	BB+LCD	1	29	9/11/23	17/11/23
30	Ink -based DW, laser transfer, DW thermals pray, DW beam deposition, DW liquid-phase directed position	L	BB+LCD	1	30	11/11/23	20/11/23
<b>TEST II</b>							
<b>MODULE 4</b>							
31	Introduction, selection methods for a part	L	BB+LCD	1	31	13/11/23	27/11/23
32	Challenges of selection, example system for preliminary selection	L	BB+LCD	1	32	15/11/23	28/11/23
33	Production planning and control	L	BB+LCD	1	33	16/11/23	29/11/23
34	Introduction, preparation of CAD models - the STL file	L	BB+LCD	1	34	20/11/23	1/12/23

35	Problems with STL files, STL file manipulation	L	BB+LCD	1	35	21/11/23	24/11/23
36	Support material removal, surface texture improvements	L	BB+LCD	1	36	22/11/23	5/12/23
37	Preparation for use as a pattern	L	BB+LCD	1	37	27/11/23	6/12/23
38	Property enhancements using non-thermal techniques	L	BB+LCD	1	38	28/11/23	7/12/23
39	Property enhancements using non-thermal techniques	L	BB+LCD	1	39	29/11/23	9/12/23
40	Property enhancements using thermal techniques	L	BB+LCD	1	40	4/11/23	11/12/23
<b>MODULE 5</b>							
41	Introduction, multiple material approaches, discrete multiple material processes	L	BB+LCD	1	41	5/11/23	13/12/23
42	porous multiple material processes, blended multiple material processes, commercial applications using multiple materials, future directions	L	BB+LCD	1	42	6/11/23	14/12/23
43	Applications	L	BB+LCD	1	43	7/11/23	18/12/23
44	Applications	L	BB+LCD	1	44	9/11/23	19/12/23
45	Align Technology, siemens and phonak, DDM drivers	L	BB+LCD	1	45	11/11/23	20/12/23
46	manufacturing vs. prototyping, life-cycle costing	L	BB+LCD	1	46	12/11/23	21/12/23
47	Future of direct digital manufacturing.	L	BB+LCD	1	47	13/11/23	21/12/23
<b>TEST III</b>							


Total No of Lecturer Hours=47

Total No of Activity & Tutorial Hours= 0

	Mode of Assignment and instructions*	Date
Assignment 1	Assignment consisting of 10 question from module 1(10 marks) and 2 (5 marks)	7/10/2023
Assignment 2	Assignment consisting of 10 question from module 2 (5marks) and 3 (10 marks)	10/11/2023
Assignment 3	Assignment consisting of 10 question from module 4 (10 marks) and 5 (10 marks)	10/12/2023

  
Course In charge

  
Head of the Department

  
Principal



KSSSEM

K.S. SCHOOL OF ENGINEERING AND MANAGEMENT, BENGALURU - 560109

DEPARTMENT OF APPLIED SCIENCE

SESSION: 2023-2024 (ODD SEMESTER)

