

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 APPLICATIONS



CBCS CURRICULUM

MASTER OF COMPUTER APPLICATIONS

PROGRAMME CODE - MC

COURSE STRUCTURE

(w.e.f. 2020 – 2021 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
	Elective

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(w.e.f. 2020-2021 Batch Onwards)

Sem	Sub. Code	Title of the Paper	Teaching Hours/ Week	Duration of exam (hrs)	Marks Allotted			Credits
					C.A	S.E	Total	
1	20MC11	Mathematical Foundation of Computer Application	4	3	25	75	100	4
	20MC12	Object Oriented Programming using C++	4	3	25	75	100	4
	20MC13	Relational Database Management Systems	4	3	25	75	100	4
	20MC14	Advanced Data Structures	4	3	25	75	100	4
	20MC15	Operating Systems	4	3	25	75	100	4
	20MC11P	Data Structures using C ++ Lab	5	3	40	60	100	3
	20MC12P	RDBMS Lab	5	3	40	60	100	3
2	20MC21	Open Source Technology	4	3	25	75	100	4
	20MC22	Programming in Java	4	3	25	75	100	4
	20MC23	Data Communications and Networking	4	3	25	75	100	4
	20MC24	Data Mining and Data Warehousing	4	3	25	75	100	4
		Elective - I	4	3	25	75	100	4
	20MC21P	Open Source Technology Lab	5	3	40	60	100	2
	20MC22P	Java Programming Lab	5	3	40	60	100	3
3	20MC31	Web Technologies	4	3	25	75	100	4
	20MC32	Python Programming	4	3	25	75	100	4
	20MC33	Mobile Computing	4	3	25	75	100	4

	20MC34	Cryptography and Network Security	4	3	25	75	100	4
		Elective – II	4	3	25	75	100	4
	20MC31P	Web Technologies Lab	5	3	40	60	100	3
	20MC32P	Python Programming Lab	5	3	40	60	100	2
4	20MC41	Big Data Analytics	4	3	25	75	100	4
	20MC42	Machine Learning	4	3	25	75	100	4
	20MCPR4	Project - Viva Voce		Viva	40	60	100	6
Total			98					90

Electives:

Semester II

Elective – I (Choose any One)

- | | | |
|---------------------------------|---|---------|
| 1. Software Engineering | - | 20MCE2A |
| 2. Cloud Computing | - | 20MCE2B |
| 3. Enterprise Resource Planning | - | 20MCE2C |

Semester III

Elective – II (Choose any One)

- | | | |
|----------------------------------|---|---------|
| 1. Internet Of Things | - | 20MCE3A |
| 2. Principles of Compiler Design | - | 20MCE3B |
| 3. Soft Computing | - | 20MCE3C |

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Title of the Paper	: Software Engineering	
Semester	: II	Contact Hours : 4
Sub Code	: 20MCE2A	Credits : 4

Objective:

To be aware of different life cycle Models, Analysis, Design, Implementation, Testing, SCM and Quality Assurance.

Unit – I

Software Engineering: Software Engineering – A Layered Technology- **A Process Models** -A Generic Process Model – Process Assessment and Improvement - Prescriptive Process Models - Specialized Process Models – The Unifies Process Model- Personal and Team Process Models – Process Technology- Product and Process –**Agile Development** – What is Agility? –Agility and the cost of change- What is an Agile Process? - Extreme programming (XP) – Other Agile Process Models .

Unit – II

Estimation: Observation on Estimation - Empirical Estimation Models. **Project Scheduling:** Basic Concepts – Project Scheduling. **Risk Management:** Reactive Vs. Proactive Risk Strategies - Software Risks – Risk Identification – Risk Projection – Risk Refinement. **Principles that Guide Practice** – Software engineering Knowledge - Core Principles – Principles That Guide Each Framework Activity.

Unit – III

Understanding Requirements: Requirements Engineering – Establishing the Ground work – Eliciting Requirements – Developing Use Cases – Building the Requirements Model. – Negotiating Requirements- Validating Requirements - **Design Concepts :** Design

within the Context Of Software Engineering - Design Concepts – The Design Model - **Architectural Design:** Software Architecture- Architectural Genres – Architectural Styles- Architectural Design – Assessing Alternative Architectural Design – Architectural Mapping Using Data Flow.

