FATIMA COLLEGE (AUTONOMOUS)

Re-Accredited with "A++" Grade by NAAC (4thCycle)

Maryland, Madurai- 625 018, Tamil Nadu, India

NAME OF THE DEPARTMENT: INFORMATION TECHNOLOGY

NAME OF THE PROGRAMME : M. Sc.

PROGRAMME CODE : PSIT

ACADEMIC YEAR : 2023-24

FATIMA COLLEGE (AUTONOMOUS), MADURAI-18

DEPARTMENT OF INFORMATION TECHNOLOGY

PROGRAMME CODE: PSIT

COURSE CODE	COURSE TITLE	HRS / WK	CREDIT	CIA Mks	ESE Mks	TOT. MKs
SEMESTER - I						
23PG1I1	Python Programming	5	5	40	60	100
23PG1I2	Python Programming Practical	5	5	40	60	100
23PG1I3	Web Development using Wordpress	4	4	40	60	100
SEMESTER - II						
23PG2I4	Database Systems	5	5	40	60	100
23PG2I5	RDBMS Lab	5	5	40	60	100
23PG2I6	Open Source Technologies Practical	4	4	40	60	100
SEMESTER - III						
21PG3IT12	Data Mining and Data Warehousing	5	5	40	60	100
21PG3IT13	Advanced Python Programming	5	5	40	60	100
21PG3IT14	Lab 5 Data Mining and Data Warehousing	5	3	40	60	100
21PG3IT15	Lab 6 Advanced Python Programming	5	3	40	60	100
SEMESTER - IV						

COURSE CODE	COURSE TITLE	HRS / WK	CREDIT	CIA Mks	ESE Mks	TOT. MKs
21PG4IT16	Biometrics	-	4	40	60	100

MAJOR ELECTIVE / EXTRA DEPARTMENTAL COURSE / INTERNSHIP/ PROJECT

S. No	SEM.	COURSECODE	COURSE TITLE	HRS	CREDITS	CIA Mks	ESE Mks	TOT. Mks
1.	I	23PG1IAE	Image Editing and Animation	2	1	40	60	100
2.		23PG1IE1 23PG1IE2	Elective – I Data Structures Natural Language Processing	5	3	40	60	100
3.		23PG1IE3 23PG1IE4	Elective - II Operating Systems Human Computer Interaction	5	3	40	60	100
4.	II	23PG2ISE1	E-Commerce and Content Management Systems	3	2	40	60	100
5.		23PG2IE5 23PG2IE6	Elective – III Networks and Security Biometric Techniques	4	3	40	60	100
6.		23PG2IE7 23PG2IE8	Elective – IV Object Oriented Analysis and Design Software Project Management	4	3	40	60	100
7.	III	21PG3ITE4 22PG3ITE5 21PG3ITE6	Elective - II Software Testing System Software & Compiler Design Computer Forensics	5	5	40	60	100
8.		21PG3ITE7 21PG3ITE8 22PG3ITE9	Elective - III Big Data Analytics Internet of Things Algorithm Design and Analysis	5	5	40	60	100

9.		19PG3ITSI	Summer Internship	-	3	40	60	100
10.	**IV**	19PG4ITPR	Project & Viva Voce	-	6	40	60	100

OFF-CLASS PROGRAMME

ADD-ON COURSES

Course Code	Courses	Hrs.	Credits	Semester in which the course is offered	CIA Mks	ESE Mks	Total Marks
	SOFT SKILLS	40	4	I	40	60	100
	COMPUTER APPLICATIONS (Dept. Specific Course)	40	4	II	40	60	100
	MOOC COURSES (Department Specific Courses/any other courses) * Students can opt other than the listed course from UGC-SWAYAM /UGC /CEC	-	Minimum 2 Credits	-	-	-	
	COMPREHENSIVE VIVA (Question bank to be prepared for all the papers by the respective course teachers)	-	2	IV	-	-	100

	READING CULTURE	15/ Semester	1	I-IV	-	-	-
	TOTAL		13 +				

EXTRA CREDIT COURSE

COURSE CODE	COURSES	HRS.	CREDITS	SEMESTER IN WHICH THE COURSE IS OFFERED	CIA MKS	ESE MKS	TOTAL MARKS
21PGCASLIT1	**SELF LEARNING COURSE for ADVANCED LEARNERS** **SUPPLY CHAIN MANAGEMENT**	-	2	I	40	60	100
21PG3ITSL3	**SELF LEARNING COURSES for ADVANCED LEARNERS** **RESEARCH METHODOLOGY**	-	2	III	40	60	100
	MOOC COURSES / International Certified online Courses	-	Minimum 2 Credits	I – IV	-	-	

	(Department Specific Courses/any other courses) * Students can opt other than the listed course from UGC-SWAYAM /UGC /CEC						

- **Lab Courses :**
  - A range of 10-15 experiments per semester

- **Summer Internship:**
  - Duration-1 month (2nd Week of May to 2nd week of June-before college reopens)

- **Project:**
  - Off class
  - Evaluation components-Report writing + Viva Voce (Internal marks-50) + External marks 50

- **EDC:**

  Syllabus should be offered for two different batches of students from other than the parent department in Sem-I & Sem-II

OLD SYLLABUS

Changes

II M.Sc. INFORMATION TECHNOLOGY

SEMESTER –III

For those who joined in 2021 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
PSIT	21PG3IT12	DATA MINING AND DATA WAREHOUSING	Lecture	5	5

COURSE DESCRIPTION

This course introduces the basic concepts, principles, methods, implementation techniques, and applications of data mining.

COURSE OBJECTIVES

To facilitate the student to understand the concepts of data mining and to understand various techniques involved in data mining.

UNITS

UNIT I: INTRODUCTION (14Hrs)

Data mining concepts – Database & Data Warehouse - Data Mining functionalities - Technologies used - Data Mining Applications - Integration of Data Mining System with a Database or Data Warehouse System **– Major Issues in Data Mining (Self study).**

UNIT II: DATA PREPROCESSING & DATA WAREHOUSING (14Hrs)

Need to Preprocess the Data - Descriptive Data Summarization – Data Cleaning – Data Integration and Transformation – Data Reduction – Data Discretization and Concept Hierarchy Generation. Data Warehouse and OLAP Technology : An Overview - What is a Data Warehouse – A Multidimensional Data Model – Data Warehouse Architecture – **Data Warehouse Implementation – From Data Warehousing to a Data Mining (Self study).**

UNIT III: MINING FREQUENT PATTERNS AND CLASSIFICATION (14 Hrs)

Mining Frequent Patterns - Association Rule Mining – The Apriori Algorithm – FP Growth - Correlation Analysis.Mining Frequent Itemsets Using Vertical Data Format – **Mining Closed Frequent Itemsets (Self study)..**Classification – Decision Tree induction - Constructing decision tree – ID3 algorithm – Pruning – Bayesian Classification – Rule Based Classification - Classification by Back propagation – Support Vector Machines.

UNIT IV: CLUSTERING AND OUTLIERS (14Hrs)

Cluster Analysis – Clustering Methods – Partitioning Methods - Hierarchical Methods – Density Based Methods – Grid-Based Methods – Model-Based Clustering Methods. Outlier and **Outlier Analysis (Self Study) -** Outlier Detection Methods

UNIT V: APPLICATIONS AND TRENDS IN DATA MINING (14Hrs)

Other Methodologies of Data Mining - Data Mining Applications – **Data mining Trends (Self Study).**

UNIT –VI DYNAMISM (Evaluation Pattern-CIA only) (5 Hrs)

Current trends in implementation of Data Mining tools in real time applications.

