



SRK INSTITUTE OF TECHNOLOGY
 Enikepadu, Vijayawada 521108
 Approved by AICTE, An Autonomous Institution
 Permanently Affiliated to JNTUK, Kakinada, Accredited with NAAC 'A' Grade
 ISO 9001:2015 Certified Institution
 Department of Master of Computer Applications

TENTATIVE LESSON PLAN

Course/Code: MATHEMATICAL AND STATISTICAL FOUNDATIONS /

Year / Semester: I/I

A.Y: 2023-24

Mode of Delivery: Onboard

No. of Periods	TOPIC	Date	Mode of Delivery
UNIT- I: BASIC PROBABILITY AND RANDOM VARIABLES			
<p>O1: To provide mathematical background and sufficient experience so that the student can read, write, and understand sentences in the language of discrete and Continuous Probability theory. To introduce students to the basic methodology of "probabilistic thinking" and to apply it to problems.</p> <p>TB1: PROBABILITY AND STATISTICS By Dr. T.V.K. Iyengar, S. Chand & Company Pvt. Ltd., 2014.</p>			
1.	Introduction to Random Experiments, Sample Spaces Events, the Concept of Probability the Axioms of Probability	From: 09-10-2023 To: 10-11-2023	Lecture interspersed with discussions
2.	Some Important Theorems on Probability Assignment of Probabilities		
3.	Conditional Probability Theorems on Conditional Probability, Independent Events		
4.	Bayes Theorem or Rule, Problems		
5.	Problems		
6.	Random Variables, Discrete Probability Distributions, Distribution Functions for Random Variables		
7.	Distribution Functions for Discrete Random Variables: Binomial Distribution-p.m.f, Properties, Problems		
8.	Problems		
9.	Poisson Distribution-p.m.f, Properties, Problems		
10.	Problems		
11.	Geometric Distribution-p.d.f, Properties,Problems		
12.	Problems		
13.	Tutorial Class		
14.	Distribution Functions for Continuous Random Variables: Uniform Distribution- p.d.f., properties, problems		
15.	Exponential Distribution- p.d.f., properties, problems		
16.	Problems		

17.	Normal Distribution- p.d.f., properties, problems		
18.	Normal Approximation to Binomial distribution		
19.	Problems		
20.	Gamma Distribution, Problems		
21.	Weibull Distribution, Problems		

UNIT- II : SAMPLING AND ESTIMATION THEORY

CO2: The aim of this course is to cover sampling design and analysis methods that would be useful for research and management in many field. A well designed sampling procedure ensures that we can summarize and analyze data with a minimum of assumptions and complications.

TB1: PROBABILITY AND STATISTICS By Dr. T.V.K. Iyengar, S. Chand & Company Pvt. Ltd., 2014.

22.	Population and Sample, Random Numbers Population Parameters Sample Statistics Sampling Distributions	From: 13-11-2023 To: 24-11-2023	Lecture interspersed with discussions
23.	Statistical Inference Sampling With Replacement Problems		
24.	Sampling Without Replacement Problems		
25.	Frequency Distributions, Relative Frequency Distributions		
26.	Mean, Median and Mode of the Frequency Distribution		
27.	Computation of Mean, Variance, and Moments for Grouped Data		
28.	Central Limit theorem		
29.*	Tutorial Class		
30.	Sampling Distribution of Mean with Unknown Variance, Problems		
31.	Sampling Distribution of Proportions, Problems		
32.	t - distribution		
33.	F- distribution		
34.	Chi- Square Distribution		
35.	Point Estimation, Maximum Error Estimate - Problems		
36.	Interval Estimation - Problems		
37.	Maximum Likelihood Estimates		

UNIT III: TESTS OF HYPOTHESIS AND SIGNIFICANCE

CO3 : One of the most important uses of statistics is to be able to make conclusions and test hypothesis. Your conclusions can never be absolutely sure but you can quantify of your measure of confidence in the results.

TB1: PROBABILITY AND STATISTICS By Dr. T.V.K. Iyengar, S. Chand & Company Pvt. Ltd., 2014.

38.	Statistical Decisions Statistical Hypotheses. Null Hypotheses Tests of Hypotheses and Significance Type I and Type II Errors Level of Significance	From: 27-11-2023 To: 29-12-2023	Lecture interspersed with discussions
39.	Large Samples: Test for Single Mean, Problems		
40.	Test for Two Means, Problems		
41.	Test for Single Proportion, Problems		
42.	Test for Two Proportion, Problems		

43.	Tutorial Class		
44.	Small Samples: Student t - distribution for Single Mean, Problems		
45.	Student t - distribution for two Means, Problems		
46.	Paired t - test, Problems		
47.	F- distribution, Problems		
48.	Chi- Square distribution for Goodness of fit,		
49.	Chi- Square distribution for Contingency Tables		
50.	Power of a Test Quality Control Charts Fitting		

UNIT – IV : ALGEBRAIC STRUCTURES AND NUMBER THEORY

CO4 : Overview of algebraic structures, Group theory, number theory, basic algorithms in number Theory.

TB2 : DISCRETE MATHEMATICS AND ITS APPLICATIONS WITH COMBINATORICS AND GRAPH THEORY, 7th Edition, H.Rosen, Tata McGraw Hill, 2003

51.	Algebraic systems, Examples, General properties		
52.	Semi groups and Monoids		
53.	Homomorphism of semi groups and monoids		
54.	Group, Subgroup, Abelian Group, Homomorphism, Isomorphism		
55.	Tutorial class		
56.	Properties of integers, division theorem		
57.	GCD, Euclidean algorithm		
58.	LCM, Testing for prime numbers		
59.	The fundamental theorem of Arithmetic		
60.	Modular Arithmetic, Euler and Fermat's theorems		
61.	Tutorial class		
		From: 02-01-2024 To: 19-01-2024	Lecture interspersed with discussions

UNIT –V : GRAPH THEORY

CO5: Student will be able to manipulate and analyze data graphically using appropriate software.

