E.M.G. YADAVA WOMEN'S COLLEGE, MADURAI – 625 014.

(*An Autonomous Institution – Affiliated to Madurai Kamaraj University*)

Re-accredited **(3rd Cycle)** with Grade **A+** & **CGPA 3.51** by NAAC

DEPARTMENT OF INFORMATION TECHNOLOGY

CBCS 39 , , ! " 53

BACHELOR OF SCIENCE

PROGRAMME CODE - I

COURSE STRUCTURE

(w.e.f. 2017 – 2018 onwards)

CRITERION - I

1.2.2 Details of Programmes offered through Choice Based Credit System (CBCS) / Elective Course System

Syllabus copies with highlights of contents focusing on Elective Course System

To be Noted:

HIGHLIGHTED	COURSE
	Elective

Annexure - 10

E.M.G. YADAVA WOMEN'S COLLEGE, MADURAI – 625 014.

(An Autonomous Institution – Affiliated to Madurai Kamaraj University)

(Re–accredited (3rd Cycle) with Grade A+ & CGPA 3.51 by NAAC)

CBCS

DEPARTMENT OF INFORMATION TECHNOLOGY-UG

COURSE STRUCTURE - SEMESTER WISE

(w.e.f. 2017 – 2018 Batch onwards)

Sem	Part	Sub. Code	Title of the paper	Teaching hrs (per week)	Duration of Exam (hrs)	Marks allotted			Credits
						C.A	S.E	Total	
1	I	171T1	Part I - Tamil	6	3	25	75	100	3
	II	172E1	Part II - English	6	3	25	75	100	3
	III	17I11	Core 1 - Programming in C	4	3	25	75	100	4
	III	17I1P	Core Lab 2 - Programming in C Lab	5	3	40	60	100	3
	III	17AI1	Allied I – Discrete Mathematics	5	3	25	75	100	5
	IV	17SEI1P	Skill Based I – HTML and Office Automation Lab	2	2	40	60	100	2
	IV	17NMI1	NME: Windows Tools and Applications	2	2	25	75	100	2
2	I	171T2	Part I - Tamil	6	3	25	75	100	3
	II	172E2	Part II - English	6	3	25	75	100	3
	III	17I21	Core 3 – Object Oriented Programming with C++	4	3	25	75	100	4
	III	17I2P	Core Lab 4 - Object Oriented Programming with C++ Lab	5	3	40	60	100	3
	III	17AI2	Allied II – Resource Management Techniques	5	3	25	75	100	5
	IV	17SEI2P	Skill Based II – Desktop Publishing Lab	2	2	40	60	100	2
	IV	17NMI2	NME: Introduction to Internet	2	2	25	75	100	2
3	I	171T3	Part I - Tamil	6	3	25	75	100	3
	II	172E3	Part II - English	6	3	25	75	100	3
	III	17I31	Core 5 – RDBMS	4	3	25	75	100	3
	III	17I32	Core 6 – Data Structure and Algorithms	4	3	25	75	100	4
	III	17I3P	Core Lab 7 – VB and RDBMS Lab	3	3	40	60	100	3
	III	17AI3	Allied III - Numerical Methods	5	3	25	75	100	5
	IV	17SEI3P	Skill Based III – Multimedia Lab	2	2	-	-	100	2

4	I	171T4	Part I - Tamil	6	3	25	75	100	3
	II	172E4	Part II - English	6	3	25	75	100	3
	III	17I41	Core 8 – Operating System & System Software	4	3	25	75	100	4
	III	17I4P	Core Lab 9 – Unix and Linux Programming Lab	3	3	40	60	100	3
	III	17I42	Core 10 – Computer Graphics	4	3	25	75	100	3
	III	17AI4	Allied IV - Financial and Cost Accounting	5	3	25	75	100	5
	IV	17SEI4P	Skill Based IV – Tally Lab	2	2	-	-	100	2
5	III	17I51	Core 11 - Programming in Java	5	3	25	75	100	4
	III	17I52	Core 12 – Digital Principles and Computer Organization	5	3	25	75	100	4
	III	17I53	Core 13 – Computer Networks	5	3	25	75	100	4
	III	17I5P	Core Lab 14 – Programming in Java Lab	6	3	40	60	100	3
	III		**Elective I**	5	3	25	75	100	5
	IV	17SEI5P	Skill Based V – PHP and MySQL Lab	2	2	-	-	100	2
	IV	174EV5	Environmental Studies	2	2	-	-	100	2
6	III	17I61	Core 15 – Software Engineering	5	3	25	75	100	4
	III	17I62	Core 16 – Data Mining and Warehousing	5	3	25	75	100	4
	III	17I6P	Core Lab 17 – Web Technology Lab	6	3	40	60	100	3
	III		**Elective II**	5	3	25	75	100	5
	III	17IPR6	**Elective III (Project)**	5	3	20	80	100	5
	IV	17SEI61	Skill Based VI - Quantitative Aptitude	2	2	-	-	100	2
	IV	174VE6	Value Education	2	2	-	-	100	2
	V	175NS4/ 175PE4	N.S.S / Physical Education	-	2	-	-	-	1
			Total	180					140