REFERENCES:

1. ***Data Mining Concepts and Techniques***, Jiawei Han and MichelineKamber, 2nd Edition, Morgan Kaufmann Publishers An Imprint of Elsevier, 2009. Chapters:1, 2, 3, 6.1 - 6.10, 7.1 – 7.8, 11
2. ***Data Mining Techniques and Applications: An Introduction,***Hongbo DLL, CengageLmg Business Press, 2010.
3. ***Data Warehousing: Concepts, Techniques, Products and Applications***, 3rd Edition, PHI Learning, Delhi, 2012.
4. ***Data Mining & Data Warehousing***, UditAgarwal, 1st Edition, S.K.Kataria& sons Publication, 2016.
5. ***Data Mining: Concepts and Techniques***, Jiawei Han, MichelineKamber, 3rd Edition Morgan Kauffmann Publishers, 2011.

Digital Open Educational Resources (DOER) :

1. https://www.javatpoint.com/data-mining-cluster-vs-data-warehousing
2. https://www.dei.unipd.it/~capri/SI/MATERIALE/DWDM0405.pdf

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -1 INTRODUCTION				
1.1	Data mining concepts – Database & Data Warehouse - Data Mining functionalities - Technologies used - Data Mining Applications -	5	Chalk & Talk	Black Board
1.2	Integration of Data Mining System with a Database or Data Warehouse System **–**	6	Chalk & Talk	LCD
1.3	**Major Issues in Data Mining (Self study).**	3	Discussion	Google Classroom
UNIT -2 DATA PREPROCESSING& DATA WAREHOUSING				
2.1	Need to Preprocess the Data - Descriptive Data Summarization – Data Cleaning – Data Integration and Transformation – Data Reduction – Data Discretization and Concept Hierarchy Generation.	6	Lecture	Green Board
2.2	Data Warehouse and OLAP Technology : An Overview - What is a Data Warehouse – A Multidimensional Data Model - Data Warehouse Architecture	5	Chalk &Talk	Green Board
2.3	**Data Warehouse Implementation – From Data Warehousing to a Data Mining (Self study).**Data Warehouse implementation - From	3	Discussion	Google Classroom

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
	Data Warehousing to a Data Mining			
UNIT -3MINING FREQUENT PATTERNS AND CLASSIFICATION				
3.1	Efficient and Scalable Frequent Itemset Mining Methods: The Apriori Algorithm : Finding Frequent Itemsets Using Candidate Generation- Generating Association Rules from Frequent Itemsets	4	Chalk & Talk	Black Board
3.2	Improving the Efficiency of Apriori – Mining Frequent Itemsets without Candidate Generation- Mining Frequent Itemsets Using Vertical Data Format – Mining Closed Frequent Itemsets.	5	Chalk & Talk	LCD
3.3	Classification - Prediction – Issues Regarding Classification and Prediction	3	Chalk & Talk	Black Board
3.4	Classification by Decision Tree Induction – Bayesian Classification – Rule-Based Classification	3	Lecture	Green Board
3.5	Classification by Back propagation – Support Vector Machines.	3	Lecture	Green Board
UNIT -4 CLUSTERING & OUTLIERS				
4.1	Cluster Analysis – Clustering Methods.	3	Chalk & Talk	Black Board
4.2	Partitioning Methods - Hierarchical Methods – Density Based Methods	6	Lecture	Green Board

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
4.3	Grid-Based Methods – Model-Based Clustering Methods.	3	Chalk & Talk	LCD
4.4	Outlier and **Outlier Analysis (Self Study) -** Outlier Detection Methods	2	Chalk & Talk	Black Board
UNIT -5 APPLICATIONS AND TRENDS IN DATA MINING				
5.1	Other Methodologies of Data Mining	6	Chalk & Talk	Black Board
5.2	Data Mining Applications – **Data mining Trends (Self Study).**	4	Discussion	Google Classroom
UNIT -6 DYNAMISM				
6.1	Current trends in implementation of Data Mining tools in real time applications.	5	Assignments	Google class room

INTERNAL - PG

Levels	C1	C2	C3	C4	C5	Total Scholastic Marks	Non Scholastic Marks C6	CIA Total	% of Assessment
	T1 10 Mks.	T2 10 Mks.	Seminar 5 Mks.	Assignment 5 Mks	OBT/PPT 5 Mks	35 Mks.	5 Mks.	40Mks.	
K2	**4**	**4**	**-**	**-**	**-**	**8**	-	**8**	20 %
K3	**2**	**2**	**-**	**5**	**-**	**9**	-	**9**	22.5 %
K4	**2**	**2**	**-**	**-**	**5**	**9**	-	**9**	22.5 %
K5	**2**	**2**	**5**	**-**	**-**	**9**	-	**9**	22.5 %

Non Scholastic	-	-	-	-	-		5	5	12.5 %
Total	10	10	5	5	5	35	5	40	100 %

End Semester - PG

Levels	Section A 10 Mks	Section B 20 Mks.	Section C 10 Mks	Section D 10 Mks.	Section E 10 Mks.	Total 60Mks.	
K2	10	5	-	-	-	15	25 %
K3	-	5	10	-	-	15	25 %
K4	-	5	-	-	10	15	25 %
K5	-	5	-	10	-	15	25 %
Total	10	20	10	10	10	60	100 %

CIA	
Scholastic	35
Non Scholastic	5
	40

EVALUATION PATTERN

SCHOLASTIC					NON - SCHOLASTIC	MARKS		
C1	C2	C3	C4	C5	C6	CIA	ESE	Total
10	10	5	5	5	5	40	60	100

- **PG CIA Components**

  Nos

C1	-	Test (CIA 1)	1	-	10 Mks
C2	-	Test (CIA 2)	1	-	10 Mks
C3	-	Assignment	2 *	-	5 Mks
C4	-	Open Book Test/PPT	2 *	-	5 Mks
C5	-	Seminar	1	-	5 Mks
C6	-	Attendance		-	5 Mks

The best out of two will be taken into account

COURSE OUTCOMES

On the successful completion of the course, students will be able to:

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Understand the fundamental concept of Data Mining and analyze and evaluate the data cleaning, integration , transformation and reduction techniques	K2,K3	PSO1,PSO2
CO 2	Design multidimensional data using Data Warehouse architecture.	K2, K3	PSO1, PSO2, PSO3 & PSO5
CO 3	Analyze and evaluate Classification algorithms	K3, K4	PSO3,PSO4,PSO6& PSO7
CO 4	Identify the types of data in Cluster Analysis and categorize the Cluster Methods	K3 ,K4	PSO1, PSO2, PSO7 & PSO8
CO 5	Utilize the Data Mining techniques in various real applications and in major issues.	K4 ,K5	PSO1, PSO2, PSO3& PSO9

Mapping of C0s with PSOs

CO/ PSO	PSO1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	PSO 9
CO1	3	3	1	2	1	1	2	1	1
CO2	3	3	3	2	3	2	1	1	2
CO3	2	2	3	3	1	3	3	2	1
CO4	3	3	2	1	2	1	3	3	2
CO5	3	3	3	2	2	1	2	2	3

Mapping of COs with POs

CO/ PSO	PO1	PO2	PO3	PO4
CO1	3	2	2	1
CO2	2	1	3	2
CO3	3	1	2	1
CO4	2	2	3	2
CO5	2	2	2	2

Note: ♦ Strongly Correlated – **3** ♦ Moderately Correlated – **2**

♦ Weakly Correlated -**1**

COURSE DESIGNER:

1. **Dr. V. Jane Varamani sulekha**

Forwarded By

V. Mageshwari

HOD'S Signature

& Name

NEW SYLLABUS

Addition

5%

II M.Sc. INFORMATION TECHNOLOGY

SEMESTER –III

For those who joined in 2021 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
PSIT	21PG3IT12	DATA MINING AND DATA WAREHOUSING	Lecture	5	5

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To facilitate the student to understand the concepts of data mining and to understand various techniques involved in data mining.

