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

M.Sc INFORMATION TECHNOLOGY

Minutes of the meeting of the Board of Studies for M.Sc IT held at Department of Information Technology on 6.4.23

Members present:

1. Mrs. V. Mageshwari, Head, Dept. of IT –
2. Dr. k. Perumal, Prof, – 6.4.23
   Department of Computer Applications
   School of Information Technology,
   Madurai kamaraj university
   Madurai.
3. Dr. k. Kungumaraj, – 6/4/2023
   Head & Asst. prof.
   PG Department of computer science,
   Arulmigu palaniandavar college,
   palani
4. Dr. P. Joseph Charles, – 6/4/23
   Head & Professor,
   Department of Information Technology,
   St. Joseph college,
   Trichy.
5. Mr. S. Senthil Kumar, CEO, –
   Eminent Technologies solutions,
   madurai
6. Ms. T.G. Poornima devi, Faculty, – 6/4/23
   Dolphin Elite school,
   Madurai

7. Dr. K. Sangeetha, -
Dean of Academic Affairs (SF),
Fatima college,
Madurai.

8. Staff Members:

* Mrs. T. Leena Prema Kumari -
* Mrs. T. Charanya Nagammal -
* Dr. V. Jane Varamani Sulekha. - V.J.V. Sulekha
* Dr. N. Kalaichelvi - N. Kalai
* Mrs. I. Razul Beevi - I. Razul

I. ACTION TAKEN REPORT:

The Action Taken Report for the academic year 2022-23 was presented to the board members as,

Suggestions	Action Taken.
* There are more than 10 courses are to be Revised.	* As suggested, the topics are revised in all the courses.
* Nearly 4 courses are introduced including the major and Self-Learning courses.	* The suggested courses are introduced as major and Self-Learning courses.

MINUTES OF THE BOARD OF STUDIES:

CORE COURSES INTRODUCED (PART-A).

S.NO.	COURSE CODE	COURSE TITLE WITH SEMESTER	RELEVANCE TO *				SCOPE FOR			NEED FOR INTRODUCTION
		SEM I:	L	R	N	G	EMP	EN	SD	
1.	CC1	Advanced JAVA Programming				✓	✓			Members suggested
2.	CC2	JAVA Programming Lab				✓	✓			Members suggested
3.	CC3	Soft Computing				✓			✓	member suggested
		SEM II:								
4.	CC4	Digital Image processing				✓			✓	member Suggested
5.	CC5	Image Processing Lab				✓	✓			Member suggested
6.	CC6	Data Science				✓			✓	
		SEM III:								
7.	CC7	Android programming				✓	✓			Members suggested
8.	CC8	Android Programming Lab.				✓	✓			
9.	CC9	Object Oriented Analysis & Design				✓			✓	members suggested

S.NO	COURSE CODE	COURSE TITLE WITH SEMESTER	RELEVANCE TO				SCOPE FOR			NEED FOR INTRODUCTION
			L	R	N	G	EMP	EN	SD	
		SEM IV:								
10.	CC10	Data Analytics with python				✓			✓	member suggested
11.	CC11	Lab in python				✓		✓		Member suggested
12.	CC12	Advanced compute Network				✓			✓	member suggested.

ELECTIVE COURSES INTRODUCED (PART-A).

S.NO.	Generic/ Discipline	COURSE CODE	COURSE TITLE	RELEVANCE TO				SCOPE FOR			NEED FOR INTRODUCTION
				L	R	N	G	EMP	ENT	SD	
	SEM I:										
1.	Discipline Specific	EC1	i) Software Testing ii) Distributed Operating System				✓ ✓			✓ ✓	Members suggested.
2.	Discipline Specific	EC2	i) Data Mining + Data warehousing ii) Machine Learning				✓ ✓			✓ ✓	Members suggested.

S.NO.	Generic / Discipline	COURSE CODE	COURSE TITLE	RELEVANCE TO				SCOPE FOR			NEED FOR INTRODUCTION
				L	R	N	G	EMP	ENT	SD	
	SEM II:										
3.	Discipline Specific	EC3:	i) Ethical Hacking				✓			✓	member
			ii) Open source Technologies				✓			✓	suggested
		EC4	i) Cyber Security				✓			✓	members
			ii) Distributed and parallel Computing				✓			✓	suggested
4.	SEM III: Discipline Specific	EC5	i) Adhoc network				✓			✓	members
			ii) Compute Forensics				✓			✓	suggested
5.	SEM IV: Discipline Specific	EC6	i) Internet of Things.				✓			✓	members suggested
			ii) Advanced DBMS.				✓			✓	

SKILL ENHANCEMENT / ABILITY ENHANCEMENT COURSE (PART-B).

S.NO.	SEC/AECC WITH SEMESTER	COURSE CODE	COURSE TITLE	RELEVANCE TO				SCOPE FOR			NEED FOR
				L	R	N	G	EMP	ENT	SD	INTRODUCTION
	SEM I:										
1.		SEC 1	Data Mining Tools				✓	✓			members suggested
	SEM II:										
2.		SEC 2	Opensource Softwares.				✓	✓			members suggested.
3.	SEM III:	SEC 3	R- programming				✓	✓			members suggested.
4.	SEM IV:	SEC 4	professional competency for Skill Enhancement course.				✓	✓			members suggested.

REVISION OF COURSES:

S.NO	COURSE CODE	COURSE TITLE	REVISED CONTENT	NEED FOR REVISION	% of REVISION	RELEVANCE to				Suggested for
						L	R	N	Q	Employ
1.	21PG3IT12	Data Mining & Data Warehousing	Complex Data & Society concepts included	members suggestion	5%.				✓	✓
2.	21PG3IT13	Advanced Python Programming	contents shuffled in unit I & V	members suggestion	20%.				✓	✓
3.	22PG3ITE4	Software Testing	content changed in all units	Members suggestion	90%.				✓	✓
4.	21PG3ITE6	Computer Forensics	contents changed in unit V	Members suggestion	15%.				✓	✓
5.	22PG2IT9	Android programming	content changed in all units	Members suggestion	80%.				✓	✓

COMMENDATIONS:

Board members appreciated the courses, as it covers all the required courses for IT field.

* Mrs. V. Mageshwari -
* Dr. K. Perumal - 6/4/2023
* Dr. K. Kuzhumaraj - 6/4/2023
* Dr. P. Joseph Charles - 6/4/23
* Mr. S. Senthil kumar -
* Ms. T. G. Poornima Devi - 6/4/23
* Dr. K. Sangeetha -
* Mrs. T. Charanya Nagammal - T. Charanya.
* Mrs. T. Leena Prema Kumari -
* Dr. V. Jane Varamani Sulekha - V. J. V. Sulekha
* Mrs. Dr. N. Kalaichelvi - N. Kalaichelvi
* Mrs. I. Razul Beevi - I. Razul Beevi.

06/04/2023

VISION OF THE DEPARTMENT

The vision is to be the center of excellence in training the students in Information Technology to excel both as a professional and as a responsible woman in the society.

MISSION OF THE DEPARTMENT

- Empower women by teaching them technology and life lessons.
- Encourage students to be the change in the society.
- Educate students and prepare them in various aspects of IT industry.
- Provide leadership quality for effective strategic and tactical planning in use of technology.
- Instill the power of faith and hope so they could be the blessing to their next generation.

PROGRAMME EDUCATIONAL OBJECTIVES (PEO)

A graduate of M.Sc. Information Technology programme after two years will be

PEO 1	Our graduates will be academic, digital and information literates, creative, inquisitive, innovative and committed researchers who would be desirous for the "more" in all aspects
PEO 2	They will be efficient individual and team performers who would deliver excellent professional service exhibiting progress, flexibility, transparency, accountability and in taking up initiatives in their professional work
PEO 3	The graduates will be effective managers of all sorts of real – life and professional circumstances, making ethical decisions, pursuing excellence within the time framework and demonstrating apt leadership skills

PEO 4	They will engage locally and globally evincing social and environmental stewardship demonstrating civic responsibilities and employing right skills at the right moment.

GRADUATE ATTRIBUTES (GA)

Fatima College empowers her women graduates holistically. A Fatimite achieves all-round empowerment by acquiring Social, Professional and Ethical competencies. A graduate would sustain and nurture the following attributes:

I. SOCIAL COMPETENCE	
GA 1	Deep disciplinary expertise with a wide range of academic and digital literacy
GA 2	Hone creativity, passion for innovation and aspire excellence
GA 3	Enthusiasm towards emancipation and empowerment of humanity
GA 4	Potentials of being independent
GA 5	Intellectual competence and inquisitiveness with problem solving abilities befitting the field of research
GA 6	Effectiveness in different forms of communications to be employed in personal and professional environments through varied platforms
GA 7	Communicative competence with civic, professional and cyber dignity and decorum
GA 8	Integrity respecting the diversity and pluralism in societies, cultures and religions
GA 9	All – inclusive skill sets to interpret, analyse and solve social and environmental issues in diverse environments
GA 10	Self awareness that would enable them to recognise their uniqueness through continuous self-assessment in order to face and make changes building on their strengths and improving their weaknesses

GA 11	Finesse to co-operate exhibiting team-spirit while working in groups to achieve goals
GA 12	Dexterity in self-management to control their selves in attaining the kind of life that they dream for
GA 13	Resilience to rise up instantly from their intimidating setbacks
GA 14	Virtuosity to use their personal and intellectual autonomy in being life-long learners
GA 15	Digital learning and research attributes
GA 16	Cyber security competence reflecting compassion, care and concern towards the marginalised
GA 17	Rectitude to use digital technology reflecting civic and social responsibilities in local, national and global scenario
II. PROFESSIONAL COMPETENCE	
GA 18	Optimism, flexibility and diligence that would make them professionally competent
GA 19	Prowess to be successful entrepreuners and become employees of trans-national societies
GA 20	Excellence in Local and Global Job Markets
GA 21	Effectiveness in Time Management
GA 22	Efficiency in taking up Initiatives
GA 23	Eagerness to deliver excellent service
GA 24	Managerial Skills to Identify, Commend and tap Potentials
III. ETHICAL COMPETENCE	
GA 25	Integrity and be disciplined in bringing stability leading a systematic life promoting good human behaviour to build better society
GA 26	Honesty in words and deeds
GA 27	Transparency revealing one's own character as well as self-esteem to lead a genuine and authentic life
GA 28	Social and Environmental Stewardship

GA 29	Readiness to make ethical decisions consistently from the galore of conflicting choices paying heed to their conscience
GA 30	Right life skills at the right moment

PROGRAMME OUTCOMES (PO)

The learners will be able to

PO 1	Apply acquired scientific knowledge to solve major and complex issues in the society/industry.
PO 2	Attain research skills to solve complex cultural, societal and environmental issues.
PO 3	Employ latest and updated tools and technologies to solve complex issues.
PO 4	Demonstrate Professional Ethics that foster Community, Nation and Environment Building Initiatives

PROGRAMME SPECIFIC OUTCOMES (PSO)

On completion of M.Sc.IT programme, the graduates would be able to

PSO 1	Understand the concepts and applications in the field of Information Technology like Web designing and development, Mobile application development, and Network communication technologies.
PSO 2	Ability to understand the structure and development methodologies of software systems.
PSO 3	Apply the learning from the courses and develop applications for real world problems.

PSO 4	Understand the technological developments in the usage of modern design and development tools to analyze and design for a variety of applications.
PSO 5	Familiarity and practical competence with a broad range of programming language and open source platforms.
PSO 6	Demonstrate the understanding of the principles and working of the hardware and software aspects of computer systems
PSO 7	Possess professional skills and knowledge of software design process.
PSO 8	Be acquainted with the contemporary issues, latest trends in technological development and thereby innovate new ideas and solutions to existing problems.
PSO 9	Communicate in both oral and written forms, demonstrating the practice of professional ethics and the concerns for social welfare.

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						
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.		Elective - III 21PG3ITE7 21PG3ITE8 22PG3ITE9	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	-	2	IV	-	-	100

	papers by the respective course teachers)						
	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	-	Minimum 2	I – IV	-	-	

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

- **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

Skill Development 100%

I M.Sc.,

SEMESTER –I

For those who joined in 2023 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
PSIT	23PG1I1	PYTHON PROGRAMMING	Lecture	7	5

COURSE DESCRIPTION

This course introduces the Basic understanding on object oriented programming concepts.

COURSE OBJECTIVES

To acquire programming skills in core Python and to develop database applications in Python.

UNITS

UNIT I: CORE PYTHON (14Hrs)

Introduction - Python Basics: Comments - Statements and syntax - variable Assignment - Identifiers - **Python objects:** Built-in-types - Internal types - Standard Type operators - Standard type Built-in-functions. **Numbers :** Introduction to Numbers - Integers - Floating point numbers - Complex numbers - Operators - Built-in and factory functions – Conditionals and Loops -**Sequences : Strings, Lists and Tuples(Self study)**

UNIT II: FUNCTIONS AND FUNCTIONAL PROGRAMMING (14Hrs)

Mapping and set types.- Introduction - Calling functions - Creating functions - passing functions - Formal arguments - Variable - Length Arguments - Functional Programming - Variable Scope – Recursion

UNIT III: MODULES AND OBJECT ORIENTED (14Hrs)

Modules: Modules and Files – namespaces - Importing Modules - Features - Built-in functions. **Object Oriented Programming**: Introduction - Object Oriented Programming – Encapsulation Inheritance – Polymorphism - **Errors and Exceptions**: Introduction – Exceptions in Python.