Elective I

Semester - V (Choose any one)

1. Client Server Computing - 17IE5A
2. System Analysis and Design -17IE5B

Elective II

Semester - VI (Choose any one)

1. Mobile Computing -17IE6A
2. Cloud Computing -17IE6B

Annexure - 8

E.M.G. YADAVA WOMEN'S COLLEGE, MADURAI – 625 014.

(An Autonomous Institution – Affiliated to Madurai Kamaraj University)

(Re–accredited (3rd Cycle) with Grade A+ & CGPA 3.51 by NAAC)

CBCS

DEPARTMENT OF INFORMATION TECHNOLOGY-UG

(w.e.f. 2017 – 2018 Batch onwards)

Title of the Paper : Client Server Computing
Semester : V **Contact Hours: 5**
Sub Code : 17IE5A **Credits : 5**

Objectives:

1. Conceptualize the basics of Client Server Computing.
2. Identify the different types of Client and Server Operating Systems.
3. Familiarity with the Testing and Diagnostic Tools of Server Operating System.

Unit-I:

Introduction to Client/server computing: Overview of Client/Server Computing: Client Server Computing - Benefits of Client/Server Computing. **Evolution of Client/Server Computing:** Hardware Trends - Software Trends. **Overview of Client/Server Applications:** Components of Client/Server Applications - Classes of Client/Server Applications - Categories of Client/Server Applications.

Unit-II:

Understanding Clint/Server Computing: Dispelling the Myths - Obstacles-Upfront and Hidden - Open Systems and Standards – Standards - Setting Organizations - Factors for Success. **The Client: Client Hardware and Software:** Client Components - Client Operating Systems - What is GUI - X Window Vs Windowing - Database Access - Application Logic. **Client Software Products:** GUI Environments - Converting 3270/5250 Screens - Database Access Tools.

Unit-III:

Client Requirements: GUI Design Standards - GUI Design Standards - Open GUI Standards - Interface Independence - Testing Interface - Development Aids. **The Server:** Server Hardware – Benchmarks - Categories of Servers - Features of Server Machines - Classes of Server Machines. **Server Environment:** Eight Layers of Software

- Network Management Environment - Network Computing Environment – Extensions - Network Operating System - Loadable Modules.

Unit-IV:

Server Operating Systems: OS/2 2.0 - Windows New Technology – UNIX - Based Operating Systems. **Server Requirements:** Platform Independence - Transaction Processing - Connectivity - Intelligent Database - Stored Procedures – Triggers - Load Leveling – Optimizer - Testing and Diagnostic Tools – Reliability - Backup and Recovery Mechanisms.

Unit-V:

Server Data Management and A ccess Tools: Data Manager Features - Data Management Software - Database Gateways. **Overview of Networking:** Layers, Interfaces, and Protocols-Standard Architecture - Network Characteristics - Network Management Standards - LAN Characteristics.

Text Book:

Dawna Travis Dewire, *Client/Server Computing,* McGraw Hill International Edition, New Delhi, First Edition, 2003.

Chapters:

Unit I	-	Chapters 1, 2 & 3
Unit II	-	Chapters 4, 5 & 6
Unit III	-	Chapters 7, 8 & 9
Unit IV	-	Chapters 10, 11
Unit V	-	Chapters 12, 13

Reference Books:

1. Bernard H.Boar, *Implementation client server computing,* McGraw Hill, New Delhi, First Edition, 1993.
2. Bruce R.Elbert, Boddy Martyna, *Client Server Computing,* Artech publisher, New Delhi, First Edition, 1994.
3. Patrick N.Smith, Steven L.Guengerich, *Client/Server Computing,* PHI Learing Private Limited, New Delhi, Second Edition, 2011.
4. William Marion, *Client/Server Strategies,* McGraw-Hill Professional, New Delhi, First Edition, 1994.
5. Ligon, Thomas Ligon, *Client server Communications Services,* McGraw-Hill Professional, NewDelhi, First Edition, 1997.