LESSON PLAN

NAME OF THE STAFF : Dr. Sumantha H S

COURSE CODE/TITLE : BPHYS102/ APPLIED PHYSICS FOR CSE STREAM

SEMESTER/YEAR : I A / I

Sl. No.	Topic to be covered	Mode of Delivery	Teaching Aid	No. of Periods	Cumulative No. of Periods	Proposed Date	Delivery Date
<b>MODULE 1</b>							
1	Basic properties of a LASER beam, Interaction of Radiation with Matter: Induced Absorption, Spontaneous Emission and Stimulated Emission, Einstein's A and B Coefficients: Rates of Absorption and emissions, Thermal Equilibrium, Boltzmann Relation, Derivation of Expression for Energy Density.	L+D, I	BB, PPT	1	1	14.9.23	14.9.23
2	Laser Action Explanation, Population Inversion explanation, Metastable State: Description using 3 level system, Requisites of a laser system: Energy Source, Active Medium, Laser Cavity	L+I, AV	BB, PPT	1	2	15.9.23	14.9.23
3	Semiconductor Diode Laser: Principle, Construction, Working, Wavelength, Applications, Applications of LASER: Bar code scanner, Laser Printer, Laser Cooling	L+D, I	BB, PPT	1	3	19.9.23	19/9/23
4	Numerical Problems: Ratio of Population, Number of photons / secs in a LASER beam of certain power output.	PS	BB	1	4	21.9.23	21/9/23
5	Principle: Total Internal Reflection, Structure: Core, Clad, Sheath and corresponding Refractive Index, Propagation of Light Through the Optical fiber (Ray Diagram), Acceptance angle and Numerical Aperture (NA) Explanation	L+D, I	BB, PPT	1	5	22.9.23	21/9/23

6	Derivation of Expression for NA, Modes of Propagation Definition, RI Profile: Graph, Classification of Optical Fibers: Single Mode Step Index and Multi-Mode Step and Graded Index Fibers.	L+I	BB, PPT	1	6	23/9/23	23/9/23	
7	Attenuation, Attenuation Coefficient, Types of Fiber Losses: Absorption, Scattering and Geometrical Losses, Applications: Fiber optic Networking, Communication.	L+I	BB, PPT	1	7	25/9/23	25/9/23	
8	Numerical Problems: Numerical Aperture, Acceptance angle and Attenuation Co-efficient.	PS	BB	1	8	26/9/23	03/10/23	
9	Tutorials	PS	BB	2	-	29/9/23 30/9/23	05/10/23 04/10/23	
10	Lab Component: Determination of wavelength of LASER using Diffraction Grating. Determination of acceptance angle and numerical aperture of the given Optical Fiber. Study the frequency response of Series & Parallel LCR circuits to understand resonance.	D+E	Experiment al set up.	3	-	A1-19.9.23 25.9.23 9.10.23 A1-13.9.23 20.9.23 25.9.23 4-10.23	A2-13.9.23 20.9.23 27.9.23 A1-23.9.23 25.9.23 9-10.23	
<b>MODULE 2</b>								
11	Statement of de-Broglie Hypothesis, Derivation of expression for de Broglie wavelength ( $\lambda$ ) by analogy and different forms of expression for ( $\lambda$ )	L+E	BB	1	9	31/10/23	09/10/23	
12	Wave Packets, Wave Velocity and Group Velocity (Definitions and Mention of Expression) Heisenberg's Uncertainty Principle, Nonexistence of electron inside the nucleus (non-relativistic).	L+E	BB	1	10	5/10/23	10/10/23	
13	Principle of Complementarity, Correlation between de Broglie Wavelength, Heisenberg's Uncertainty principle and wave packet, Wave Function, Explanation, General Mathematical Form (Exponential).	L+E	BB	1	11	6/10/23	16/10/23	
14	Schrödinger Time Independent wave definition, Setting up of Time independent Schrödinger wave equation in 1D (derivation) and extension to 3D (mention).	L+E	BB	1	12	07/10/23	18/10/23	
15	Physical Significance of a wave function (Probability Density) and Born Interpretation, Expectation value, Eigen functions and Eigen Values.	L+D, E	BB	1	13	16/10/23	19/10/23	
16	One Dimensional Potential Well Explanation and Boundary conditions, Schrödinger Wave equation for a particle in 1 D infinite potential well, General Solution, Applying Boundary Conditions.	L+D	BB	1	14	19/10/23	28/10/23	