UNITS

UNIT I: INTRODUCTION **(14Hrs)**

Data mining concepts – Database & Data Warehouse - Data Mining functionalities - Technologies used - Data Mining Applications - Integration of Data Mining System with a Database or Data Warehouse System **– Major Issues in Data Mining (Self study).**

UNIT II: DATA PREPROCESSING & DATA WAREHOUSING (14Hrs)

Need to Preprocess the Data - Descriptive Data Summarization – Data Cleaning – Data Integration and Transformation – Data Reduction – Data Discretization and Concept Hierarchy Generation. Data Warehouse and OLAP Technology : An Overview - What is a Data Warehouse – A Multidimensional Data Model – Data Warehouse Architecture – **Data Warehouse Implementation – From Data Warehousing to a Data Mining (Self study).**

UNIT III: MINING FREQUENT PATTERNS AND CLASSIFICATION (14 Hrs)

Mining Frequent Patterns - Association Rule Mining – The Apriori Algorithm – FP Growth - Correlation Analysis.Mining Frequent Itemsets Using Vertical Data Format – **Mining Closed Frequent Itemsets (Self study)..**Classification – Decision Tree induction - Constructing decision tree – ID3 algorithm – Pruning – Bayesian Classification – Rule Based Classification - Classification by Back propagation – Support Vector Machines.

UNIT IV: CLUSTERING AND OUTLIERS (14Hrs)

Cluster Analysis – Clustering Methods – Partitioning Methods - Hierarchical Methods – Density Based Methods – Grid-Based Methods – Model-Based Clustering Methods. Outlier and **Outlier Analysis (Self Study) -** Outlier Detection Methods

UNIT V: APPLICATIONS AND TRENDS IN DATA MINING (14Hrs) 5%

Mining Complex Data Types - Other Methodologies of Data Mining - Data Mining Applications – Data Mining and Society -**Data mining Trends (Self Study).**

UNIT –VI DYNAMISM (Evaluation Pattern-CIA only) (5 Hrs)

Current trends in implementation of Data Mining tools in real time applications.

REFERENCES:

6. ***Data Mining Concepts and Techniques***, Jiawei Han and MichelineKamber, 2nd Edition, Morgan Kaufmann Publishers An Imprint of Elsevier, 2009. Chapters:1, 2, 3, 6.1 - 6.10, 7.1 – 7.8, 11

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9. ***Data Mining & Data Warehousing***, UditAgarwal, 1st Edition, S.K.Kataria& sons Publication, 2016.
10. ***Data Mining: Concepts and Techniques***, Jiawei Han, MichelineKamber, 3rd Edition Morgan Kauffmann Publishers, 2011.

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4. https://www.dei.unipd.it/~capri/SI/MATERIALE/DWDM0405.pdf

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -1 INTRODUCTION				
1.1	Data mining concepts – Database & Data Warehouse - Data Mining functionalities - Technologies used - Data Mining Applications -	5	Chalk & Talk	Black Board
1.2	Integration of Data Mining System with a Database or Data Warehouse System **–**	6	Chalk & Talk	LCD
1.3	**Major Issues in Data Mining (Self study).**	3	Discussion	Google Classroom
UNIT -2 DATA PREPROCESSING& DATA WAREHOUSING				

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
2.1	Need to Preprocess the Data - Descriptive Data Summarization – Data Cleaning – Data Integration and Transformation – Data Reduction – Data Discretization and Concept Hierarchy Generation.	6	Lecture	Green Board
2.2	Data Warehouse and OLAP Technology : An Overview - What is a Data Warehouse – A Multidimensional Data Model - Data Warehouse Architecture	5	Chalk &Talk	Green Board
2.3	**Data Warehouse Implementation – From Data Warehousing to a Data Mining (Self study).**Data Warehouse implementation - From Data Warehousing to a Data Mining	3	Discussion	Google Classroom
UNIT -3MINING FREQUENT PATTERNS AND CLASSIFICATION				
3.1	Efficient and Scalable Frequent Itemset Mining Methods: The Apriori Algorithm : Finding Frequent Itemsets Using Candidate Generation- Generating Association Rules from Frequent Itemsets	4	Chalk & Talk	Black Board
3.2	Improving the Efficiency of Apriori – Mining Frequent Itemsets without Candidate Generation- Mining Frequent Itemsets Using Vertical Data Format – Mining Closed Frequent Itemsets.	5	Chalk & Talk	LCD

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
3.3	Classification - Prediction – Issues Regarding Classification and Prediction	3	Chalk & Talk	Black Board
3.4	Classification by Decision Tree Induction – Bayesian Classification – Rule-Based Classification	3	Lecture	Green Board
3.5	Classification by Back propagation – Support Vector Machines.	3	Lecture	Green Board
UNIT -4 CLUSTERING & OUTLIERS				
4.1	Cluster Analysis – Clustering Methods.	3	Chalk & Talk	Black Board
4.2	Partitioning Methods - Hierarchical Methods – Density Based Methods	6	Lecture	Green Board
4.3	Grid-Based Methods – Model-Based Clustering Methods.	3	Chalk & Talk	LCD
4.4	Outlier and **Outlier Analysis (Self Study) -** Outlier Detection Methods	2	Chalk & Talk	Black Board
UNIT -5 APPLICATIONS AND TRENDS IN DATA MINING				
5.1	Mining Complex Data Types - Other Methodologies of Data Mining	6	Chalk & Talk	Black Board
5.2	Data Mining Applications – Data Mining and Society - **Data mining Trends (Self Study).**	4	Discussion	Google Classroom
UNIT -6 DYNAMISM				
6.1	Current trends in implementation of Data Mining tools in real time applications.	5	Assignments	Google class room

Levels	C1	C2	C3	C4	C5	Total Scholastic Marks	Non Scholastic Marks C6	CIA Total	% of Assessment
	T1 10 Mks.	T2 10 Mks.	Seminar 5 Mks.	Assignment 5 Mks	OBT/PPT 5 Mks	35 Mks.	5 Mks.	40Mks.	
K2	4	4	-	-	-	8	-	8	20 %
K3	2	2	-	5	-	9	-	9	22.5 %
K4	2	2	-	-	5	9	-	9	22.5 %
K5	2	2	5	-	-	9	-	9	22.5 %
Non Scholastic	-	-	-	-	-		5	5	12.5 %
Total	10	10	5	5	5	35	5	40	100 %

End Semester - PG

Levels	Section A 10 Mks	Section B 20 Mks.	Section C 10 Mks	Section D 10 Mks.	Section E 10 Mks.	Total 60Mks.	
K2	10	5	-	-	-	15	25 %
K3	-	5	10	-	-	15	25 %
K4	-	5	-	-	10	15	25 %
K5	-	5	-	10	-	15	25 %
Total	10	20	10	10	10	60	100 %

CIA	
Scholastic	35
Non Scholastic	5
	40

EVALUATION PATTERN

SCHOLASTIC					NON - SCHOLASTIC	MARKS		
C1	C2	C3	C4	C5	C6	CIA	ESE	Total
10	10	5	5	5	5	40	60	100

- **PG CIA Components**

Nos

C1	-	Test (CIA 1)	1	-	10 Mks
C2	-	Test (CIA 2)	1	-	10 Mks
C3	-	Assignment	2 *	-	5 Mks
C4	-	Open Book Test/PPT	2 *	-	5 Mks
C5	-	Seminar	1	-	5 Mks
C6	-	Attendance		-	5 Mks

****The best out of two will be taken into account***

COURSE OUTCOMES

On the successful completion of the course, students will be able to:

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Understand the fundamental concept of Data Mining and analyze and evaluate the data cleaning, integration , transformation and reduction techniques	K2,K3	PSO1,PSO2
CO 2	Design multidimensional data using Data Warehouse architecture.	K2, K3	PSO1, PSO2, PSO3 & PSO5
CO 3	Analyze and evaluate Classification algorithms	K3, K4	PSO3,PSO4,PSO6& PSO7
CO 4	Identify the types of data in Cluster Analysis and categorize the Cluster Methods	K3 ,K4	PSO1, PSO2, PSO7 & PSO8
CO 5	Utilize the Data Mining techniques in various real applications and in major issues.	K4 ,K5	PSO1, PSO2, PSO3& PSO9

Mapping of C0s with PSOs

CO/ PSO	PSO1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	PSO 9
CO1	**3**	**3**	**1**	**2**	**1**	**1**	**2**	**1**	**1**
CO2	**3**	**3**	**3**	**2**	**3**	**2**	**1**	**1**	**2**
CO3	**2**	**2**	**3**	**3**	**1**	**3**	**3**	**2**	**1**
CO4	**3**	**3**	**2**	**1**	**2**	**1**	**3**	**3**	**2**
CO5	**3**	**3**	**3**	**2**	**2**	**1**	**2**	**2**	**3**

Mapping of COs with POs

CO/ PSO	PO1	PO2	PO3	PO4
CO1	**3**	**2**	**2**	**1**
CO2	**2**	**1**	**3**	**2**

CO3	**3**	**1**	**2**	**1**
CO4	**2**	**2**	**3**	**2**
CO5	**2**	**2**	**2**	**2**

Note: ♦ Strongly Correlated – **3** ♦ Moderately Correlated – **2**

♦ Weakly Correlated -**1**

COURSE DESIGNER:

2. **Dr. V. Jane Varamani sulekha**

Forwarded By

V. Mageshwari

HOD'S Signature

& Name

II M.Sc.,

SEMESTER –III

For those who joined in 2021 onwards

OLD SYLLABUS

Deletion 20%

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
PSIT	**21PG3IT13**	**ADVANCED PYTHON PROGRAMMING**	**PG Core**	**5 Hrs.**	**5**

COURSE DESCRIPTION

The course helps to create interest in image processing techniques and infuse research thirst in this area

COURSE OBJECTIVES

- To inculcate ideas and create interest in processing images techniques.
- To provide a research orientation inducing them to pursue research.

UNITS

UNIT I: OVERVIEW **(12 Hrs)**

The Context Of Software Development: Software-Development Tools-Learning Programming With Python-Writing A Python Program-A Longer Python Program.

Values And Variables:Integer Values-Variables And Assignment-Identifiers-Floating Point Types-Control Code With In Strings-User Input-The Eval Function-Controlling The Print Function.

Expressions And Arithmetic: Expression-Operator Precedence And Associativity-Comments-Errors-Arithmetic Examples-More Arithmetic Operators-Algorithms (Self study)

UNIT II CONDITIONAL STATEMENT AND ITERATION **(15 Hrs)**

Conditional Execution :Boolean Expressions- Boolean Expressions – The Simple If Statement – The If/Else Statement – Compound Boolean Expressions –Nested Conditionals – Multi-Way Decision Statements – Conditional Expressions – Errors In Conditional Statements

Iteration :The While Statement – Definite Loops Vs. Indefinite Loops – The For Statement – Nested Loops – Abnormal Loop Termination – Infinite Loops – Iteration Examples

UNIT III :LISTS& FUNCTIONS **(15 Hrs)**

List: Using Lists – List Assignment and Equivalence – List Bounds – Slicing – Cloning- Nested Lists-List and functions – Prime Generation with a List - List Processing : Sorting – Flexible Sorting – Search – List Permutations – Randomly Permuting a List – Reversing a List-

Functions : Introduction to Functions – Defining – Calling function –Passing Arguments- Keyword Arguments- Default Arguments – Required Arguments – Variable length Arguments – Return Statement – Nesting of Passing Arguments – Anonymous Function- Recursive function – Scope of Local and Global Variables .

UNIT IV: OBJECT ORIENTED PROGRAMMING PRINCIPLES **(15 Hrs)**

Class Statement – Class Body- Objects- Class Methods – Self Variable – Class Properties and Instance Properties – Static Method – Data Hiding – Deleting an object – Constructor – Method Overriding – Inheritance – Composition Object – Abstract classes and interfaces – Metaclass- Operator overloading.– Garbage Collections.

UNIT V : TKINTER , EVENTS & EXCEPTIONS **(15 Hrs)**

Tkinter : Introduction – Widget – Label – Button – Check button – Entry – List box – Radio button – Scroll bar – Text- Container – Frame – Menu – Label frame – Message – Combo box – Scale – Canvas.

Events: Event Object – Binding Call backs to Events – Events Names – Keyboard Events – Mouse events.

Handling Exceptions : Motivation – Exception Examples – Handling Exception in Invoked Function - Using Exceptions- Custom Exceptions (Self Study)

UNIT –VI DYNAMISM (Evaluation Pattern-CIA only) (3 HRS.)

Application development based on case study

REFERENCES:

1. Richard L.Halterman ,"LEARNING TO PROGRAM WITH PYTHON",ELITE PUBLISHING, 2011
2. Ch. Satyanarayana, M. Radhika mani, B.N. Jagadesh, " Python Programming", Universities press,2018.

WEB REFERENCES:

1. www.universitiespress.com/chsatyanarayana/pythonprogramming
2. https://www.udemy.com/course/learn-advanced-python-programming-in-2020/
3. https://www.pluralsight.com/courses/advanced-python

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -1	**OVERVIEW**			
1.1	The Context Of Software Development: Software-Development Tools-Learning Programming With Python-Writing A	4	Chalk & Talk	Black Board

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
	Python Program-A Longer Python Program.			
1.2	Values And Variables:Integer Values-Variables And Assignment-Identifiers-Floating Point Types-Control Code With In Strings-User Input-The Eval Function-Controlling The Print Function.	4	Chalk & Talk	Black Board
1.3	Expressions And Arithmetic: Expression-Operator Precedence And Associativity-Comments-Errors-Arithmetic Examples-More Arithmetic Operators-Algorithms (Self Study)	4	Group discussion	White board
UNIT -2	**CONDITIONAL STATEMENT AND ITERATION**			
2.1	Conditional Execution :Boolean Expressions-Boolean Expressions – The Simple If Statement – The If/Else Statement	3	Lecture	Smart Board
2.2	Compound Boolean Expressions –Nested Conditionals – Multi-Way Decision Statements	3	Lecture	Black Board
2.3	Conditional Expressions – Errors In Conditional Statements	3	Lecture	Green Board
2.4	Iteration :The While Statement – Definite Loops Vs. Indefinite Loops – The For Statement	3	Chalk & Talk	Black Board

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
2.5	Nested Loops – Abnormal Loop Termination – Infinite Loops – Iteration Examples	3	Chalk & Talk	Black Board
UNIT -3LISTS& FUNCTIONS				
3.1	**List:**Using Lists – List Assignment and Equivalence – List Bounds – Slicing – Cloning- Nested Lists-List and functions – Prime Generation with a List.	3	Chalk & Talk	Black Board
3.2	List Processing : Sorting – Flexible Sorting – Search – List Permutations – Randomly Permuting a List – Reversing a List.	4	Lecture	Green Board
3.3	**Functions :** Introduction to Functions – Defining – Calling function –Passing Arguments- Keyword Arguments- Default Arguments – Required Arguments – Variable length Arguments .	5	Chalk & Talk	Green Board
3.4	Return Statement – Nesting of Passing Arguments – Anonymous Function- Recursive function – Scope of Local and Global Variables	3	Lecture	Green Board
UNIT -4OBJECT ORIENTED PROGRAMMING PRINCIPLES				
4.1	Class Statement – Class Body- Objects- Class Methods – Self Variable .	3	Chalk & Talk	Black Board