TB2 : DISCRETE MATHEMATICS AND ITS APPLICATIONS WITH COMBINATORICS AND GRAPH THEORY, 7th Edition, H.Rosen, Tata McGraw Hill, 2003

62.	Basic concepts of graphs, sub graphs		
63.	Representation of graphs: Adjacency, Incidence matrices		
64.	Isomorphic graphs		
65.	Paths, circuits, Eulerian and Hamiltonian graphs		
66.	Multi graphs, Problems		
67.	Tutorial class		
68.	Planar graphs, Euler's formula		
69.	Graph Colouring and covering		
70.	Chromatic numbers		
71.	Spanning trees, BFS Algorithms for spanning trees		
72.	DFS Algorithms for spanning trees		
73.	Kuskal's and Prim's Algorithms for Minimal Spanning Trees		
		From: 22-01-2024 To: 09-02-2024	Lecture interspersed with discussions

Prasanna
9/10/23
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M. Antle
9/10/23.
Signature of the HOD



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DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS

TENTATIVE LESSON PLAN

Course/Code: Computer Organisation

Year / Semester : I/I

Section: I

A.Y: 2023-24

No. of Periods	Topic	Date	Mode of Delivery
Unit-1 : Computer Organisation CO1: Understand the definition and usage of the term 'Digital Logic Circuits' in different context CO2: Understand the definition and usage of the term 'Digital Components' in different context. TB: Computer System Architecture: Architecture, 3rd Edition, "M. Morris Mano".			
1	Digital Computers	From 09/10/2023 To 04/11/2023	No Deviation
2	Logic Gates		
3	Boolean Algebra		
4	Map Simplification		
5	Combinational Circuits		
6	Flip-Flops		
7	Sequential Circuits		
8	Integrated Circuits		
9	Internet connectivity		
10	Decoders		
11	Multiplexers		
12	Registers		
13	Shift Registers		
14	Binary Counters		
15	Memory Unit		
16	Tutorial class		

Unit-2 : Computer Organisation

CO1: Understand the definition and usage of the term 'Data Representation' in different context.

CO1: Understand the definition and usage of the term 'Basic Computer Organisation and Design' in different context.

TB: Computer System Architecture: Architecture, 3rd Edition, "M. Morris Mano".

1	Data Types	From 06/11/2023 To 29/11/2023	No Deviation
2	Complements		
3	Fixed Point Representation		
4	Floating Point Representation		
5	Other Binary Codes		
6	Error Detection Codes		
7	Instruction Codes		
8	Computer Registers		
9	Computer Instructions		
10	Tutorial class		

Unit-3 : Computer Organisation

CO1: Understand the definition and usage of the term 'Microprogrammed Control' in different context.

CO1: Understand the definition and usage of the term 'Central Processing Unit' in different context.

TB: Computer System Architecture: Architecture, 3rd Edition, "M. Morris Mano".

1	Control Memory	From 30/11/2023 To 09/12/2023	No Deviation
2	Address Sequencing		
3	Microprogram Example		
4	Web Connectivity for connected-Devices		
5	Introduction Of CPU		
6	General Register Organization		
7	Stack Organization		
8	Instruction Formats		
9	Addressing Modes		
10	Tutorial Class		

Unit-4 : Computer Organisation

CO1: Understand the definition and usage of the term 'Computer Arithmetic' in different context.

CO1: Understand the definition and usage of the term 'Input-Output Organisation' in different context.

TB: Computer System Architecture: Architecture, 3rd Edition, "M. Morris Mano".

1	Introduction to Computer Arithmetic		
2	Addition and Subtraction		
3	Multiplication Algorithms		
4	Floating -Point Arithmetic Operations		

5	Peripheral Devices	From 18/12/2023 To 12/01/2024	No Deviation
6	Input-Output Interface		
7	Asynchronous Data Transfer		
8	Priority Interrupt		
9	Direct Memory Access		
10	Tutorial Class		

Unit-5 : Computer Organisation

CO1: Understand the definition and usage of the term 'Memory Organisation' in different context.

TB: Computer System Architecture: Architecture, 3rd Edition, "M. Morris Mano".

1	Memory Hierarchy	From 22/01/2024 To 03/02/2024	No Deviation
2	Main Memory		
3	Auxiliary Memory		
4	Associative Memory		
5	Cache Memory		
6	Virtual Memory		
7	Tutorial Class		

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DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS

TENTATIVE LESSON PLAN

Course Title: OPERATING SYSTEMS		
Section: MCA	Date :04-10-23	Page No : 01 of 03
Revision No : 00	Prepared by: K.Pavani	Approved by : HOD

Tools: Black board, PPTs

UNIT I:Introduction

CO1: Understand, analyze Basic Operating Systems Structure

TB: Operating system concepts, 7/e, Abraham Silberschatz, Galvin, John Wiley & sons ,Inc.

