



VEL TECH MULTI TECH Dr RANGARAJAN Dr.SAKUNTHALA ENGINEERING COLLEGE

(An ISO 9001: 2008 Certified Institution)

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Accredited by NBA, New Delhi)



SYLLABUS

WEEKLY SCHEDULE

M.E CSE

III SEMESTER 2015 - 2016

DEPARTMENT OF CSE II YEARS DEGREE COURSE

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WEEK DETAILS

SL.NO.	WEEK	FROM	TO
1	WEEK1	24.06.2015	26.06.2015
2	WEEK2	29.06.2015	03.07.2015
3	WEEK3	06.07.2015	10.07.2015
4	WEEK4	13.07.2015	17.07.2015
5	WEEK5	20.07.2015	24.07.2015
6	WEEK6	27.07.2015	28.07.2015
7	WEEK7	03.08.2015	07.08.2015
8	WEEK8	10.08.2015	14.08.2015
9	WEEK9	17.08.2015	21.08.2015
10	WEEK10	24.08.2015	28.08.2015
11	WEEK11	31.08.2015	04.09.2015
12	WEEK12	07.09.2015	11.09.2015
13	WEEK13	14.09.2015	18.09.2015
14	WEEK14	21.09.2015	25.09.2015
15	WEEK15	28.09.2015	30.09.2015
16	WEEK16	05.10.2015	09.10.2015
17	WEEK17	12.10.2015	16.10.2015
18	WEEK18	19.10.2015	20.10.2015
19	WEEK19	27.10.2015	30.10.2015

SUBJECT CONTENTS

SL.NO	SUBJECT CODE	SUBJECT NAME
THEORY		
1	CP7301	SOFTWARE PROCESS AND PROJECT MANAGEMENT
2	CP7022	SOFTWARE DESIGN
3	CP7026	SOFTWARE QUALITY ASSURANCE
4	CP7029	INFORMATION STORAGE MANAGEMENT
PRACTICAL		
5	CP7311	Project Work (Phase I)

TEST / EXAM SCHEDULE

SL.NO	SUBJECT CODE	SUBJECT NAME	UNIT TEST I	UNIT TEST II	Pre Model Exam	UNIT TEST IV
1	CP7301	SOFTWARE PROCESS AND PROJECT MANAGEMENT	13.07.2015	03.08.2015	21.08.2015	14.09.2015
2	CP7022	SOFTWARE DESIGN	14.07.2015	04.08.2015	22.08.2015	15.09.2015
3	CP7026	SOFTWARE QUALITY ASSURANCE	15.07.2015	05.08.2015	24.08.2015	16.09.2015
4	CP7029	INFORMATION STORAGE MANAGEMENT	16.07.2015	06.08.2015	25.08.2015	18.09.2015

SL.NO	SUBJECT CODE	SUBJECT NAME	MODEL EXAM
1	CP7301	SOFTWARE PROCESS AND PROJECT MANAGEMENT	05.10.2015
2	CP7022	SOFTWARE DESIGN	06.10.2015
3	CP7026	SOFTWARE QUALITY ASSURANCE	07.10.2015
4	CP7029	INFORMATION STORAGE MANAGEMENT	08.10.2015

CP7301 : SOFTWARE PROCESS AND PROJECT MANAGEMENT

UNIT I DEVELOPMENT LIFE CYCLE PROCESSES

WEEK 1: Overview of software development life cycle – introduction to processes – Personal Software Process (PSP)

WEEK 2: Team software process (TSP) – Unified processes – agile processes

WEEK 3 : choosing the right process Tutorial: Software development using PSP

UNIT II REQUIREMENTS MANAGEMENT

WEEK 4 : Functional requirements and quality attributes – elicitation techniques – Quality Attribute Workshops (QAW)

WEEK 5: analysis, prioritization, and trade-off – Architecture Centric Development Method (ACDM) – requirements documentation and specification

WEEK 6: change management – traceability of requirements
Tutorial: Conduct QAW, elicit, analyze, prioritize, and document requirements using ACDM.

WEEK 7: CYCLE TEST 1

WEEK 8: CYCLE TEST 1

UNIT III ESTIMATION, PLANNING, AND TRACKING

WEEK 9: Identifying and prioritizing risks – risk mitigation plans – estimation techniques – use case points – function points – COCOMO II – top-down estimation.

WEEK 10: bottom-up estimation – work breakdown structure – macro and micro plans – planning poker – wideband delphi

WEEK 11: documenting the plan – tracking the plan – earned value method (EVM) Tutorial: Estimation, planning, and tracking exercises.