Unit – IV

Software Testing Strategies: A Strategic Approach To Software Testing – Strategic Issues - Test Strategies For Conventional Software - Test Strategies for Object-Oriented Software –Test Strategies for Web Apps - Validation Testing - System Testing - **Testing Conventional Applications:** Software Testing Fundamentals - Internal and External Views of Testing - White Box Testing - Basis Path Testing - Control Structure Testing - Black Box Testing – Model Based Testing.

Unit – V

Quality Concepts- What is Quality – Software Quality - **Software Quality Assurance** – Background Issues – Elements of Software Quality Assurance - SQA Tasks , Goals and Metrics - Formal Approach To SQA - Statistical Software Quality Assurance – Software Reliability – **Software Configuration Management** - Software Configuration Management- The SCM Repository - The SCM Process.

Text Book:

Roger S. Pressman., *Software Engineering : A Practitioner's Approach* , McGraw Hill (India) Edition , 7th Edition (Alternate Edition), 2014

Chapters:

Unit - I :1.3, 2.1 to 2.8, 3.1 to 3.5

Unit - II : 26.1, 26.7, 27.1, 27.2, 28.1 to 28.5, 4.1, 4.2, 4.3.

Unit - III : 5.1- 5.7, 8.1 ,8.3, 8.4, 9.1 to 9.6

Unit - IV : 17.1 to 17.7, 18.1 to 18.7

Unit - V : 14.1 to 14.2 , 16.1 to 16.6, 22.1 to 22.3

Reference Books:

1. Ian Sommerville, *Software Engineering*, Pearson , 10th Edition, 2017.
2. Rajib Mall , *Fundamentals of Software Engineering* , PHI Learning Pvt. Ltd. , 5th Edition , 2018.
3. Hitesh Mohapatra , Amiya Kumar Rath , *Fundamentals of Software Engineering* , BPB Publications , 1st Edition , 2020.
4. Ivar Jacobson , Harold "Bud" Lawson , Pan-Wei Ng, *The Essentials of Modern Software Engineering* , ACM Books ,1st Edition, 2019.
5. Rajib Mall, *Fundamentals of Software Engineering* –PHI Learning private limited, 5th Edition,2014

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The benefits of cloud computing are being recognized in businesses and institutions. The immediate benefits of cloud computing are obvious: cloud-based applications reduce infrastructure and IT costs, increase accessibility, enable collaboration, and allow organizations more flexibility in customizing their products both for their brand and for their audience.

Unit – I

Era of Cloud Computing : Getting to know the Cloud – Components of Cloud Computing – Cloud Types –Private , Public and Hybrid , Cloud Computing Service Delivery Models .**Cloud Computing Services** – Infrastructure as a Service(IaaS) – Platform as a Service(PaaS) – Leveraging PaaS for Productivity – Software as a Service(SaaS) – Database as a Service(DBaaS) – Specialized Cloud Services. **Cloud Types and Models** – Private Cloud –Components of a Private Cloud – Community Cloud – Public Cloud – Public Cloud – Hybrid Clouds. Cloud Deployment Techniques –Cloud Network Topologies – Automation for Cloud Deployments – Self-Service Features in a Cloud Deployment – Federated Cloud Deployments – Cloud Performance – Impact of Memory on Cloud Performance – Improving Cloud Database Performance .

Unit – II

Cloud Computing and Business Value : Key Drivers for Cloud Computing – Cloud Computing and Outsourcing – Types of Scalability – Distribution over the Internet. **Demystifying Cloud Computing** : Myths and Truths . **Recent Trends in Cloud**

Computing and Standards : Recent Trends in – Conflict of Interest for Public Cloud and IT Product Providers – Cloud Compliance – BYOD and Encryption Exposures – Cloud Standards – Cloud Ratings – Cloud Computing Trends that are Accelerating Adoption . **Data Security in the Cloud** : Challenges with Cloud Data - Challenges with Data Security – Data Confidentiality and Encryption – Data Availability – Data Integrity – Cloud Data Management Interface – Cloud Storage Gateways(CSGs) – Cloud Firewall – Virtual Firewall.

Unit – III

Application Architecture for Cloud : Cloud Application Requirements – Architecture for Traditional Versus Cloud Applications – Fundamental Requirements for Cloud Application Architecture – Use of Client-Server Architecture for Cloud Applications – Addressing Cloud Application Performance and Scalability –Service Oriented Architecture (SOA) for Cloud Applications – Parallelization within Cloud Applications. **Cloud Programming** : Programming Support for Google Apps Engine – Programming Support for Amazon EC2. **Migrating Applications to the Cloud** : Cloud Migration Techniques – Phase during Migration of an Application to the cloud – Cloud emulators and its use for Application Testing and Migration.