No. of periods	TOPIC	Date	Mode of Delivery
1.	Computer –System Organization, Computer-System Architecture	From:09/10/2023 TO:5/11/2023	Lecture interspersed with discussions&& BB
2.	Process Management		
3.	Memory Management		
4.	Storage Management, Protection And Security		
5.	Distributed Systems, Special-Purpose Systems, Computing Environments		
6.	Operating-System Structure: Operating-System Services		
7.	User Operating-System Interface, System Calls		
8.	System Programs, Operating-System Design And Implementation		
9.	Operating-System Structure, Virtual Machine		
10.	Tutorial Classes		

UNIT II:• Process Management, CPU Scheduling, Synchronization:

CO 2: Understand the Operating System fundamentals, design concepts, and get familiar with the debugging and implementation of system structures.

TB: Operating system concepts, 7/e, Abraham Silberschatz, Galvin, John Wiley & sons ,Inc.

11.	Processes, Process Concept, Process Scheduling,	FROM:06/11/2023 TO: 22/11/2023	Lecture interspersed with discussions&& BB
12.	Operations On Processes, Interprocess Communication, Examples Of IPC Systems		
13.	Communication In Client-Server Systems.		
14.	Threads: Overview, Multithreading Models, Thread Libraries		
15.	Java Threads, Threading Issues, OS Examples		

16.	CPU Scheduling: Basic Concepts, Scheduling, Criteria		
17.	Scheduling Algorithms		
18.	Processor Scheduling, Thread Scheduling		
19.	Operating System Examples		
20.	Process Synchronization: Background, The Critical-Section Problem		
21.	Peterson's Solution, Synchronization Hardware,		
22.	Semaphores, Classic Problems Of Synchronization		
23.	Monitors		
24.	Tutorial classes		
UNIT III: Review Of Unix Utilities And Shell Programming CO 3: Interpret the need of multithreaded programming and implement these concepts in Process Scheduling TB: Operating system concepts, 7/e, Abraham Silberschatz, Galvin, John Wiley & sons ,Inc.			
25.	File Handling Utilities, Security By File Permissions,	From:23/11/2023 To: 23/12/2023	Lecture interspersed with discussions&& BB
26.	Process Utilities, Disk Utilities		
27.	Networking Commands, Backup Utilities		
28.	Text Processing Utilities		
29.	Working With The Bourne Shell-, What Is A Shell, Shell Responsibilities		
30.	, Pipes And Input Redirection, Output Redirection,		
31.	Here Documents, The Shell As A Programming Language		
32.	Shell Meta Characters, Shell Variables		
33.	Shell Commands,		
34.	The Environment, Control Structures		
35.	Tutorial classes		
UNIT IV: Memory management, Deadlocks: CO 4: Apply Synchronization, Deadlock Handling methods and identify the demand of Memory-Management concepts during the execution of a process TB: Operating system concepts, 7/e, Abraham Silberschatz, Galvin, John Wiley & sons ,Inc.			
36.	Main Memory:Introduction	From:24/12/2023 TO:23/01/24	Lecture interspersed with discussions&& BB
37.	Swapping, Contiguous memory Allocation		
38.	Paging, Structure of the Page table		
39.	Segmentation Virtual Memory: Background,		
40.	Demand Paging, Copy on-Write		
41.	Page Replacement		
42.	Allocation of Frames, Thrashing		

5	Peripheral Devices	From 18/12/2023 To 12/01/2024	No Deviation
6	Input-Output Interface		
7	Asynchronous Data Transfer		
8	Priority Interrupt		
9	Direct Memory Access		
10	Tutorial Class		

Unit-5 : Computer Organisation

CO1: Understand the definition and usage of the term 'Memory Organisation' in different context.

TB: Computer System Architecture: Architecture, 3rd Edition, "M. Morris Mano".

1	Memory Hierarchy	From 22/01/2024 To 03/02/2024	No Deviation
2	Main Memory		
3	Auxiliary Memory		
4	Associative Memory		
5	Cache Memory		
6	Virtual Memory		
7	Tutorial Class		

Ravi 10/12/2023
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DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS

TENTATIVE LESSONPLAN:

Course Title: DATA STRUCTURES		
Section : MCA	Date : 04/10/2023	Page No : 01 of 03
Revision No : 00	Prepared by: E. NAGARAJU	Approved by : HOD

Tools: PPTs, MS Teams

UNIT 1: Introduction to C Programming

CO 1: Implement basic programs by using C concepts

No. of periods	TOPIC	Date	Mode of Delivery
1.	Introduction to C Programming	From 09-10-2023 to 28-10-2023	Lecture interspersed with BB
2.	Constants and variables		
3.	Operators		
4.	Expressions, Managing Input and Output operators		
5.	Decision making-branching		
6.	Looping Statements		
7.	Arrays		
8.	Tutorial Classes		

UNIT 2: Functions, Structures and Unions, Pointers, File handling in C.

CO 2: Understanding pointers and File Handling Functions

No. of periods	TOPIC	Date	Mode of Delivery
9.	Functions	From 31-10-2023 To 09-11-2023	Lecture interspersed with BB
10.	Structures and Unions		
11.	Pointers		
12.	File handling in C		



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13.	Tutorial Classes		
UNIT 3: Data structure and Linked List			
CO 3: Select the data structures that efficiently model the information in a problem			
No. of periods	TOPIC	Date	Mode of Delivery
14.	Data structure: Definition, types of data structures	From 14-11-2023 To 12-12-2023	Lecture interspersed with BB .
15.	Recursion Definition, Design Methodology		
16.	Implementation of recursive algorithms, Linear and binary recursion		
17.	Preliminaries of algorithms, analysis and complexity		
18.	Linear list – singly linked list		
19.	Double linked list and circular linked list		
20.	implementation, insertion, deletion		
21.	searching operations on linear list		
22.	Tutorial Classes		
UNIT 4: Stacks, Queues and Hash Table Representation			
Co 4: Assess efficiency trade-offs among different data structure implementations or combinations			
No. of periods	TOPIC	Date	Mode of Delivery
23.	Stacks-Operations	From 13-12-2023 To 02-01-2024	Lecture interspersed
24.	array and linked representations of stacks		
25.	stack applications		
26.	Queues-operations,		
27.	array and linked representations of Queues		



