FATIMA COLLEGE (AUTONOMOUS)

Re-Accredited with "A" Grade by NAAC (3rd Cycle)
74th Rank in India Ranking 2020 (NIRF) by MHRD
Maryland, Madurai- 625 018, Tamil Nadu, India

NAME OF THE DEPARTMENT : COMPUTER SCIENCE

NAME OF THE PROGRAMME : M.Sc. COMPUTER SCIENCE

PROGRAMME CODE : PSCS

ACADEMIC YEAR : 2020 - 2021

DEPARTMENT OF COMPUTER SCIENCE

The Board of studies meeting for reviewing the complete outcome Based Education syllabus for the students of M.Sc Computer Science course during the academic year 2020-21 was held on 28.2.2020 at 2.00 p.m in the Department of Computer Science.

The members of the Board were

CHAIRMAN

1. Dr. G. Germine Mary
   Associate Professor & Head
   Dept. of Computer Science
   Fatima College — Gjermiellary

UNIVERSITY NOMINEE

2. Thiru. A. Meshach Ponraj — ABSENT
   Associate Professor
   Dept. of Computer Science
   Madurai Kamaraj University
   Madurai

EXTERNAL SUBJECT EXPERT

3. Dr. M. Mary Shanthi Rani — M. Mary Shanthi Rani 28/2/2020
   Associate Professor
   Dept. of Computer Science and Applications
   The Gandhigram Rural Institute
   Gandhigram.

4. Dr. V.K. Vijayakumar
Associate Professor & Head
Dept. of Computer Science
Sourashtra College
Madurai

28/2/2020

5. Dr. M. Sumathy
Associate Professor & Head
Dept. of Computer Science
Sri Meenakshi Govt. Arts College for Women
Madurai

28/2/2020

ALUMNAG & SUBJECT EXPERT

6. Ms. K. Sudharani
Associate Professor & Head
Dept. of Computer Science
Madurai Sivakasi Nadar College
Poovandhi.

INDUSTRIAL EXPERT

7. Mr. P. Graceson Tony M.TECH
Founder & CEO
SGVEN ATARA Marketers
11-3/2, III st, Periyar Nagar
Koodal Nagar, Madurai

MEMBERS

8. Dr. S. Vidya
Associate Professor in C.Sc
Fatima College

9. Dr. K. Rosemary Euphrasia
Associate Professor in C.Sc
Fatima College

10. Dr. A. Vimala
Associate Professor in C.Sc
Fatima College

11. Dr. P. Meenakshi Sundari
Assistant Professor in C.Sc
Fatima College

12. Ms. N. Muthulakshmi
Assistant Professor in C.Sc
Fatima College

13. Dr. S. Arul Jothi
Assistant Professor in C.Sc
Fatima College

14. Dr. T. Vasantha
Assistant Professor in C.Sc
Fatima College

DEAN OF ACADEMIC AFFAIRS

15. Dr. N. Malathi
Assistant Professor
Dept. of Zoology
Fatima College

28/2/2020

AGENDA

* To review and finalise outcome Based Education syllabus for all the IV semesters
* To carry out minor changes

* To finalise the syllabus for the certificate course offered to the PG students in "Content Management Systems" as off-class course.
* To finalise the syllabus for the optional extra credit Self-Learning course offered to advanced learners during the II year.
* To pass the list of external examiners for the end semester practical examination.
* To pass the list of companies and organisations, probably where the students would do their projects and internships.
* To pass the modified CIA component pattern.

The paper titled "Mobile Application Development using Android studio" is replaced with "Mobile computing and Application development" - 19PG2BE2

Minor changes done in the papers Neural Network - PG and Data mining & Data warehousing (19PG2BE2 and 19PG3B13

Industrial expert suggested to encourage the PG students to enroll on relevant developer forum and to form a full stack team. He also insisted to initiate strategic joints with research labs and companies.

28/2/2020

28/2/2020

28/2/2020

FATIMA COLLEGE (AUTONOMOUS), MADURAI-18
DEPARTMENT OF COMPUTER SCIENCE

MAJOR CORE – 70 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.		19PG2B8	Mobile Application Development Using Android Studio	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.		19PG2B11	Lab IV – Mobile Application Development using Android Studio	5	3	40	60	100
12.	III	19PG3B12	Digital Image Processing	5	5	50	50	100
13.		19PG3B13	Data Mining and Data Warehousing	5	5	40	60	100
14.		19PG3B14	Lab V – Digital Image Processing	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