UNIT IV: GUI PROGRAMMING (14Hrs)

Introduction – **Using Widgets**: Core widgets- Generic widget properties – Labels – Buttons – Radio Buttons – Check Buttons – Text – Entry – List Boxes – Menus – Frame – Scroll Bars – Scale

UNIT V: DATABASE PROGRAMMING (14Hrs)

Connecting to a database using MongoDB - Creating Tables - INSERT-UPDATE - DELETE - **READ operations (Self Study)**

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

Current trends in implementation of Python Programming in Machine Learning Techniques.

Recommended Text:

1. *Wesley J. Chun, (2007), "Core Python Programming", Pearson Education, Second Edition – (Unit I, II, III).*
2. *Charles Dierbach, (2015), "Introduction to Computer Science Using Python A Computational Problem-Solving Focus", Wiley India Edition- (Unit III- Object Oriented Programming)*
3. *Martin C Brown, (2018), "The Complete Reference Python", McGraw Hill Education (India) Private Limited – (Unit IV)*

Reference Books:

1. *MarkLutz,(2013),"LearningPythonPowerfulObjectOrientedProgramming",O''reillyMedia,5 th Edition.*
2. *TimothyA.Budd,(2011),"ExploringPython",TataMCGrawHillEducationPrivateLimited,First Edition.*
3. *AllenDowney,JeffreyElkner,ChrisMeyers,(2012),"Howtothinklikeacomputerscientist:learningwithPython"*

Digital Open Educational Resources (DOER) :

1. http://interactivepython.org/courselib/static/pythonds
2. http://www.ibiblio.org/g2swap/byteofpython/read/
3. http://www.diveintopython3.net/
4. http://docs.python.org/3/tutorial/index.html

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -1	**CORE PYTHON**			
1.1	Introduction - Python Basics: Comments - Statements and syntax - variable Assignment - Identifiers	5	Chalk & Talk	Black Board
1.2	Built-in-types - Internal types - Standard Type operators - Standard type Built-in-functions	6	Chalk & Talk	LCD
1.3	Introduction to Numbers - Integers - Floating point numbers - Complex numbers	3	Discussion	Google Classroom
1.4	Operators - Built-in and factory functions – Conditionals and Loops -**Sequences : Strings, Lists and Tuples (Self study)**	3	Chalk & Talk	LCD
UNIT -2	**FUNCTIONS AND FUNCTIONAL PROGRAMMING**			

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
2.1	Mapping and set types.- Introduction - Calling functions	6	Lecture	Green Board
2.2	Functional Programming - Variable Scope – Recursion	5	Chalk &Talk	Green Board
2.3	Functional Programming - Variable Scope – Recursion	3	Discussion	Google Classroom
UNIT -3 MODULES AND OBJECT ORIENTED				
3.1	**Modules:** Modules and Files – namespaces -	4	Chalk & Talk	Black Board
3.2	Importing Modules - Features - Built-in functions.	5	Chalk & Talk	LCD
3.3	**Object Oriented Programming**: Introduction - Object Oriented Programming – Encapsulation Inheritance – Polymorphism -	3	Chalk & Talk	Black Board
3.4	**Errors and Exceptions**: Introduction – Exceptions in Python	3	Lecture	Green Board
UNIT -4 GUI PROGRAMMING				
4.1	Introduction – **Using Widgets**: Core widgets- Generic widget properties	3	Chalk & Talk	Black Board
4.2	Labels – Buttons – Radio Buttons – Check Buttons – Text	6	Lecture	Green Board

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
4.3	Entry – List Boxes – Menus – Frame – Scroll Bars – Scale	3	Chalk & Talk	LCD
UNIT -5 DATABASE PROGRAMMING				
5.1	Connecting to a database using MongoDB -	6	Chalk & Talk	Black Board
5.2	Creating Tables - INSERT-UPDATE - DELETE - **READ operations (Self Study)**	4	Discussion	Google Classroom
UNIT -6 DYNAMISM				
6.1	Current trends in implementation of Python Programming in Machine Learning Techniques.	5	Assignments	Google class room

- **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:

SNO.	COURSE OUTCOMES
CO 1	Explain the basic concepts in python language.
CO 2	Apply the various data types and identify the usage of control statements, loops, functions and modules in python for processing the data
CO 3	Analyze and solve problems using basic constructs and techniques of python.
CO 4	Assess the approaches used in the development of interactive application.
CO 5	To build real time programs using python

Mapping of COs with PSOs

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CLO1	3	3	3	3	2	2
CLO2	3	3	3	3	3	2
CLO3	3	2	3	3	3	3
CLO4	3	3	3	3	3	3
CLO5	3	3	3	3	3	3
Weightage of course contribute to each PSO	15	13	15	15	13	15

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**

HOD'S Signature

& Name

Employability 100%

I M.Sc.,

SEMESTER –I

For those who joined in 2023 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
PSIT	23PG1I2	PYTHON PROGRAMMING PRACTICAL	Practical	7	5

COURSE DESCRIPTION

This course introduces the Basic implementation python programming concepts.

COURSE OBJECTIVES

This course gives practical experience in Python basics, Object Oriented programming like Classes, Inheritance, and Polymorphism, GUI Applications and Database connection.

UNITS - List of Programs

1. Python Basic programs
2. Control Structures
3. Lists
4. Functions and Recursions
5. Modules
6. String Processing
7. Dictionaries and Sets
8. Classes and Objects
9. Polymorphism

10. Inheritance
11. GUI Application
12. Working with Database

Recommended Text:

1. *Wesley J. Chun, (2007), "Core Python Programming", Pearson Education, Second Edition.*

Reference Books:

1. *MarkLutz,(2013),"LearningPythonPowerfulObjectOrientedProgramming",O''reillyMedia,5 th Edition.*
2. *TimothyA.Budd,(2011),"ExploringPython",TataMCGrawHillEducationPrivateLimited,First Edition.*
3. *AllenDowney,JeffreyElkner,ChrisMeyers,(2012),"Howtothinklikeacomputerscientist:learningwithPython"*

Digital Open Educational Resources (DOER) :

5. http://interactivepython.org/courselib/static/pythonds
6. http://www.ibiblio.org/g2swap/byteofpython/read/
7. http://www.diveintopython3.net/
8. http://docs.python.org/3/tutorial/index.html

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
1	Program using Python Basic Concepts	6	Demonstration	Desktop PC
2	Program using Control Structures.	6	Demonstration	Desktop PC

3	Program using List.	6	Demonstration	Desktop PC
4	Program using Functions.	6	Demonstration	Desktop PC
5	Program using Recursion.	6	Demonstration	Desktop PC
6	Programs Using Modules.	6	Demonstration	Desktop PC
7	Program using String Processing	6	Demonstration	Desktop PC
8	Program using Dictionaries and Set.	6	Demonstration	Desktop PC
9	Program using Classes and Objects.	6	Demonstration	Desktop PC
10	Program using Inheritance	6	Demonstration	Desktop PC
11	Program using GUI Applications.	6	Demonstration	Desktop PC
12	Working with Database	6	Demonstration	Desktop PC

- **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:

S.NO.	COURSE OUTCOMES
CO 1	Understand the significance of control statements, loops and functions in creating simple programs.
CO 2	Apply the core data structures available in python to store, process and sort the data
CO 3	Analyze the real time problem using suitable python concepts
CO 4	Assess the complex problems using appropriate concepts in python
CO 5	Develop the real time applications using python programming language.

Mapping of COs with PSOs

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CLO1	**3**	**3**	**3**	**3**	**2**	**2**
CLO2	**3**	**3**	**3**	**3**	**3**	**2**
CLO3	**3**	**2**	**3**	**3**	**3**	**3**
CLO4	**3**	**3**	**3**	**3**	**3**	**3**
CLO5	**3**	**3**	**3**	**3**	**3**	**3**
Weightage of course contribute to each PSO	**15**	**13**	**15**	**15**	**13**	**15**

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**

HOD'S Signature

& Name

Employability 100%

I M.Sc.,

SEMESTER –I

For those who joined in 2023 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
PSIT	23PG1I3	WEB DEVELOPEMENT USING WORDPRESS	Practical	6	4

COURSE DESCRIPTION

This course introduces the Basic understanding of HTML & CSS concepts along with Word Press.

COURSE OBJECTIVES

The primary course objective of this paper is to learn the fundamentals of basic web concepts, HTML, DHTML, JavaScript and Word Press.

UNITS

UNIT I: INTRODUCTION (14Hrs)

Introduction to HTML - Lists - Adding Graphics to HTML Documents - Tables -Linking Documents - Frames- Developing HTML Forms

UNIT II: DHTML & CSS (14Hrs)

Dynamic HTML - Cascading Style Sheets - Use of SPAN Tag - External Style Sheets -Use of DIV Tag - Developing Websites

UNIT III: JAVASCRIPT

(14Hrs)

Introduction to JavaScript - JavaScript in Web Pages - Advantages - Writing JavaScript into HTML - Basic Programming Techniques - Operators and Expressions- JavaScript Programming Construct: Conditional Checking,

Controlled Loops, Functions: Built-in Functions, User-Defined Functions - Placing Text in a Browser - Dialog Boxes.

UNIT IV: DOCUMENT OBJECT MODEL (14Hrs)

JavaScript Document Object Model: Introduction - Understanding Objects in HTML - Handling Events using JavaScript. Forms used by a Website: Form Object - Built-in Objects

UNIT V: WORD PRESS (14Hrs)

Word Press: Installation - Stetting and administration- Word press: Theming basics - Our First Word Press Website - Theme Foundation - Menu and navigation - Home page - Dynamic Sidebars and Widgets - Page - archive Page results - Testing and Launching

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

Creating Website and Blogs.

Recommended Text:

1. *Ivan N. Bayross, (2005), Web Enabled Commercial Applications Development Using HTML, DHTML, JavaScript, perlCGI, 3rd Edition, BPB Publications. (Unit I, II, III and IV)*
2. *Jesse Friedman,(2012), Web Designer's Guide to WordPress: Plan, Theme, Build, Launch (Voices That Matter), 1st Edition , New Riders. (Unit V)*

Reference Books:

1. *N.P. Gopalan, J. Akilandeswari, (2009), Web Technology: A Developer''s Perspective, Eastern Economy Edition, PHI Learning Private Limited.*
2. *Deitel&Deitel, (2000), Internet and World Wide Web How to program, Prentice Hall.*
3. *Jon Duckett, (2004), Beginning Web Programming with HTML, XHTML, and CSS, Wiley Publishing, I*

Digital Open Educational Resources (DOER) :

1. http://www.sergey.com/web_course/content.html
2. http://www.pageresource.com/jscript/index.html

3. http://www.peachpit.com/guides/content.aspx
   https://www.tutorialspoint.com/wordpress/index.htm

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -1	**INTRODUCTION**			
1.1	**Introduction to HTML** - Lists - Adding Graphics to HTML Documents - Tables	5	Chalk & Talk	Black Board
1.2	-Linking Documents - Frames- Developing HTML Forms	6	Chalk & Talk	LCD
UNIT -2	**DHTML AND CSS**			
2.1	**Dynamic HTML** - Cascading Style Sheets	6	Lecture	Green Board
2.2	Use of SPAN Tag - External Style Sheets	5	Chalk &Talk	Green Board
2.3	Use of DIV Tag - Developing Websites	3	Discussion	Google Classroom
UNIT -3	**JAVASCRIPT**			
3.1	Introduction to JavaScript - JavaScript in Web Pages - Advantages - Writing JavaScript into HTML -	4	Chalk & Talk	Black Board
3.2	Basic Programming Techniques - Operators and Expressions- JavaScript Programming Construct:	5	Chalk & Talk	LCD

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
3.3	Conditional Checking, Controlled Loops, Functions:	3	Chalk & Talk	Black Board
3.4	Built-in Functions, User-Defined Functions - Placing Text in a Browser - Dialog Boxes.	3	Lecture	Green Board
UNIT -4 DOCUMENT OBJECT MODEL				
4.1	**JavaScript Document Object Model:** Introduction - Understanding Objects in HTML.	3	Chalk & Talk	Black Board
4.2	Handling Events using JavaScript	6	Lecture	Green Board
4.3	Forms used by a Website: Form Object - Built-in Objects	3	Chalk & Talk	LCD
UNIT -5 WORD PRESS				
5.1	**Word Press:** Installation - Stetting and administration- Word press: Theming basics.	6	Chalk & Talk	Black Board
5.2	Our First Word Press Website - Theme Foundation - Menu and navigation	4	Discussion	Google Classroom
5.3	Home page - Dynamic Sidebars and Widgets - Page - archive Page results - Testing and Launching	6	Chalk & Talk	Black Board
UNIT -6 DYNAMISM				

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
6.1	Creating Website and Blogs.	5	Assignments	Google class room

- **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
CO 1	Identifythe tools whichwill besuitableforthe requirement ofthe webpage.
CO 2	ImplementJavascriptandStyleSheetseffectivelyintheWebPages
CO 3	Analyzethedifferenttoolsandbuilt-infunctionsavailabletobeappliedinthe webpage
CO 4	RatethedesignandeffectivenessoftheWebPages created.
CO 5	Design andpublishawebsiteusingWordpress

Mapping of COs with PSOs

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CLO1	3	3	3	2	2	3
CLO2	3	3	3	2	2	3
CLO3	3	3	3	2	2	3
CLO4	3	3	3	2	2	3
CLO5	3	3	3	3	3	3
Weightage of course contribute to each PSO	15	15	15	11	11	15

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**

HOD'S Signature

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I M.Sc., Skill Development 100%

SEMESTER –I

For those who joined in 2023 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
PSIT	23PG1IE1	DATA STRUCTURES	Lecture	5	3

COURSE DESCRIPTION

This course introduces Basic understanding of programming and foundational concepts in data structures.