17	Energy Eigen Values (Quantization of Energy States), Normalization and Eigen Function, Variation of wave functions and probability density distributions for $n = 1, 2, 3$ states	L+E	BB	1	15	13/10/23	26/10/23	
18	Numerical Problems on de Broglie Hypothesis, Heisenberg's Uncertainty Principle, Energy Eigen Values for a particle in 1D infinite potential well.	PS	BB	1	16	14/10/23	27/10/23	
19	Tutorial	PS	BB	2	-	17/10/23 19/10/23	28/10/23	
20	Lab Component: Study the Characteristics of a Photo-Diode and to determine the power responsivity Determination of Planck's Constant using LEDs.	D+E	Experiment al set up.	2	-	A1 13.11.23 17.11.23	A2 11/10/23 29/10/23 A1 25/10/23 04.11.23 20/11/23	
<b>MODULE 3</b>								
21	Introduction to Quantum Computing, Moore's law & its end. Differences between classical & quantum computing.	L+D	BB	1	17	26/10/23	30/10/23	
22	Concept of qubit and its properties. representation of qubit by Bloch sphere. single and two qubits. Extension to N qubits.	L+D	BB	1	18	26/10/23	31/10/23	
23	Matrix representation of 0 and 1 States, Identity Operator I, Applying I to $ 0\rangle$ and $ 1\rangle$ states to show there is no change, Pauli Matrices and its operations on 0 and 1 states, Explanation of i) Conjugate of a matrix and ii) Transpose of a matrix.	L+D	BB	1	19	27/10/23	31/10/23	
24	Unitary Matrix U, Examples: Row and Column Matrices and their multiplication (Inner Product), Probability, and Quantum Superposition, normalization rule. Orthogonality, Orthonormality.	L+D	BB	1	20	28/10/23	31/10/23	
25	Quantum Not Gate, Pauli - X, Y and Z Gates, Hadamard Gate, Phase Gate (or S Gate), T Gate.	L+D	BB	1	21	30/10/23	02/11/23	
26	Controlled gate. CNOT Gate. (Discussion for 4 different input states).	L+D	BB	1	22	31/10/23	03/11/23	
27	Representation of Swap gate, Controlled-Z gate, Toffoli gate.	L+D	BB	1	23	2/11/23	09/11/23	

MODULE 4

28	Identity, Unitary, Inner Product, Orthogonality, Gates: X Gates, Hadamard Gate, CNOT Gate, Relating T and S gates (Standard Forms).	PS	BB	1	24	3/11/23	11/11/23
29	Tutorial	PS	BB	2	---	9/11/23 10/11/23	17/11/23 20/11/23
30	(Electrical Conductivity in metals, Resistivity and Mobility) Concept of Phonon, Variation of resistivity with temperature and impurity. Matthiessen's rule. Mention of Failures of Classical Free Electron Theory of Metals.	L+E	BB	1	25	13/11/23	21/11/23
31	Quantum Free Electron Theory of Metals: Assumptions, Fermi Energy, Definition of Density of states and Fermi Factor. Variation of Fermi Factor with Temperature.	L+E	BB	1	26	16/11/23	23/11/23
32	Introduction to Super Conductors, Temperature dependence of resistivity mentioning the critical temperature.	L+E, I	BB, PPT	1	27	17/11/23	23/11/23
33	Meissner's Effect and Explanation. Critical Field, Temperature dependence of Critical field.	L+E, I, AV	BB, PPT	1	28	21/11/23	24/11/23
34	Types of Super Conductors (Soft-Type1 and Hard-Type2) superconductors explanation with graphs and examples, BCS theory of Superconductivity explanation with the formation of cooper-pairs.	L+E, I, AV	BB, PPT	1	29	21/11/23	24/11/23
35	High Temperature superconductivity, Quantum Tunneling, Josephson junctions, DC and AC Josephson Effects (Qualitative)	L+I, E	BB, PPT	1	30	23/11/23	25/11/23
36	DC and RF Squids (Qualitative), Applications in Quantum Computing: Charge qubit, Phase qubit and Flux qubit (Very brief explanation).	L+E	BB, PPT	1	31	24/11/23	27/11/23
37	Numerical Problems: Fermi Factor, Critical Field.	PS	BB	1	32	27/11/23	28/11/23
38	Tutorial	PS	BB	2	--	28/11/23 01/12/23	28/11/23 29/11/23