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
4.2	Class Properties and Instance Properties – Static Method – Data Hiding – Deleting an object – Constructor	5	Lecture	Green Board
4.3	Method Overriding – Inheritance – Composition Object – Abstract classes and interfaces .	5	Chalk & Talk	Black Board
4.4	Metaclass- Operator overloading.–Garbage Collections.	2	Lecture	Green Board
UNIT -5TKINTER , EVENTS & EXCEPTIONS				
5.1	**Tkinter :** Introduction – Widget – Label – Button – Check button – Entry – List box – Radio button.	3	Lecture	Green Board
5.2	Scroll bar – Text- Container – Frame – Menu – Label frame – Message – Combo box – Scale – Canvas.	4	Chalk & Talk	Black Board
5.3	**Events:**Event Object – Binding Call backs to Events – Events Names – Keyboard Events – Mouse events.	4	Chalk & Talk	Black Board
5.4	Handling Exceptions : Motivation – Exception Examples – Handling Exception in Invoked Function - Using	4	Discussion	Google Classroom

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
	Exceptions- Custom Exceptions (Self Study)			
UNIT -6 DYNAMISM				
6.1	Application development based on case study	3	Assignments	Google class room

Levels	C1	C2	C3	C4	Total Scholastic Marks	Non Scholastic Marks C5	CIA Total	% of Assessment
	Session - wise Average 5 Mks.	Better of W1, W2 5+5=10 Mks.	M1+M2 15 Mks	MID-SEM TEST 5 Mks	35 Mks.	5 Mks.	40Mks.	
K1	5	-	-	2 ½	-		-	-
K2	-	5	4	2 ½	5		5	12.5 %
K3	-	-	3	5	12		12	30 %
K4	-	-	3	5	9		9	22.5%
Non Scholastic	-	-	-	-	9		9	22.5 %
Total	5	5	10	15	35	5	40	100 %

CIA	
Scholastic	**35**
Non Scholastic	**5**
	40

EVALUATION PATTERN

SCHOLASTIC				NON - SCHOLASTIC	MARKS		
C1	**C2**	**C3**	**C4**	**C5**	**CIA**	**ESE**	**Total**
5	**10**	**15**	**5**	**5**	**40**	**60**	**100**

C1 – Average of Two Session Wise Tests

C2 – Average of Two Monthly Tests

C3 - Mid Sem Test

C4 – Best of Two Weekly Tests

C5 – Non - Scholastic

COURSE OUTCOMES

On the successful completion of the course, students will be able to:

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Understand the basic programming style in python .	K2	PSO1& PSO2
CO 2	Apply various types of control flow statements in python programs	K2, K3	PSO3,PSO4
CO 3	Identify the structure and components of a python program.	K3 ,K4	PSO5, PSO6
CO 4	Analyze Object oriented programming concepts and techniques in python	K2, K3 & K5	PSO2, PSO3, PSO7
CO 5	Implementing the GUI concepts in Python	K4, K5	PSO8, PSO9

Mapping COs Consistency with PSOs

CO/ PSO	PSO1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	PSO 9
CO1	3	3	1	2	2	1	2	2	2
CO2	1	2	3	3	2	2	2	2	2
CO3	2	1	3	2	3	3	1	1	1
CO4	1	3	2	3	2	1	3	2	2
CO5	1	2	3	2	1	2	2	3	3

Note: ♦ Strongly Correlated – **3** ♦ Moderately Correlated – **2**

♦ Weakly Correlated -**1**

Mapping of C0s with POs

CO/ PSO	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	1	2	1	2	3
CO2	3	1	2	2	1	1
CO3	3	2	1	2	3	2
CO4	3	2	2	2	3	3
CO5	3	1	2	1	2	2

COURSE DESIGNER:

1.Staff Name

Forwarded By

HOD'S Signature

& Name

NEW SYLLABUS

Insertion 20%

II M.Sc. INFORMATION TECHNOLOGY

SEMESTER –III

For those who joined in 2021 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
PSIT	21PG3IT13	ADVANCED PYTHON PROGRAMMING	Lecture	5	5

COURSE DESCRIPTION

The course helps to create interest in image processing techniques and infuse research thirst in this area

COURSE OBJECTIVES

- To inculcate ideas and create interest in processing images techniques.
- To provide a research orientation inducing them to pursue research.

UNITS

UNIT I: OVERVIEW (12 Hrs)

The Context Of Software Development: Software-Development Tools-Learning Programming With Python-Writing A Python Program-A Longer Python Program.

Values And Variables:Integer Values-Variables And Assignment-Identifiers-Floating Point Types-Control Code With In Strings-User Input-The Eval Function-Controlling The Print Function.

Expressions And Arithmetic: Expression-Operator Precedence And Associativity-Comments-Errors-Arithmetic Examples-More Arithmetic Operators-Algorithms (Self study)

UNIT II CONDITIONAL STATEMENT AND ITERATION (15 Hrs)

Conditional Execution :Boolean Expressions- Boolean Expressions – The Simple If Statement – The If/Else Statement – Compound Boolean Expressions –Nested Conditionals – Multi-Way Decision Statements – Conditional Expressions – Errors In Conditional Statements

Iteration :The While Statement – Definite Loops Vs. Indefinite Loops – The For Statement – Nested Loops – Abnormal Loop Termination – Infinite Loops – Iteration Examples

UNIT III : LISTS& FUNCTIONS (15 Hrs)

List: Using Lists – List Assignment and Equivalence – List Bounds – Slicing – Cloning- Nested Lists-List and functions – Prime Generation with a List - List Processing : Sorting – Flexible Sorting – Search – List Permutations – Randomly Permuting a List – Reversing a List-

Functions : Introduction to Functions – Defining – Calling function –Passing Arguments- Keyword Arguments- Default Arguments – Required Arguments – Variable length Arguments – Return Statement – Nesting of Passing Arguments – Anonymous Function- Recursive function – Scope of Local and Global Variables .

UNIT IV: OBJECT ORIENTED PROGRAMMING PRINCIPLES (15 Hrs)

Class Statement – Class Body- Objects- Class Methods – Self Variable – Class Properties and Instance Properties – Static Method – Data Hiding – Deleting an object – Constructor – Method Overriding – Inheritance – Composition Object – Abstract classes and interfaces – Metaclass- Operator overloading.– Garbage Collections.

UNIT V : TKINTER , EVENTS & EXCEPTIONS (15 Hrs)

Tkinter : Introduction – Widget – Label – Button – Check button – Entry – List box – Radio button – Scroll bar – Text- Container – Frame – Menu – Label frame – Message – Combo box – Scale – Canvas.

Events: Event Object – Binding Call backs to Events – Events Names – Keyboard Events – Mouse events.

Handling Exceptions : Motivation – Exception Examples – Handling Exception in Invoked Function - Using Exceptions- Custom Exceptions (Self Study)

UNIT –VI DYNAMISM (Evaluation Pattern-CIA only) (3 HRS.)

Application development based on case study

REFERENCES:

3. Richard L.Halterman ,"LEARNING TO PROGRAM WITH PYTHON",ELITE PUBLISHING, 2011
4. Ch. Satyanarayana, M. Radhika mani, B.N. Jagadesh, " Python Programming", Universities press,2018.