COURSE OBJECTIVES

To become familiar with the various data structures and their applications and to increase the understanding of basic concepts of the design and use of algorithms.

UNITS

UNIT I: INTRODUCTION AND OVERVIEW (14Hrs)

Definitions – Concept of Data Structures – Overview of Data Structures – Implementation of Data Structures – Arrays: Definition – One Dimensional Array – Multidimensional Arrays: Two Dimensional Array – Sparse Matrices – Three dimensional and n-dimensional Arrays – Stacks : Introduction – Definition – Representation of Stack – Operations on Stack – Applications of Stacks: Evaluation of Arithmetic Expressions – **Implementation of Recursion - Tower of Hanoi Problem (Self study)**

UNIT II: QUEUES & LINKED LIST (14Hrs)

Introduction – Definition – Representation of Queues – **Various Queue Structures :** Circular Queue – Deque – Priority Queue – **Applications of Queues :** Simulation – CPU Scheduling in a Multiprogramming Environment – Round Robin Algorithm – **Linked Lists:** Single Linked List – Circular

Linked List – Double Linked List – Circular Double Linked List – **Applications of Linked List:** Polynomial Representation

UNIT III: TREES (14Hrs)

Trees: Basic Terminologies – Representation of Binary Tree: Linear Representation – Linked Representation – Operations: Traversals – Types of Binary Trees: Expression Tree – Binary Search Tree – Splay tree.

UNIT IV: SORTING & SEARCHING (14Hrs)

Sorting: Bubble Sort, Insertion Sort, Selection Sort, Shell Sort – Quick Sort - Merge Sort - Radix Sort - Heap Sort – **Searching:** Linear Search - Binary Search

UNIT V: GRAPHS (14Hrs)

Graphs: Introduction – Graph representation and its operations – Path Matrix – Graph Traversal - Application of DFS – Shortest Path Algorithm -**Minimum Spanning Tree :** Prim‟s Algorithm – Kruskal‟s Algorthim - Greedy – Knapsack – Back Tracking – 8 Queens **(Self Study)**

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

Real Time Applications using Data Structures

Recommended Text:

1. *Debasis Samantha (2013), Classic Data Structures, Second Edition, PHI Learning Private Limited.*
2. *P. Sudharsan, J. John Manoj Kumar, C & Data Structures, Third Edition, RBA Publications. Unit 4: Chapter 14, Unit 5: Chapter 13*
3. *Ellis Horowitz, SartajSahni, Sanguthevar Rajeshakaran, (2007), Fundamentals of Computer Algorithms, Second Edition, Universities Press (P) Limited*

Reference Books:

1. *Sara Baase, (1991), Computer Algorithms – Introduction to Design and Analysis, Addison- Wesley Publishing Company*

2. *Robert Kruse, C.L.Tondo, Bruce Leung, Data Structures and Program Design in C ,2nd Edition, PHI Publications"*

Digital Open Educational Resources (DOER) :

1. http://www.cs.sunysb.edu/~skiena/214/lectures/
2. http://datastructures.itgo.com/graphs/dfsbfs.htm
3. http://oopweb.com/Algorithms/Documents/PLDS210/VolumeFrames.html
4. http://discuss.codechef.com/questions/48877/data-structures-and-algorithms
5. http://code.tutsplus.com/tutorials/algorithms-and-data-structures--cms-20437

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -1	**INTRODUCTION AND OVERVIEW**			
1.1	Definitions – Concept of Data Structures – Overview of Data Structures – Implementation of Data Structures –	5	Chalk & Talk	Black Board
1.2	Arrays: Definition – One Dimensional Array – Multidimensional Arrays: Two Dimensional Array – Sparse Matrices – Three dimensional and n-dimensional Arrays –	6	Chalk & Talk	LCD
1.3	Stacks : Introduction – Definition – Representation of Stack –	3	Discussion	Google Classroom

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
1.4	Operations on Stack – Applications of Stacks: Evaluation of Arithmetic Expressions – **Implementation of Recursion - Tower of Hanoi Problem**	3	Chalk & Talk	LCD
UNIT -2	**QUEUES AND LINKED LIST**			
2.1	Introduction – Definition – Representation of Queues – **Various Queue Structures :** Circular Queue – Deque – Priority Queue	6	Lecture	Green Board
2.2	**Applications of Queues :** Simulation – CPU Scheduling in a Multiprogramming Environment – Round Robin Algorithm	5	Chalk &Talk	Green Board
2.3	**Linked Lists:** Single Linked List – Circular Linked List – Double Linked List – Circular Double Linked List	3	Discussion	Google Classroom
2.4	**Applications of Linked List:** Polynomial Representation	5	Chalk &Talk	Green Board
UNIT -3	**TREES**			
3.1	Trees: Basic Terminologies Representation of Binary Tree:	4	Chalk & Talk	Black Board
3.2	Linear Representation of Trees	5	Chalk & Talk	LCD

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
3.3	Linked Representation – Operations: Traversals –	3	Chalk & Talk	Black Board
3.4	Types of Binary Trees: Expression Tree – Binary Search Tree – Splay tree	3	Lecture	Green Board
UNIT -4 SEARCHING AND SORTING				
4.1	**Sorting:** Bubble Sort, Insertion Sort, Selection Sort, Shell Sort, Quick Sort	3	Chalk & Talk	Black Board
4.2	Merge Sort - Radix Sort - Heap Sort –	6	Lecture	Green Board
4.3	**Searching:** Linear Search - Binary Search	3	Chalk & Talk	LCD
UNIT -5 GRAPHS				
5.1	**Graphs:** Introduction – Graph representation and its operations – Path Matrix – Graph Traversal - Application of DFS	6	Chalk & Talk	Black Board
5.2	**Minimum Spanning Tree :** Shortest Path Algorithm -Prim‟s Algorithm – Kruskal‟s Algorthim – Greedy –	4	Discussion	Google Classroom
5.3	Knapsack – Back Tracking – 8 Queens **(Self Study)**			
UNIT -6 DYNAMISM				

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
6.1	Real Time Applications using Data Structures.	5	Assignments	Google class room

- **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
CO 1	Outline the basic data structures
CO 2	Identify the different operations and memory representations
CO 3	Interpret different techniques with their complexities

NO.	COURSE OUTCOMES
CO 4	Compare the applications of various data structures
CO 5	Choose an algorithm to solve simple problems suited for appropriate situations

Mapping of COs with PSOs

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CLO1	3	1	2	2	1	2
CLO2	3	2	2	2	2	3
CLO3	3	2	3	3	3	2
CLO4	3	3	2	3	3	3
CLO5	3	3	3	3	3	2
Weightage of course contribute to each PSO	15	11	12	13	12	14

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**

HOD'S Signature& Name

I M.Sc., Skill Development 100%

SEMESTER –I

For those who joined in 2023 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
PSIT	23PG1IE2	NATURAL LANGUAGE PROCESSING	Lecture	5	3

COURSE DESCRIPTION

This course introduces the basic understanding of of natural language and linguistics

COURSE OBJECTIVES

To learn the fundamentals of natural language processing and to understand the role of CFG, semantics of sentences and pragmatics.

UNITS

UNIT I: INTRODUCTION (14Hrs)

Origins and challenges of NLP – Language Modeling: Grammar-based LM, Statistical LM - Regular Expressions, Finite-State Automata – English Morphology, Transducers for lexicon and rules, Tokenization, Detecting and Correcting Spelling Errors, **Minimum Edit Distance (Self study)**

UNIT II: WORD LEVEL ANALYSIS (14Hrs)

Unsmoothed N-grams, Evaluating N-grams, Smoothing, Interpolation and Backoff – Word Classes, Part-of-Speech Tagging, Rulebased, Stochastic and Transformation-based tagging, Issues in PoS tagging – Hidden Markov and Maximum Entropy models

UNIT III: SYNTACTIC ANALYSIS (14Hrs)

Context-Free Grammars, Grammar rules for English, Treebanks, Normal Forms for grammar – Dependency Grammar – Syntactic Parsing, Ambiguity, Dynamic Programming parsing – Shallow parsing – Probabilistic CFG, Probabilistic CYK, Probabilistic Lexicalized CFGs - Feature structures, Unification of feature structures.

UNIT IV: SEMANTICS AND PRAGMATICS (14Hrs)

Requirements for representation, FirstOrder Logic, Description Logics – Syntax-Driven Semantic analysis, Semantic attachments – Word Senses, Relations between Senses, Thematic Roles, selection restrictions – Word Sense Disambiguation, WSD using Supervised, Dictionary & Thesaurus, Bootstrapping methods – Word Similarity using Thesaurus and Distributional methods

UNIT V: DISCOURSE ANALYSIS AND LEXICAL RESOURCES (14Hrs)

Discourse segmentation, Coherence – Reference Phenomena, Anaphora Resolution using Hobbs and Centering Algorithm – Coreference Resolution – Resources: Porter Stemmer, Lemmatizer, Penn Treebank, Brill's Tagger, WordNet, PropBank, FrameNet, Brown Corpus, British National Corpus (BNC) **(Self Study)**

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

To perform the large scale analysis and Stream line process

Recommended Text:

1. *Daniel Jurafsky, James H. Martin;Speech and Language Processing: An Introduction to Natural Language Processing, Computational Linguistics and Speech; Pearson Publication; 2014.*
2. *Steven Bird, Ewan Klein and Edward Loper, —Natural Language Processing with Python , First Edition, OReilly Media, 2009.*

Reference Books:

1. *Breck Baldwin, —Language Processing with Java and LingPipe Cookbook, Atlantic Publisher, 2015.*
2. *Richard M Reese, —Natural Language Processing with Java , O_Reilly Media, 2015.*

3. *Nitin Indurkhya and Fred J. Damerau, —Handbook of Natural Language Processing, Second Edition, Chapman and Hall/CRC Press, 2010.*

4. *Tanveer Siddiqui, U.S. Tiwary, —Natural Language Processing and Information Retrieval, Oxford University Press, 2008.*

Digital Open Educational Resources (DOER) :

1. http://www.cse.iitb.ac.in/~pb/papers/nlp-iitb.pdf
2. https://www.nitk.ac.in/faculty/dr-sarika-jain
3. https://www.simplilearn.com/tutorials/artificial-intelligence-tutorial/what-is-natural-language-processing-nlp
4. https://www.sas.com/en_us/insights/analytics/what-is-natural-language-processing-nlp.html
5. https://towardsdatascience.com/your-guide-to-natural-language-processing-nlp-48ea2511f6e1

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -1	**INTRODUCTION**			
1.1	Origins and challenges of NLP – Language Modeling: Grammar-based LM	5	Chalk & Talk	Black Board
1.2	Statistical LM - Regular Expressions, Finite-State Automata	6	Chalk & Talk	LCD
1.3	English Morphology, Transducers for lexicon and rules, Tokenization	3	Discussion	Google Classroom

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
1.4	Detecting and Correcting Spelling Errors, **Minimum Edit Distance**	3	Chalk & Talk	LCD
UNIT -2	**WORD LEVEL ANALYSIS**			
2.1	Unsmoothed N-grams, Evaluating N-grams, Smoothing, Interpolation and Backoff – Word Classes,	6	Lecture	Green Board
2.2	Part-of-Speech Tagging, Rulebased, Stochastic and Transformation-based tagging, Issues in PoS tagging	5	Chalk &Talk	Green Board
2.3	Hidden Markov and Maximum Entropy models	3	Discussion	Google Classroom
UNIT -3	**SYNTACTIC ANALYSIS**			
3.1	Context-Free Grammars, Grammar rules for English, Treebanks, Normal Forms for grammar	4	Chalk & Talk	Black Board
3.2	Dependency Grammar Syntactic Parsing, Ambiguity, Dynamic Programming parsing – Shallow parsing –-	5	Chalk & Talk	LCD
3.3	Probabilistic CFG, Probabilistic CYK, Probabilistic Lexicalized CFGs	3	Chalk & Talk	Black Board
3.4	Feature structures, Unification of feature structures.	3	Lecture	Green Board

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -4	**SEMANTICS AND PRAGMANTICS**			
4.1	Requirements for representation, FirstOrder Logic, Description Logics – Syntax-Driven Semantic analysis, Semantic attachments.	3	Chalk & Talk	Black Board
4.2	Word Senses, Relations between Senses, Thematic Roles, selection restrictions – Word Sense Disambiguation, WSD using Supervised, Dictionary & Thesaurus.	6	Lecture	Green Board
4.3	Bootstrapping methods – Word Similarity using Thesaurus and Distributional methods.	3	Chalk & Talk	LCD
UNIT -5	**DISCOURSE ANALYSIS AND LEXICAL RESOURCES**			
5.1	Discourse segmentation, Coherence – Reference Phenomena	5	Chalk & Talk	Black Board
5.2	Anaphora Resolution using Hobbs and Centering Algorithm – Coreference	5	Discussion	Google Classroom
5.3	Resolution – Resources: Porter Stemmer, Lemmatizer, Penn Treebank, Brill's Tagger, WordNet, PropBank, FrameNet,	4	Discussion	Google Classroom

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
	Brown Corpus, British National Corpus (BNC)			
UNIT -6 DYNAMISM				
6.1	To perform the large scale analysis and Stream line process.	5	Assignments	Google class room

- **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:

S.NO.	COURSE OUTCOMES
CO 1	Describe the concepts of morphology, syntax, semantics, discourse & pragmatics of natural language
CO 2	Identify various linguistic and statistical features relevant to the basic NLP task, namely, spelling

S.NO.	COURSE OUTCOMES
	correction, morphological analysis, parsing and semantic analysis
CO 3	Classify the text into an organized group using a set of handicraft linguistic rules with appropriate NLP processes and algorithms
CO 4	Analyze the system with various language analysis methods and interpret the results
CO 5	Assess NLP systems, identify and suggest solutions for the shortcomings

Mapping of C0s with PSOs

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CLO1	3	2	2	2	2	2
CLO2	3	2	2	2	2	2
CLO3	3	2	2	3	2	3
CLO4	3	2	2	3	2	3
CLO5	3	2	2	3	3	3
Weightage of course contribute to each PSO	15	10	10	13	11	13

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**

HOD'S Signature& Name

I M.Sc.,

Skill Development 100%

SEMESTER –I

For those who joined in 2023 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
PSIT	23PG1IE3	OPERATING SYSTEMS	Lecture	5	3

COURSE DESCRIPTION

This course introduces the Basic understanding of working principles of computer and about hardware and software components.

