FATIMA COLLEGE (AUTONOMOUS)

Re-Accredited with "A++" Grade by NAAC (4th Cycle)
Maryland, Madurai- 625 018, Tamil Nadu, India

NAME OF THE DEPARTMENT: COMPUTER SCIENCE

NAME OF THE PROGRAMME : M.SC

PROGRAMME CODE   : PSCS

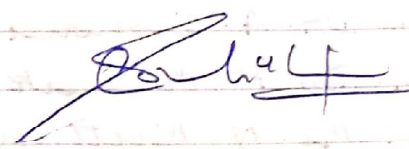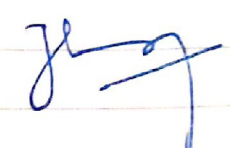**ACADEMIC YEAR   : 2022 - 2023**

Fatima College (Autonomous), Madurai
The Minutes of the Board of Studies meeting

Name of the Department : Computer Science
Programme : B. Sc.

To be implemented from the Academic
year 2022 - 2023 onwards.
Convened on 16.3.2022 at 2 p.m in the
Dept. of Computer Science, Fatima College.

Members present :

1. Dr. G. Germine Mary   Chairperson
   Head, Dept. of Computer Science   Germine Mary
   Fatima College.

2. Dr. C. Suresh Kumar   University Nominee
   Associate Prof. & Head
   Dept. of Computer Science
   MKV College. Madurai

3. Dr. M. Thangaraj   Subject Expert
   Professor & Head
   Dept. of Computer Science
   MKU, Madurai

4. Dr. Sr. Shantha Mary Joshitta   Subject Expert
   Asst. Prof and Head
   Dept. of Computer Science   ABSENT
   JAC, Periyakulam
   Theni Dt. — 625601

5. Dr. S. Vimala
   Associate Professor
   Dept. of Computer Science
   MTWU, Kodaikanal-624102

   Subject Expert.

   ABSENT

6. Mr. Graceson Tony
   Founder & CEO
   SEVEN ATARA Marketers
   11-3/2, III St, Periyar Nagar
   Koodal Ngr, Madurai -18

   Industrialist

   P. Graceson Tony

7. Mrs. K. Sudharani
   Associate Prof. & Head
   Dept. of Computer Science
   MSN College, Poovandhi
   Sivagangai - 630611

   Alumna

   Sudhae—

8. Dr. N. Malathyj
   Asst. Prof in zoology
   Fatima college

   Dean of Academic Affairs.

   Malathi 16/3/2022

   Members of the Department
9. Dr. S. Vidya, Associate Prof.

   Vidya

10. Dr. K. Rosemary Euphrasia
    Associate Prof.

    K. Rosemary

11. Dr. A. Vimala, Associate Prof.

    Vimala

12. Dr. P. Meenakshi Sundari
    Asst. Professor

    P. Meenakshi

13. Dr. S. Arul Jothi
    Asst. Professor   S. Aluya

14. Dr. T. Vasantha
    Asst. Professor.   ABSENT

15. Mrs. G. Rajathilagam   Rajathilagham
    Asst. Professor.

AGENDA:
   * Presentation of the Action Taken Report
     of the previous BoS.
   * To pass the changes in course titles.
   * To pass the changes in the syllabus
     of the courses offered
   * To pass the syllabus for the new
     courses to be introduced.

1. Action taken on the report of the previous
   BoS

Suggestion	Action Taken
University Nominee suggested to follow LOCF (Learning outcomes based curriculum framework)	Already OBE is followed. LOCF will be introduced during institutional restructuring.

2. Change in course Title.
            The following changes in
   titles were carried out.

S.No	Old Course code	New Course code	Old Title	New Title
1.	19B4SB2	22B3SB1	Web Designing using HTML and Wordpress	Web Designing using HTML and CSS

Need for change : "Introduction to internet" is removed to accomodate more advanced papers, so skill based paper-III is shifted in the place of Paper-I after replacing Wordpress with CSS.

S.No	Old Course code	New Course Code	Old Title	New Title
2	19B5SB3	22B4SB2	Client side programing using JAVA Script and CSS	Client side programing using Java Script

Need for change : Since Paper III is shifted to Paper II after removing the CSS component, the content removing CSS contains only Java Script.

S.No	Old Course Code	New Course code	Old Title	New Title
3.	19B6ME8	19B6ME8	Mobile Computing using Android	Mobile computing and Application Development

Need for change : Unit on Android installation is removed.

3. Revision of Courses

All the 8 papers mentioned below have Global Relevance and has scope for Employability, Entrepreneurship and Skill development.

S.No	Course code	Course Title	No. & Title of units revised	% revised	Need for revision
1.	19B4SB2	Web Designing using HTML & Wordpress	UNIT V Introduction to CSS	20	Content on Wordpress is replaced with CSS for better layout of web pages.
2.	19B5SB3	Client side programming using Java Script & CSS	UNIT V Advanced Scripting concepts.	20	Content on CSS is moved to Paper I and replaced with advanced scripting concepts.
3.	19B5ME3	Data Mining and data warehousing	Topics from UNIT II & IV are removed.	15	Few topics which were advanced and dealt in PG are removed.

4.	19B5ME5	Software Testing	UNIT IV is replaced	20	UNIT-IV – Software Test automation is replaced with Software Test metrics.
5.	19B6ME6	Cloud Computing	UNIT I & IV Modified	10	Few topics were removed from UNIT I & IV.
6.	19B6ME7	Introduction to Artificial Intelligence	UNIT I, III & V modified	10	Few topics were removed from UNIT I, III & V
7.	19B6ME8	Mobile Computing using Android	UNIT III is replaced with UNIT IV and UNIT IV is replaced with some section from UNIT V	20	UNIT V had more weightage so for deeper learning is split it into UNIT IV & UNIT V.
8.	19B6ME9	Big Data Fundamentals	UNIT II is replaced	20	UNIT II has been replaced with big data drivers, ICT and business analytical methods have been included.

4. Pass the syllabus for the new courses to be introduced.

All the 4 new papers introduced have Global relevance and has scope for Employability, Entrepreneurship and skill development.