39	Lab Component: Determination of Fermi Energy of Copper. Determination of dielectric constant of the material of capacitor by Charging and Discharging method. Determination of Magnetic Flux Density at any point along the axis of a circular coil. Study the I-V Characteristics of the Given Bipolar Junction Transistor.	D+E	Experiment al set up.	4	---	<p>A<sub>2</sub> 20/11/23</p> <p>A<sub>2</sub> 29/11/23</p> <p>A<sub>2</sub> 18/11/23</p> <p>A<sub>1</sub> 15/11/23</p> <p>11/12/23</p> <p>13/12/23</p> <p>20/12/23</p>
----	--	-----	-----------------------	---	-----	---

MODULE 5

40	Introduction, Taxonomy of physics based animation methods, Frames, Frames per Second, Size and Scale, weight and strength.	L+D, E, I	BB, PPT	1	33	24/12/23	29/11/23
41	Motion and Timing in Animations: Motion Lines and Paths, Introduction to Motion, Timing Tools, Linear Motion Timing, Uniform Motion Timing, Slow in and Slow out, Constant Force and Acceleration, Forces Exerted by characters.	L+D, I, E	BB, PPT	1	34	5/12/23	01/12/22
42	The Odd rule: odd rule multipliers, odd rule scenarios (Four Different Scenarios), Motion Graphs.	L+D, I, E	BB, PPT	1	35	07/12/23	18/12/22
43	Examples of Character Animation: Jumping, Parts of Jump, Calculating Jump Actions, Jump Magnification (JM), Jump Acceleration, Landing.	L+D, I, E	BB, PPT	1	36	08/12/23	18/12/23
44	Stop time, Walking: Strides and Steps, Walk Timing.	L+D	BB, PPT	1	37	09/12/23	19/12/23
45	Numerical Problems: Odd rule multipliers and odd rule Scenarios, Jump magnification (JM), Stop time.	E+PS	BB	1	38	11/12/23	20/12/23
46	Descriptive statistics and inferential statistics, Poisson distribution, Modeling the probability for Proton Decay.	L+D	BB, PPT	1	39	12/12/23	22/12/23
47	Normal Distributions (Bell Curves) with an example, Monte Carlo Method: Determination of Value of $\pi$ . Numerical Problems on Poisson Distribution: Calculating the number of occurrences of an event in a given duration.	L+D	BB, PPT	1	40	14/12/23	23/12/23
48	Tutorial	PS	BB	2	---	15/12/23 18/12/23	23/12/23

49		Lab Component: Simulation of Total Internal Reflection.	I+E	PHET Interactive Simulation.	1	---	19/12/23	23/12/23
		REVISION						
50	Revision	L+D	BB	0	41	21/12/23	26.12.23	
51	Revision	L+D	BB	0	42	24/12/23	26/12/23	
52	Revision	L+D	BB	0	43	26/12/23	29/12/23	
53	Revision	L+D	BB	0	44	29/12/23	28/12/23	
54	Revision	L+D	BB	0	45	05/11/24	29/12/23	

	Mode of Assignments and Instructions	Date
Assignment 1	Assignment of question to be answered and Submission	16/10/23
Assignment 2	Assignment of question to be answered and Submission	20/11/23
Assignment 3	Assignment of question to be answered and Submission	15/12/23

Total No. of Lecture Hours and Lab Hours = 40  
 Total No. of Tutorial Hours = 10  
 Total Laboratory classes = 11  
 Revision = 05

Note: Extra classes will be taken if required to complete 40 hours portions to complete the syllabus.