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28.	Hash Table Representation: hash functions		with BB
29.	collision resolution-separate chaining		
30.	open addressing-linear probing, quadratic probing		
31.	double hashing and rehashing		
32.	extendible hashing		
33.	Tutorial Classes		

UNIT 5: Sorting Techniques, Trees and Search Trees

CO 5: Implement and know the application of algorithms for sorting and pattern matching

No. of periods	TOPIC	Date	Mode of Delivery
34.	Sorting Techniques: Insertion sort	From 02-01-2024 To 03-02-2024	Lecture interspersed with BB
35.	selection sort, exchange-bubble sort		
36.	quick sort and merge sort Algorithms.		
37.	Trees: Binary Trees, terminology, representation		
38.	traversals- pre, post & in order traversals.		
39.	Search Trees: Binary Search Trees		
40.	Definition, Implementation of BST		
41.	Operations- Searching, Insertion and Deletion		
42.	Tutorial Classes		

TEXT BOOKS:

1) Let Us C: Authentic Guide to C Programming Language, 17th ed., Yashavant Kanetkar, BPB Publications.

2) Data Structures Using C. 2nd Edition, Reema Thareja, Oxford

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DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS

TENTATIVE LESSON PLAN: MC2035B

Course Title: SOFTWARE PROJECT MANAGEMENT		
Section : II MCA	Date : 21/08/2023	Page No : 01 of 03
Revision No : 00	Prepared by: K. HAREESH	Approved by : HOD

Tools: Black board, PPTs

UNIT I: Conventional Software Management, Evolution of Software Economics, Improving Software Economics, The old way and the new.

CO 1: Apply the process to be followed in the software development life-cycle models.

TB: Software Project Management, Walker Royce, PEA, 2005.

No. of periods	TOPIC	Date	Mode of Delivery
1.	The waterfall model	From: 21/08/2023 to 05/09/2023	Lecture interspersed with discussions BB & PPT
2.	Conventional software Management performance		
3.	Software Economics		
4.	Pragmatic software cost estimation		
5.	Reducing Software product size, improving software processes		
6.	Improving team effectiveness, improving automation		
7.	Achieving required quality, peer inspections		
8.	The principles of conventional software Engineering		
9.	Principles of modern software management		
10.	Transitioning to an iterative process		
11.	Tutorial class		

UNIT II: Life cycle phases, Artifacts of the process.

CO 2: Apply the concepts of project management & planning.

TB: Software Project Management, Walker Royce, PEA, 2005.

No. of periods	TOPIC	Date	Mode of Delivery
12.	Elaboration, construction, transition phases	From: 07/09/2023 to 23/09/2023	Lecture interspersed with discussions BB & PPT
13.	The artifact sets, Management artifacts		
14.	Engineering artifacts		
15.	Programmatic artifacts		
16.	Tutorial class		

UNIT III: Model based software architectures, Work Flows of the process, Checkpoints of the process, Iterative Process Planning.

CO 3: Implement the project plans through managing people, communications and change.



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TB: Software Project Management, Walker Royce, PEA, 2005.

No. of periods	TOPIC	Date	Mode of Delivery
17.	A Management perspective and technical perspective	From: 25/09/2023 to 28/10/2023	Lecture interspersed with discussions BB & PPT
18.	Software process workflows, Iteration workflows		
19.	Major mile stones		
20.	Minor Milestones		
21.	Periodic status assessments		
22.	Work breakdown structures		
23.	Planning guidelines		
24.	Cost and schedule estimating		
25.	Iteration planning process, Pragmatic planning		
26.	Tutorial class		

UNIT IV: Project Organizations and Responsibilities, Process Automation, Project Control and Process instrumentation

CO 4: Conduct activities necessary to successfully complete and close the Software projects.

TB: Software Project Management, Walker Royce, PEA, 2005.

No. of periods	TOPIC	Date	Mode of Delivery
27.	Line-of-Business Organizations	From: 30/10/2023 to 20/11/2023	Lecture interspersed with discussions BB & PPT
28.	Project Organizations, evolution of Organizations		
29.	Automation Building blocks		
30.	The Project Environment		
31.	The seven core Metrics, Management indicators		
32.	Quality indicators, life cycle expectations		
33.	Pragmatic Software Metrics, Metrics automation		
34.	Tutorial class		

UNIT V: Fundamentals of DevOps, DevOps adoption in projects

CO 5: Implement communication, modeling, and construction & deployment practices in software development.

TB: Software Project Management, Walker Royce, PEA, 2005.