S.No	Course Code	Course Title	Need for introduction
1.	22B2CC3	Python Programming	Python is the future of programming so introduced in the II semester in the place of Programming in C++.
2.	22B2CC4	Lab II - Python Programming	The lab is introduced in tune with the major core 22B2CC3 to learn in parallel with Theory.
3.	22B4CC8	Lab IV - RDBMS and Data Analytics using Spread-sheets.	Introduced in tune with the theory. Also facilitates placement
4.	22B5SB3	Web Application using Angular	Since Skill Based paper I is removed this paper is

introduced to fill that space created.

Suggestions & Recommendations.

* To organise more sessions with Alumnae to keep the students aware of the current trends in the industry

* To create awareness about the work from home oppurtunities.

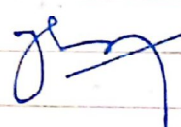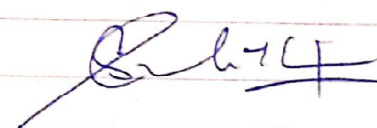| Signature	Name
Germellany	G. GERMINE MARY
S. Aluju	S. ARUL JOTHI
Rajathilagam	G. RAJATHILAGAM
P. Meenakshi	P. MEENAKSHI SUNDARI
signature	
C. SURESH KUMAR	(DY. M. THANGARAJ)
signature 10/3/2022	(N. MALATHI)
signature	(S. VIDYA)
Sudha	Mrs. K. Sudha Rani
K. Rosemary	Mrs. K. Rosemary Euphrasia
Vimala	A. VIMALA
P. Graceson	GRACESON TONY P
signature 15/3/22	

Fatima College (Autonomous), Madurai

The minutes of the Board of Studies meeting

Name of the Department : Computer Science

Programme : M.Sc.

To be implemented from the academic year 2022 - 2023 onwards.

Convened on 16.3.2022 at 2 p.m.

Members present :

1. Dr. G. Germine Mary   Chairperson
   Associate Prof. & Head   _Germine Mary_
   Dept. of Computer Science
   Fatima College

2. Dr. M. Thangaraj   University Nominee
   Professor & Head
   Dept. of Computer Science
   MKU, Madurai

3. Dr. C. Suresh Kumar   Subject Expert
   Associate Prof. & Head
   Dept. of Computer Science
   MKU College, Madurai

4. Dr. Sr. Shantha Mary Joshitta   Subject Expert
   Asst. Prof. & Head
   Dept. of Computer Science   ABSENT
   JA College, Periyakulam.

5. Dr. S. Vimala   Subject Expert
   Associate Prof.

Dept. of Computer Science
MTNV, Kodaikanal   ABSENT

6. Mr. P. Graceson Tony   Industrialist
   Founder & CEO
   Seven Atara Marketere   P. Graan B/
   Koodal Nagar, Madurai

7. Ms. K. Sudharani   Alumna
   Associate Prof. & Head
   Dept. of Computer Science   Sudhar—
   MSN college. Sivagangai.

8. Dr. N. Malathy   Dean of Academic
   Asst. Prof in Zoology   Affairs
   Fatima College.   Malathy
                                                              16/3/2022

Members of the Department of Computer
Science
9. Dr. S. Vidya, Associate Prof.   Vidya

10. Dr. K. Rosemary Euphrasia
    Associate Prof.   K. Rey Eupi

11. Dr. A. Vimala, Associate Prof.   Vimale

12. Dr. P. Meenakshi Sundari   P. Meenakshi
    Asst. Professor.

13. Dr. S. Arul Jothi   S. Aluy
    Asst. Professor.

4. Dr. T Vasantha
   Asst. Professor   ABSENT

5. Mrs. M Rajathilagam   *Rajathilagam*
   Asst. Professor

AGENDA:
* To pass the change in course title.
* To pass the changes in the syllabus of courses offered.
* To pass the syllabus for the new courses to be introduced.
* Action taken on the report of previous BoS.

1. Change in course title.

SNo	Old Course Code	New Course Code	Old Title	New Title
1.	19PG3B12	22PG2B8	Digital Image Processing	Digital Image Processing

Need for change: The paper is shifted from III semester to II Semester.

S.No	Old Course Code	New Course Code	Old Title	New Title
2.	19PG3B14	22PG2B11	Lab V Digital Image Processing	Lab V Digital Image Processing

1. Revision of Courses

All the 3 courses mentioned below have global relevance and has employability, entrepreneurship and skill development scope.

SNo	Course Code	Course Title	No., of UNITs and the title revised and need for revision	% Revised
1.	19PG3BE7	Distributed Database Management System	UNITS I, II, III & IV Modified. Few topics in the mentioned units were removed.	10
2.	19PG3BE8	Compiler Design	UNIT II, IV & V modified. Few topics in the mentioned units were removed.	10
3.	19PG3BE10	Advanced computer Graphics and animation	UNITS IV & V Modified. New concepts added in both the units.	15

3. Pass the syllabus for the new courses introduced.

All the 4 papers introduced have Global relevance and scope for employability, entrepreneurship and skill.

S.No	Course Code	Course Title	Need for introduction
1.	22PG3B12	Machine Learning	The ability to process large numbers of features makes machine learning powerful. Essential for research.
2.	22PG3B14	Lab V – Machine Learning with Python	Provides practical skill for 22PG3B12
3.	22PG3BE3	Mobile Communication	Latest technology which is very essential.
4.	22PG3BE12	Cyber Forensics	Needed for the investigation of crimes and law enforcement in cyber crime

4. Action taken on the report of previous BoS

Suggestion	Action Taken
University nominee suggested to follow LOCF (Learning outcome based curriculum framework)	Already OBE is followed. LOCF will be introduced during institutional restructuring.

Suggestions & Recommendations.

* To organise more sessions with Alumnae to keep the students aware of the current trends in the industry
* To create awareness about the work from home oppurtunities.