COURSE OBJECTIVES

To develop fundamental knowledge of Operating systems, to become familiar with CPU Scheduling, memory and file management concepts, to learn concepts and programming techniques of Linux.

UNITS

UNIT I: INTRODUCTION (14Hrs)

Evolution of Operating System - Structure - Processes - The Process Concepts - Inter Process Communication - IPC Problems - Scheduling Levels - Preemptive Vs Non- Preemptive Scheduling - **Scheduling Algorithms:** First Come First Served - Shortest Job First - Shortest Remaining Time Next - Three Level Scheduling - Round Robin Scheduling - Priority Scheduling -Multiple Queues - Shortest Process Next - Guaranteed Scheduling - Lottery Scheduling - Fair-Share Scheduling - **Thread Scheduling (Self study)**

UNIT II: MEMORY MANAGEMENT (14Hrs)

Swapping - Virtual Memory - Page Replacement Algorithm - Segmentation

UNIT III: DEADLOCK (14Hrs)

Deadlock - Examples of Deadlock - Detection - Recovery - Avoidance - Prevention – Semaphore -Shared Memory.

UNIT IV: FILE SYSTEM (14Hrs)

File System - Files - Directories - I/O Management - Disks - Disk Arm Scheduling Algorithm.

UNIT V: LINUX (14Hrs)

Introduction to Linux: Introducing Shell Programming - Linux File Systems - Linux File system calls - Implementation of Linux File systems - Linux Commands - Directory Oriented Commands - File Oriented Commands - Communication Oriented Commands- General Purpose Commands **(Self Study)**

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

Processing the operating systems with some real time applications

Recommended Text:

1. *Andrew S. Tanenbaum, (2001), Modern Operating Systems, 2nd Edition, Prentice Hall of India.*
2. *B.Mohamed Ibrahim, (2005) Linux Practical Approach, Firewall Media.*

Reference Books:

1. *Silberchatz, Galvin, Gagne, (2003), Operating Systems Concepts, 6th Edition Wiley India Edition.*
2. *JhonGoerzen, (2002), Linux Programming Bible, 4th Edition, Wiley-dreamtech India (P) Ltd.*

Digital Open Educational Resources (DOER) :

1. https://www.webopedia.com/TERM/O/operating_system.html
2. https://www.tutorialspoint.com/operating_system/operating_system_tutorial.pdf
3. http://iips.icci.edu.iq/images/exam/Abraham-Silberschatz-Operating-System-Concepts--- 9th2012.12.pdf
4. https://www.informatics.indiana.edu/rocha/academics/i101/pdfs/os_intro.pdf

5. https://www.youtube.com/watch?v=oJMYYMIGVMU

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -1	**INTRODUCTION**			
1.1	Evolution of Operating System - Structure - Processes - The Process Concepts - Inter Process Communication	5	Chalk & Talk	Black Board
1.2	IPC Problems - Scheduling Levels - Preemptive Vs Non-Preemptive Scheduling	6	Chalk & Talk	LCD
1.3	Scheduling Algorithms: First Come First Served - Shortest Job First - Shortest Remaining Time Next	3	Discussion	Google Classroom
1.4	Three Level Scheduling - Round Robin Scheduling - Priority Scheduling -Multiple Queues - Shortest Process Next - Guaranteed Scheduling - Lottery Scheduling - Fair-Share Scheduling - **Thread Scheduling**	3	Chalk & Talk	LCD
UNIT -2	**MEMORY MANAGEMENT**			
2.1	Swapping - Virtual Memory	6	Lecture	Green Board
2.2	Page Replacement Algorithm -	5	Chalk &Talk	Green Board

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
2.3	Segmentation	3	Discussion	Google Classroom
UNIT -3	**DEADLOCK**			
3.1	**Deadlock** & Examples of Deadlock	4	Chalk & Talk	Black Board
3.2	Detection - Recovery	5	Chalk & Talk	LCD
3.3	Avoidance - Prevention	3	Chalk & Talk	Black Board
3.4	Semaphore -Shared Memory	3	Lecture	Green Board
UNIT -4	**FILE SYSTEM**			
4.1	**File System** - Files - Directories	3	Chalk & Talk	Black Board
4.2	I/O Management - Disks	6	Lecture	Green Board
4.3	Disk Arm Scheduling Algorithm	3	Chalk & Talk	LCD
UNIT -5	**LINUX**			
5.1	**Introduction to Linux:** Introducing Shell Programming - Linux File Systems - Linux File system calls	6	Chalk & Talk	Black Board

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
5.2	Implementation of Linux File systems - Linux Commands - Directory Oriented Commands - File Oriented Commands	4	Discussion	Google Classroom
5.3	Communication Oriented Commands- General Purpose Commands	4	Discussion	Google Classroom
UNIT -6 DYNAMISM				
6.1	Processing the operating systems with some real time applications	5	Assignments	Google class room

COURSE OUTCOMES

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

NO.	COURSE OUTCOMES
CO 1	Outline the fundamental concepts of an OS and their respective functionality
CO 2	Demonstrate the importance of open-source operating system commands
CO 3	Identify and stimulate management activities of operating system
CO 4	Analyze the various services provided by the operating system
CO 5	Interpret different problems related to process, scheduling, deadlock, memory and files

Mapping of COs with PSOs

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CLO1	3	1	1	2	2	2
CLO2	3	2	2	3	3	2
CLO3	3	3	2	2	2	2
CLO4	3	3	3	3	2	3
CLO5	3	3	3	3	3	3
Weightage of course contribute to each PSO	15	12	11	13	12	12

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**

I M.Sc., Skill Development 100%

SEMESTER –I

For those who joined in 2023 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
PSIT	23PG1IE4	HUMAN COMPUTER INTERACTION	Lecture	5	3

COURSE DESCRIPTION

This course introduces the basic understanding of the impact of human factors and Computer Science fundamentals.

COURSE OBJECTIVES

To think constructively and analytically in designing and evaluating interactive technologies.

UNITS

UNIT I: INTRODUCTION (14Hrs)

Foundations: The Human: Introduction-Input-Output Channels- Memory. The Computer: Introduction- Text Entry Devices- Display Devices- Memory. The Interaction: Introduction – Models of Interaction-Frameworks and HCI Ergonomics-Interaction Styles-Elements of the WIMP Interface-Interactivity - **The Context of the Interactions (Self study)**

UNIT II: DESIGN PROCESS (14Hrs)

Design Basics- Introduction - Process- User Focus-Scenarios- Navigation Design- Screen Design and Layout-Interaction and Prototyping. Design Rules-Introduction- Principles to Support Usability-Guidelines-Golden Rules and Heuristics-HCI Patterns

UNIT III: IMPLEMENTATION SUPPORT (14Hrs)

Introduction - Elements of Windowing Systems - Programming the Application- Using Toolkits-User Interface Management Systems. Evaluation Techniques: What is an Evaluation- Goal of Evaluation-Evaluation Through Expert Analysis-Choosing an Evaluation Method.

UNIT IV: UNIVERSAL DESIGN (14Hrs)

Introduction - Universal Design Principles-Designing for Diversity. User Support: Introduction-Requirements of User Support-Approaches to User Support-Adaptive Help Systems-Designing User Support Systems.

UNIT V: MODELS (14Hrs)

Cognitive Models: Introduction-Goals and Task-Linguistic Models- Challenge of Display Based System-Physical and Device Models - Cognitive Architectures**(Self Study)**

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

Identification of interaction tasks between Human and Computer System

Recommended Text:

1. *Alan dix, Janet finlay, Gregory D. Abowd and Russell Beale,(2004),Human Computer Interaction, 3rd edition, Pearson Education*

Reference Books:

1. *John C. Caroll, (2002), Human Computer Interaction in the new millennium, Pearson Education*
2. *Jenny Preece, Yvonne Rogers, Helen Sharp (2019), Interaction Design: Beyond Human–Computer Interaction,fifth edition, John Wiley & Sons Inc*

Digital Open Educational Resources (DOER) :

1. http://courses.iicm.tugraz.at/hci/
2. http://www.hcibook.com/hcibook/downloads/pdf/exercises.pdf
3. http://www.idemployee.id.tue.nl/g.w.m.rauterberg/lectures.html
4. http://user.medunigraz.at/andreas.holzinger/holzinger/paperse n/HCI/Workshop/forISSEP%202005.pdf

5. http://universaldesign.ie/What-is-Universal-Design/The-7-Principles/ (Unit IV**:** Universal DesignPrinciples)

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	**Topic**	**No. of Lectures**	**Teaching Pedagogy**	**Teaching Aids**
UNIT -1	**INTRODUCTION**			
1.1	Foundations: The Human: Introduction-Input-Output Channels- Memory.	5	Chalk & Talk	Black Board
1.2	The Computer: Introduction-Text Entry Devices- Display Devices- Memory.	6	Chalk & Talk	LCD
1.3	The Interaction: Introduction – Models of Interaction-Frameworks and HCI Ergonomics-	3	Discussion	Google Classroom
1.4	Interaction Styles-Elements of the WIMP Interface-Interactivity - **The Context of the Interactions**	3	Chalk & Talk	LCD
UNIT -2	**DESIGN PROCESS**			
2.1	Design Basics- Introduction - Process- User Focus-Scenarios- Navigation Design- Screen Design and Layout-Interaction and Prototyping. Design Rules	6	Lecture	Green Board
2.2	Introduction- Principles to Support Usability-Guidelines	5	Chalk &Talk	Green Board

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
2.3	Golden Rules and Heuristics-HCI Patterns	3	Discussion	Google Classroom
UNIT -3 IMPLEMENTATION SUPPORT				
3.1	Introduction - Elements of Windowing Systems - Programming the Application	4	Chalk & Talk	Black Board
3.2	Using Toolkits-User Interface Management Systems.	5	Chalk & Talk	LCD
3.3	Evaluation Techniques: What is an Evaluation- Goal of Evaluation	3	Chalk & Talk	Black Board
3.4	Evaluation Through Expert Analysis-Choosing an Evaluation Method	3	Lecture	Green Board
UNIT -4 UNIVESAL DESIGN				
4.1	Introduction - Universal Design Principles-Designing for Diversity.	3	Chalk & Talk	Black Board
4.2	User Support: Introduction-Requirements of User Support-Approaches to User Support-	6	Lecture	Green Board
4.3	Adaptive Help Systems-Designing User Support Systems	3	Chalk & Talk	LCD

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -5 MODELS				
5.1	Cognitive Models: Introduction-Goals and Task-Linguistic Models	6	Chalk & Talk	Black Board
5.2	Challenge of Display Based System-	4	Discussion	Google Classroom
5.3	Physical and Device Models - Cognitive Architectures	4	Discussion	Google Classroom
UNIT -6 DYNAMISM				
6.1	Identification of interaction tasks between Human and Computer System.	5	Assignments	Google class room

End Semester - PG

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

- **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
CO 1	Describe typical human–computer interaction (HCI) models, styles, and various historic HCI paradigms
CO 2	Identify the usability and the beneficiary factors of User support systems
CO 3	Analyze the core theories, models and methodologies in the field of HCI
CO 4	Evaluate interactive systems based on the human factor theories
CO 5	Elaborate an interactive system based on the design principles, standards and guidelines

Mapping of COs with PSOs

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CLO1	**3**	**2**	**1**	**2**	**2**	**2**
CLO2	**3**	**2**	**1**	**2**	**2**	**2**

CLO3	**3**	**2**	**2**	**3**	**3**	**3**
CLO4	**3**	**3**	**2**	**3**	**3**	**3**
CLO5	**3**	**2**	**2**	**3**	**3**	**3**
Weightage of course contribute to each PSO	**15**	**11**	**8**	**13**	**13**	**13**

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**

HOD'S Signature& Name

Employability 100%

I M.Sc.,

SEMESTER –I

For those who joined in 2023 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
PSIT	23PG1IAE	Image Editing and Animation	Practical	2	2

COURSE DESCRIPTION

This course content is enables other disciplined students to strengthen and increase the understanding of basis Image editing and Animation software like Photoshop and Alice3.