Unit – IV

SLA with Cloud Service Providers : The Concept of an SLA , SLA aspects and requirements – Service Availability – Cloud Outages – Credit Calculation for SLA Breaches – Sample SLA . **Introducing Virtualization** : Introducing Virtualization and its benefits – Implementation Levels of Virtualization – Virtualization at the OS Level –Virtualization Structure – Virtualization Mechanisms – Open Source Virtualization Technology – Xen Virtualization Architecture - Binary Translation with full Virtualization – Paravirtualization with Compiler Support – Virtualization of CPU , Memory and I/O Devices , Hardware Support for Virtualization in Intex x86 Processor – Virtualization in Multicore Processors .

Unit – V

Application Development for Cloud : Developing On-Premise Versus Cloud Applications – Modifying Traditional Application for Deployment in the Cloud – Stages during the Development Process of Cloud Application – Managing a Cloud Application –

Using Agile Software Development for Cloud Applications – Static Code Analysis for Cloud Applications – Developing Synchronous and Asynchronous Cloud Applications.
Application Security in the Cloud : Cloud Application Software Development Lifecycle(SDLC) – Cloud Service Reports by Providers – Application Security in an IaaS Environment - Application Security in an PaaS Environment - Application Security in an SaaS Environment .
Mobile Cloud Computing : Definition of Mobile Cloud Computing – Architecture of Mobile Cloud Computing – Benefits of Mobile Cloud Computing - Mobile Cloud Computing Challenges .

Text Book:

Kailash Jayawal , Jagannath Kallakurchi , Donald J.Houde , Dr. Deven Shah, *Cloud Computing Black Book* , Dreamtech Press , 2014 Edition .

Chapters:

Unit - I	: 1, 3 , 6 , 8
Unit - II	: 4 , 5 , 9 , 10
Unit - III	: 12 , 13 , 16
Unit - IV	: 18 , 2
Unit - V	: 24 , 25 , 27

Reference Books:

1. Thomas Erl Zaigham Mahmood Ricardo Puttini , *Cloud Computing: Concepts, Technology & Architecture*, PHI ,1st Edition , 2014
- 2 . Shailendra Singh , *Cloud Computing* , Oxford HED , 1st Edition , 2018
3. Arshdeep Dahga , Vijay Madiseti , *Cloud Computing A Hands – on Approach*, Universities Press , Reprint 2016
- 4., Mr. Ray Rafaels, *Cloud Computing* , Copyright , 2nd Edition , 2018.
5. A.Kannamal , *Fundamentals of Cloud Computing* , Cengage , 1st Edition ,2016

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To obtain knowledge about Advanced Technology in ERP, ERP Security, Business Modeling and Architecture.

Unit - I

Introduction: Introduction to ERP – Basic ERP Concepts – Justifying ERP Investments - Benefits of ERP.

Unit - II

ERP and Related Technologies: ERP and Related Technologies - Advanced technology and ERP Security.

ERP Marketplace and Functional Modules: ERP Marketplace and Marketplace Dynamics – Business Modules of an ERP Package.

Unit - III

ERP Implementation: ERP Implementation Lifecycle - ERP Package Selection – ERP Transition Strategies .

Unit - IV

ERP Implementation: ERP Implementation Process –ERP Project Teams – Consultants, Vendors and Employees – Success and Failure factors of the ERP Implementation

Unit - V

ERP – Present and Future: **ERP and E-Business – ERP, The Internet, and WWW-ERP II – Future Directions and Trends in ERP**

Text Book:

Alexis Leon, ERP Demystified , Tata Mc-Graw Hill , 3nd Edition , 2014.

Chapters:

Unit - I	: 3, 4, 5, 7
Unit - II	: 8, 9, 10, 11
Unit - III	: 13, 14, 15
Unit - IV	: 17, 18, 19, 20
Unit - V	: 23, 24, 25

Reference Books:

1. Joseph Brady A., Ellen Monk F., Bret Wagner, *Concepts in Enterprise Resource Planning* , Thompson Course Technology , 2nd Edition , 2011.
2. Alexis Leon, *Enterprise Resource Planning* , Mc-Graw Hill Education , 4th Edition , 2019
3. Mary Sumner , *Enterprise Resource Planning* , Pearson Education , 9th Edition , 2012
4. Alexis Leon , *Enterprise Resource Planning* , Mc-Graw Hill Education , 2nd Edition , 2014.
5. Bansal , *Enterprise Resource Planning* , Pearson India, 1st Edition , 2013.