No. of periods	TOPIC	Date	Mode of Delivery
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35.	Agile Methodology, adapting to Scrum	From : 21/11/2023 to 02/12/2023	Lecture interspersed with discussions BB & PPT
36.	Patterns for Adopting Scrum		
37.	Iterating towards Agility		
38.	Architecture, Deployments		
39.	Orchestration, Need, Instance of applications		
40.	DevOps delivery pipeline, DevOps eco system		
41.	Technology aspects		
42.	Agiling capabilities		
43.	Tool stack implementation		
44.	People aspect, processes		
45.	Tutorial class		

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M. S. Attie
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DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS

TENTATIVE LESSON PLAN:MCA3101

Course Title: MACHINE LEARNING WITH PYTHON		
Section: MCA	Date : 21/08/2023	Page No : 01 of 03
Revision No : 00	Prepared by: K.Pavani	Approved by : HOD

Tools: Black board, PPTs

UNIT I:Introduction to Machine Learning with Python

CO1:Illustrate and comprehend the basics of Machine Learning with •

TB:Introduction to Machine Learning with Python: A Guide for Data Scientists, Andreas C. Muller & Sarah Guido, Orielly Publications, 2019

No. of periods	TOPIC	Date	Mode of Delivery
1.	Introduction to Machine Learning, basic terminology,	From:22/08/2023 To:01/09/2023	Lecture interspersed with discussions & BB
2.	Types of Machine Learning,		
3.	Machine learning applications		
4.	Using Python for Machine Learning: Installing Python and packages from the Python Package Index,		
5.	Introduction to NumPy, SciPy,		
6.	Introduction to matplotlib and scikit-learn		
7.	Tiny application of Machine Learning		
8.	Tutorial classes		
9.	Tutorial classes		

UNIT II:Supervised Learning

CO 2: Demonstrate the Python algorithms of Supervised Learning and be able to differentiate linear and logistic regressions

TB: Introduction to Machine Learning with Python: A Guide for Data Scientists, Andreas C. Muller & Sarah Guido, Orielly Publications, 2019.

10.	Types of Supervised Learning,	FROM:02/09/2023	Lecture interspersed with
11.	Supervised Machine Learning Algorithms: kNearest Neighbors		
12.	Regression Models		
13.	Naive Bayes Classifiers,		
14.	Decision Trees,		
15.	Ensembles of Decision Trees,		

16.	Kernelized Support Vector Machines,	TO: 22/09/2023	discussions&& BB
17.	Uncertainty Estimates from Classifiers.		
18.	Tutorial classes		
19.	Tutorial classes		
20.	Tutorial classes		

UNIT III: Building good training datasets, Compressing data via dimensionality reduction
CO 3: Demonstrate the algorithms of Unsupervised Learning and be able to understand the clustering algorithms
TB: Building Machine Learning Systems with Python, Luis Pedro Coelho, Willi Richert, 2nd Edition, 2015.

21.	Dealing with missing data	From:23/09/2023 To: 20/10/2023	Lecture interspersed with discussions&& BB
22.	Handling categorical data		
23.	partitioning a data set into separate training and test datasets		
24.	bringing features onto the same scale		
25.	selecting meaningful features		
26.	assessing feature importance with random forests		
27.	Unsupervised dimensionality reduction via PCA		
28.	Supervised data compression via linear discriminant analysis		
29.	Tutorial classes		
30.	Tutorial classes		
31.	Tutorial classes		

UNIT IV: Learning best Practices for Model Evaluation and Hyperparameter tuning, Combining different models for Ensemble learning:
CO 4: Evaluate the concepts of binning, pipeline Interfaces with examples
TB: Building Machine Learning Systems with Python, Luis Pedro Coelho, Willi Richert, 2nd Edition, 2015

32.	streamlining workflows with pipelines	From:21/10/2023 TO:17/11/23	Lecture interspersed with discussions&& BB
33.	using k-fold cross validation to assess model performance		
34.	debugging algorithms with learning and validation curves		
35.	debugging algorithms with learning and validation curves		
36.	fine tuning machine learning models via grid search		
37.	looking at different performance evaluation metrics.		
38.	learning with ensembles,		
39.	combining classifiers via majority vote,		
40.	bagging-building an ensemble of classifiers from bootstrap samples,		
41.	leveraging weak learners via adaptive boosting		

42.	leveraging weak learners via adaptive boosting		
43.	Tutorial Classes		
44.	Tutorial Classes		
UNIT V: Working with Text Data (Data Visualization)			
CO 5 Apply the sentiment analysis for various case studies			
TB: Introduction to Machine Learning with Python: A Guide for Data Scientists, Andreas C. Muller & Sarah Guido, Orielly Publications, 2019.			
45.	Types of Data Represented as Strings	From:18/11/23 To:02/12/2023	Lecture interspersed with discussions & BB
46.	Example Application: Sentiment Analysis of Movie Reviews		
47.	Sentiment Analysis of Movie Reviews		
48.	Representing Text Data as a Bag of Words		
49.	Stop Words, Rescaling the Data with tf-idf		
50.	Investigating Model Coefficients,		
51.	Approaching a Machine Learning Problem,		
52.	Testing Production Systems,		
53.	Ranking		
54.	Recommender Systems and Other kinds of Learning.		
55.	Tutorial classes		

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DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS

TENTATIVE LESSON PLAN

Course/Code: Internet of Things

Faculty Name: K. Baby Ramya

Year / Semester : II/I

Section: I

A.Y: 2023-24

S.No	TOPIC	Date	Mode of Delivery
Unit-1 : The Internet of Things. CO1: Understand the definition and usage of the term 'the internet of things' in different context. TB:” Internet of Things: Architecture, Design Principles And Applications, 1st ed, Rajkamal, McGraw Hill Higher Education, 2017. “			
1	The Internet of Things: An Overview of Internet of things	From: 21/08/2023 To: 08/09/2023	Lecture interspersed with discussions
2	Internet of Things Technology		
3	Behind IoTs		
4	Sources of the IoTs		
5	M2M Communication		
6	Examples OF IoTs		
7	Design Principles For Connected Devices		
8	Internet Connectivity Principles		
9	Internet connectivity		
10	Application Layer Protocols: HTTP		
11	The Internet of Things: An Overview.. of Internet of things		
12	Internet of Things Technology		
13	Behind IoTs		
14	Sources of the IoTs		
UNIT-II: Business Models for Business Processes in the Internet of Things CO2: Discover the various network protocols used in IoT. TB:” Internet of Things: Architecture, Design Principles And Applications, 1st ed, Rajkamal, McGraw Hill Higher Education, 2017. “			
1	Business Models for Business Processes in the Internet of Things	From: 11/09/2023 To: 31/09/2023	Lecture interspersed with discussions
2	IoT/M2M systems LAYERS AND designs standardizations		
3	Modified OSI Stack for the IoT/M2M Systems		
4	ETSI M2M domains and High-level capabilities		
5	Communication Technologies		
6	Data Enrichment and Consolidation and Device Management		
7	Gateway Ease of designing and affordability		
8	Tutorial		

