

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 COMPUTER SCIENCE



CBCS SYLLABUS

BACHELOR OF SCIENCE

PROGRAMME CODE - S

COURSE STRUCTURE

(w.e.f. 2017 – 2018 onwards)



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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
<div data-bbox="467 1423 695 1497" style="border: 1px solid red; width: 140px; height: 35px; margin: 0 auto;"></div>	Elective

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(Re-accredited (3rd Cycle) with Grade A⁺ & CGPA 3.51 by NAAC)**CBCS****DEPARTMENT OF COMPUTER SCIENCE-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	17IT1	Part I - Tamil	6	3	25	75	100	3
	II	172E1	Part II - English	6	3	25	75	100	3
	III	17S11	Core - Programming in C	4	3	25	75	100	4
	III	17S1P	Core - Programming in C Lab	5	3	40	60	100	3
	III	17AMS1	Allied – Discrete Mathematics	5	3	25	75	100	5
	IV	17SES1P	Skill Based – Office Automation Lab	2	2	40	60	100	2
	IV	17NMS1	NME - Computer Fundamentals	2	2	25	75	100	2
2	I	17IT2	Part I - Tamil	6	3	25	75	100	3
	II	172E2	Part II - English	6	3	25	75	100	3
	III	17S21	Core – Object Oriented Programming with C++	4	3	25	75	100	4
	III	17S2P	Core - Object Oriented Programming with C++ Lab	5	3	40	60	100	3
	III	17AMS2	Allied – Resource Management and Techniques	5	3	25	75	100	5
	IV	17SES2P	Skill Based – Linux Lab	2	2	40	60	100	2
	IV	17NMS2	NME - Internet Applications	2	2	25	75	100	2
3	I	17IT3	Part I - Tamil	6	3	25	75	100	3
	II	172E3	Part II - English	6	3	25	75	100	3
	III	17S31	Core – Digital Principles and Computer Organization	4	3	25	75	100	3
	III	17S32	Core – JAVA Programming	4	3	25	75	100	4
	III	17S3P	Core – JAVA Programming Lab	3	3	40	60	100	3
	III	17AMS3	Allied – Graph Theory	5	3	25	75	100	5
	IV	17SES3P	Skill Based – Multimedia Lab	2	2	-	-	100	2
4	I	17IT4	Part I - Tamil	6	3	25	75	100	3
	II	172E4	Part II - English	6	3	25	75	100	3
	III	17S41	Core – DOT NET	4	3	25	75	100	3
	III	17S42	Core - Data Structure and Algorithms	4	3	25	75	100	4
	III	17S4P	Core - Data Structure and Algorithms Lab	3	3	40	60	100	3
	III	17AMS4	Allied - Numerical Methods	5	3	25	75	100	5
	IV	17SES4P	Skill Based – DOT NET Lab	2	2	-	-	100	2

5	III	17S51	Core – Operating Systems	5	3	25	75	100	4
	III	17S52	Core – Software Engineering	5	3	25	75	100	4
	III	17S53	Core - RDBMS	5	3	25	75	100	4
	III	17S5P	Core – RDBMS Lab	6	3	40	60	100	3
	III		Elective I	5	3	25	75	100	5
	IV	17SES5P	Skill Based - Python Lab	2	2	-	-	100	2
	IV	174EV5	Environmental Studies	2	2	-	-	100	2
6	III	17S61	Core – Data Communication and Networking	5	3	25	75	100	4
	III	17S62	Core - Web Programming	5	3	25	75	100	4
	III	17S6P	Core - Web Programming Lab	6	3	40	60	100	3
	III		Elective II	5	3	25	75	100	5
	III	17SPR6	Elective III (Project)	5	3	20	80	100	5
	IV	17SES6P	Skill Based - PHP Lab	2	2	-	-	100	2
	IV	174VE6	Value Education	2	2	-	-	100	2
PART V	175NS4 / 175PE4	Extension Activities N.S.S / Phy. Education	-	2	-	-	-	1	
			Total	180				140	

Elective I

Semester - V (Choose any one)

1. Computer Graphics - (17SE5A)
2. Cloud Computing - (17SE5B)

Elective II

Semester - VI (Choose any one)

1. Data Mining - (17SE6A)
2. Mobile Computing - (17SE6B)

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Elective-I

Title of the Paper	: Computer Graphics	
Semester	: V	Contact Hours: 5
Sub Code	: 17SE5A	Credits 5

Objectives:

To imbibe the knowledge in graphics in order to enable them to draw desired figures

Unit: I

Introduction to CG: A Survey of computer Graphics-Video Display Devices-Raster-Scan Systems-Random-Scan systems-Input Devices-Graphics software.