Annexure - 8

E.M.G. YADAVA WOMEN'S COLLEGE, MADURAI – 625 014.

(An Autonomous Institution – Affiliated to Madurai Kamaraj University)

(Re–accredited (3rd Cycle) with Grade A+ & CGPA 3.51 by NAAC)

CBCS

DEPARTMENT OF INFORMATION TECHNOLOGY-UG

(w.e.f. 2017 – 2018 Batch onwards)

Title of the Paper	**: System Analysis and Design**	
Semester	**: V**	**Contact Hours: 5**
Sub Code	**: 17IE5B**	**Credits : 5**

Objectives:

1. This course introduces established and evolving methodologies for the analysis, design, and development of an information system.
2. Emphasis is placed on system characteristics, managing projects, prototyping and systems development life cycle phases.
3. Upon completion, students should be able to analyze a problem and design an appropriate solution using a combination of tools and techniques.

Unit-I:

The Systems Concept – Characteristics of System – Elements of a System – Types of Systems – System Models – System Development Life Cycle (SDLC).

Unit-II:

The System Analyst Definition – Role of the Analyst – Analyst/User Interface – Analyst in the MIS Organization – The Bases for Planning in Systems Analysis – Initial Investigation.

Unit-III:

Information Gathering Introduction –Information Gathering Tools – The Tools of Structured Analysis – System Performance Definition – Feasibility Study.

Unit-IV:

The Process of Design –Design Methodologies – Major Development Activities – Audit considerations – Input/Output and Forms Design.

Unit-V:

System Testing – The Test Plan –Quality Assurance – Role of the Data Processing Auditor – Post Implementation Review – Software Maintenance.

Text Book:

Elias M.Awad, *Systems Analysis and Design*, Tata McGraw Hill , NewDelhi, Reprint 2010.

Chapters:

Unit I - Chapters 1, 2

Unit II - Chapters 3, 4

Unit III - Chapters 5,6,7

Unit IV - Chapters 9,10

Unit V - Chapters 12,13

Reference books:

1. Awad.M, *System Analysis and Design ,* Galgotia Publishers, New Delhi, First Edition, 2006.
2. Gary B.Shelly, Thomas J.Cashman, HarryJ.Rosenblatt, *Systems Analysis And Design*, Thomas Course Technology , Sixth Edition , New Delhi , 2006.
3. ISRD Group , *Structured System Analysis and Design*, Tata McGraw Hill, New Delhi, Seventh reprint , 2012.
4. Kock, *Systems Analysis & Design Fundamentals*, Saga Publications India Pvt.Ltd., New Delhi, First Edition , 2005.
5. Rajesh Nalk & Swapna Kishor, *System Analysis & Business Applications*, Wheeler Publishing, Second Edition , 2001.

E.M.G. YADAVA WOMEN'S COLLEGE, MADURAI – 625 014.

(An Autonomous Institution – Affiliated to Madurai Kamaraj University)

(Re–accredited (3rd Cycle) with Grade A+ & CGPA 3.51 by NAAC)

CBCS

DEPARTMENT OF INFORMATION TECHNOLOGY-UG

(w.e.f. 2017 – 2018 Batch onwards)

Title of the Paper	**: Mobile Computing**	
Semester	**: VI**	**Contact Hours: 5**
Sub Code	**: 17IE6A**	**Credits : 5**

Objectives:

1. To impart fundamental concepts in the area of mobile computing.
2. This course covers the limitations of fixed networks, the need and the trend toward mobility.
3. Understand the concept of Wireless LANs, Mobile Networks and Sensor Networks.

UNIT- I: Wireless Communication Fundamentals:

Introduction: Definition-Applications-History of Wireless or Wireless comes of Age-A Reference Model-Future Trends.

Wireless Transmission: Frequencies for Radio Transmission- Signals- Antennas-Signal Propagation- Signal Propagation -Multiplexing –Modulation-Spread.

Medium Access Control (MAC): Introduction-SDMA-Definition-Function of MAC-FDMA-Definition-Techniques of FDMA-Diagram-Description-TDMA-Definition-Diagram-Features of TDMA-Various TDMA Techniques.