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.		19PG3BE12	Deep Learning	5	5	40	60	100
15.		19PG3BSI	Summer Internship/ Training/ Online Certification	-	3	40	60	100
16.	IV	19PG4BPR	Project	-	6	40	60	100
			TOTAL	**21**	**30**			

OFF-CLASS PROGRAMMES

ADD-ON COURSES

COURSES	HRS.	CREDITS	SEMESTER IN WHICH THE COURSE IS OFFERED	CIA MKS	ESE MKS	TOTAL MARKS
SOFT SKILLS	40	3	I	40	60	100
CONTENT MANAGEMENT SYSTEM (Offered by Dept. Of Computer Science)	40	4	II	40	60	100
COMPREHENSIVE VIVA (Question bank to be prepared for all the papers by the respective course teachers)	-	2	IV	-	-	100
READING CULTURE	15/ Semester	1	I-IV	-	-	-
TOTAL		10				

EXTRA CREDIT COURSE

Course Code	Courses	Hrs.	Credits	Semester in which the course is offered	CIA Mks	ESE Mks	Total Marks
19PGSLB1	**SELF LEARNING COURSE for ADVANCED LEARNERS (Offered for II PG)** BIOINFORMATICS	-	5	III & IV	40	60	100

- ***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 inSem-I &Sem-II

I M.Sc. Computer Science

SEMESTER –II

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/ WEEK	CREDITS
PSCS	19PG2B8	Mobile Application Development Using Android Studio	Lecture	4	4

COURSE DESCRIPTION

The primary goals will be design the next generation of mobile website, apps and other mobile interfaces across multiple platform such as IOS, android, windows and mobile web.

COURSE OBJECTIVES

- Develop a grasp of the android OS architecture.
- Understand the application development lifecycle.
- Identify ,analyze and choose tools for android development including device emulator, profiling tools and IDE

UNIT I - WIRELESS COMMUNICATION FUNDAMENTALS (12 Hrs)

Introduction – Wireless transmission – Signal Propagation – Multiplexing

UNIT II - TELECOMMUNICATION NETWORKS&SATELLITE SYSTEMS (12 Hrs)

Telecommunications Systems: GSM: Mobile Services, System Architecture.
Satellite Systems: Basics (GEO,LEO,MEO) – Routing – Localization – Handover

UNIT III - MOBILE NETWORK & TRANSPORT LAYERS (12 Hrs)

Mobile IP : Goals, assumptions and requirements, Entities and terminology, IP packet delivery, Agent discovery, Registration, Tunneling and Encapsulation, Optimizations, Reverse Tunneling.
Mobile Transport Layer : Traditional TCP – Classical TCP improvements

UNIT IV : MOBILE APPLICATION DEVELOPMENT (12 Hrs)

Application Design : The Screen Layout and the main.xml File - Component IDs - A Few Simple Controls - Creating and Configuring an Android Emulator - Communicating with the Emulator

Controls and User Interface : Check Boxes - Radio Buttons - The Spinner DatePicker - Follow-Up - Key Classes Used in the controls

UNIT V : MULTISCREEEN APPLICATIONS & WORKING WITH IMAGES (12 Hrs)

Multiscreen Applications : Stretching the Screen - Pop-Up Dialog Boxes and Toasts - Menus on the Android Device - Follow-Up. - Key Classes Used in Multiscreen Applications

Working with Images : Displaying Images, Using Images Stored on the Android Device, Follow-Up, Key Classes Used in working with images

SELF STUDY:

UNIT I : Signal Propagation

UNIT II : Basics (GEO,LEO,MEO)

UNIT III : Key Classes Used in the controls

UNIT IV : Key Classes Used in working with images

TEXT BOOK:

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

Unit I: Chapters :1.1, 2.1 – 2.5 (Page No. : 1 -9, 25-46)

Unit II : Chapters: 4.1.1 4.1.2 , 5.3, 5.4, 5.5, 5.6 (Page No. : 96 -105)

Unit III: Chapters: 8.1.1 – 8.1.8 , 9.1,9.2 (Page No. : 303 – 323, 351 - 366)

2. Android Application Development for Java Programmers, JamesC.Sheusi, CourseTechnology PTR

UNIT IV: Chapter 3, 4

UNIT V : Chapter : 7, 8

REFERENCES:

1. Wireless Networks, Client Smith & Daniel Collins, 3rd Edition, McGraw Hill Publication, 2014.
2. Wireless Communications and Networks, William Stallings, PHI/Pearson Education, 2002.
3. Principles of Wireless Networks, Kaveh Pahlavan, Prasanth Krishnamoorthy, PHI/Pearson Education, 2003.
4. Mobile Design and Development: Practical concepts and techniques for creating mobile sites and web apps, Brian Fling, 1st Edition, O'Reilly Publications, 2018.
5. Beginning Android 4 Application Development, Wei-Meng Lee Authorized reprint by wileyindiapvt.ltd, 2016 .
6. Android Application Development(With Kitkat Support) Black Book , DT Editiorial Services &Pradeep Kothari Published By Dreamtech Press 2017

COURSE OUTCOMES (CO)

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

NO.	COURSE OUTCOMES
CO 1	Design scripts to meet given interface and media control requirements
CO 2	Utilize variables, properties and other code elements appropriately to implement the code design
CO 3	Implement and evaluate techniques for the installation of mobile applications
CO 4	Explain the principles of technologies which support media production and delivery on a variety of platforms
CO 5	Evaluate alternative mobile frameworks, and contrast different programming platforms

EXTRA CREDIT COURSE

Course Code	Courses	Hrs.	Credits	Semester in which the course is offered	CIA Mks	ESE Mks	Total Marks
19PGSLB1	**SELF LEARNING COURSE for ADVANCED LEARNERS (Offered for II PG)** BIOINFORMATICS	-	5	III & IV	40	60	100

COURSE DESCRIPTION

Basic concepts and techniques of Bioinformatics and biological database

COURSE OBJECTIVE/S

- To understand the basic techniques of Bioinformatics
- To understand the biological database
- To analyze the structures of DNA.

SYLLABUS

UNIT I – INTRODUCTION & DATABASE

Introduction, reason for using Bioinformatics, skills required, pharmaceutical companies and bioinformatics, use of Bioinformatics. Database: introduction, sequence DB, structure DB, Molecular visualization, specialized sequence DB Genome mapping DB, Biological culture and stock Collection DB, information retrieval from biological DB, Search Engines, Access to distributed data, Integrated information retrieval-the entreZ system, Sequence DB beyond NCBI, Medical DB, Format vs content, Nucleic acid sequence format in data banks, The DB, The genbank flatfile: a discussion, Sequence submission tools, Bioinformatics Organizations.

UNIT II – SEQUENCE ALIGNMENT & DB SEARCHING

Introduction, Pairwise alignment, reason for multiple sequence alignment, The choice of matrices-either PAM & BLOSUM, Differences between PAM & BLOSUM, The evolutionary basis of sequence alignment, The modular nature of proteins, Optimal alignment methods, Subtitution scores and gap penalties, Statistical significance of alignment, DB similarity searching, Sequence similarity search with single query sequence, FASTA, BLAST, The BLAST and FASTA program, Low-complexity regions, Repetitive elements.

UNIT III: PREDICTIVE METHODS AND PROTEINS SEQUENCE

Framework, Masking repetitive DNA, DB searches, Genmark – coding region identification tool, Detecting functional sites in the DNA, Integrated gee parsing, Finding tRNA genes, Future prospectsIdentification of protein based on composition, Physical properties based on sequence, Secondary structure and folding classes, specialized structures of features.

UNIT IV: PLASMID MAPPING AND PRIMER DESIGN

Restriction Mapping, Primer Desin on the Web, Primer Design programs and software, Mac Vector, OMIGA, Vector NTI, Gene Construction Kit.

UNIT V: PROTEOMICS AND GENOMICS

Introduction, Human gene project, DNA microarray- genome chip, EST, Techniques involved in Proteomics nd Genomics, Pharmacogenomics. Bioinformatics software and its Applications: List of bioinformatics software.

TEXT BOOK

Fundamentals of Bioiformatics , Harisha S, I.K. International Publishing Limited.
Chapters: 1,2,3,4,5,6,7,9

REFERENCE BOOKS

1. Bioinformatics: Databases and Sytems, by Stanley I.Letovsky
2. Bioinformatics Databases: Design, Implementation and Usage, Chapman & Hall/ CRC Mathematical Biology & Medicine), SorinDraghici

COURSE OUTCOMES (CO)

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

No.	Course Outcome	Knowledge Level(According to Bloom's Taxonomy)	PSOs ADDRESSED
CO 1	Describe the basic concepts of bioinformatics and biological database	K2,K3	PSO1& PSO2
CO 2	Understand the sequences alignment and DB searching techniques.	K1,K2	PSO3& PSO4
CO 3	Understand the predictive methods and protein sequence	K3,K4	PSO5
CO 4	Analyze Plasmid Mapping and Primer Design	K3,K4	PSO6
CO 5	Explain Proteomics and Genomics	K1,K3	PSO7

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