WEEK12: MODEL PRACTICAL EXAMINATION 1

UNIT IV CONFIGURATION AND QUALITY MANAGEMENT

WEEK 13: identifying artifacts to be configured – naming conventions and version control – configuration control

WEEK 14: quality assurance techniques – peer reviews – Fagan inspection – unit, integration, system, and acceptance testing

WEEK 15: test data and test cases – bug tracking – causal analysis
Tutorial: version control exercises, development of test cases, causal analysis of defects

WEEK 16: SECOND CYCLE TEST

UNIT V SOFTWARE PROCESS DEFINITION AND MANAGEMENT

WEEK 17: REVISION 1-4 UNITS

WEEK 18: Process elements – process architecture – relationship between elements – process modeling – process definition techniques

WEEK 19: ETVX (entry-task-validation-exit) – process baselining – process assessment and improvement

WEEK 20: CMMI – Six Sigma Tutorial: process measurement exercises, process definition using ETVX

WEEK 21: MODEL THEORY EXAM (5 UNITS)

REFERENCES:

1. Pankaj Jalote, “Software Project Management in Practice”, Pearson, 2002.
2. Chris F. Kemerer, “Software Project Management – Readings and Cases”, McGraw Hill, 1997.

3. Watts S. Humphrey, “PSP: A self-improvement process for software engineers”, Addison-Wesley, 2005.
4. Watts S. Humphrey, “Introduction to the Team Software Process”, Addison-Wesley, 2000.
5. Orit Hazzan and Yael Dubinsky, “Agile software engineering”, Springer, 2008.
6. James R. Persse, “Process Improvement Essentials”, O’Reilly, 2006.
7. Roger S. Pressman, “Software Engineering – A Practitioner’s Approach”, Seventh Edition, McGraw Hill, 2010.

CP7022 SOFTWARE DESIGN

UNIT I SOFTWARE DESIGN PRINCIPLES

WEEK 1: Introduction – Design process – Managing complexity – Software modeling and notations

WEEK 2: Abstraction – Modularity – Hierarchy – Coupling - Cohesion

WEEK 3 : Design guidelines and checklists – Refactoring

UNIT II OO DESIGN

WEEK 4 : Object model – Classes and objects – Object oriented analysis

WEEK 5: Key abstractions and mechanisms – Object oriented design – Identifying design elements

WEEK 6: Detailed design – Case studies.

WEEK 7: CYCLE TEST 1

WEEK 8: CYCLE TEST 1

UNIT III DESIGN PATTERNS

WEEK 9: Introduction to patterns – Design context.

WEEK 10: Reusable solutions – Documenting reusable solutions

UNIT IV FUNCTION AND SERVICE ORIENTED DESIGNS

WEEK 10: Structural decomposition – Detailed Design – Function oriented design Case study – Services – Service identification

WEEK 11: Service design – Service composition – choreography and orchestration

WEEK 12 : Service oriented design Case study

WEEK 13: SECOND CYCLE TEST

UNIT V USER CENTERED DESIGN AND DESIGN REVIEW

WEEK 14 : REVISION (1-4 UNITS)

WEEK 15: Introduction to user centered design – Use in context – Interface and interaction

WEEK 16: User centered design principles – Task analysis – Evaluation

WEEK 17: Introduction to design review– Testing the design – Walk throughs – Review against check lists.

WEEK 18: MODEL THEORY EXAM(5 UNITS)

REFERENCES:

1. Grady Booch et al., "Object Oriented Analysis and Design with Applications", 3rd Edition, Pearson, 2010.
2. Carlos Otero, "Software Engineering Design: Theory and Practice", CRC Press, 2012
3. David Budgen, "Software Design", 2nd Edition, Addison Wesley, 2003
4. Alan Shalloway and James R Trott, "Design Patterns Explained: A New Perspective on Object-Oriented Design", 2nd Edition, Addison-Wesley Professional, 2004
5. Hassan Gomaa, "Software Modeling and Design", Cambridge University Press, 2011
6. Eric Gamma et al., "Design Patterns: Elements of Reusable Object-Oriented Software", Addison-Wesley Professional, 1994
7. Ian Sommerville, "Software Engineering", 9th Edition, Addison-Wesley, 2010
8. M B Rosson and J M Carroll, "Usability Engineering: Scenario-Based Development of Human-Computer Interaction", Morgan Kaufmann, 2002.

CP7026 SOFTWARE QUALITY ASSURANCE

UNIT I INTRODUCTION

WEEK 1: Introduction – Views on quality – Cost of quality - Quality models – Quality frameworks

WEEK2: Verification and Validation – Defect taxonomy – Defect management

WEEK 3: Statistics and measurements – IEEE standards – Quality assurance and control processes.

UNIT II VERIFICATION

WEEK 4 : Introduction – Verification techniques

WEEK 5: Inspections, reviews, walk-throughs

WEEK 6: Case studies

WEEK 7: CYCLE TEST-I

UNIT III CLASSIFICATIONS

WEEK 7: Software testing- Validation – Test plan – Test cases -
Test Generation – Equivalence partitioning

WEEK 8: Boundary value analysis – Category partition method –
Combinatorial generation

WEEK 9: Decision tables – Examples and Case studies.