WEB REFERENCES:

4. www.universitiespress.com/chsatyanarayana/pythonprogramming
5. https://www.udemy.com/course/learn-advanced-python-programming-in-2020/
6. https://www.pluralsight.com/courses/advanced-python

7. COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -1	**OVERVIEW**			
1.1	The Context Of Software Development: Software-Development Tools-Learning Programming With Python-Writing A Python Program-A Longer Python Program.	4	Chalk & Talk	Black Board
1.2	Values And Variables:Integer Values-Variables And Assignment-Identifiers-Floating Point Types-Control Code With In Strings-User Input-The Eval Function-Controlling The Print Function.	4	Chalk & Talk	Black Board
1.3	Expressions And Arithmetic: Expression-Operator Precedence And Associativity-Comments-Errors-Arithmetic Examples-More Arithmetic Operators-Algorithms (Self Study)	4	Group discussion	White board

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -2 CONDITIONAL STATEMENT AND ITERATION				
2.1	Conditional Execution :Boolean Expressions- Boolean Expressions – The Simple If Statement – The If/Else Statement	3	Lecture	Smart Board
2.2	Compound Boolean Expressions –Nested Conditionals – Multi-Way Decision Statements	3	Lecture	Black Board
2.3	Conditional Expressions – Errors In Conditional Statements	3	Lecture	Green Board
2.4	Iteration :The While Statement – Definite Loops Vs. Indefinite Loops – The For Statement	3	Chalk & Talk	Black Board
2.5	Nested Loops – Abnormal Loop Termination – Infinite Loops – Iteration Examples	3	Chalk & Talk	Black Board
UNIT -3 LISTS & FUNCTIONS				
3.1	**List:**Using Lists – List Assignment and Equivalence – List Bounds – Slicing – Cloning- Nested Lists-List and functions – Prime Generation with a List.	3	Chalk & Talk	Black Board
3.2	List Processing : Sorting – Flexible Sorting – Search – List Permutations – Randomly Permuting a List – Reversing a List.	4	Lecture	Green Board

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
3.3	**Functions :** Introduction to Functions – Defining – Calling function –Passing Arguments- Keyword Arguments- Default Arguments – Required Arguments – Variable length Arguments .	5	Chalk & Talk	Green Board
3.4	Return Statement – Nesting of Passing Arguments – Anonymous Function- Recursive function – Scope of Local and Global Variables	3	Lecture	Green Board
UNIT -4 OBJECT ORIENTED PROGRAMMING PRINCIPLES				
4.1	Class Statement – Class Body- Objects- Class Methods – Self Variable .	3	Chalk & Talk	Black Board
4.2	Class Properties and Instance Properties – Static Method – Data Hiding – Deleting an object – Constructor	5	Lecture	Green Board
4.3	Method Overriding – Inheritance – Composition Object – Abstract classes and interfaces .	5	Chalk & Talk	Black Board
4.4	Metaclass- Operator overloading.–Garbage Collections.	2	Lecture	Green Board
UNIT -5 TKINTER , EVENTS & EXCEPTIONS				
5.1	**Tkinter :** Introduction – Widget – Label – Button – Check button – Entry – List box – Radio button.	3	Lecture	Green Board

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
5.2	Scroll bar – Text- Container – Frame – Menu – Label frame – Message – Combo box – Scale – Canvas.	4	Chalk & Talk	Black Board
5.3	**Events:**Event Object – Binding Call backs to Events – Events Names – Keyboard Events – Mouse events.	4	Chalk & Talk	Black Board
5.4	Handling Exceptions : Motivation – Exception Examples – Handling Exception in Invoked Function - Using Exceptions- Custom Exceptions (Self Study)	4	Discussion	Google Classroom
UNIT -6 DYNAMISM				
6.1	Application development based on case study	3	Assignments	Google class room

INTERNAL - PG

Levels	C1	C2	C3	C4	C5	Total Scholastic Marks	Non Scholastic Marks C6	CIA Total	% of Assessment
	T1	T2	Seminar	Assignment	OBT/PPT				
	10 Mks.	10 Mks.	5 Mks.	5 Mks	5 Mks	35 Mks.	5 Mks.	40Mks.	

K2	**4**	**4**	**-**	**-**	**-**	**8**	-	**8**	20 %
K3	**2**	**2**	**-**	**5**	**-**	**9**	-	**9**	22.5 %
K4	**2**	**2**	**-**	**-**	**5**	**9**	-	**9**	22.5 %
K5	**2**	**2**	**5**	**-**	**-**	**9**	-	**9**	22.5 %
Non Scholastic	**-**	**-**	**-**	**-**	-		**5**	**5**	12.5 %
Total	**10**	**10**	**5**	**5**	**5**	**35**	**5**	**40**	**100 %**

End Semester - PG

Levels	Section A 10 Mks	Section B 20 Mks.	Section C 10 Mks	Section D 10 Mks.	Section E 10 Mks.	Total 60Mks.	
K2	**10**	**5**	**-**	**-**	**-**	**15**	25 %
K3	**-**	**5**	**10**	**-**	**-**	**15**	25 %
K4	**-**	**5**	**-**	**-**	**10**	**15**	25 %
K5	**-**	**5**	**-**	**10**	**-**	**15**	25 %
Total	**10**	**20**	**10**	**10**	**10**	**60**	**100 %**

CIA	
Scholastic	**35**
Non Scholastic	**5**
	40

EVALUATION PATTERN

SCHOLASTIC					NON - SCHOLASTIC	MARKS		
C1	C2	C3	C4	C5	C6	CIA	ESE	Total
10	10	5	5	5	5	40	60	100

- **PG CIA Components**

			Nos		
C1	-	Test (CIA 1)	1	-	10 Mks
C2	-	Test (CIA 2)	1	-	10 Mks
C3	-	Assignment	2 *	-	5 Mks
C4	-	Open Book Test/PPT	2 *	-	5 Mks
C5	-	Seminar	1	-	5 Mks
C6	-	Attendance		-	5 Mks

****The best out of two will be taken into account***

COURSE OUTCOMES

On the successful completion of the course, students will be able to:

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Understand the basic programming style in python .	K2	PSO1& PSO2
CO 2	Apply various types of control flow statements in python programs	K2, K3	PSO3,PSO4

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 3	Identify the structure and components of a python program.	K3 ,K4	PSO5, PSO6
CO 4	Analyze Object oriented programming concepts and techniques in python	K2, K3 & K5	PSO2, PSO3, PSO7
CO 5	Implementing the GUI concepts in Python	K4, K5	PSO8, PSO9

Mapping of C0s with PSOs

CO/ PSO	PSO1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	PSO 9
CO1	**3**	**3**	**1**	**2**	**2**	**1**	**2**	**1**	**1**
CO2	**1**	**1**	**3**	**3**	**1**	**2**	**1**	**1**	**2**
CO3	**2**	**2**	**2**	**2**	**3**	**3**	**1**	**2**	**1**
CO4	**1**	**3**	**3**	**2**	**2**	**1**	**3**	**1**	**2**
CO5	**2**	**2**	**1**	**2**	**2**	**2**	**2**	**3**	**3**

Mapping of C0s with POs

CO/ PSO	PO1	PO2	PO3	PO4
CO1	**3**	**2**	**2**	**1**
CO2	**2**	**1**	**3**	**2**
CO3	**3**	**1**	**2**	**1**
CO4	**2**	**2**	**3**	**2**
CO5	**2**	**2**	**2**	**2**

Note: ♦ Strongly Correlated – **3** ♦ Moderately Correlated – **2**

♦ Weakly Correlated -**1**

COURSE DESIGNER: Mrs. T. Charanya Nagammal

Forwarded By

HOD'S Signature

& Name

II M.Sc IT

SEMESTER –III

For those who joined in 2021 onwards

OLD SYLLABUS

Changes 15%

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
PSIT	21PG3ITE6	COMPUTER FORENSICS	Lecture	4	5

COURSE DESCRIPTION

The course content plays a vital role in making the students to understand the basic concepts in Computer Forensics.