COURSE OBJECTIVES

The objective of this course is to provide the necessary knowledge and to impart, practical knowledge on various editing techniques in Photoshop and animation techniques in Alice3

UNITS

UNIT 1: PHOTOSHOP TOOLS (6 HRS.)

Marquee Tool-Crop Tool-Lasso Tool-Move Tool, Rubber/clone Stamp tool-Eraser Tool-Paint Brush Tool-Art History/History Brush Tool-Text Tool.

UNIT II: TRANSFORMATION AND FILTERS (6 HRS)

Resizing: Resizing an image- Resizing a canvas- Resizing a selection Rotating: Rotate 180 degrees and 90 degrees clockwise or counter clockwise-Rotate by degrees- Rotate a selection Sharpen Filters: Sharpen, Sharpen more, Blur Filters: Blur, Blur-more,Distort Filters: Pinch(Squeezing,

bulging), Pixellate Filters: crystallize, Extracting an part of image from background image.

UNIT III: EXPLORING THE INTERFACE (6 HRS)

Introduction to Alice - download and install Alice 3.1-A brief tour of the Alice 3 IDE -A brief tour of the Menu Bar- Set Preferences -Touring the Gallery- Adding an object to a scene- set object properties in the Scene editor- set special effects in a scene-Marking - position and resize an object in the Scene editor.

Unit IV: LEARNING TO PROGRAM THROUGH ALICE (6 HRS)

Sequential & Parallel Execution - Do in order - Do together- Further nesting-Branching & Looping-Conditional execution-Relational Operators-Randomness-Repetition-While loops- Lists

Unit V: EVENT HANDLING & 3D ANIMATION (6 HRS)

Interactive programming & event handling - Control of flow- Events- Event handing method - Create 3D Text- Billboards- Creating a Sound- Adding a Sound - Posting on YouTube.

PROGRAM LIST

1. Program for Creation of Image Web gallery
2. Program for Creation of Brochure
3. Program for Visiting card creation
4. Program for how to remove redeye & hotspot in the image
5. Program for Catalogue creation.
6. Alice Interface
7. Alice Objects
8. Alice Scene
9. Sequential and Parallel Execution
10. Branching and Looping
11. Event Handling

12. Methods
13. 3D text

REFERENCES:

1. Photoshop 7 Complete reference , ISBN 978-0072223118 - Greenberg – McGraw Hill Publications.

2. MichealKolling, "Introduction to Programming with Green foot.

OPEN EDUCATIONAL RESOURCES:

1. Photoshop Online Training

https://www.tutorialspoint.com/photoshop_online_training/index.asp

2. http://www.alice.org/3.1/materials_videos.php

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
1	Program for Creation of Image Web gallery	6	Demonstration	Desktop PC
2	Program for Creation of Brochure	6	Demonstration	Desktop PC
3	Program for Visiting card creation	6	Demonstration	Desktop PC
4	Program for how to remove redeye & hotspot in the image	6	Demonstration	Desktop PC
5	Program for Catalogue creation.	6	Demonstration	Desktop PC

6	Alice Interface	6	Demonstration	Desktop PC
7	Alice Objects	6	Demonstration	Desktop PC
8	Alice Scene	6	Demonstration	Desktop PC
9	Sequential and Parallel Execution	6	Demonstration	Desktop PC
10	Branching and Looping	6	Demonstration	Desktop PC
11	Event Handling	6	Demonstration	Desktop PC
12	Methods	6	Demonstration	Desktop PC
13.	3D text	6	Demonstration	Desktop PC

- **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	Design and edit images using image-editing tool.	K2 & K3	PSO1& PSO2
CO 2	Apply layer features for creating images for web and print.	K2 & K3	PSO2 &PSO3
CO 3	Build program in Alice using looping and branching.	K2 & K3	PSO3 & PSO6
CO 4	Apply event handlers in alice.	K2 & K3	PSO1& PSO2
CO 5	Develop 3D animations.	K2 & K3	PSO7 & PSO8

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:

HOD'S Signature& Name

I M.Sc.,

SEMESTER –II

Skill Development 100%

For those who joined in 2023 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
PSIT	23PG2I4	DATABASE SYSTEMS	Lecture	6	5

COURSE DESCRIPTION

Fundamental computer knowledge that includes the hardware and memory storage.

COURSE OBJECTIVES

To understand the basic DBMS models, architecture, query and to normalize the database. To Learn Transaction Processing, Recovery and Distributed Database.

UNITS

UNIT I: (14Hrs)

Introduction: Database System Applications-Purpose of Database Systems-ViewofData-Database Users and Administrators. **Relational Database**: Structure of Relational Databases-Databases Schema-Keys-Schema Diagrams-**Formal Relational Query Languages**: Relational Algebra-Tuple Relational Calculus

UNIT-II : Database Design : (14Hrs)

Overview of Design Process-The Entity Relationship Model-Constraints-Removing Redundant Attributes in Entity Sets-Entity-Relationship Diagrams- Reduction to Relational Schemas-Extended E-Rfeatures-Alternative Notations for Modeling Data**. Relational Database Design:** Features of Good Relational Design-Functional Dependency-**Normalization**: 1NF,2NF,3NF,BCNF,4NF,5NF- Functional Dependency Theory

UNIT II: FUNCTIONS AND FUNCTIONAL PROGRAMMING (14Hrs)

Mapping and set types.- Introduction - Calling functions - Creating functions - passing functions - Formal arguments - Variable - Length Arguments - Functional Programming - Variable Scope – Recursion

UNIT-III : (14Hrs)

Transaction Management: Transaction Concept-Simple Transaction Model-Storage Structure-TransactionAtomicityandDurability-TransactionIsolation-Serializability.**Concurrency Control:** Lock Based Protocols-Locks-Granting of Locks-Two Phase Locking Protocol-Time Stamp Based Protocol - **Recovery System:** Failure Classification-**Recovery and Atomicity**: Log Records-Database Modification-Concurrency Control and Recovery-Recovery Algorithm

UNIT-IV : Distributed Database: (14Hrs)

Homogeneous and Heterogeneous Databases-Distributed Data storage-DistributedTransactions-CommitProtocols-ConcurrencyControlinDistributedDatabases-Distributed Query Processing.Casestudy: Mongo DB

UNIT-V: SQL (14Hrs)

Table Fundamentals - Viewing Data - Inserting - Deleting - Updating - Modifying -Constraints-Functions -Grouping-Subqueries-Joins-Views.**PL/SQL**:Introduction-PL/SQLBlock-DataTypesAndVariables-ControlStructure-Cursors - PL/SQL Security - Locks. PL/SQL Database Objects: Exception Handling- Packages -Proceduresand Functions-DatabaseTriggers

Recommended Text:

1. *AbrahamSilberchatz,HenryF.Korth,S.Sudarshan,DatabaseSystemsConcepts,SixthEdition,Tata McgrawHill.*
2. *IvanBayross,SQL,PL/SQLTheProgrammingLanguageofORACLE,Fourthedition,BPBPublications.UnitIV& V*

Reference Books:

1. *AtulKahate,IntroductiontoDatabaseManagementsystems,Pearsoneducation.*

2. *CarloZaniolo,StefanoCeri,ChristosFaloustsos,R.T.Snodgrass,V.S.Subrahmanian,(1997),AdvancedDatabaseSystems, Morgan Kaufman.*
3. *GeorgeKoch,KelvinLoney,(2002),Oracle9i:TheCompleteReference,OraclePress,TataMcGrawHillPublication.*
4. *RamezElmasri,ShamkantB.Navathe(2014),"DatabaseSystems",Sixthedition,PearsonEducation,NewDelhi*

Digital Open Educational Resources (DOER) :

1. *http://awtrey.com/tutorials/dbeweb/database.php*
2.
3. *http://www.slideshare.net/SalamaAlbusaidi/emerging-database-technology-multimedia- database.*
4. *http://www.tutorialspoint.com/dbms/index.htm*
5. *http://www.tutorialspoint.com/plsql/index.htm*
6. *https://opentextbc.ca/dbdesign/chapter/chapter-11-functional-dependencies/(FunctionalDependencies)*

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No.of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -1 Database System Applications				
1.1	DatabaseSystemApplications-PurposeofDatabaseSystems-ViewofData-Database Users and Administrators.	4	Discussion	Black Board
1.2	**Relational Database**: Structure of Relational Databases-Databases Schema	3	Chalk & Talk	Black Board
1.3	Keys-Schema Diagrams-**Formal Relational Query Languages**: Relational Algebra-	4	Lecture	LCD

Module No.	Topic	No.of Lectures	Teaching Pedagogy	Teaching Aids
1.4	TupleRelational Calculus	4	Discussion	Google classroom
UNIT -2 Database Design:				
2.1	**Database Design:** Overview of Design Process-The Entity Relationship Model-Constraints-Removing Redundant Attributes in Entity Sets-Entity	5	Lecture	PPT & White board
2.2	RelationshipDiagrams-ReductiontoRelationalSchemas-ExtendedE-Rfeatures-AlternativeNotationsforModeling Data.**RelationalDatabaseDesign:**FeaturesofGoodRelationalDesign-FunctionalDependency-	5	Chalk & Talk	Green Board
2.3	**Normalization**:1NF,2NF,3NF,BCNF, 4NF,5N-Functional Dependency Theory	5	Chalk & Talk	Black Board
UNIT – 3 Transaction Management:				
3.1	**Transaction Management:** Transaction Concept-Simple Transaction Model	4	Discussion	PPT & White board
3.2	-Storage Structure-TransactionAtomicityand Durability-TransactionIsolation-Serializability.	4	Chalk &Talk	Green Board
3.3	**Concurrency Control:** Lock Based Protocols-Locks-Granting of	4	Chalk & Talk	Black Board

Module No.	Topic	No.of Lectures	Teaching Pedagogy	Teaching Aids
	Locks-Two Phase Locking Protocol-Time Stamp Based Protocol			
3.4	**Recovery System:** Failure Classification-**Recovery and Atomicity**: Log Records-Database Modification-Concurrency Control and Recovery-Recovery Algorithm	3	Chalk & Talk	Black Board
UNIT – 4Distributed Database:				
4.1	**Distributed Database:** Homogeneous and Heterogeneous Databases	3	Discussion	PPT &White board
4.2	Distributed Data storage-Distributed Transactions-	3	Chalk & Talk	Green Board
4.3	Commit Protocols-Concurrency Control in Distributed Databases-	3	Chalk & Talk	Black Board
4.4	Distributed Query Processing.	3	Chalk & Talk	Black Board
4.5	Case study: Mongo DB	3	Discussion	Black Board
UNIT – 5 SQL				
5.1	**SQL** - Table Fundamentals - Viewing Data - Inserting - Deleting - Updating -	3	Lecture	PPT & White board
5.2	Modifying -Constraints-Functions -Grouping-Sub queries-Joins-Views.	3	Chalk & Talk	Black Board
5.3	**PL/SQL**:Introduction-PL/SQLBlock-DataTypesAndVariables-ControlStructure-	3	Lecture	Black Board

Module No.	Topic	No.of Lectures	Teaching Pedagogy	Teaching Aids
5.4	Cursors - PL/SQL Security - Locks. PL/SQL Database Objects: Exception Handling-	3	Chalk & Talk	Black Board
5.5	Packages –Procedures and Functions-Database Triggers	3	Chalk & Talk	Black Board
UNIT –6 DYNAMISM				
6.1	Advanced Concepts	2	Discussion	Black Board

- **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	Explain the relational databases and uses of PL/SQL	K1	PSO3
CO 2	Apply Schema, ER-Model, normalization, transaction, concurrency, and recovery on tables using SQL and PL/SQL.	K1, K2	PSO3
CO 3	Analyze and manage relational & distributed, database, transaction, Concurrency control and query languages	K1 & K3	PSO3
CO 4	Assess databases based on models and Normal Forms.	K1, K2, K3	PSO6
CO 5	Design and construct tables and manipulate it effectively using PL/SQL database objects	K1 & K3	PSO6

Mapping of COs with PSOs

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CLO1	3	3	3	3	2	2

CLO2	**3**	**3**	**3**	**3**	**3**	**2**
CLO3	**3**	**2**	**3**	**3**	**3**	**3**
CLO4	**3**	**3**	**3**	**3**	**3**	**3**
CLO5	**3**	**3**	**3**	**3**	**3**	**3**
Weightage of course contribute to each PSO	**15**	**13**	**15**	**15**	**13**	**15**

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**

I M.Sc.,

SEMESTER –II

sEmployability 100%

For those who joined in 2023 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
PSIT	23PG2I5	RDBMS LAB	Practical	6	5

COURSE DESCRIPTION

Basic understanding of SQL queries

COURSE OBJECTIVES

The primary Course Objective of this paper is to learn and implement SQL & PL/SQL.