WEEK 10:

UNIT IV STRUCTURAL TESTING

WEEK 10: UNIT IV STRUCTURAL TESTING 12

Introduction – Test adequacy criteria – Control flow graph –
Coverages: block, conditions, multiple conditions, MC/DC, path

WEEK 11: Data flow graph – Definition and use coverages – C-use,
P-use, Defclear,
Def-use – Finite state machines

WEEK 12: Transition coverage – Fault based testing – Mutation
analysis – Case studies

WEEK13: CYCLE TEST 2

UNIT V FUNCTIONAL TESTING

WEEK 14: REVISION (1-4)UNITS

WEEK 15: Introduction – Test adequacy criteria - Test cases from
use cases – Exploratory testing

WEEK 16: Integration, system, acceptance, regression testing –
Testing for specific attributes: Performance

WEEK 17: load and stress testing – Usability testing – Security
testing - Test automation – Test oracles

MODEL THEORY EXAM (5 UNITS)

WEEK 18: MODEL THEORY EXAM (5 UNITS)

REFERENCE BOOKS:

1. Boriz Beizer, "Software Testing Techniques", 2nd Edition, DreamTech, 2009.
2. Aditya P. Mathur, "Foundations of Software Testing", Pearson, 2008
3. Mauro Pezze and Michal Young, "Software Testing and Analysis. Process, Principles, and Techniques", John Wiley 2008
4. Stephen H. Kan, "Metrics and Models in Software Quality Engineering", 2nd Edition, Pearson, 2003
5. Kshirasagar Naik and Priyadarshi Tripathy (Eds), "Software Testing and Quality Assurance: Theory and Practice", John Wiley, 2008
6. "Combinatorial Methods in Software Testing", <http://csrc.nist.gov/groups/SNS/acts/index.html>

CP7029 INFORMATION STORAGE MANAGEMENT

UNIT I INTRODUCTION TO STORAGE TECHNOLOGY

WEEK 1: Review data creation and the amount of data being created and understand the value of data to a business

WEEK 2: challenges in data storage and data management, Solutions available for data storage

WEEK 3: Core elements of a data center infrastructure, role of each element in supporting business activities.

UNIT II STORAGE SYSTEMS ARCHITECTURE

WEEK 3: Hardware and software components of the host environment, Key protocols and concepts used by each component
,Physical and logical components of a connectivity environment
,Major physical components of a disk drive and their function

WEEK 4: logical constructs of a physical disk, access characteristics, and performance Implications, Concept of RAID and its components,

Different RAID levels and their suitability for different application environments: RAID 0, RAID 1, RAID 3, RAID 4, RAID 5, RAID 0+1, RAID 1+0, RAID 6

WEEK 5: Compare and contrast integrated and modular storage systems ,High-level architecture and working of an intelligent storage system.

WEEK 6: CYCLE TEST 1

WEEK 7: CYCLE TEST 1

UNIT III INTRODUCTION TO NETWORKED STORAGE

WEEK 7: Evolution of networked storage, Architecture, components, and topologies of FC-SAN, NAS, and IP-SAN

WEEK 8 : Benefits of the different networked storage options, understand the need for long-term archiving solutions and describe how CAS full fill the need

WEEK 9: understand the appropriateness of the different networked storage options for different application environments

WEEK10:

UNIT IV INFORMATION AVAILABILITY, MONITORING & MANAGING DATACENTER

WEEK 10: List reasons for planned/unplanned outages and the impact of downtime, Impact of downtime - Differentiate between business continuity (BC) and disaster recovery (DR) ,RTO and RPO, Identify single points of failure in a storage infrastructure and list solutions to mitigate these failures

WEEK 11. Architecture of backup/recovery and the different backup/recovery topologies, replication technologies and their role in ensuring information availability and business continuity, Remote replication technologies and their role in providing disaster recovery and business continuity capabilities

WEEK 12 : Identify key areas to monitor in a data center, Industry standards for data center monitoring and management, Key metrics to monitor for different components in a storage infrastructure, Key management tasks in a data center

WEEK 13: CYCLE TEST 2

UNIT V SECURING STORAGE AND STORAGE VIRTUALIZATION 9

WEEK 14: block-level and file-level virtualization technologies and processes

WEEK 15: Information security, Critical security attributes for information systems, Storage security domains

WEEK 16: List and analyzes the common threats in each domain, Virtualization technologies

WEEK 17: MODEL THEORY EXAM (5 UNITS)

WEEK 18: MODEL THEORY EXAM (5 UNITS)

REFERENCE BOOKS:

1. EMC Corporation, Information Storage and Management, Wiley, India.
2. Robert Spalding, “Storage Networks: The Complete Reference“, Tata McGraw Hill ,Osborne, 2003.
3. Marc Farley, “Building Storage Networks”, Tata McGraw Hill ,Osborne, 2001.
4. Additional resource material on www.emc.com/resource-library/resource-library.esp