*Sumanth A. S.*  
 Course In charge

*V. Vasudev*  
 Head of the Department  
**Dr. C. VASUDEV**  
 Professor & HOD  
 Department of Applied Science  
 K.S. School of Engineering & Management  
 Bangalore - 560 109

*V. Rana*  
**Dr. K. RASIMITHA**  
 Principal/Director  
 K S School of Engineering and Management  
 Bengaluru - 560 109





K.S. SCHOOL OF ENGINEERING AND MANAGEMENT, BENGALURU - 560109  
DEPARTMENT OF MANAGEMENT STUDIES AND RESEARCH CENTRE

SESSION: 2023-2024 (ODD SEMESTER)

LESSON PLAN

NAME OF THE STAFF : MEGHANA C  
COURSE CODE/TITLE : 22MBA12  
SEMESTER/YEAR : 1<sup>st</sup> SEMESTER/1<sup>st</sup> YEAR

Sl. NO	Topic to be covered	Mode of Delivery	Teaching Aid	No. of Periods	Cumulative no of periods	Proposed Date	Execution Date
<b>MODULE-1</b>							
1	Introduction to Entrepreneur & Entrepreneurship: Meaning of entrepreneur	L+D	LCD	1	1	19-2-2024	19/2/24
2	Evolution of the concept - Functions of an Entrepreneur	L+D	LCD	1	2	20-2-2024	20/2/24
3	Types of Entrepreneurs	L+D	LCD	1	3	21-2-2024	21/2/24
4	Intrapreneur- an emerging class - Concept of Entrepreneurship	L+D	LCD	1	4	23-2-2024	23/2/24
5	Entrepreneurial Culture - Stages in entrepreneurial process.	L+D	LCD	1	5	26-2-2024	26/2/24
6	Creativity and Innovation: The role of creativity, The innovation Process, Sources of New Ideas	L+D	LCD	1	6	27-2-2024	02/3/24
7	Methods of Generating Ideas, Creative Problem Solving, Entrepreneurial Process.	L+D	LCD	1	7	28-2-2024	04/3/24
<b>MODULE- 2</b>							
8	Developing Business Model: Importance of Business Model	L+D	LCD	1	8	1-3-2024	05/3/24
9	Starting a small-scale industry	L+D	LCD	1	9	4-3-2024	12/3/24
10	Components of an Effective Business Model	L+D	LCD	1	10	5-3-2024	13/3/24
11	Osterwalder Business Model Canvas	L+D	LCD	1	11	6-3-2024	15/3/24



12	Business Planning Process: Meaning of business plan - Business plan process	L+D	LCD	1	12	9-3-2024	18/3/24
13	Advantages of business planning	L+D	LCD	1	13	14-3-2024	20/3/24
14	Final Project Report with Feasibility Study	L+D	LCD	1	14	15-3-2024	21/3/24
15	Preparing a model project report for starting a new venture.	L+D	LCD	1	15	18-3-2024	27/3/24
16	Lab Component and assignment: Designing a Business Model Canvas	L+D	LCD	1	16	19-3-2024	1/4/24
<b>MODULE-3</b>							
17	Managing and Growing New Venture: Preparing for the new venture launch	L+D	LCD	1	17	23-3-2024	1/4/24
18	Early management decisions, Managing early growth of the new venture	L+D	LCD	1	18	25-3-2024	4/4/24
19	New venture expansion strategies and issues. Getting Financing or Funding for the New Venture	L+D	LCD	1	19	26-3-2024	5/4/24
20	Estimating the financial needs of a new venture and preparation of a financial plan	L+D	LCD	1	20	27-3-2024	29/4/24
21	Sources of Personal Financing, Preparing to Raise Debt or Equity Financing	L+D	LCD	1	21	28-3-2024	30/4/24
22	Business Angels, Venture Capital, Initial Public Offering, Commercial Banks,	L+D	LCD	1	22	30-3-2024	3/5/24
23	Other Sources of Debt Financing, Leasing	L+D	LCD	1	23	4-4-2024	6/5/24
24	Forms of business organization: Sole Proprietorship, Partnership	L+D	LCD	1	24	5-4-2024	6/5/24
25	Limited liability partnership - Joint Stock Companies and Cooperatives.	L+D	LCD	1	25	8-4-2024	9/5/24
<b>MODULE-4</b>							
26	Entrepreneurship Development and Government: Role of Central Government and State Government in promoting Entrepreneurship	L+D	LCD	1	26	10-4-2024	11/5/24
27	Introduction to various incentives, subsidies and grants	L+D	LCD	1	27	12-4-2024	11/5/24