COURSE OBJECTIVES

To facilitate the student to understand, the basics in digital forensics and techniques for conducting the forensic examination on different digital devices.

UNITS

UNIT –I INTRODUCTION (12 HRS.)

Computer forensics fundamentals - Benefits of forensics - Computer crimes - computer forensics evidence and courts, **legal concerns(Self Study)** and private issues.

UNIT –II INVESTIGATIONS (12 HRS.)

Understanding Computing Investigations – Procedure for corporate High-Tech investigations - understanding data recovery work station and software - conducting and **investigations(Self Study)**.

UNIT –III DATA ACQUISITION (12 HRS.)

Understanding storage formats and digital evidence - determining the best acquisition method - acquisition tools - validating data acquisitions - performing RAID data acquisitions - remote network acquisition tools - other forensics **acquisitions tools(Self Study)**.

UNIT –IV PROCESSING CRIMES AND INCIDENT SCENES (12 HRS.)

Securing a computer incident or crime - seizing digital evidence at scene - storing digital evidence - obtaining digital hash -**reviewing case(Self Study)**.

UNIT –V TOOLS (11 HRS.)

Current computer forensics tools- software, hardware tools - validating and testing forensic software - **specialized E-Mail forensics tool(Self Study)**.

UNIT –VI DYNAMISM (Evaluation Pattern-CIA only) (1 HR.)

Reviewing cases

REFERENCE BOOKS:

1) Warren G. Kruse II and Jay G. Heiser, "Computer Forensics: Incident Response Essentials", Addison Wesley, 2002.
2) Nelson, B, Phillips, A, Enfinger, F, Stuart, C., "Guide to Computer Forensics and Investigations, 2nd ed., Thomson Course Technology, 2006, ISBN: 0-619-21706-5.

3) Vacca, J, Computer Forensics, Computer Crime Scene Investigation, 2nd Ed, Charles River Media, 2005, ISBN: 1-58450-389.

Digital Open Educational Resources (DOER) :.

1) https://www.geeksforgeeks.org/introduction-of-computer-forensics/

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -1INTRODUCTION				
1.1	Computer forensics fundamentals	3	Discussion	Black Board
1.2	Benefits of forensics	3	Chalk & Talk	Black Board
1.3	Computer crimes	3	Lecture	LCD
1.4	Computer forensics evidence and courts, legal concerns and private issues.	3	Discussion	Google classroom
UNIT -2INVESTIGATIONS				
2.1	Understanding Computing Investigations	3	Lecture	PPT & White board
2.2	Procedure for corporate High-Tech investigations	3	Chalk & Talk	Green Board

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
2.3	Understanding data recovery work station and software	3	Chalk & Talk	Black Board
2.4	Conducting and investigations.	3	Chalk & Talk	Black Board
UNIT – 3 DATAACQUISITION				
3.1	Understanding storage formats and digital evidence	3	Discussion	PPT & White board
3.2	Determining the best acquisition method - acquisition tools	3	Chalk &Talk	Green Board
3.3	Validating data acquisitions - performing RAID data acquisitions	3	Chalk & Talk	Black Board
3.4	Remote network acquisition tools - other forensics acquisitions tools.	3	Chalk & Talk	Black Board
UNIT – 4 PROCESSING CRIMES AND INCIDENT SCENES				
4.1	Securing a computer incident or crime	3	Discussion	PPT & White board
4.2	Seizing digital evidence at scene	3	Chalk & Talk	Green Board
4.3	Storing digital evidence	3	Chalk & Talk	Black Board

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
4.4	Obtaining digital hash - reviewing case.	3	Chalk & Talk	Black Board
UNIT – 5 TOOLS				
5.1	Current computer forensics tools- software, hardware tools	6	Lecture	PPT & White board
5.2	Validating and testing forensic software	3	Chalk & Talk	Black Board
5.4	specialized E-Mail forensics tool.	2	Chalk & Talk	Black Board
UNIT –6 DYNAMISM				
6.1	Reviewing Cases	1	Discussion	Black Board

INTERNAL - PG

Levels	C1	C2	C3	C4	C5	Total Scholastic Marks	Non Scholastic Marks C6	CIA Total	% of Assessment
	T1 10 Mks.	T2 10 Mks.	Seminar 5 Mks.	Assignment 5 Mks	OBT/PPT 5 Mks	35 Mks.	5 Mks.	40Mks.	
K2	**4**	**4**	**-**	**-**	**-**	**8**	-	**8**	20 %
K3	**2**	**2**	**-**	**5**	**-**	**9**	-	**9**	22.5 %
K4	**2**	**2**	**-**	**-**	**5**	**9**	-	**9**	22.5 %

K5	2	2	5	-	-	9	-	9	22.5 %
Non Scholastic	-	-	-	-	-		5	5	12.5 %
Total	10	10	5	5	5	35	5	40	100 %

End Semester - PG

Levels	Section A 10 Mks	Section B 20 Mks.	Section C 10 Mks	Section D 10 Mks.	Section E 10 Mks.	Total 60Mks.	
K2	10	5	-	-	-	15	25 %
K3	-	5	10	-	-	15	25 %
K4	-	5	-	-	10	15	25 %
K5	-	5	-	10	-	15	25 %
Total	10	20	10	10	10	60	100 %

CIA	
Scholastic	35
Non Scholastic	5
	40

EVALUATION PATTERN

SCHOLASTIC					NON - SCHOLASTIC	MARKS		
C1	C2	C3	C4	C5	C6	CIA	ESE	Total

SCHOLASTIC					NON - SCHOLASTIC	MARKS		
10	10	5	5	5	5	40	60	100

- **PG CIA Components**

Nos

C1	-	Test (CIA 1)	1	-	10 Mks
C2	-	Test (CIA 2)	1	-	10 Mks
C3	-	Assignment	2 *	-	5 Mks
C4	-	Open Book Test/PPT	2 *	-	5 Mks
C5	-	Seminar	1	-	5 Mks
C6	-	Attendance		-	5 Mks

****The best out of two will be taken into account***

COURSE OUTCOMES

On the successful completion of the course, students will be able to:

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Understand basic concepts in Computer forensics.	K1	PSO1, PSO2 &PSO3
CO 2	Explain different investigation procedures.	K1, K2	PSO1, PSO3 & PSO4
CO 3	Understand different Data acquisition mode.	K1 & K3	PSO1, PSO3 & PSO8
CO 4	Understand investigation process using computer	K1, K2, K3	PSO2, PSO3, PSO5, PSO7

	forensics.		& PSO8
CO 5	Know how to apply forensic analysis tools to recover important evidence for identifying computer crime.	K1 & K3	PSO2, PSO4, PSO7, PSO8 & PSO9

Mapping COs Consistency with PSOs

CO/ PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	PSO9
CO1	3	3	3	1	1	1	1	1	1
CO2	3	1	3	3	1	1	1	1	1
CO3	3	3	1	1	2	2	1	3	1
CO4	1	3	3	1	3	1	3	3	1
CO5	1	3	2	3	2	1	3	3	3

Mapping of COs with Pos

CO/ PSO	PO1	PO2	PO3	PO4
CO1	3	2	1	1
CO2	3	2	1	1
CO3	1	2	3	1
CO4	1	3	1	1
CO5	3	2	1	1

Note: ♦ Strongly Correlated – **3** ♦ Moderately Correlated – **2**
♦ Weakly Correlated -**1**

COURSE DESIGNER:

1. **Dr. V. Jane Varamani Sulekha**

Forwarded By

V. Mageshwari

HOD'S Signature

& Name

II M.Sc IT

SEMESTER –III

For those who joined in 2021 onwards

NEW SYLLABUS

Insertion 15%

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
PSIT	21PG3ITE6	COMPUTER FORENSICS	Lecture	4	5

COURSE DESCRIPTION

The course content plays a vital role in making the students to understand the basic concepts in Computer Forensics.