UNITS - List of Programs

1. DDLCommands
2. DMLCommands
3. DCLCommands
4. UsageofSub QueriesinDMLand Create-SQL
5. Solvingqueries usingbuilt-in functions
6. SimpleprogramsinPL/SQLblock
7. ExceptionHandlinginPL/SQL
8. ProgramsusingImplicitCursors
9. ProgramsusingExplicitCursors
10. Procedures &User-definedfunctions
11. CreationofTriggers

Recommended Text:

Ivan Bayross, SQL, PL/SQL The Programming Language of ORACLE, Fourth edition, BPB Publications

Reference Books:

RamezElmasri, Shamkant B. Navathe (2014), "Database Systems", Sixth edition, Pearson Education, New Delhi

Digital Open Educational Resources (DOER) :

1. *http://awtrey.com/tutorials/dbeweb/database.php*
2. *http://www.slideshare.net/SalamaAlbusaidi/emerging-database-technology-multimedia- database.*
3. *http://www.tutorialspoint.com/dbms/index.htm*
4. *http://www.tutorialspoint.com/plsql/index.htm*

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
1	DDL Commands	6	Demonstration	Desktop PC
2	DML Commands.	6	Demonstration	Desktop PC
3	DCL Commands	6	Demonstration	Desktop PC
4	Usage of Sub Queries in DML and Create-SQL	6	Demonstration	Desktop PC
5	Solving queries using built-in functions	6	Demonstration	Desktop PC
6	Simple programs in PL/SQLblock	6	Demonstration	Desktop PC

7	Exception Handling in PL/SQL	6	Demonstration	Desktop PC
8	Programs using Implicit Cursors	6	Demonstration	Desktop PC
9	Programs using Explicit Cursors	6	Demonstration	Desktop PC
10	Procedures &User-defined functions	6	Demonstration	Desktop PC
11	Creation of Triggers	6	Demonstration	Desktop PC

- **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
CO 1	Understand the significance of control statements, loops and functions in creating simple programs.
CO 2	Apply the core data structures available in SQL to store, process and sort the data
CO 3	Analyze the real time problem using suitable SQL concepts
CO 4	Assess the complex problems using appropriate concepts in SQL
CO 5	Develop the real time applications using programming language.

Mapping of C0s with PSOs

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CLO1	3	3	3	3	2	2
CLO2	3	3	3	3	3	2
CLO3	3	2	3	3	3	3
CLO4	3	3	3	3	3	3
CLO5	3	3	3	3	3	3
Weightage of course contribute to each PSO	15	13	15	15	13	15

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**

I M.Sc.,

Employability 100%

SEMESTER –II

For those who joined in 2023 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
PSIT	23PG2I6	OPEN SOURCE TECHNOLOGIES	Practical	6	4

COURSE DESCRIPTION

Basic understanding of computer programming, Internet and HTML/XHTML

COURSE OBJECTIVES

To learn the efficiency of Open Source Technology and to train to have agoodpracticalknowledgeofhowtowritesuccessfulPHPandRubycodeandutilizingadatabaseusingPHP.

UNIT I: PHP (14Hrs)

PHP: Introduction – Creating a PHP page– Running PHP page –HTML and PHP – Printing Text – Comment Statements – Working with variables – Storing data in variables – Interpolating strings – Constants - Understanding Internal Data types – Operators – Flow Control – Strings: String Functions - Converting to and from strings -Formatting text strings - Working with numbers.

UNIT II: Date and Time (14Hrs)

DateandTime-CreateanArray-UseanAssociativeArray-FunctionstoWorkwithArrays-Workwith Arrays of Arrays-Create and Use Functions

UNIT III: Reading Data in web pages (14Hrs)

Reading Data in web pages: Handling various controls - PHP Browser-Handling power: Data Validation - File Handling : Opening a file – Reading Text from a file – Closing a file- Working with Databases: Creating ,

Inserting , Accessing , Updating , Deleting and Sorting Database - Work with Cookies and Sessions

UNIT IV: Ruby (14Hrs)

Ruby: Getting Started with Ruby – Working with Numbers and Strings – Variables – Constants– Operators – Conditionals and Loops

UNIT V: Classes and Objects (14Hrs)

Arrays - Hashes - Methods - Blocks : Classes and Objects : Creating a Class and an Object- Exception Handling – File Handling

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

Current trends in implementation of OPEN SOURCE tools

Recommended Text:

1. Steven Holzner, (2016), "PHP: The Complete Reference", McGraw Hill Education Private Limited, Indian Edition. (Unit I, II)

2. RachnaKapur, Mario Briggs, Tapas Saha, Ulisses Costa, Pedro Carvalho, Raul F. Chong, Peter Kohlmann (2010), "Getting Started with Open Source Development", DB2 on Campus Book Series. (Unit III)

3. http://indexof.es/Ruby/Beginning%20Ruby%20On%20Rails.pdf (Unit IV)

4.http://www.cs.uni.edu/~wallingf/teaching/agile-may2010/ruby/programming-ruby.pdf(Unit V)

Reference Books:

1.W. Jason Gilmore (2010), "Beginning PHP &MySql", Apress.

2.Joel Murach, Ray Harris (2010), "PHP and MySQL",Shroff Publishers & Distributors

3.Larry Ullman (2008), "PHP 6 and MySQL 5", Pearson Education.

4.John Coggeshall (2006), "PHP 5", Pearson Education.

5.Michale C. Glass (2004), "Beginning PHP, Apache, MySQL Web Development", Wiley DreamTech Press.

Digital Open Educational Resources (DOER) :

1. http://www.w3schools.com/php/

2.http://howtostartprogramming.com/PHP/

3.http://www.massey.ac.nz/~nhreyes/MASSEY/159339/Lectures/Lecture%2011%20-%20PHP%20-%20Part%205%20-%20CookiesSessions.pdf

4.http://www.tutorialspoint.com/mysql/

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -1	**Introduction**			
1.1	Introduction – Creating a PHP page– Running PHP page –HTML and PHP – PrintingText – Comment Statements	5	Chalk & Talk	Black Board
1.2	Working with variables – Storing data in variables - Interpolatingstrings – Constants - Understanding Internal Datatypes – Operators – Flow Control –	6	Chalk & Talk	LCD
1.3	– Strings:String Functions - Converting to and from strings -Formatting text strings -	3	Discussion	Google Classroom
1.4	Working withnumbers.	3	Chalk & Talk	LCD
UNIT -2	**Array**			
2.1	DateandTime-CreateanArray-UseanAssociativeArray	6	Lecture	Green Board
2.2	-FunctionstoWorkwithArrays-	5	Chalk &Talk	Green Board

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
2.3	Workwith Arrays of Arrays-Createand UseFunctions	3	Discussion	Google Classroom
UNIT -3 Reading Data in web pages				
3.1	Reading Data in web pages: Handling various controls -	4	Chalk & Talk	Black Board
3.2	PHP Browser-Handling power: Data Validation -	5	Chalk & Talk	LCD
3.3	File Handling : Opening a file – Reading Text from a file – Closing a file-	3	Chalk & Talk	Black Board
3.4	Working with Databases: Creating , Inserting , Accessing , Updating , Deleting and Sorting Database - Work with Cookies and Sessions	3	Lecture	Green Board
UNIT -4 Ruby				
4.1	Ruby: Getting Started with Ruby –	3	Chalk & Talk	Black Board
4.2	Working with Numbers and Strings – Variables –	6	Lecture	Green Board

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
4.3	Constants– Operators – Conditionals and Loops	3	Chalk & Talk	LCD
UNIT -5 Classes and Objects				
5.1	Classes and Objects : Creating a Class and an Object	6	Chalk & Talk	Black Board
5.2	Exception Handling – File Handling	4	Discussion	Google Classroom
UNIT -6 DYNAMISM				
6.1	Current trends in implementation of open source tools	5	Assignments	Google class room

EVALUATION PATTERN

- **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
CO 1	Demonstrate the setup and configuration of development environment to write PHP and Ruby Scripts
CO 2	Select the appropriate language fundamentals and techniques to write and compile PHP and Ruby programs
CO 3	Examine the bugs and analyze howtoprevent and removethebugs
CO 4	Testanddebugtheapplicationwithsampleinputstocheckthecorrectnessandconsistencyof thescripts
CO 5	Createsimpleprograms thatmakeuse ofvariousPHPandRubyfeaturesand functionsandsolveweb applicationanddatabase tasksusingPHP

Mapping of COs with PSOs

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CLO1	3	3	3	3	2	2
CLO2	3	3	3	3	3	2
CLO3	3	2	3	3	3	3
CLO4	3	3	3	3	3	3
CLO5	3	3	3	3	3	3
Weightage of course contribute to each PSO	15	13	15	15	13	15

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**

HOD'S Signature

& Name

I M.Sc., Skill Development 100%

SEMESTER –II

For those who joined in 2023 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
PSIT	23PG2IE5	NETWORK SECURITY	Lecture	4	3

COURSE DESCRIPTION

Basic knowledge about computer networks

COURSE OBJECTIVES

To understand the importance of networking and the basic model followed in network design and to understand necessary approaches and techniques to build protection mechanisms in order to secure computer networks

UNITS

UNIT I: Introduction (14Hrs)

Uses of Computer Networks – Network Hardware – Line Configuration – Topology – Transmission Modes – Reference Models: OSI Reference Model – TCP/IP Reference Model – Physical Layer: Guided Transmission Media – Wireless Transmission – Communication Satellites – Public Switched Telephone Network: Local Loop – Multiplexing – Switching

UNIT II: Design Issues (14Hrs)

Data Link Layer: Design Issues - Error Detection and Correction - Network Layer : Design Issues – Routing Algorithms : Shortest Path Routing – Distance Vector Routing – Link State Routing – Broadcast Routing – Multicast Routing – Congestion Control

UNIT III: Layers (14Hrs)

Network Layer in the Internet: IP Addresses –Transport Layer: Elements of Transport Protocols: Addressing – Connection Establishment – Connection

Release – Application Layer: Domain Name System – Email: Architecture and Services

UNIT IV: Network Security: (14Hrs)

Introduction to Cryptography - Symmetric - Key Cryptography - Asymmetric- key Cryptography – Security Services: Message Confidentiality - Message Integrity - Message Authentication - Digital Signature - Entity Authentication – Security in the Internet: IPSecurity - SSL/TLS: SSL services - SSL Protocols - Firewalls

UNIT V: Security (14Hrs)

Security for Wireless Networks: Introduction – Protecting the wireless networks – Physical Security – Authentication and access control- Smartphone Security: Security Threats - Steps to smartphone security –Websites and Web application Security: Definition – Available Technologies - Threats - Strategies.

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

To study recent Wi -Fi and Smartphone technologies

Recommended Text:

1.Andrew S.Tanenbaum, David J. Wetherall (2010), Computer Networks, Prentice Hall of India, V Edition. (Unit I - Unit - III) Unit I – Chapter 1,2

Unit II – Chapter 3,5

Unit III – Chapter 5,6,7

2.Behrouz A. Forouzan, (2016), Data Communications and Networking, Tata McGraw-Hill Publishing Company Limited, IV Edition. (Unit IV) Unit IV - Chapter 30, 31, 32

Reference Books:

1.Charles P. Pfleeger, Shari Lawrence Pfleeger(2002), Security in Computing, 3rd Edition, Pearson Education.

2.James F. Kurose, Keith W. Ross (2005),Computer Networking, 3rd Edition, Addison Wesley,.

3.William Stallings(2006), Cryptography and Network Security: Principles and Practice, 3rd Edition, PHI.