Jennie Mary	(G. GERMINE MARY
S. Aruja	S. ARUL JOTHI
Surlift	*(signature)*
C. SURESH KUMAR	(DY. M. THANAAMAD)
Rajatilgand	RAJATHILAGAM. G.
Malathi 16/3/2022	(N. MALATHI)
Sundas	S. VIDYA
P. Meenakshi·	P. MEENAKSHI SUNDAR?
Sudha	K. SUDHARANI
K. Rosemary	K. Rosemary Euphrasia
Animala	A. VIMALA
P. Graceson P	GRACESON TONY P
	(signature) 16/3/22

VISION OF THE DEPARTMENT

To be in the Zenith of Scholastic Excellence in Computer Science by imparting Value Based, Skill Based and Career Oriented Education for Holistic Development.

MISSION OF THE DEPARTMENT

- ❖ Empower Women and First generation learners
- ❖ Inculcate lateral thinking and make them professionally competent to meet the global challenge in the field of Computer Science
- ❖ Develop the programming skills of the young learners to meet the current trends of Computer Science
- ❖ Motivate the students to be socially responsible and acquire entrepreneurial skills to become global leaders
- ❖ Promote quality and ethics among the students through Value Based Education

PROGRAMME EDUCATIONAL OBJECTIVES (PEO)

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 their strengths and improving on 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 entrepreneurs and 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 discipline 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)

On completion of M.Sc. Computer Science Programme, the learner 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. Computer Science programme, the learner will be able to

PSO 1	Develop professionally competent citizens by applying the scientific knowledge of Computer Science with the ability to think clearly, rationally and creatively to support in evolving solutions to the social/public/scientific issues with responsible democratic participation
PSO 2	Enterprising resourcefulness to identify, plan, formulate, design and evaluate solutions for complex computing problems that address the specific needs with appropriate consideration for Societal, Cultural, Environmental and Industrial domains
PSO 3	Holistic development to ignite the lateral thinking ability in problem solving, acquisition of new skills, open-minded and organized way of facing problems with self awareness and evolving analytical solutions
PSO 4	Create and initiate innovations effectively and communicate efficiently with the computing community and society at large to bridge the gap between computing industry and academia
PSO 5	Through Digital Literacy, understand, assess and commit to professional and ethical principles, norms and responsibilities of the cyber world and the ability for work efficacy as a part of a team and engage effectively with diverse stakeholders
PSO 6	Ability and willingness to embark on new ventures and initiatives with critical thinking and desire for more continuous learning focusing on life skills
PSO 7	Use research-based knowledge and research methods to design, analyse, and interpret data and to synthesize information to provide valid findings to serve community

FATIMA COLLEGE (AUTONOMOUS), MADURAI-18
DEPARTMENT OF COMPUTER SCIENCE
For those who joined in June 2019 onwards

MAJOR CORE – 60 CREDITS

PROGRAMME CODE:PSCS

S. No	SEM.	COURSE CODE	COURSE TITLE	HRS	CREDITS	CIA Mks	ESE Mks	TOT. MKs
1.	I	19PG1B1	Advanced Programming in Java	5	4	40	60	100
2.		19PG1B2	Distributed Operating Systems	4	4	40	60	100
3.		19PG1B3	Object Oriented Software Engineering	4	4	40	60	100
4.		19PG1B4	Theory of Computation	4	4	40	60	100
5.		19PG1B5	Lab I – Advanced Programming In Java	5	3	40	60	100
6.		19PG1B6	Lab II – Operating System	5	3	40	60	100
7.	II	19PG2B7	Extreme Programming – Asp.Net	4	4	40	60	100
8.		22PG2B8	Digital Image Processing	4	4	40	60	100
9.		19PG2B9	Design and Analysis of Algorithms	4	4	40	60	100
10.		19PG2B10	Lab III – Extreme Programming – Asp.Net	5	3	40	60	100
11.		22PG2B11	Lab IV – Digital Image Processing	5	3	40	60	100
12.	III	22PG3B12	Machine Learning	5	5	40	60	100
13.		19PG3B13	Data Mining and Data Warehousing	5	5	40	60	100
14.		22PG3B14	Lab V- Machine Learning With Python	5	3	40	60	100
15.		19PG3B15	Lab VI – Data Mining And Data Warehousing	5	3	40	60	100
16.	IV	19PG4B16	Principles Of Internet Of Things (Self Study)	-	4	40	60	100
			TOTAL	**69**	**60**			

MAJOR ELECTIVE / EXTRA DEPARTMENTAL COURSE / INTERNSHIP/ PROJECT -30 CREDITS

S.No	SEM.	COURSECODE	COURSE TITLE	HRS	CREDITS	CIA Mks	ESE Mks	TOT. Mks
1.	I	19B1EDC	WEB DEVELOPMENT	3	3	40	60	100
2.	II	19B2EDC	WEB DEVELOPMENT	3	3	40	60	100
3.		19PG2BE1	COMPUTATIONAL INTELLIGENCE	5	5	40	60	100
4.		19PG2BE2	NEURAL NETWORKS	5	5	40	60	100
5.		19PG2BE3	SOFTWARE TESTING	5	5	40	60	100
6.		19PG2BE4	EMBEDDED SYSTEMS	5	5	40	60	100
7.	III	19PG3BE5	PYTHON PROGRAMMING	5	5	40	60	100
8.		19PG3BE6	CRYPTOGRAPHY AND NETWORK SECURITY	5	5	40	60	100
9.		19PG3BE7	DISTRIBUTED DATABASE MANAGEMENT SYSTEM	5	5	40	60	100
10.		19PG3BE8	COMPILER DESIGN	5	5	40	60	100
11.		19PG3BE9	CLOUD COMPUTING	5	5	40	60	100
12.		19PG3BE10	ADVANCED COMPUTER GRAPHICS & ANIMATION	5	5	40	60	100
13.		19PG3BE11	BIG DATA ANALYTICS	5	5	40	60	100
14.		22PG3BE12	CYBER FORENSICS	5	5	40	60	100
15.		22PG3BE13	MOBILE COMMUNICATION	5	5	40	60	100
16.		19PG3BSI	SUMMER INTERNSHIP/ TRAINING/ ONLINE CERTIFICATION	-	3	40	60	100
17.	IV	19PG4BPR	PROJECT	-	6	40	60	100
			TOTAL	**21**	**30**			