28	Export Oriented Units - Fiscal and Tax concessions available- Start Up India scheme.	L+D	LCD	1	28	13-4-2024	13/5/24
29	Women Entrepreneurs, Reasons for low women Entrepreneurs	L+D	LCD	1	29	18-4-2024	13/5/24
30	Prospects for Women Entrepreneurs, Strategies to motivate entrepreneurship amongst women.	L+D	LCD	1	30	19-4-2024	21/5/24
31	Institutions supporting Entrepreneurs: A brief overview of financial institutions in India	L+D	LCD	1	31	22-4-2024	21/5/24
32	SIDBI - NABARD	L+D	LCD	1	32	23-4-2024	23/5/24
33	IDBI - SIDCO - Indian Institute of Entrepreneurship - DIC	L+D	LCD	1	33	24-4-2024	23/5/24
34	Single Window - Latest Industrial Policy of Government of India.	L+D	LCD	1	34	25-4-2024	24/5/24
<b>MODULE-5</b>							
35	Process of Company Incorporation	L+D	LCD	1	35	26-4-2024	24/5/24
36	Process of registration of a private limited company	L+D	LCD	1	36	27-4-2024	24/5/24
37	A public limited company, a partnership	L+D	LCD	1	37	29-4-2024	25/5/24
38	Characteristics of a limited liability partnership; Four stages of Start Up	L+D	LCD	1	38	30-4-2024	25/5/24
39	Intellectual property protection and Ethics: Patents , Copyright - Trademark	L+D	LCD	1	39	2-5-2024	25/5/24
40	Geographical indications	L+D	LCD	1	40	3-5-2024	30/5/24
41	Ethical and social responsibility and challenges	L+D	LCD	1	41	6-5-2024	30/5/24
<b>MODULE-6</b>							
42	Emerging Trends in Entrepreneurship Development	L+D	LCD	1	42	7-5-2024	3/6/24
43	Digital Entrepreneurship: meaning, scope and opportunities	L+D	LCD	1	43	8-5-2024	3/6/24
44	Social Entrepreneur , Meaning of Social Entrepreneur, Motivation for a Social Entrepreneur	L+D	LCD	1	44	9-5-2024	4/6/24
45	Supporting and Evaluating Social Entrepreneurship in India	L+D	LCD	1	45	11-5-2024	4/6/24

46	Supporting and Evaluating Social Entrepreneurship in India	L+D	LCD	1	46	13-5-2024	5/6/24
47	Rural Entrepreneur: Meaning of Rural Entrepreneur	L+D	LCD	1	47	14-5-2024	5/6/24
48	Potential opportunities for Rural entrepreneurship in India	L+D	LCD	1	48	15-5-2024	6/6/24
49	Potential opportunities for Rural entrepreneurship in India	L+D	LCD	1	49	16-5-2024	7/6/24
50	Revision	L+D	LCD	1	50	17-5-2024	2/6/24

Total No. of Lecture Hours = 48

Total No. of Practical Hours = 02

	Mode of Assignment and instructions	Date
Assignment 1	Solve 1 <sup>st</sup> internals IA question paper	15-3-2024
Assignment 2	Draft the Business Model of any 3 existing company and give the presentation on the same	15-4-2024
Assignment 3	Set of given questions need to be answered and submitted	15-5-2024

*Meghna C*  
Course In charge

*Meghna S*  
HOD

*[Signature]*  
IQAC

*[Signature]*  
Principal