UNIT-III: Design Principles for the Web Connectivity for connected-Devices.**CO3: Define the role of big data, cloud computing and data analytics in a typical IoT system.****TB:” Internet of Things: Architecture, Design Principles And Applications, 1st ed, Rajkamal, McGraw Hill Higher Education, 2017. “**

1	Design Principles for the Web Connectivity for connected-Devices	From: 01/10/2023 To: 18/10/2023	Lecture interspersed with discussions
2	Web Communication protocols for Connected Devices		
3	Message Communication protocols for Connected Devices		
4	Web Connectivity for connected-Devices		
5	Design Principles for the Web Connectivity for connected-Devices		
6	Message Communication protocols for Connected Devices		
7	Web Connectivity for connected-Devices		
8	Tutorial		

UNIT-IV: Data Acquiring, Organizing and Analytics in IoT/M2M**CO4: Compare and contrast the threat environment based on industry and/or device type****TB:” Internet of Things: Architecture, Design Principles And Applications, 1st ed, Rajkamal, McGraw Hill Higher Education, 2017. “**

1	Data Acquiring	From: 19/10/2023 To: 08/11/2023	Lecture interspersed with discussions
2	Organizing and Analytics in IoT/M2M		
3	Applications/Services/Business Processes		
4	IOT/M2M Data Acquiring and Storage		
5	Business Models for Business Processes in the Internet Of Things		
6	Organizing Data		
7	Transactions		
8	Business Processes		
9	Integration and Enterprise Systems		
10	Tutorial		

UNIT-V: Data Collection, Storage and Computing Using a Cloud Platform for IoT/M2M**CO5: Design a simple IoT system made up of sensors, wireless network connection, data analytics and display/actuators, and write the necessary control software.****TB “Internet of Things: Architecture, Design Principles And Applications, 1st ed, Rajkamal, McGraw Hill Higher Education, 2017.”**

1	Data Collection		
2	Storage and Computing Using a Cloud Platform for IoT/M2M Applications/Services		

3	Data Collection	From: 09/11/2023 To: 02/12/2023	Lecture interspersed with discussions
4	Storage and Computing Using cloud platform Everything as a service and Cloud Service Models		
5	IOT cloud-based services using the Xively (Pachube/COSM)		
6	Nimbits and other platforms Sensor		
7	Participatory Sensing		
8	Actuator		
9	Radio Frequency Identification and Wireless		
10	Sensor Network Technology		
11	Sensors Technology		
12	Sensing the World		
13	Tutorial		

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DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS

TENTATIVE LESSON PLAN: MC2033

Course Title: WEB TECHNOLOGIES			
Section: MCA	Date : 21/08/2023	Page No : 01 of 03	
Revision No : 00	Prepared by: M.Anitha	Approved by : HOD	
Tools: Black board, PPTs			
Unit I : Web Basics- Introduction, Concept of Internet			
Co 1 : Analyze A Web Page and Identify its Elements And Attributes.			
Text Book : Web Technologies, Uttam K Roy, Oxford University Press			
No. of periods	TOPIC	Date	Mode of Delivery
1.	Web Basics- Introduction	From: 21/08/2023 To: 06/09/2023	Lecture interspersed with discussions & BB
2.	Concept of Internet- History of Internet, Protocols of Internet, World Wide Web		
3.	URL, Web Server, Web Browser		
4.	HTML- Introduction, History of HTML, Structure of HTML Document		
5.	Text Basics, Structure of HTML Document		
6.	Images and Multimedia		
7.	Links and webs, Document Layout		
8.	Creating Forms, Frames		
9.	Creating Tables		
10.	Cascading style sheets		
11.	TUTORIAL CLASS		
UNIT II: Introduction of XML, XML Schemes, Document Object Model			
CO 2: To acquire knowledge of XML fundamentals and usage of xml technology in electronic data interchange			
Text Book: Web Technologies, Uttam K Roy, Oxford University Press			
12.	XML Introduction- Introduction of XML,		
13.	Defining XML tags		

14.	XML tags attributes and values	FROM:08/09/2023 TO: 27/09/2023	Lecture interspersed with discussions&& BB
15.	Document Type Definition		
16.	XHTML Parsing		
17.	XML Data – DOM		
18.	XML Schemes		
19.	XML Data types		
20.	SAX Parsers in java		
21.	TUTORIAL CLASS		

UNIT III: Introduction to Servlets, connecting to a database using JDBC
CO 3: To design and develop web based enterprise systems for the enterprises using technologies like Servlet
Text Book: Web Technologies, Uttam K Roy, Oxford University Press.