OFF-CLASS PROGRAMMES

ADD-ON COURSES

COURSE CODE	COURSES	HRS.	CREDITS	SEMESTER IN WHICH THE COURSE IS OFFERED	CIA MKS	ESE MKS	TOTAL MARKS
19PAD2SS	**SOFT SKILLS**	40	3	I	40	60	100
19PADCM	**CONTENT MANAGEMENT SYSTEM** (Offered by Dept. Of Computer Science)	40	4	II	40	60	100
21PADAJ	**Scripting using Angular JS**(Offered by Dept. Of Computer Science)	40	4	II	40	60	100
19PAD4CV	**COMPREHENSIVE VIVA** (Question bank to be prepared for all the papers by the respective course teachers)	-	2	IV	-	-	100
19PAD4RC	**READING CULTURE**	15/ Semester	1	I-IV	-	-	-

EXTRA CREDIT COURSES

Course Code	Courses	Hrs.	Credits	Semester in which the course is offered	CIA Mks	ESE Mks	Total Marks
19PGBSL1	**SELF LEARNING COURSE for ADVANCED LEARNERS** BIOINFORMATICS	-	5	I & II	40	60	100
21PGBSL2	**SELF LEARNING COURSE for ADVANCED LEARNERS** DEVELOPING WEB SERVICES	-	5	III & IV	40	60	100
21PGBSL3	**SELF LEARNING COURSES for ADVANCED LEARNERS** EVOLUTIONARY COMPUTING	-	5	III & IV	40	60	100
	MOOC COURSES (Department Specific Courses) * Students can opt other than the listed course from UGC-SWAYAM portal as well as from NPTEL	-	Respective Credits allotted by UGC		-	-	100

II M.SC COMPUTER SCIENCE
SEMESTER – III
(For those who join in 2022 onwards)

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/ WEEK	CREDITS
PSCS	22PG3B12	**MACHINE LEARNING**	**MAJOR CORE**	5	5

COURSE DESCRIPTION

This course provides an introduction to learn Machine Intelligence and Machine Learning Applications algorithms to solve real world problems.

COURSE OBJECTIVE
- ❖ To introduce the fundamentals of Machine Learning and algorithms.
- ❖ To define the classifiers and its associated algorithms
- ❖ To impart the knowledge on supervised and unsupervised learning algorithms used for classification, prediction and clustering.

UNIT - I INTRODUCTION   **(15 Hours)**

Introduction to machine learning -Learning Problems – Learning System – Issues in machine learning - Concept Learning - Learning Task – General-to-specific Ordering – Specific Hypothesis – Candidate Elimination – Inductive Bias.
SELF STUDY: Choosing the Target Function

UNIT – II DECISION TREE & BAYESIAN LEARNING   **(15 Hours)**

Decision Tree Learning -Decision tree representation – Issues in decision tree learning- Bayesian Learning - Bayes Theorem – Bayes Theorem and Concept Learning – Naive Bayes classifier - Bayesian Networks -EM Algorithm
SELF STUDY: Avoiding Overfitting the Data

UNIT - III   GENETIC ALGORITHMS   **(15 Hours)**

Introduction to Instance Based Learning – K-Nearest Neighbor Learning - Radial Basis Function, Case based reasoning - Genetic Algorithms - Hypotheses – Genetic Operators – Hypothesis Space Search – Genetic Programming – Models of Evolution and Learning.
SELF STUDY: Parallelizing Genetic Algorithms

UNIT - IV   LEARNING SETS OF RULES   **(15 Hours)**

Introduction to Learning Sets of Rules -Sequential Covering Algorithms – Learning First order Rules – FOIL – Inverting Resolution - Analytical Learning **-** PROLOG EBG – Explanation Based learning – Features.
SELF STUDY: Deductive Learning

UNIT - V ANALYTICAL& REINFORCEMENT LEARNING   **(15 Hours)**

Combining Inductive and Analytical Learning - Approaches – KBANN Algorithm – TANGENTPROP – EBNN – FOCL - Reinforcement Learning - Learning Task – Q Learning – Non deterministic Actions – Temporal Difference Learning – Relationship to Dynamic Programming.
SELF STUDY: Experimentation Strategies

REFERENCES :
1. Tom M. Mitchell , "Machine Learning", Tata McGraw-Hill, New Delhi
2. Hastie.T, Tibshirani.R, and Friedman.J, "The Elements of Statistical Learning: Data Mining Inference and Prediction", Second edition, Springer, 2009
3. Christopher M. Bishop , "Pattern Recognition and Machine Learning – Information Scienceand Statistics", Springer, 2007

WEB REFERENCES :
1. https://machinelearningmastery.com/machine-learning-with-python/
2. http://ibpsa.fr/jdownloads/Simurex/2015/Presentations/30_03_atelierdata mining.pdf

COURSE CONTENTS & LECTURE SCHEDULE

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT I: INTRODUCTION				
1.1	Introduction to machine learning - Learning Problems	3	Chalk & Talk	Black Board
1.2	Learning System – Issues in machine learning	3	Lecture	Smart Board
1.3	Concept Learning - Learning Task –	3	Lecture	Smart Board
1.4	General-to-specific Ordering – Specific Hypothesis	3	Lecture	Black Board
1.5	Candidate Elimination – Inductive Bias.	3	Chalk & Talk	Black Board
UNIT – II DECISION TREE & BAYESIAN LEARNING				
2.1	Decision Tree Learning -Decision tree representation – Issues in decision tree learning-	3	Chalk & Talk	Black Board
2.2	Bayesian Learning - Bayes Theorem	3	Chalk & Talk	Black Board
2.3	Bayes Theorem and Concept Learning	3	Discussion	Google classroom
2.4	Naive Bayes classifier - Bayesian Networks	3	Lecture	PPT & Smart Board
2.5	EM Algorithm	3	Lecture	PPT & Smart Board
UNIT - III GENETIC ALGORITHMS				
3.1	Introduction to Instance Based Learning – K-Nearest Neighbor Learning	4	Chalk & Talk	Black Board
3.2	Radial Basis Function, Case based reasoning	4	Chalk & Talk	Black Board
3.3	Genetic Algorithms - Hypotheses – Genetic Operators – Hypothesis Space Search	4	Discussion	Google classroom
3.4	Genetic Programming – Models of Evolution and Learning.	3	Lecture	PPT & Smart Board