COURSE OBJECTIVES

To facilitate the student to understand, the basics in digital forensics and techniques for conducting the forensic examination on different digital devices.

UNITS

UNIT –I INTRODUCTION (12 HRS.)

Computer forensics fundamentals - Benefits of forensics - Computer crimes - computer forensics evidence and courts, **legal concerns(Self Study)** and

private issues.

UNIT –II INVESTIGATIONS (12 HRS.)

Understanding Computing Investigations – Procedure for corporate High-Tech investigations - understanding data recovery work station and software - conducting and **investigations(Self Study)**.

UNIT –III DATA ACQUISITION (12 HRS.)

Understanding storage formats and digital evidence - determining the best acquisition method - acquisition tools - validating data acquisitions - performing RAID data acquisitions - remote network acquisition tools - other forensics **acquisitions tools(Self Study)**.

UNIT –IV PROCESSING CRIMES AND INCIDENT SCENES (12 HRS.)

Securing a computer incident or crime - seizing digital evidence at scene - storing digital evidence - obtaining digital hash -**reviewing case(Self Study)**.

UNIT –V TOOLS (11 HRS.)

Current computer forensics tools- software, hardware tools - validating and testing forensic software - addressing data-hiding techniques - performing remote acquisitions - E-Mail investigations- investigating email crime and violations - understanding E-Mail servers -**specialized E-Mail forensics tool (Self Study)**.

UNIT –VI DYNAMISM (Evaluation Pattern-CIA only) (1 HR.)

Reviewing cases

REFERENCE BOOKS:

4) Warren G. Kruse II and Jay G. Heiser, "Computer Forensics: Incident Response Essentials", Addison Wesley, 2002.
5) Nelson, B, Phillips, A, Enfinger, F, Stuart, C., "Guide to Computer Forensics and Investigations, 2nd ed., Thomson Course Technology, 2006, ISBN: 0-619-21706-5.
6) Vacca, J, Computer Forensics, Computer Crime Scene Investigation, 2nd Ed, Charles River Media, 2005, ISBN: 1-58450-389.

Digital Open Educational Resources (DOER) :.

2) https://www.geeksforgeeks.org/introduction-of-computer-forensics/

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -1INTRODUCTION				
1.1	Computer forensics fundamentals	3	Discussion	Black Board
1.2	Benefits of forensics	3	Chalk & Talk	Black Board
1.3	Computer crimes	3	Lecture	LCD
1.4	Computer forensics evidence and courts, legal concerns and private issues.	3	Discussion	Google classroom
UNIT -2INVESTIGATIONS				
2.1	Understanding Computing Investigations	3	Lecture	PPT & White board
2.2	Procedure for corporate High-Tech investigations	3	Chalk & Talk	Green Board
2.3	Understanding data recovery work station and software	3	Chalk & Talk	Black Board
2.4	Conducting and investigations.	3	Chalk & Talk	Black Board
UNIT – 3 DATAACQUISITION				

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
3.1	Understanding storage formats and digital evidence	3	Discussion	PPT & White board
3.2	Determining the best acquisition method - acquisition tools	3	Chalk &Talk	Green Board
3.3	Validating data acquisitions - performing RAID data acquisitions	3	Chalk & Talk	Black Board
3.4	Remote network acquisition tools - other forensics acquisitions tools.	3	Chalk & Talk	Black Board
UNIT – 4 PROCESSING CRIMES AND INCIDENT SCENES				
4.1	Securing a computer incident or crime	3	Discussion	PPT & White board
4.2	Seizing digital evidence at scene	3	Chalk & Talk	Green Board
4.3	Storing digital evidence	3	Chalk & Talk	Black Board
4.4	Obtaining digital hash - reviewing case.	3	Chalk & Talk	Black Board
UNIT – 5 TOOLS				
5.1	Current computer forensics tools- software, hardware tools	3	Lecture	PPT & White board

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
5.2	Validating and testing forensic software - addressing data	2	Chalk & Talk	Black Board
5.3	Hiding techniques - performing remote acquisitions - E-Mail investigations- investigating	3	Lecture	Black Board
5.4	Email crime and violations - understanding E-Mail servers - specialized E-Mail forensics tool.	3	Chalk & Talk	Black Board
UNIT –6 DYNAMISM				
6.1	Reviewing Cases	1	Discussion	Black Board

INTERNAL - PG

Levels	C1	C2	C3	C4	C5	Total Scholastic Marks	Non Scholastic Marks C6	CIA Total	% of Assessment
	T1 10 Mks.	T2 10 Mks.	Seminar 5 Mks.	Assignment 5 Mks	OBT/PPT 5 Mks	35 Mks.	5 Mks.	40Mks.	
K2	**4**	**4**	**-**	**-**	**-**	**8**	-	**8**	20 %
K3	**2**	**2**	**-**	**5**	**-**	**9**	-	**9**	22.5 %
K4	**2**	**2**	**-**	**-**	**5**	**9**	-	**9**	22.5 %
K5	**2**	**2**	**5**	**-**	**-**	**9**	-	**9**	22.5 %

Non Scholastic	-	-	-	-	-		5	5	12.5 %
Total	10	10	5	5	5	35	5	40	100 %

End Semester - PG

Levels	Section A 10 Mks	Section B 20 Mks.	Section C 10 Mks	Section D 10 Mks.	Section E 10 Mks.	Total 60Mks.	
K2	10	5	-	-	-	15	25 %
K3	-	5	10	-	-	15	25 %
K4	-	5	-	-	10	15	25 %
K5	-	5	-	10	-	15	25 %
Total	10	20	10	10	10	60	100 %

CIA	
Scholastic	35
Non Scholastic	5
	40

EVALUATION PATTERN

SCHOLASTIC					NON - SCHOLASTIC	MARKS		
C1	C2	C3	C4	C5	C6	CIA	ESE	Total
10	10	5	5	5	5	40	60	100

- **PG CIA Components**

Nos

C1	-	Test (CIA 1)	1	-	10 Mks
C2	-	Test (CIA 2)	1	-	10 Mks
C3	-	Assignment	2 *	-	5 Mks
C4	-	Open Book Test/PPT	2 *	-	5 Mks
C5	-	Seminar	1	-	5 Mks
C6	-	Attendance		-	5 Mks

****The best out of two will be taken into account***

COURSE OUTCOMES

On the successful completion of the course, students will be able to:

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Understand basic concepts in Computer forensics.	K1	PSO1, PSO2 &PSO3
CO 2	Explain different investigation procedures.	K1, K2	PSO1, PSO3 & PSO4
CO 3	Understand different Data acquisition mode.	K1 & K3	PSO1, PSO3 & PSO8
CO 4	Understand investigation process using computer forensics.	K1, K2, K3	PSO2, PSO3, PSO5, PSO7 & PSO8
CO 5	Know how to apply forensic analysis tools to recover important evidence for identifying computer crime.	K1 & K3	PSO2, PSO4, PSO7, PSO8 & PSO9

Mapping COs Consistency with PSOs

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CO4	1	3	3	1	3	1	3	3	1
CO5	1	3	2	3	2	1	3	3	3

Mapping of COs with Pos

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CO4	1	3	1	1
CO5	3	2	1	1

Note: ♦ Strongly Correlated – **3** ♦ Moderately Correlated – **2**
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COURSE DESIGNER:

2. **Dr. V. Jane Varamani Sulekha**

Forwarded By

V. Mageshwari

HOD'S Signature
& Name