22.	Introduction to Servlets	From:29/09/2023 To: 07/10/2023 & From:14/10/2023 To: 21/10/2023	Lecture interspersed with discussions&& BB
23.	Common Gateway Interface (CGI)		
24.	Life cycle of a Servlet		
25.	Deploying a Servlet		
26.	The Servlet API		
27.	Reading Servlet parameters		
28.	Reading Initialization parameters		
29.	Handling Http Request & Responses		
30.	Using Cookies and Sessions		
31.	Connecting to a database using JDBC		
32.	TUTORIAL CLASS		

UNIT IV: Introduction to JSP, connecting to a database using JDBC
CO 4: To design and develop web based enterprise systems for the enterprises using technologies like Jsp
Text Book: Web Technologies, Uttam K Roy, Oxford University Press.

33.	Introduction to JSP: The Anatomy of a JSP Page	From:23/10/2023 TO: 11/11/23	Lecture interspersed with discussions&& BB
34.	JSP Processing, Declarations, Directives		
35.	Expressions, Code Snippets, implicit objects		
36.	Using Beans in JSP Pages		
37.	Using Cookies and session for session tracking		
38.	Connecting to database in JSP		
39.	Client-side Scripting: Introduction to		

	JavaScript		
40.	JavaScript language – declaring variables, scope of variables		
41.	Functions. Event handlers (on Click, on Submit etc.),		
42.	Document Object Model, Form validation		
43.	TUTORIAL CLASS		
UNIT V: Introduction to PHP: Declaring variables, PHP: File operations CO 5: Build web applications using PHP Text Book: Web Technologies, Uttam K Roy, Oxford University Press.			
44.	Introduction to PHP: Declaring variables, data types	From:13/11/23 To:02/12/2023	Lecture interspersed with discussions&& BB
45.	Arrays, Strings, Operators		
46.	Expressions, Control structures		
47.	Functions reading data from web form controls like text boxes, radio buttons, list,		
48.	Handling File Uploads, Connecting to database (MySQL as reference), Executing simple queries		
49.	Handling results, Handling sessions and cookies File		
50.	Handling in PHP: File operations like opening, closing,		
51.	Reading, writing, appending, deleting etc		
52.	On text and binary files, listing directories		
53.	Handling results, Handling sessions and cookies File		
54.	TUTORIAL CLASS		
55.	REVISION CLASSES		

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DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS

TENTATIVE LESSONPLAN: MC2034

Course Title: Cryptography and Network Security		
Section : II MCA	Date : 21/08/2023	Page No : 01 of 03
Revision No : 00	Prepared by: E. NAGARAJU	Approved by : HOD

Tools: Black board, PPTs

UNIT I: Basic Principles, Symmetric Encryption

CO 1: Explain Basic Principles, different security threats, countermeasures, foundation course of cryptography mathematics and Symmetric Encryption.

TB: Cryptography and Network Security, 3rd Edition Behrouz A Forouzan, Deb deep Mukhopadhyay, McGraw Hill,2015

No. of periods	TOPIC	Date	Mode of Delivery
1.	Unit – I: Basic Principles, Security Goals	21/08/2023 to 08/09/2023	Lecture interspersed with discussions BB & PPT
2.	Cryptographic Attacks, Services and Mechanisms		
3.	Mathematics of Cryptography		
4.	Extended Euclidean Algorithm, Linear Diophantine Equations		
5.	Modular Arithmetic, set of residues, Operations in Zn, Inverses		
6.	MATRICES, Linear Congruence		
7.	Symmetric Encryption : Mathematics of Symmetric Key Cryptography		
8.	Introduction to Modern Symmetric Key Ciphers		
9.	Data Encryption Standard		
10.	Advanced Encryption Standard.		
11.	TUTORIAL CLASS		

UNIT II: Asymmetric Encryption

CO 2: Classify the basic principles of Asymmetric key algorithms and operations of asymmetric key cryptography

TB: Cryptography and Network Security, 3rd Edition Behrouz A Forouzan, Deb deep Mukhopadhyay, McGraw Hill,2015

No. of periods	TOPIC	Date	Mode of Delivery
12.	UNIT II: Asymmetric Encryption	11/09/2023 to 29/09/2023	Lecture interspersed with discussions BB
13.	Mathematics of Asymmetric Key Cryptography-Primes		
14.	Euler's Theorem, Fermat's Little Theorem		
15.	Primality Testing		
16.	Factorization		
17.	Asymmetric Key Cryptography-RSA Cryptosystem		



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18.	Rabin Cryptosystem		& PPT
19.	Elliptic Curve Cryptosystem		
20.	ElGamal Cryptosystem		
21.	TUTORIAL CLASS		

UNIT III: Cryptographic Hash Functions, Digital Signatures

CO 3: Design Cryptographic Hash Functions as SHA-3 and Digital Signatures as Elgamal

TB: Cryptography and Network Security, 3rd Edition Behrouz A Forouzan, Deb deep Mukhopadhyay, McGraw Hill,2015.

No. of periods	TOPIC	Date	Mode of Delivery
22.	UNIT III: Cryptographic Hash Functions	30/09/2023 to 30/10/2023	Lecture interspersed with discussions BB & PPT
23.	Applications of Cryptographic Hash Functions		
24.	Two Simple Hash Functions Requirements		
25.	Security Hash Functions Based on Cipher Block Chaining		
26.	Secure Hash Algorithm (SHA)		
27.	Secure Hash Algorithm SHA-3.		
28.	Digital Signatures		
29.	Schnorr Digital Signature		
30.	NIST Digital Signature Algorithm		
31.	Elgamal Digital Signature Scheme		
32.	TUTORIAL CLASS		

UNIT IV: Key Management and Distribution, User Authentication

CO 4: Explain the concept of Key Management and Distribution and User Authentication

TB: Cryptography and Network Security, 3rd Edition Behrouz A Forouzan, Deb deep Mukhopadhyay, McGraw Hill,2015.