UNIT - IV LEARNING SETS OF RULES				
4.1	Introduction to Learning Sets of Rules	4	Lecture	PPT & Smart Board
4.2	Sequential Covering Algorithms – Learning First order Rules – FOIL – Inverting Resolution	4	Chalk & Talk	Black Board
4.3	Analytical Learning **-** PROLOG EBG –	4	Lecture	PPT & Smart Board
4.4	Explanation Based learning – Features.	3	Discussion	Black Board
UNIT - V ANALYTICAL& REINFORCEMENT LEARNING				
5.1	Combining Inductive and Analytical Learning	3	Seminar	PPT & Smart Board
5.2	Approaches – KBANN Algorithm – TANGENTPROP – EBNN	3	Seminar	PPT & Smart Board
5.3	FOCL - Reinforcement Learning – Learning Task – Q Learning	3	Seminar	PPT & Smart Board
5.4	Non deterministic Actions – Temporal Difference Learning	3	Seminar	PPT & Smart Board
5.5	Relationship to Dynamic Programming.	3	Seminar	PPT & Smart Board

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

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

✔ **The levels of CIA Assessment based on Revised Bloom's Taxonomy are:**

K1- Remember**, K2-**Understand**, K3-**Apply**, K4-**Analyse, **K5-**Synthesis

EVALUATION PATTERN

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

COURSE OUTCOMES (CO)

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	POs ADDRESSED
CO1	Explain the fundamental concept of Machine Learning.	K2,K3	PSO1& PSO2	PO1
CO 2	Analyse the decision tree and explain the Bayesian learning.	K2,K3	PSO3& PSO4	PO2
CO 3	Discuss the genetic algorithms	K3,K4	PSO2 &PSO5	PO3
CO 4	Apply the learning set of rules and discuss the learning features	K4,K5	PSO6 &PSO7	PO2 & PO3
CO 5	Explain the Reinforcement learning and analyse the relationships to dynamic programming.	K3,K5	PSO1 &PSO3	PO4

Mapping COs Consistency with PSOs

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

Mapping COs Consistency with POs
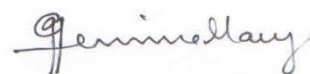
CO/PSO	PO1	PO2	PO3	PO4
CO1	3	1	2	2
CO2	2	2	2	2
CO3	2	1	3	2
CO4	2	2	1	1
CO5	2	1	3	3

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

COURSE DESIGNER:

Staff Name: Dr..P.MEENAKSHI SUNDARI

Forwarded By

(Dr.G.Germine Mary)
HOD'S Signature & Name

II M.SC COMPUTER SCIENCE
SEMESTER – III
(For those who joined in 2022 onwards)

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
PSCS	22PG3B14	LAB V- MACHINE LEARNING WITH PYTHON	MAJOR LAB	5	3

COURSE DESCRIPTION

This course provides experiential learning and implementation of machine learning concepts using python

COURSE OBJECTIVE

❖ To Acquire knowledge and Skills for creation of Web applications.
❖ To implement regression and Classification using Python

LAB LIST

1. Exercise to develop simple web applications in Python
2. Exercise to manipulate data using different queries
3. Exercises to handle Exceptions, Multithreading
4. Exercise to extract features from datasets
5. Exercise to implement Regression
6. Exercise to implement Classification
7. Exercise to implement Clustering
8. Exercises for Model selection and evaluation
9. Exercises to Build a data pipeline.

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

✔ **The levels of CIA Assessment based on Revised Bloom's Taxonomy are:**

K1- Remember**, K2**-Understand**, K3**-Apply**, K4**-Analyse, **K5**-Synthesis

EVALUATION PATTERN

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

SCHOLASTIC		NON - SCHOLASTIC	MARKS		
C1	C2	C3	CIA	ESE	Total
25	10	5	40	60	100

- **C1** – Average of Two Monthly Tests
- **C2** – Average of Weekly Tests
- **C3** – Non – Scholastic

COURSE OUTCOMES

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

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED	PSOs ADDRESSED
CO 1	Design webapplications using python programming	K2	PSO1& PSO2	PO1& PO2
CO 2	Manipulate data using different queries.	K2, K3	PSO3& PSO4	PO1& PO2
CO 3	Extract features from the data set	K2, K4	PSO5	PO3 & PO4
CO 4	Implement Machine learning Algorithms	K2, K3 & K4	PSO6	PO3 & PO4
CO 5	Build data pipeline using machine learning in python.	K3& K5	PSO7	PO3 & PO4

Mapping COs Consistency with PSOs

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

Mapping of C0s with POs

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

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

♦ Weakly Correlated -**1**

COURSE DESIGNER:

Dr.P.MEENAKSHI SUNDARI

Forwarded By

(Dr.G.Germine Mary)

HOD'S Signature & Name

II MSC COMPUTER SCIENCE
SEMESTER - III
(For those who join in 2022 onwards)

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/ WEEK	CREDITS
PSCS	22PG3BE12	CYBER FORENSICS	LECTURE	5	5

COURSE DESCRIPTION

This course provides the investigation of computer-related crimes with the goal of obtaining evidence to be presented in a court of law.

COURSE OBJECTIVE

❖ Understand the definition of computer forensics fundamentals.
❖ Describe the types of computer forensics technology.
❖ Analyze various computer forensics systems.
❖ Learn to duplicate and preserve digital evidence.