Unit: II

Output Primitives: Point and Lines. **Line-Drawing Algorithms:-DDA** Algorithm- Bresenham's Line algorithm – Character Generation. **Attributes of Output Primitives:** Line Attributes – Curve Attributes – Area-Fill Attributes – Character Attributes – Bundled Attributes – Inquiry Functions.

Unit: III

Two-Dimensional Geometric Transformations: Basic Transformations - Matrix Representations – Composite Transformations – Other Transformations. **Two-Dimensional Viewing:** Two Dimensional Viewing Functions – Clipping Operations – Point Clipping. **Line clipping:** Cohen-Sutherland Line Clipping. **Polygon Clipping:** Sutherland-Hodgeman polygon – Curve Clipping – Text Clipping – Exterior Clipping.

Unit: IV

Three-Dimensional Concepts: Three- Dimensional Display Methods – Three-Dimensional Graphics Packages. **Three- Dimensional Object Representations:** Polygon Surfaces – Curved Lines and Surfaces – Quadric Surfaces – Super quadrics.

Unit: V

Color Models: Properties of Light – RGB Color Model – YIQ Color Models – CMY Color Model – HSB Color Model – Color Selection and Applications. **Computer Animation:** Design of Animation Sequences – General Computer Animation – Raster animations – Computer Animation languages – Key-Frame Systems.

Text Book:

Donald Hearn & Pauline Baker M, *Computer Graphics C Version*, Pearson Education, India, 2nd Edition, 2009.

Chapters:

Unit -I : 1, 2.1- 2.3, 2.5, 2.7

Unit -II : 3.1, 3.2, 3.14, 4.1 - 4.7

Unit -III : 5.1 - 5.4, 6.4 - 6.11

Unit -IV : 9.1, 9.2, 10.1 - 10.4

Unit -V : 15.1, 15.4- 15.7, 15.10, 16.1 - 16.5

Reference Books:

1. Dr. Jeffrey & McConnell J, *Computer Graphics Theory into practice*, Jones & Bartlett publishers, Sudbury, 1st Edition, 2006.
2. Parslow R D & Prowse R W, *Computer Graphics: Techniques and Applications*, Richard Elliot Green, USA, 7th Edition, 2001.
3. Peter Shirley, *Fundamentals of Computer graphics*, A.k.Peters Ltd, Wellesley, United States, 2nd Edition, 2002.
4. Steven Harrington, *Computer Graphics: A programming Approach*, Tata McGraw-Hill, India 4th Edition, 2005.
5. William Newman M & Robert Sproull F, *Principles of Interactive Computer Graphics*, Tata McGraw-Hill Education, India, 4th Edition, 2000.

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Elective-I

Title of the Paper	: Cloud Computing	
Semester	: V	Contact Hours: 5
Sub Code	: 17SE5B	Credits 5

Objectives:

To appreciate the emergence of cloud as the next generation computing paradigm

Unit: I

Introduction to Cloud Computing: Introduction – Characteristics of Cloud Computing – Cloud Models- Service Models- Deployment Models- Cloud service examples- IaaS-PaaS-SaaS.

Unit: II

Cloud Concepts and Technologies- Virtualization- load Balancing – Scalability & Elasticity – Deployment – Replication – Monitoring – Software defined Networking – Network function Virtualization – Map Reduce – Identify and Access Management- Service Level Agreements.

Unit: III

Cloud Services & Platforms: Compute services – Storage Services – Database Services – Application services – Content delivery Services – Analytical Services – Deployment & management Services – Identity & Access Management Services – Open Source Private Cloud Software.

Unit: IV

Hadoop & mapReduce: Apache Hadoop – Hadoop MapReduce Job Execution – Hadoop Schedulers – Hadoop Cluster Setup

Unit: V

Developing for Cloud: Cloud application Design – Reference Architecture for Cloud Applications – Cloud Application Design Methodologies – Data Storage Approaches. .

Text Book:

Arshdeep Bahga vijay madiseti- *Cloud Computing*- University press (India) private Limited- Reprinted 2016.

Chapters:

- Unit -I** : 1.1 - 1.4
- Unit -II** : 2
- Unit -III** : 3.1 - 3.9
- Unit -IV** : 4.1 - 4.4
- Unit -V** : 5.1 - 5.5

Reference Books:

1. Erl, *Cloud Computing: Concepts, Technology & Architecture*, Pearson Edition, New Delhi, 2006
2. John Rittenhouse and James Ransome, *Cloud Computing Implementation Management and Strategy*, CRC Press 2010.
3. Rajkumar Buyya, Christian Vecchiola, S. Thamarai Selvi, *Mastering Cloud Computing*, Tata McGraw-Hill, 2013.
4. Toby Velte Anthony Velte, Robert C. Elsenpeter, *Cloud Computing, A Practical Approach*, Tata McGraw-Hill Edition, 2010.
5. Tom White, *Hadoop: The Definitive Guide*, O' Reilly Media, 4th Edition, 2015.