UNIT- II: Telecommunication Network:

Telecommunication system: GSM: Introduction-Mobile Services-System Architecture-Radio Interface-Protocols-Localization and Calling-Hand Over-Security-GPRS-GPRS Architecture- GPRS transmission Plane Protocol Reference Model-DECT-System Architecture-Protocol Architecture –UMTS- UMTS System Architecture- UMTS Radio Interface-UTRAN-Core Network-Hand Over.

Satellite Networks:Basics-Parameters and Configuration-Capacity Allocation-Frequency Division - Frequency Division Multiplexing- Frequency Division Multiple Access-FAMA-FDMA-DAMA-FDMA- Capacity Allocation-Time Division-TDMA Frame Format-FAMA-TDMA-SS/TDMA.

UNIT- III: Wireless LAN:

Wireless LAN : IEEE 802.11-Architecture- IEEE 802.11 System Architecture-IEEE 802.11 Protocol Architecture-Services-MAC Layer- MAC Frames- MAC Management-Physical Layer-Frequency Hopping Spread Spectrum-Direct Sequence Spread Spectrum -IEEE 802.11a-Channel Structure-Physical Layer Frame Structure-Coding and Modulation.

HIPERLAN: Introduction- HIPERLAN-1-Requirements and Architecture-HIPERLAN-1 PHY and MAC Layers-WATM-BRAN- HIPERLAN-2-Reference Model and Architecture-Physical Layer-Convergence Layer(CL)-Data Link Control Layer.

UNIT- IV: Mobile IP

Mobile IP:Entities and Terminology-IP Packet Delivery-Agent Discovery- Agent Advertisement- Agent Solicitation-Registration-Tunneling and Encapsulation-IP in IP Encapsulation-Minimal Encapsulation-Generic Routing Encapsulation -Optimizations-Reverse Tunnelling-IPV6-IP Micro Mobility Support-Cellular IP-HAWAII-HMIPv6.

UNIT- V: Wireless Application Protocol (WAP)

Wireless Application Protocol (WAP): Introduction-Architecture-Components of WAP- Wireless Datagram Protocol(WDP)- Wireless Transport Layer Security(WTLS)-Wireless Transaction Protocol (WTP)-WTP class 0- WTP class 1- WTP class 2-Wireless Session Protocol (WSP)-WSP/B over WTP-WSP/B as connectionless Session Service-Wireless Application Environment-Wireless Markup Language-WML Script-Wireless Telephony Application (WTA)-WAP 2.0-Introduction Architecture-Protocol Stack.

Annexure - 8

Text Book:

K.Muralibabu, L.Agilandeeswari, K.Vinothbabu , *Mobile Computing*, Lakshmi Publications, 1st Edition, 2009

Chapters:

Unit I	:	Chapter 1(1.1 to 1.16)
Unit II	:	Chapter 2 (2.1 to 2.9)
Unit III	:	Chapter 3 (3.1 to 3.3)
Unit IV	:	Chapter 4(4.1 to 4.1.10.3)
Unit V	:	Chapter 5(5.3 to 5.8)

Reference Books:

1. Amjad Umar , *Mobile Computing and Wireless Communications* , NGS solutions, Chennai , First Edition, 2004.
2. Behera G.K, Pamudra Das.L.O , *Mobile Communication*, Scitech Publication of india, Chennai, First Edition , 2009.
3. Frank Adelestein, Sandeep K.S.Gupta, Golden G.Richard III, Loren Schwiebert, *Fundamentals of Mobile and Pervasive Computing*, Tata MCGraw Hill Publishing Limited , New York , Fourth Edition , 2005.
4. Jochen Schiller, *Mobile Communication*, Dorling Kindersley of India Pearson Education, South Asia , Second Edition , 2003.
5. Tomasz Imielinski, Henry F. Korth, *Mobile Computing*, Kluwer Academic Publishers, New Delhi, First Edition, 1996.

Annexure - 8

E.M.G. YADAVA WOMEN'S COLLEGE, MADURAI – 625 014.