UNIT – I COMPUTER FORENSICS FUNDAMENTALS   (15 Hours)

Introduction - Use in Law Enforcement - Assistance to Human Resources - Services - Benefits of Forensics Methodology - Steps Taken by Specialists – Users of Computer Forensic Evidence - Types of Computer Forensics Technology - Military Forensic Technology - Types of Law Enforcement - Types of Business Technology - Specialized Forensics Techniques - Hidden Data - Spyware and Adware - Encryption Methods and Vulnerabilities - Protecting Data - Internet Tracing Methods - Security and Wireless Technologies - Avoiding Pitfalls with Firewalls.
SELF STUDY : Biometric Security Systems

UNIT II COMPUTER FORENSICS EVIDENCE AND CAPTURE   (15 Hours)

Data Recovery **-**Definition - Data Backup and Recovery – Data Recovery Solution - Hiding and Recovering Hidden Data - Evidence Collection and Data Seizure **–** Obstacles - Types - Rules - Volatile Evidence - Methods of Collection - Artifacts - Collection Steps - The Chain of Custody - Reconstructing the Attack – Preservation of Digital Evidence and Digital Crime Scene - Computer Evidence Processing Steps – Legal Aspects - Computer Image - Verification and Authentication- Special Needs of Evidential Authentication.
SELF STUDY : Controlling Contamination, The Chain of Custody

UNIT III COMPUTER FORENSICS ANALYSIS   (15 Hours)

Discovery of Electronic Evidence - Electronic Document Discovery: A Powerful New Litigation Tool - Identification of Data - Timekeeping - Forensic Identification and Analysis of Technical Surveillance Devices - Reconstructing Past Events - How to Become a Digital Detective - Useable File Formats - Unusable File Formats - Converting Files - Networks - Network Forensics Scenario - A Technical Approach - Destruction of Email – Damaging Computer Evidence - Tools Needed for Intrusion Response to the Destruction of Data.
SELF STUDY : System Testing

UNIT IV THE IW ARSENAL AND TACTICS OF THE MILITARY   (15 Hours)
Overview of Military Tactics - Offensive Ruinous IW Tools and Tactics – Offensive Containment IW Tools and Tactics - Defensive Preventive IW Tools and Tactics – Defensive Ruinous IW Tools and Tactics - Defensive Responsive Containment IW Tools and Tactics - Countering Sustained Terrorist IW Tactics - Dealing with Random Terrorist IW - The Future of Information Warfare Arsenal – Weapons of the Future - The Global Positioning System - Snoop, Sniff, and Snuff Tools - Email Wiretaps Like Carnivore Can Steal Sensitive Correspondence - IW Weapons of the Future.
SELF STUDY : Nanotechnology

UNIT V SURVEILLANCE TOOLS FOR IW OF THE FUTURE   (15 Hours)
Monitoring Everything - The Cyber Footprint and Criminal Tracking - The Implications of Cookies and Integrated Platforms - Wintel Inside, or How Your Computer Is Watching You - Data Mining - The Internet Is Big Brother - The Wireless Internet: Friend or Foe - Advanced Computer Forensics - Advanced Encryption: The Need to Conceal - Advanced Hacking - Advanced Tracker Hackers - The Problems of the Present.
SELF STUDY : Cyber Surveillance

REFERENCES :
1. John R. Vacca, "Computer Forensics: Computer Crime Scene Investigation", Second Edition , 2005.
2. Kevin Mandia, Chris Prosise, Matt Pepe, "Incident Response and Computer Forensics ", Tata McGraw -Hill, New Delhi, 2014.
3. Nelson Phillips and EnfingerSteuart, "Computer Forensics and Investigations",Cengage Learning, New Delhi, 2016.
4. Bill Nelson, Amelia Phillips, Chris Steuart,"Guide to Computer Forensics and Investigations processing Digital Evidence", Fifth Edition, Tata McGraw - Hill, New Delhi, 2016.

WEB REFERENCES:
1. https://homelandforensics.com/forensics.htm
2. https://en.wikipedia.org/wiki/Computer_forensics

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -1 COMPUTER FORENSICS FUNDAMENTALS				
1.1	Introduction to Computer Forensics Fundamentals	1	Chalk & Talk	Black Board
1.2	Benefits of Forensics Methodology	1	Chalk & Talk	Black Board
1.3	Users of Computer Forensic Evidence	1	Lecture	PPT
1.4	Military Forensic Technology	2	Chalk & Talk	Black Board
1.5	Specialized Forensics Techniques	2	Discussion	Black Board
1.6	Encryption Methods and Vulnerabilities	2	Lecture	White board
1.7	Internet Tracing Methods	2	Lecture	PPT
1.8	Security and Wireless Technologies	2	Lecture	White board
1.9	Biometric Security Systems.	2	Chalk & Talk	Black Board
UNIT - 2 COMPUTER FORENSICS EVIDENCE AND CAPTURE				
2.1	Data Backup and Recovery	1	Lecture	PPT
2.2	Evidence Collection and Data Seizure	1	Chalk & Talk	Black Board
2.3	Methods of Collection	2	Lecture	PPT
2.4	Collection Steps	2	Lecture	White board
2.5	Controlling Contamination	1	Discussion	Black Board
2.6	Reconstructing the Attack	1	Chalk & Talk	Black Board
2.7	Preservation of Digital Evidence and Digital Crime Scene	1	Chalk & Talk	Black Board
2.8	Computer Evidence Processing Steps	2	Lecture	White board
2.9	Computer Image - Verification and Authentication	2	Discussion	Black Board
2.10	Special Needs of Evidential Authentication	2	Lecture	PPT