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To acquire knowledge about retrieval of data from voluminous data in a desired manner.

Unit :I

Data warehousing: Introduction- data warehouse architecture-dimensional modeling - OLAP Server-ROLAP- data Marting - ETL- Data Cleaning -ETL vs. ELT.

Data Mining: Introduction –What is Data Mining?-Data Mining: Definition - KDD vs. Data Mining – DBMS vs. DM- other related areas- DM techniques –Issues and Challenges in Data Mining – Data mining application areas.

Unit : II

Clustering Techniques: Introduction- Clustering paradigms – Partitioning algorithm – *k*-Medoids Algorithms – CLARA – Hierarchical Clustering - DBSCAN – BIRCH – STIRR-ROCK. **Decision Trees:** Introduction – What is Decision Trees? - Tree Construction Principle - Decision Tree construction with presorting– CLOUDS-pruning technique.

Unit : III

Association Rules: Introduction-What is an Association Rule?- Methods to Discover Association Rules - Apriori Algorithm – Partition algorithm - Dynamic Itemset Counting algorithm - FP-tree growth algorithm - Eclat and dEclat – Incremental Algorithm-Border Algorithm - Generalized Association Rule. **Other techniques:**

Introduction- What is neural network? - Learning in NN – Unsupervised Learning – Support Vector Machine.

Unit : IV

Genetic algorithm: Introduction-Basic steps of GA-Selection-Crossover-Mutation-Data Mining Using GA. **Web mining:** Introduction – Web Mining - Web Content mining – Web structure mining – Web usage mining. **Temporal and Spatial Mining:** Introduction-What is Temporal Data Mining?- Temporal Association Rule - The GSP algorithm – SPADE - SPIRT - Event Prediction Problem-Time Series Analysis-Spatial Mining- Spatial Mining Tasks.

Unit : V

Introduction to Big Data: characteristics of data-evolution of big data-definition of big data-challenge with big data-what is big data?-what is changing in the realms of big data? **Introduction to Hadoop:** hadoop overview-hadoop distributed file system-processing data with hadoop-interacting with hadoop ecosystem. **Introduction to MAPREDUCE Programming:** Introduction –mapper-reducer-combiner-partitioner-searching-sorting-compression.

Text Books:

1. Arun k Pujari, *Data Mining Techniques* , Universities Press (India) Pvt Ltd, Hyderabad ,4thEdition, 2017.

Chapters :

Unit -I : 2.1-2.3, 2.10, 2.11, 2.22 - 2.25, 3.1- 3.7, 3.9, 3.10.

Unit- II : 5.1-5.5, 5.7-5.9, 5.12, 5.13, 6.1-6.3 6.13, 6.16, 6.18.

Unit -III : 4.1-4.5, 4.7-4.9, 4.12-4.14, 9.1-9.4, 9.6.

Unit -IV : 8.1-8.6,11.1-11.5, 12.1-12.3, 12.5-12.7, 12.10,12.13

2. Seema Acharya,Subhashini Chellappan ,*Big data and analytics*,Wiley India Pvt. Ltd, New Delhi,1st Edition,2015.

Chapter :

Unit -V : 2.1-2.5, 2.13, 5.7, 5.10, 5.11, 5.13, 8.1-8.8

Reference Books:

1. David J. Hand, Heikki Mannila, Padhraic Smyth, — *Principles of Data Mining* Massachusetts Institute of Technology, 2001.
2. Gajendra Sharma, *Data Mining & Data Warehouse OLAP*, TMH publications, New Delhi, 2nd Edition, 2006.
3. Jay Liebowitz, “*Big Data and Business Analytics*”, Au erbach Publications, CRC press, 2013
4. Jiawei Han & Micheline kamber , *Data mining Concepts & Techniques*, Morgon, Kaufmann Publishers, San Francisco,USA, 2nd Edition,2010.
5. Michael Minelli, Michele Chamboss, Ambiga Dhiraj , "*Big Data, Big Analytics*" John Wiley, 2014.

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Title of the Paper	: Mobile Computing	
Semester	: VI	Contact Hours: 5
Sub Code	: 17SE6B	Credits 5

Objective:

To gain knowledge and understanding of mobile computing from different viewpoints.