Digital Open Educational Resources (DOER) :

1.http://wndw.net/pdf/wndw3-en/ch09-security-for-wireless-networks.pdf (Unit V- Wireless Networks Security)

2.https://www.fcc.gov/sites/default/files/smartphone_master_document.pdf (Unit V- Steps to smartphone security)

3.https://www.csoonline.com/article/3241727/mobile-security/6-mobile-security-threats-you- should-take-seriously-in-2019.html (Unit V – SmartPhone Security Threats)

4.https://kgk.uni-obuda.hu/sites/default/files/12_Kadena.pdf (Unit V – SmartPhone Security Threats)

5.https://www.goodfirms.co/glossary/web-security/ (Unit V – Web Security)

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -1	**Introduction and overview**			
1.1	Uses of Computer Networks – Network Hardware – Line Configuration –	5	Chalk & Talk	Black Board
1.2	Topology – Transmission Modes – Reference Models: OSI Reference Model –	6	Chalk & Talk	LCD
1.3	TCP/IP Reference Model – Physical Layer: Guided Transmission Media – Wireless Transmission –	3	Discussion	Google Classroom

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
1.4	Communication Satellites – Public Switched Telephone Network: Local Loop – Multiplexing – Switching	3	Chalk & Talk	LCD
UNIT -2	**Design Issues**			
2.1	Data Link Layer: Design Issues - Error Detection and Correction -	6	Lecture	Green Board
2.2	Network Layer : Design Issues – Routing Algorithms : Shortest Path Routing –	5	Chalk &Talk	Green Board
2.3	Distance Vector Routing – Link State Routing –	3	Discussion	Google Classroom
2.4	Broadcast Routing – Multicast Routing – Congestion Control	5	Chalk &Talk	Green Board
UNIT -3	**Layers**			
3.1	Network Layer in the Internet: IP Addresses –	4	Chalk & Talk	Black Board
3.2	Transport Layer: Elements of Transport Protocols: Addressing – Connection Establishment –	5	Chalk & Talk	LCD

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
3.3	Connection Release – Application Layer: Domain Name System –	3	Chalk & Talk	Black Board
3.4	Email: Architecture and Services	3	Lecture	Green Board
UNIT -4 Network Security:				
4.1	Network Security: Introduction to Cryptography -	3	Chalk & Talk	Black Board
4.2	Symmetric - Key Cryptography - Asymmetric- key Cryptography – Security Services: Message Confidentiality -	6	Lecture	Green Board
4.3	Message Integrity - Message Authentication - Digital Signature - Entity Authentication – Security in the Internet: IPSecurity - SSL/TLS: SSL services - SSL Protocols - Firewalls	3	Chalk & Talk	LCD
UNIT -5 Security				
5.1	Security for Wireless Networks: Introduction –	6	Chalk & Talk	Black Board

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
5.2	Protecting the wireless networks – Physical Security – Authentication and access control-	4	Discussion	Google Classroom
5.3	Smartphone Security: Security Threats - Steps to smartphone security –Websites and Web application Security: Definition – Available Technologies - Threats - Strategies.	4	Discussion	Google Classroom
UNIT -6 DYNAMISM				
6.1	To study recent Wi -Fi and Smartphone technologies	5	Assignments	Google class room

- **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
CO 1	Outline the basic data structures
CO 2	Identify the different operations and memory representations
CO 3	Interpret different techniques with their complexities
CO 4	Compare the applications of various data structures
CO 5	Choose an algorithm to solve simple problems suited for appropriate situations

Mapping of COs with PSOs

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CLO1	3	1	2	2	1	2
CLO2	3	2	2	2	2	3
CLO3	3	2	3	3	3	2
CLO4	3	3	2	3	3	3
CLO5	3	3	3	3	3	2
Weightage of course contribute to each PSO	15	11	12	13	12	14

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**

HOD'S Signature& Name

I M.Sc.,

Skill Development 100%

SEMESTER –II

For those who joined in 2023 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
PSIT	23PG2IE6	BIOMETRIC TECHNIQUES	Theory	4	3

COURSE DESCRIPTION

This course introduces the Basic knowledge of computer vision and cyber security concepts

COURSE OBJECTIVES

To understand various physiological and behavioural biometrics and its applications.

UNITS

UNIT I: INTRODUCTION (14Hrs)

Introduction: Biometric Fundamentals - Biometrics Vs Traditional Techniques - Benefits of Biometrics in Identification Systems - Key Biometric Terms and Processes: Verification, Identification and Biometric Matching - Accuracy in Biometric Systems: False Match Rate, False Non-Match Rate, Failure to Enroll Rate, **Derived Metrics (Self Study)**

UNIT II: PHYSIOLOGICAL BIOMETRICS (14Hrs)

Finger Scan: Components-How it works-Competing Technologies-Deployments-Strengths and Weaknesses. Facial Scan: Components- How it Works-Competing Technologies-Deployments-Strengths and Weaknesses

UNIT III: OTHER PHYSIOLOGICAL BIOMETRICS (14Hrs)

Iris Scan: Components- How it Works-Competing Technologies-Deployments-Strengths and Weaknesses. Voice Scan: How it Works-Competing Technologies-Deployments-Strengths and Weaknesses. Other Physiological Biometrics: Hand Scan and Retina Scan.

UNIT IV: BEHAVIOURAL BIOMETRICS (14Hrs)

Signature Scan and Keystroke Scan: How it Works-Competing Technologies-Deployments-Strengths and Weaknesses. Esoteric Biometrics: Vein Pattern- Facial Thermography-DNA- Sweat Pores- Hand Grip- Finger Nail Bed- Body Odor- Ear-Gait- Skin Luminescence- Brain Wave Pattern-Foot Print and Foot Dynamics

UNIT V: BIOMETRIC APPLICATIONS (14Hrs)

Categorizing Biometric Applications - Application Areas: Criminal and Citizen Identification, Surveillance, PC/Network Access, E-Commerce/Telephony and Retail/ATM - Costs to Deploy -Issues in Deployment- Biometric Standards

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

Security in identification access control and authentication

Recommended Text:

1. *Samir Nanavati, Michael Thieme, Raj Nanavati,(2003),Biometrics - Identity Verification in a Networked World, Wiley-dreamtech India Pvt Ltd, New Delhi*
2. *John D. Woodward, Nicholas M. Orlans, Peter T. Higgins, Biometrics: the ultimate reference, Dreamtech Press*

Reference Books:

1. *Anil K Jain, Patrick Flynn, Arun A Ross, (2008), Handbook of Biometrics, Springer*

Digital Open Educational Resources (DOER) :

1. http://www.sans.org/reading-room/whitepapers/authentication/biometric-scanning/
2. http://www.biometrics.gov/documents/biointro.pdf
3. http://www.cse.unr.edu/~bebis/CS790Q/Lect/IntroBiometrics.pdf
4. http://www.planetbiometrics.com/creo_files/upload/article-files/btamvol1 update.pdf
5. http://www.biometrics.gov/documents/biointro.pdf (Unit V: Biometric Applications)

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -1	**INTRODUCTION**			
1.1	Introduction: Biometric Fundamentals - Biometrics Vs Traditional Techniques -	5	Chalk & Talk	Black Board
1.2	Benefits of Biometrics in Identification Systems - Key	6	Chalk & Talk	LCD
1.3	Biometric Terms and Processes: Verification, Identification and Biometric Matching - Accuracy in	5	Chalk & Talk	Black Board
1.4	Biometric Systems: False Match Rate, False Non-Match Rate, Failure to Enroll Rate, **Derived Metrics**	6	Chalk & Talk	LCD
UNIT -2	**PHYSIOLOGICAL BIOMETRICS**			
2.1	Finger Scan: Components-How it works-Competing Technologies-Deployments-Strengths and Weaknesses.	6	Lecture	Green Board
2.2	Facial Scan: Components- How it Works	5	Chalk &Talk	Green Board
2.3	Competing Technologies-Deployments-Strengths and Weaknesses	3	Discussion	Google Classroom
UNIT -3	**OTHER PHYSIOLOGICAL BIOMETRICS**			

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
3.1	Iris Scan: Components- How it Works-Competing Technologies.	4	Chalk & Talk	Black Board
3.2	Deployments-Strengths and Weaknesses	5	Chalk & Talk	LCD
3.3	Voice Scan: How it Works-Competing Technologies-Deployments-Strengths and Weaknesses	3	Chalk & Talk	Black Board
3.4	Other Physiological Biometrics: Hand Scan and Retina Scan	3	Lecture	Green Board
UNIT -4	**BEHAVIOURAL BIOMETRICS**			
4.1	Signature Scan and Keystroke Scan: How it Works-Competing Technologies-Deployments-Strengths and Weaknesses.	3	Chalk & Talk	Black Board
4.2	Esoteric Biometrics: Vein Pattern- Facial Thermography-DNA- Sweat Pores- Hand Grip- Finger Nail Bed- Body Odor- Ear-Gait-	6	Lecture	Green Board
4.3	Skin Luminescence- Brain Wave Pattern- Foot Print and Foot Dynamics	3	Chalk & Talk	LCD
UNIT -5	**BIOMETRIC APPLICATIONS**			
5.1	Categorizing Biometric Applications - Application Areas	6	Chalk & Talk	Black Board

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
5.2	Criminal and Citizen Identification, Surveillance, PC/Network Access,	4	Discussion	Google Classroom
5.3	E-Commerce/Telephony and Retail/ATM - Costs to Deploy -Issues in Deployment- Biometric Standards	6	Chalk & Talk	Black Board
UNIT -6 DYNAMISM				
6.1	Security in identification access control and authentication	5	Assignments	Google class room

- **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:

S.NO.	COURSE OUTCOMES
CO 1	Outline the existing theories, methods and interpretations in the field of

S.NO.	COURSE OUTCOMES
	biometrics
CO 2	Identify the deployment areas, competing technologies, strength and weakness of various Physiological and Behavioral Biometrics
CO 3	Analyze various Application areas, Biometric security issues and Biometric standards
CO 4	Assess the methods relevant for design, development and operation of biometric access control systems
CO 5	Determine identification /verification systems to validate the user identity and technological uplifts in biometrics compared to traditional securing mechanisms

Mapping of C0s with PSOs

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CLO1	2	1	1	1	1	1
CLO2	2	2	1	1	2	2
CLO3	3	2	1	2	2	3
CLO4	3	2	2	3	3	2
CLO5	3	3	2	3	3	3
Weightage of course contribute to each PSO	13	10	7	10	11	11

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**

I M.Sc.,

Employability 100%

SEMESTER –II

For those who joined in 2023 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
PSIT	23PG2IE7	OBJECT ORIENTED ANALYSIS AND DESIGN	Lecture	4	3

COURSE DESCRIPTION

This course introduces Basic understanding of one of the object-oriented programs

COURSE OBJECTIVES

The primary objective is to understand the principles & requirements and apply the UML (Unified Modeling Language) and tools for OOA and Design

UNIT I: OBJECT BASICS (14Hrs)

Object- oriented Philosophy – Object – Object State, Behaviours and Methods. Encapsulation and Information Hiding – Class Hierarchy – Polymorphism, Aggregation, Object Containment, Meta Classes

UNIT II: OBJECT ORIENTED METHODOLOGIES (14Hrs)

Object Oriented Methodologies: Rumbaugh Object Model, Booch Methodology- Jacobson Methodology, Patterns, Frameworks and Unified Approach..

UNIT III: OBJECT ORIENTED ANALYSIS (14Hrs)

Business Object Analysis– Use Case Driven Approach – Use Case Model. Object Analysis – Noun Phrase Approach – CRC – Identifying Object Relationships and Methods.

UNIT IV: OBJECT ORIENTED DESIGN (14Hrs)

The Design Process – Design Axioms – Corollaries – Design Patterns – Designing Classes. Software Quality: Tests- Testing Strategies – Test Cases – Test Plan – Continuous Testing – Mier‟s Debugging Principles.

UNIT V: UML AND PROGRAMMING (14Hrs)

Introduction – State and Dynamic Models – UML Diagrams – Class Diagrams – Use Case Diagrams- UML Dynamic Modeling

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

To study recent tools on analysis and design

Recommended Text:

1. *Ali Brahami, Object Oriented Systems Development, Tata-McGraw Hill, New Delhi*

Reference Books:

1. *Martin Fowler, Kendall Scott, UML Distilled- Applying the Standard Object Modeling Language, Addition Wesley.*
2. *Grady Booch, (1994), Object-oriented Analysis and Design with applications, 2nd Edition, Addition Wesley*

Digital Open Educational Resources (DOER) :

1. *http://www.slideshare.net/helghareeb/object-oriented-analysis-and-design-12164752*
2. *http://www.uml-diagrams.org/uml-object-oriented-concepts.html*
3. *http://www.tutorialspoint.com/object_oriented_analysis_design/index.htm*
4. *https://www.mppmu.mpg.de/english/kluth_oo_intro.pdf*
5. *http://www.agilemodeling.com/artifacts/useCaseDiagram.htm (Unit V: Use Case Diagrams)*

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -1	**OBJECT BASICS**			
1.1	Object- oriented Philosophy – Object – Object State.	5	Chalk & Talk	Black Board
1.2	Behaviours and Methods. Encapsulation and Information Hiding – Class Hierarchy	6	Chalk & Talk	LCD
1.3	Polymorphism, Aggregation, Object Containment, Meta Classes	3	Discussion	Google Classroom
UNIT -2	**OBJECT ORIENTED METHODOLOGIES**			
2.1	Object Oriented Methodologies: Rumbaugh Object Model, Booch Methodology-	6	Lecture	Green Board
2.2	Jacobson Methodology, Patterns, Frameworks and Unified Approach..	6	Chalk &Talk	Green Board
UNIT -3	**OBJECT ORIENTED ANALYSIS**			
3.1	Business Object Analysis– Use Case Driven Approach –	4	Chalk & Talk	Black Board
3.2	Use Case Model.	5	Chalk & Talk	LCD
3.3	Object Analysis – Noun Phrase Approach – CRC	3	Chalk & Talk	Black Board
3.4	Identifying Object Relationships and Methods	3	Lecture	Green Board

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -4	**OBJECT ORIENTED DESIGN**			
4.1	The Design Process – Design Axioms – Corollaries – Design Patterns – Designing Classes.	3	Chalk & Talk	Black Board
4.2	Software Quality: Tests-Testing Strategies – Test Cases – Test Plan –	6	Lecture	Green Board
4.3	Continuous Testing – Mier‟s Debugging Principles	3	Chalk & Talk	LCD
UNIT -5	**UML AND PROGRAMMING**			
5.1	Introduction – State and Dynamic Models –	6	Chalk & Talk	Black Board
5.2	UML Diagrams – Class Diagrams –	4	Discussion	Google Classroom
5.3	Use Case Diagrams- UML Dynamic Modeling	4	Discussion	Google Classroom
UNIT -6 DYNAMISM				
6.1	To study recent tools on analysis and design	5	Assignments	Google class room