UNIT – 3	COMPUTER FORENSICS ANALYSIS			
3.1	Discovery of Electronic Evidence	1	Lecture	White board
3.2	Electronic Document Discovery: A Powerful New Litigation Tool	2	Chalk & Talk	Black Board
3.3	Forensic Identification and Analysis of Technical Surveillance Devices	2	Lecture	PPT
3.4	How to Become a Digital Detective	1	Lecture	White board
3.5	Useable & Unusable File Formats	1	Lecture	PPT
3.6	Network Forensics Scenario - A Technical Approach	2	Discussion	Google classroom
3.7	Destruction of Email	2	Chalk & Talk	Black Board
3.8	Damaging Computer Evidence	2	Lecture	PPT
3.9	Tools Needed for Intrusion Response to the Destruction of Data	2	Discussion	Google classroom
UNIT - 4	THE IW ARSENAL AND TACTICS OF THE MILITARY			
4.1	Overview of Military Tactics	1	Lecture	PPT
4.2	Offensive Ruinous IW Tools and Tactics	1	Lecture	PPT
4.3	Offensive Containment IW Tools and Tactics	1	Chalk & Talk	Black Board
4.4	Defensive Preventive IW Tools and Tactics	2	Chalk & Talk	Black Board
4.5	Defensive Ruinous IW Tools and Tactics	2	Discussion	Black Board
4.6	Defensive Responsive Containment IW Tools and Tactics	2	Lecture	PPT
4.7	Weapons of the Future	2	Chalk & Talk	Black Board
4.8	Snoop, Sniff, and Snuff Tools	2	Discussion	Google classroom
4.9	IW Weapons of the Future	2	Discussion	Google classroom

UNIT – 5	SURVEILLANCE TOOLS FOR IW OF THE FUTURE			
5.1	Cyber Surveillance	2	Chalk & Talk	Black Board
5.2	Cyber Footprint and Criminal Tracking	1	Lecture	PPT
5.3	Implications of Cookies and Integrated Platforms	2	Lecture	PPT
5.4	Data Mining	1	Lecture	White board
5.5	The Wireless Internet: Friend or Foe.	2	Lecture	White board
5.6	Advanced Encryption: The Need to Conceal	1	Lecture	White board
5.7	Advanced Hacking	2	Lecture	White board
5.8	Advanced Tracker Hackers	2	Discussion	Google classroom
5.9	The Problems of the Present.	2	Chalk & Talk	Black Board

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

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

✓ **The levels of CIA Assessment based on Revised Bloom's Taxonomy are:**

K1- Remember**,** **K2-**Understand**,** **K3-**Apply**,** **K4-**Analyse, **K5-**Synthesis

EVALUATION PATTERN

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

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	POs ADDRESSED
CO 1	Predict the forensics fundamentals and the various technologies used to avoid computer crimes	K2, K4	PSO1 & PSO3	PO1
CO 2	Illustrate different methods to collect and preserve digital evidence and Digital Crime Scene.	K2, K3, K4	PSO2 & PSO5	PO3
CO 3	Identify and Analyze Forensic Technical Surveillance Devices.	K2 , K4	PSO3 & PSO4	PO4
CO 4	Evaluate the Various tools and tactics followed in military.	K2, K3,K4& K5	PSO2 & PSO4	PO3
CO 5	Demonstrate the Usage of surveillance tools for tracking cyber criminals	K2,K3,K4& K5	PSO2 & PSO5	PO4

Mapping COs Consistency with PSOs

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

Mapping COs Consistency with POs

CO/ PO	PO1	PO2	PO3	PO4
CO1	2	1	3	2
CO2	2	2	3	1
CO3	2	2	1	3
CO4	2	2	3	1
CO5	2	2	1	3
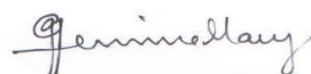
Note: ♦ Strongly Correlated – **3**   ♦ Moderately Correlated – **2**
♦ Weakly Correlated -**1**

COURSE DESIGNER:

Dr.P.Meenakshi Sundari

Forwarded By

(Dr.G.Germine Mary)

HOD'S Signature & Name

II MSC COMPUTER SCIENCE
SEMESTER – III
(For those who join in 2022 onwards)

PROGRAM ME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/ WEEK	CRED ITS
PSCS	22PG3BE13	MOBILE COMMUNICATION	LECTURE	5	5

COURSE DESCRIPTION
This course provides knowledge on key mobile system and wireless communication. It also aims at developing applications using Android

COURSE OBJECTIVE
- ❖ To learn the basic concepts of MAC, SDMA, TDMA, FDMA, CDMA.
- ❖ To have an exposure about GSM and Satellites.
- ❖ To be familiar with wireless protocols, WLAN, Bluetooth.
- ❖ To be acquainted with the Mobile Internet Protocol.
- ❖ To understand the basic concepts of SIP.

UNIT – I INTRODUCTION **(15 Hours)**
Applications - History of wireless communication - Simplified reference model- Medium Access Control - Motivation for a specified MAC- SDMA- FDMA- TDMA- CDMA – Comparison of SDMA, TDMA, FDMA, CDMA.
SELF STUDY: History of wireless communication

UNIT – II Mobile Networks **(15 Hours)**
GSM - Mobile services- System Architecture- Protocols- Handover – Security - New data services – DECT – TETRA – Satellite systems – Introduction – Applications - Basics- Routing- Localization- Handover.
SELF STUDY: Satellite systems Basics

UNIT – III Wireless Systems **(15 Hours)**
Infra Red Vs Radio transmission- Infrastructure and Adhoc Networks- IEEE 802.11 System Architecture - Protocol Architecture – Newer developments - Bluetooth- Architecture- Link manager Protocol – Security – SDP – IEEE 802.15.
SELF STUDY: Bluetooth

UNIT – IV Mobile IP **(15 Hours)**
Basics – IP Packet delivery – Tunneling and encapsulation – IP micro mobility support – Dynamic host configuration protocol – Mobile ad-hoc networks – Overview ad-hoc routing protocols.