Unit :I

Introduction: Mobile Computing – Networks – Application and Services – Developing Mobile Computing Applications – Security in Mobile Computing. **Mobile Computing Architecture:** Architecture for Mobile Computing – Three-tier Architecture – Design Considerations for Mobile Computing – Mobile Computing through Internet – Making Existing Applications Mobile-enabled.

Unit : II

Mobile Computing through Telephony: Multiple Access Procedures – Satellite Communication Systems – Mobile Computing through Telephone – Developing an IVR Application – Voice XML – Telephony Application Programming Interface (TAPI) – Computer Supported Telecommunications Applications. **Emerging Technologies:** Introduction – Bluetooth – Radio Frequency Identification (RFID) – Wireless Broadband (WIMAX) – Mobile IP.

Unit : III

Global System for Mobile Communications (GSM): Global System for Mobile Communications – GSM Architecture – GSM Entities – Call Routing in GSM – PLMN Interfaces – GSM Addresses and Identifiers – Network Aspects in GSM – GSM

Frequency Allocation. **General Packet Radio Service (GPRS):** Introduction – GPRS and Packet Data Network – GPRS Network Architecture – GPRS Network Operations – Data Services in GPRS – Applications for GPRS – Limitations of GPRS – Billing and Charging in GPRS – Enhanced Data Rates for GSM Evolution (EDGE).

Unit : IV

Getting an Overview of Android: Introducing Android – Listing the Version History of Android Platform – Discussing Android APIs – Describing the Android Architecture – Application Framework – Exploring the Features of Android – Discussing about Android Applications – The Application Components – The Manifest File – Downloading and Installing Android – Downloading and Installing the Android SDK – Setting up Android Virtual Device – Setting up Android Physical Device – Exploring the Development Environment – The Java Perspective Using Eclipse – The DDMS Perspective – The Command-Line Tools – Developing and Executing the First Android Application – Using Eclipse IDE to Create an Application – Running Your Application – Exploring the Application – Using Command-Line Tools.

Unit : V

Using Activities- Fragments- and Intents in Android: Working with Activities – Creating an Activity – Starting an Activity – Managing the Lifecycle of an Activity – Applying Themes and Styles to an Activity – Displaying a Dialog in the Activity – Hiding the Title of the Activity – Using Intents – Exploring Intent Objects - Exploring Intent Resolution - Exploring Intent Filters - Exploring Intent Filter Collision – Linking the Activities Using Intent – Obtaining Results from Intent – Passing Data Using an Intent Object – Fragments – Fragments Implementation – Finding Fragments – Adding-Removing- and Replacing Fragments – Finding Activity Using Fragment – Using the Intent Object to Invoke Built-in Application.

Text Books:

1. Asoke Talukder, Hasan Ahmed, Roopa R Yavagal, *Mobile Computing*, Tata McGraw Hill Education Private Limited, 2nd Edition, Fourth reprint- 2012.

Chapters:

Unit- I : 1.3, 1.5, 1.7, 1.8, 1.9, 2.4 - 2.8

Unit- II : 3.2 - 3.8, 4.1- 4.5

Unit -III : 5.1 - 5.7, 5.9, 7.1 - 7.9

Text Book:

2. Pradeep Kothari- *Android Application Development (with KitKat Support)*

Black BookTM - Dreamtech press- Edition: 2014.

Chapters:

Unit -IV : 2

Unit- V : 3

Reference Books:

1. Agilandeewari L, Murali Babu K and Vinoth Babu K, *Mobile Computing*, Lakshmi Publications, Chennai, 1st Edition, 2009.
2. Behera G K, Pamudra Das L O, *Mobile Communication*, Scitech Publication of India, Chennai, 1st Edition, 2009.
3. Douglas B Terry, *Mobile Computing*, Kluwer Academic Publisher, NewDelhi, 1st Edition, 1996.
4. Jochen Schiller, *Mobile Communication*, Dorling Kindersley of India, Pearson Education, India, 2nd Edition, 2003.
5. Prasanna Kumar Dixit, *Android*, Vikas Publishing House Private Ltd., First Edition, 2014.

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DEPARTMENT OF COMPUTER SCIENCE- UG
 (w.e.f. 2017 – 2018 onwards)
Elective III

Title of the Paper	: Project	
Semester	: VI	Contact Hours: 5
Sub Code	: 17SPR6	Credits 5

The Students are allowed to develop their project within our campus with the help of the internal staff members.

In the first review the students submit their title of the project and synopsis- and also submit the determination of the modules.

In the second review 50% of the project is completed and demonstrate the project.

In the final review the students prepare the powerpoint presentation. The oral is must for the completion of the project.

This report will be evaluated 80 marks for external examiner and 20 mark for internal examiner.