No. of periods	TOPIC	Date	Mode of Delivery
33.	UNIT IV: Key Management and Distribution	31/10/2023 to 23/11/2023	Lecture interspersed with discussions
34.	Symmetric Key Distribution Using Symmetric Encryption		
35.	Symmetric Key Distribution Using Asymmetric Encryption		
36.	Distribution of Public Keys		
37.	X.509 Certificates		
38.	User Authentication: User Authentication		



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39.	Remote User-Authentication Principle		BB & PPT
40.	Remote User-Authentication Using Symmetric Encryption		
41.	Remote User-Authentication Using ASymmetric Encryption		
42.	Kerberos		
43.	Tutorial class		

UNIT V: Network and Internet Security, Electronic Mail Security, IP Security

CO 5: Determine the knowledge of Network and Internet Security Protocols such as S/MIME

TB: Cryptography and Network Security, 3rd Edition Behrouz A Forouzan, Deb deep Mukhopadhyay, McGraw Hill,2015.

No. of periods	TOPIC	Date	Mode of Delivery
44.	Unit V: Network and Internet Security	24/11/2023 to 09/12/2023	Lecture interspersed with discussions BB & PPT
45.	Electronic Mail Security		
46.	Internet Mail Architecture		
47.	Email Formats, Email Threats		
48.	Comprehensive Email Security,		
49.	S/MIME		
50.	IP Security: IP Security Policy		
51.	Encapsulating Security Payload,		
52.	Combining Security Associations		
53.	Internet Key Exchange		
54.	Tutorial class		

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DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS

TENTATIVE LESSON PLAN: MC2035B

Course Title: SOFTWARE PROJECT MANAGEMENT		
Section : II MCA	Date : 21/08/2023	Page No : 01 of 03
Revision No : 00	Prepared by: K. HAREESH	Approved by : HOD

Tools: Black board, PPTs

UNIT I: Conventional Software Management, Evolution of Software Economics, Improving Software Economics, The old way and the new.

CO 1: Apply the process to be followed in the software development life-cycle models.

TB: Software Project Management, Walker Royce, PEA, 2005.

No. of periods	TOPIC	Date	Mode of Delivery
1.	The waterfall model	From: 21/08/2023 to 05/09/2023	Lecture interspersed with discussions BB & PPT
2.	Conventional software Management performance		
3.	Software Economics		
4.	Pragmatic software cost estimation		
5.	Reducing Software product size, improving software processes		
6.	Improving team effectiveness, improving automation		
7.	Achieving required quality, peer inspections		
8.	The principles of conventional software Engineering		
9.	Principles of modern software management		
10.	Transitioning to an iterative process		
11.	Tutorial class		

UNIT II: Life cycle phases, Artifacts of the process.

CO 2: Apply the concepts of project management & planning.

TB: Software Project Management, Walker Royce, PEA, 2005.

No. of periods	TOPIC	Date	Mode of Delivery
12.	Elaboration, construction, transition phases	From: 07/09/2023 to 23/09/2023	Lecture interspersed with discussions BB & PPT
13.	The artifact sets, Management artifacts		
14.	Engineering artifacts		
15.	Programmatic artifacts		
16.	Tutorial class		

UNIT III: Model based software architectures, Work Flows of the process, Checkpoints of the process, Iterative Process Planning.

CO 3: Implement the project plans through managing people, communications and change.



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TB: Software Project Management, Walker Royce, PEA, 2005.

No. of periods	TOPIC	Date	Mode of Delivery
17.	A Management perspective and technical perspective	From: 25/09/2023 to 28/10/2023	Lecture interspersed with discussions BB & PPT
18.	Software process workflows, Iteration workflows		
19.	Major mile stones		
20.	Minor Milestones		
21.	Periodic status assessments		
22.	Work breakdown structures		
23.	Planning guidelines		
24.	Cost and schedule estimating		
25.	Iteration planning process, Pragmatic planning		
26.	Tutorial class		

UNIT IV: Project Organizations and Responsibilities, Process Automation, Project Control and Process instrumentation

CO 4: Conduct activities necessary to successfully complete and close the Software projects.

TB: Software Project Management, Walker Royce, PEA, 2005.

No. of periods	TOPIC	Date	Mode of Delivery
27.	Line-of-Business Organizations	From: 30/10/2023 to 20/11/2023	Lecture interspersed with discussions BB & PPT
28.	Project Organizations, evolution of Organizations		
29.	Automation Building blocks		
30.	The Project Environment		
31.	The seven core Metrics, Management indicators		
32.	Quality indicators, life cycle expectations		
33.	Pragmatic Software Metrics, Metrics automation		
34.	Tutorial class		

UNIT V: Fundamentals of DevOps, DevOps adoption in projects

CO 5: Implement communication, modeling, and construction & deployment practices in software development.

TB: Software Project Management, Walker Royce, PEA, 2005.

No. of periods	TOPIC	Date	Mode of Delivery
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35.	Agile Methodology, adapting to Scrum	From : 21/11/2023 to 02/12/2023	Lecture interspersed with discussions BB & PPT
36.	Patterns for Adopting Scrum		
37.	Iterating towards Agility		
38.	Architecture, Deployments		
39.	Orchestration, Need, Instance of applications		
40.	DevOps delivery pipeline, DevOps eco system		
41.	Technology aspects		
42.	Agiling capabilities		
43.	Tool stack implementation		
44.	People aspect, processes		
45.	Tutorial class		

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