UNIT – V SIP **(15 Hours)**
Introduction - VoIP Technology – SIP Overview – Network Elements – SIP System Architecture – SIP Basic call flow - SIP trapezoid – SIP Messaging – SIP Response Codes – SIP Headers.
SELF STUDY: SIP Headers

TEXT BOOK:

1. Mobile Communications, Jochen Schiller, 2nd Edition, PHI/Pearson Education, 2003.

REFERENCES:
1. Jochen Schiller, "Mobile communication", Second Edition, Pearson Education,12th Impression, 2013.
2. Hideki Imai, Mohammad Ghulam Rahman, "Wireless Communications Security", KazukuniKobara, Artech House, 2007
3. Steve S. Thomas, "Wireless Communications Security", Create Space Independent Publishing, 2010.
4. Jyrki T. J. Penttinen,"Wirelesss Communications Security Solutions for the Internet of Things", John Wiley & Sons Ltd, 2017

WEB REFERENCES:

1. https://www.tutorialspoint.com/session_initiation_protocol/session_initiation_protocol_introduction.htm
2. https://nsrc.org/wrc/data/2004/629197984427ef56fc2cd1/sanog4-aarati-voiptut.pdf
3. http://www.cse.psu.edu/~pdm12/cse545-s11/slides/cse545-voip.pdf

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -1		**INTRODUCTION**		
1.1	Introduction	2	Chalk & Talk	Black Board
1.2	Applications - History of wireless communication	2	Discussion	Google classroom
1.3	Simplified reference model-	2	Lecture	PPT & White board
1.4	MAC- Motivation for a specified MAC	3	Lecture	Smart Board
1.5	SDMA- FDMA	3	Lecture	Black Board
1.6	TDMA	3	Lecture	PPT & White board
1.7	CDMA.	3	Lecture	PPT & White board
UNIT 2 -		**MOBILE NETWORKS**		
2.1	GSM:Mobile services	1	Discussion	Black Board
2.2	Protocols, System Architecture	3	Lecture	Google classroom
2.3	Handover	1	Lecture	PPT & White board
2.4	Security	1	Lecture	Smart Board
2.5	GPRS	1	Lecture	Black Board
2.6	New data services	2	Lecture	PPT & Black board
2.7	DECT, TETRA	2	Lecture	PPT
2.8	Satellite systems- Basics	2	Lecture	PPT & White board
2.9	Routing- Localization- Handover	2	Lecture	PPT & White board
UNIT 3 – WIRELESS SYSTEMS				
3.1	Wireless LAN: IR Vs Radio transmission , Infrastructure and Adhoc Networks	1	Discussion	Black Board
3.2	IEEE 802.11 System	2	Lecture	PPT

	Architecture			
3.3	IEEE 802.11 Protocol Architecture	2	Lecture	PPT & White board
3.4	Newer developments	2	Lecture	Smart Board
3.5	Bluetooth Architecture	2	Lecture	Black Board
3.6	Link manager Protocol	2	Lecture	PPT & Black board
3.7	Security – SDP	2	Lecture	PPT & White board
3.8	IEEE 802.15	2	Lecture	PPT & White board
UNIT 4 – MOBILE IP				
4.1	Basics of Mobile IP, IP Packet delivery	2	Lecture	PPT
4.2	Tunneling and encapsulation	2	Lecture	PPT
4.3	IP micro mobility support	2	Lecture	PPT
4.4	Dynamic host configuration protocol	3	Lecture	PPT
4.4	Mobile ad-hoc networks	3	Lecture	PPT & White board
4.5	Ad-hoc routing protocols	3	Lecture	PPT
UNIT -5 – SIP				
5.1	VoIP Technology	1	Lecture	PPT
5.2	SIP Overview	2	Lecture	PPT
5.3	Network Elements	1	Lecture	Smart Board
5.4	SIP System Architecture	2	Lecture	PPT
5.5	SIP Basic call flow	1	Lecture	PPT
5.6	SIP trapezoid	2	Lecture	Smart Board
5.7	SIP Messaging	2	Lecture	PPT
5.8	SIP Response Codes	2	Discussion	Black Board
5.9	SIP Headers.	2	Lecture	PPT

Levels	C1	C2	C3	C4	Total Scholastic Marks	Non Scholastic Marks C5	CIA Total	% of Assessment
	10 Mks	15 Mks	5+5=10 Mks .	10 Mks	45 Mks .	5 Mks .	50 Mks .	
K1	-	-	-	-	-		-	-
K2	-	5	5	2.5	12.5		12.5	25%
K3	5	-	-	5	10		10	20%
K4	5	5	-	2.5	12.5		12.5	25%
K5	-	5	5	-	10		10	20%
Non-Scho.	-	-	-	-	-	5	5	10%
Total	10	15	10	10	45	5	50	100%

CIA	
Scholastic	45
Non Scholastic	5
	50

- ✓ **All the course outcomes are to be assessed in the various CIA components.**
- ✓ **The levels of CIA Assessment based on Revised Bloom's Taxonomy for MCA are :**

   K2-*Understand*, *K3*-*Apply*, *K4*-*Analyse, K5 – Evaluate*

EVALUATION PATTERN

SCHOLASTIC				NON - SCHOLASTIC	MARKS		
C1	C2	C3	C4	C5	CIA	ESE	Total
10	15	10	10	5	50	50	100

- **CIA Components**

			Nos			
C1	–	Test (CIA 1)	2*	-	10 Mks
C2	-	Test (CIA 2)	1	-	15 Mks
C3	-	Assignment / Open Book Test	2	-	10 Mks
C4	-	Seminar	1	-	10 Mks
C5	-	Attendance	1	-	5 Mks

- **•The Average of two will be taken into account**

COURSE OUTCOMES (CO)

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	POs ADDRESSED
CO 1	Identify, Predict and Evaluate MAC, SDMA, TDMA, FDMA, CDMA	K1/K2/K3	PSO1& PSO2	PO1
CO 2	Demonstrate the architectures, challenges and solutions of Wireless communication	K1/K2/K3	PSO3& PSO4	PO1& PO2
CO 3	Assess the role of Wireless Networks in shaping the future internet.	K1/K2/K3/K4	PSO5	PO1 & PO2
CO 4	Design Mobile IP to support seamless and continuous Internet connectivity	K1/K2/K3	PSO6	PO3
CO 5	Design SIP to create, modify, and terminate a multimedia session over the Internet Protocol.	K1/K2/K3/K4	PSO7	PO4

Mapping COs Consistency with PSOs

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

Mapping of COs with POs

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

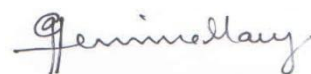**Note**:   ♦ Strongly Correlated – **3**   ♦ Moderately Correlated – **2**

♦ Weakly Correlated -**1**

COURSE DESIGNER

Dr.P.Meenakshi Sundari

Forwarded By

(Dr.G.Germine Mary)

HOD'S Signature & Name