(An Autonomous Institution – Affiliated to Madurai Kamaraj University)

(Re–accredited (3rd Cycle) with Grade A+ & CGPA 3.51 by NAAC)

CBCS

DEPARTMENT OF INFORMATION TECHNOLOGY-UG

(w.e.f. 2017 – 2018 Batch onwards)

Title of the Paper	**: Cloud Computing**		
Semester	**: VI**	**Contact Hours**	**: 5**
Sub Code	**: 17IE6B**	**Credits**	**: 5**

Objectives:

1. Analyze the various Cloud concepts and Technologies.
2. Have to knowledge in Cloud based Services and Applications.
3. To learn the basic python programming for cloud services.

Unit: I

Introduction to Cloud Computing: Introduction – Characteristics of Cloud Computing – Cloud Models – Cloud-based Services & Applications. **Cloud Concepts & Technologies:** Virtualization – Load Balancing – Scalability & Elasticity – Deployment – Replication – Monitoring – Software Defined Networking – Network Function Virtualization – MapReduce.

Unit: II

Cloud Services & Platforms: Compute Services – Storage Services – Database Services – Application Services – Content Delivery Services. **Hadoop & Map Reduce:** Apache Hadoop – Hadoop MapReduce Job Execution – Hadoop Schedulers.

Unit: III

Cloud Application Design: Introduction – Design Considerations for Cloud Applications – Reference Architectures for Cloud Applications – Cloud Application Design Methodologies – Data Storage Approaches.

Unit: IV

Python Basics: Introduction – Python Data Types & Data Structures – Control Flow – Functions – Modules – Packages – File Handling – Date/Time Operations – Classes. **Python for Cloud:** Python for Amazon Web Services.

Unit: V

Cloud Security: Introduction – CSA Cloud Security Architecture – Authentication – Authorization – Identity & Access Management – Data Security. **Cloud for Industry, Healthcare & Education:** Cloud Computing for Healthcare –Cloud Computing for Manufacturing Industry – Cloud Computing for Education.

Text Book:

Arshdeep Bahga, Vijay Madisetti, *Cloud Computing: A Hands-on Approach,* University Press(India) Private Limited, Hyderabad, 2th Edition, 2016.

Chapters:

Unit 1 - Chapters 1 (1.1-1.3, 1.5) & 2 (2.1 - 2.9)
Unit 2 - Chapters 3 (3.1 - 3.5) & 4 (4.1 - 4.3)
Unit 3 - Chapter 5 (5.1 - 5.5)
Unit 4 - Chapters 6 (6.1 - 6.10) & 7 (7.1)
Unit 5 - Chapters 12 (12.1 - 12.6) & 13 (13.1, 13.4, 13.5)

Reference Books:

1. John W.Rittinghouse and James F.Ransome, *Cloud Computing: Implementation, Management, and Security*, CRC Press, United States, 2010.
2. Katarina Stanoevska-Slabeva, Thomas Wozniak, *SantiRistol, Grid and Cloud Computing – A Business Perspective on Technology and Applications*, Springer, Chennai, 2010.
3. Kumar Saurabh, *Cloud Computing – insights into New-Era Infrastructure*, Wiley India, New Delhi, 2011.
4. Rajkumar Buyya, Christian Vecchiola, S.ThamaraiSelvi, *Mastering Cloud Computing*, Tata McGraw Hill Education Private Limited, New Delhi, 2013.
5. Ronald L. Krutz, Russell Dean Vines, *Cloud Security – A comprehensive Guide to Secure Cloud Computing*,Wiley – India, New Delhi, 2010.

E.M.G. YADAVA WOMEN'S COLLEGE, MADURAI – 625 014.

(An Autonomous Institution – Affiliated to Madurai Kamaraj University)

(Re–accredited (3rd Cycle) with Grade A+ & CGPA 3.51 by NAAC)

CBCS

DEPARTMENT OF INFORMATION TECHNOLOGY-UG

(w.e.f. 2017 – 2018 Batch onwards)

Title of the Paper	**: Project**		
Semester	**: VI**	**Contact Hours**	**: 5**
Sub Code	**: 17IPR6**	**Credits**	**: 5**

Objectives:

1. The aim of the Project work is to acquire practical knowledge on the implementation of the programming concepts studied.
2. Each student should carry out the Project Work and it may be a work using the software packages that they have learned or the implementation of concepts from the papers studied or implementation of any innovative idea.

* Exam will be conducted as follows

- Viva-voce will be conducted at the end of VI semester for 100 marks.
- Both the Internal (Respective Guides) and External Examiners (20+80) should conduct the Viva-Voce Examination.
- For awarding a pass, a candidate should have obtained 40% of the Total 100 marks.