- **PG CIA Components**

			Nos		
C1	-	Test (CIA 1)	1	-	10 Mks
C2	-	Test (CIA 2)	1	-	10 Mks

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
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:

CO's	Course Outcomes
CLO1	Recognize the concepts and principles of object-oriented analysis, design and Testing
CLO2	Demonstrate the importance of system development process using various approaches and choose the relevant technique for a system in each phases of SDLC
CLO3	Differentiate various object-oriented analysis, design and testing methods and models.
CLO4	Assess various analysis, design and testing strategies appropriate to build high-performance object-oriented system
CLO5	Design Object oriented systems using object modelling techniques and analyze them for correctness and quality

Mapping of C0s with PSOs

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6

CLO1	**3**	**2**	**2**	**3**	**2**	**2**
CLO2	**3**	**2**	**2**	**3**	**2**	**3**
CLO3	**3**	**3**	**2**	**3**	**2**	**3**
CLO4	**3**	**2**	**2**	**3**	**2**	**3**
CLO5	**3**	**2**	**3**	**3**	**3**	**3**
Weightage of course contribute to each PSO	**15**	**11**	**11**	**15**	**11**	**14**

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**

I M.Sc.,

Employability 100%

SEMESTER –II

For those who joined in 2023 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
PSIT	23PG2IE8	SOFTWARE PROJECT MANAGEMENT	Lecture	4	3

COURSE DESCRIPTION

Basic knowledge about the fundamentals of software project development

COURSE OBJECTIVES

The primary objective is to define and highlight importance of software project management and to become familiarize in formulating software management metrics & strategy in managing projects

UNIT I: Introduction (14Hrs)

Introduction to Competencies - Product Development Techniques - Management Skills - Product Development Life Cycle - Software Development Process and models - The SEI CMM - International Organization for Standardization

UNIT II: Domain Processes (14Hrs)

Managing Domain Processes - Project Selection Models - Project Portfolio Management - Financial Processes - Selecting a Project Team - Goal and Scope of the Software Project -Project Planning - Creating the Work Breakdown Structure - Approaches to Building a WBS - Project Milestones - Work Packages - Building a WBS for Software.

UNIT III: Tasks and Activities (14Hrs)

Tasks and Activities - Software Size and Reuse Estimating - The SEI CMM - Problems and Risks - Cost Estimation - Effort Measures - COCOMO: A

Regression Model - COCOMO II - SLIM: A Mathematical Model - Organizational Planning - Project Roles and Skills Needed.

UNIT IV: Resource Activities (14Hrs)

Project Management Resource Activities - Organizational Form and Structure - Software Development Dependencies - Brainstorming - Scheduling Fundamentals - PERT and CPM - Leveling Resource Assignments - Map the Schedule to a Real Calendar - Critical Chain Scheduling

UNIT V: Quality: (14Hrs)

Quality: Requirements – The SEI CMM - Guidelines - Challenges - Quality Function Deployment - Building the Software Quality Assurance - Plan - Software Configuration Management: Principles - Requirements - Planning and Organizing - Tools - Benefits - Legal Issues in Software

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

To study recent tools on software project management tools

Recommended Text:

2. Robert T. Futrell, Donald F. Shafer, Linda I. Safer, "Quality Software Project Management", Pearson Education Asia 2002

Reference Books:

1.Pankaj Jalote, "Software Project Management in Practice", Addison Wesley 2002.

2.Hughes, "Software Project Management", Tata McGraw Hill 2004, 3rd Edition.

Digital Open Educational Resources (DOER) :

1.https://highered.mheducation.com/sites/0077109899/information-center-view/

2.https://www.tutorialspoint.com/software_engineering/software_project_management.htm

3.https://www.smartsheet.com/content/software-project-management

4.https://www.philadelphia.edu.jo/academics/lalqoran/uploads/SPM_Chapter_1-%202016%204.ppt

5.https://cs.gmu.edu/~kdobolyi/cs421/projectmanagement.ppt

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	**Topic**	**No. of Lectures**	**Teaching Pedagogy**	**Teaching Aids**
UNIT -1	**Introduction**			
1.1	Introduction to Competencies - Product Development Techniques - Management Skills - Product Development Life Cycle - Software Development Process and models - The SEI CMM - International Organization for Standardization.	5	Chalk & Talk	Black Board
1.2	Management Skills - Product Development Life Cycle	6	Chalk & Talk	LCD
1.3	- Software Development Process and models -	3	Discussion	Google Classroom
1.4	The SEI CMM - International Organization for Standardization.	3	Chalk & Talk	LCD

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -2	**Domain Processes**			
2.1	Managing Domain Processes - Project Selection Models -	6	Lecture	Green Board
2.2	Project Portfolio Management - Financial Processes -	5	Chalk &Talk	Green Board
2.3	Selecting a Project Team - Goal and Scope of the Software Project -Project Planning - Creating the Work Breakdown Structure - Approaches to Building a WBS -	3	Discussion	Google Classroom
2.4	Project Milestones - Work Packages - Building a WBS for Software.	5	Chalk &Talk	Green Board
UNIT -3	**Tasks and Activities :**			
3.1	Tasks and Activities - Software Size and Reuse Estimating -	4	Chalk & Talk	Black Board
3.2	The SEI CMM - Problems and Risks - Cost Estimation - Effort Measures -	5	Chalk & Talk	LCD
3.3	COCOMO: A Regression Model - COCOMO II - SLIM: A Mathematical Model -	3	Chalk & Talk	Black Board

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
3.4	Organizational Planning - Project Roles and Skills Needed.	3	Lecture	Green Board
UNIT -4 Project Management Resource:				
4.1	Project Management Resource Activities -	3	Chalk & Talk	Black Board
4.2	Organizational Form and Structure - Software Development Dependencies - Brainstorming -	6	Lecture	Green Board
4.3	Scheduling Fundamentals - PERT and CPM - Leveling Resource Assignments - Map the Schedule to a Real Calendar - Critical Chain Scheduling	3	Chalk & Talk	LCD
UNIT -5Quality				
5.1	Quality: Requirements – The SEI CMM - Guidelines - Challenges	6	Chalk & Talk	Black Board

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
5.2	Quality Function Deployment - Building the Software Quality Assurance - Plan	4	Discussion	Google Classroom
5.3	Software Configuration Management: Principles - Requirements - Planning and Organizing - Tools - Benefits - Legal Issues in Software -	4	Discussion	Google Classroom
UNIT -6 DYNAMISM				
6.1	To study recent tools on software project management tools	5	Assignments	Google class room

- **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:

CO's	Course Outcomes
CLO1	Understanding of project management fundamentals such as project planning, risk management and quality assurance
CLO2	Choose the appropriate scheduling and testing techniques to build a quality product
CLO3	Apply different cost estimation techniques and quality measures for software development
CLO4	Differentiate various software development models and methodologies, planning activities and scheduling methods
CLO5	Asses the importance of software project documentation and identify the methods to create project documentation, including requirements documents, design documents, and project plans

Mapping of COs with PSOs

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CLO1	3	1	2	2	1	2
CLO2	3	2	2	2	2	3
CLO3	3	2	3	3	3	2
CLO4	3	3	2	3	3	3
CLO5	3	3	3	3	3	2
Weightage of course contribute to each PSO	15	11	12	13	12	14

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**

I M.Sc.,

SEMESTER –II

Employability 100%

For those who joined in 2023 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
PSIT	23PG2IAE	E-Commerce and Content Management Systems	Practical	3	2

COURSE DESCRIPTION

This is a Web scripting language PHP able to build dynamic Web applications. Semantics and syntax of the PHP language, including discussion on the practical problems that PHP solves.

COURSE OBJECTIVES

The objective of this course is to provide the necessary knowledge to design and develop dynamic, database-driven web applications using PHP.

UNITS

Unit 1: Introduction to E-Commerce (6 HRS)

Welcome to Electronic Commerce: Electronic commerce Framework – Electronic Commerce and Media Convergence – The Anatomy of E-commerce- Electronic Commerce Consumer Applications

Electronic Commerce and World Wide Web: Architectural Framework for Electronic Commerce – World Wide Web as the Architecture – Web Background: Hypertext Publishing – Technology behind the web.

Unit II: Cascading Style Sheets& JavaScripts (6 HRS)

CSS introduction - CSS properties - Controlling Fonts, Text formatting - Text- pseudo classes, Selectors, Links, Backgrounds, Lists - Introduction to Java Script - Functions and events - Popup boxes-alert, prompt, conform box - Built-in objects, writing JavaScript form validation

Unit III: Introduction to PHP (6 HRS)

Introduction - Server side scripting - Role of web server software - PHP comments, variables - echo and print - PHP operators, data types - Branching statements - Loops – Arrays

Unit IV: PHP functions, Cookie, Error Handling (6 HRS)

PHP functions - PHP form - Passing information between pages, $_GET, $_POST, $_REQUEST. - String functions - session and cookie management -Error handling in PHP

Unit V: PHP with MYSQL (6 HRS)

Functions for MySQL connectivity and operation- mysql_connect, mysql_select_db, mysql_query - mysql_fetch_row, mysql_fetch_array, mysql_result, mysql_list_fields, mysql_num_fields, insertion - Updation and deletion of data using PHP - Displaying data from MySQL in webpage

REFERENCES:

1. Dave W Mercer, Allan Kent, Steven D Nowicki, David Mercer, Dan Squier, Wankyu Choi - Beginning PHP‖, Wiley Publishing, Inc

2. Ivan Bayross -“HTML, DHTML, JavaScript, Pearl & CGI”, Fourth Revised Edition, BPB Publication

3. “Programming PHP”,RasmusLerdorf and Kevin Tatore, Shroff Publishers & Distributors Pvt.Ltd

4. “Beginning PHP”, Dave W Mercer, Allan Kent, Steven D Nowicki, David Mercer, Dan Squier, Wankyu Choi, Wiley Publishing

OPEN EDUCATIONAL RESOURCES:

1. https://www.tutorialspoint.com › php
2. https://www.php.net › manual › tutorial

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -1 introduction to E commerce				
1.1	Welcome to Electronic Commerce: Electronic commerce Framework –	2	Demonstration	Desktop PC
1.2	Electronic Commerce and Media Convergence	1	Demonstration	Desktop PC
1.3	The Anatomy of E-commerce-Electronic Commerce Consumer Applications	1	Demonstration	Desktop PC
1.4	**Electronic Commerce and World Wide Web:** Architectural Framework for Electronic Commerce	1	Demonstration	Desktop PC
1.5	World Wide Web as the Architecture – Web Background: Hypertext	1	Demonstration	Desktop PC

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
	Publishing – Technology behind the web.			
UNIT -2 CASCADING STYLE SHEETS& JAVASCRIPTS				
2.1	CSS introduction - CSS properties - Controlling Fonts	2	Demonstration	Desktop PC
2.2	Text formatting - Text- pseudo classes, Selectors, Links, Backgrounds, Lists	1	Demonstration	Desktop PC
2.3	Introduction to Java Script - Functions and events - Popup boxes-alert, prompt, conform box	2	Demonstration	Desktop PC
2.4	Built-in objects, writing JavaScript form validation	1	Demonstration	Desktop PC
UNIT -3INTRODUCTION TO PHP				
3.1	Introduction, Server side scripting, Role of web server software	1	Demonstration	Desktop PC
3.2	PHP comments, variables - echo and print	1	Demonstration	Desktop PC
3.3	PHP operators, data types	1	Demonstration	Desktop PC
3.4	Branching statements ,Loops ,Arrays	1	Demonstration	Desktop PC
UNIT -4 PHP FUNCTIONS, COOKIE, ERROR HANDLING				

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
4.1	PHP Functions	2	Demonstration	Desktop PC
4.2	PHP form, Passing information between pages	1	Demonstration	Desktop PC
4.3	-, $_GET, $_POST,_REQUEST.	1	Demonstration	Desktop PC
4.4	String functions - session and cookie management	1	Demonstration	Desktop PC
4.5	Error handling in PHP	1	Demonstration	Desktop PC
UNIT -5 PHP with MYSQL				
5.1	Functions for MySQL connectivity and operation, insertion	1	Demonstration	Desktop PC
5.2	Queries on Select, Update	1	Demonstration	Desktop PC
5.3	Queries in fetch, List	1	Demonstration	Desktop PC
5.4	Updation and deletion of data using PHP	1	Demonstration	Desktop PC
5.5	Displaying data from MySQL in webpage	1	Demonstration	Desktop PC

- **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	Describe fundamentals of web.Introduce the creation of static webpage using HTML.	K2 & K3	PSO1& PSO2
CO 2	Describe the importance of CSS in web development	K2 & K3	PSO2 &PSO3
CO 3	Describe the function of JavaScript as a dynamic webpage creating tool	K2 & K3	PSO2, PSO3&PSO7
CO 4	Distinguish PHP as a server side programming language	K2 & K3	PSO2, PSO3 &PSO7
CO 5	Outline the principles behind using MySQL as a backend DBMS with PHP	K3 & K4	PSO7& PSO8

Mapping of COs with PSOs

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CLO1	3	2	1	2	2	2
CLO2	3	2	1	2	2	2
CLO3	3	2	2	3	3	3
CLO4	3	3	2	3	3	3
CLO5	3	2	2	3	3	3
Weightage of course contribute to each PSO	15	11	8	13	13	13

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:

HOD'S Signature& Name