N.C.College of Engineering

Israna-132107 (Panipat)

Scheme and Syllabus
w.e.f 2015-16 Session
Computer Science & Engineering

Third Year (5th & 6th Semester)

MARKS DISTRIBUTION
(ACCORDING TO AUTONOMY)

FOR ALL THEORY COURSES: -

1. On Semester Evaluation of all theory courses
   Total: 100 Marks

   Distribution

I. Mid Semester Examination	20 Marks	
II. Mid Semester Examination	20 Marks	40 Marks — Best two will be included
III. Mid Semester Examination	20 Marks	
Continuous Evaluation Test (CET)	20 Marks	
Attendance	20 Marks	
Teacher's Assessment	20 Marks	

2) End Semester (Final Examination) of all theory courses

   Total: 100 Marks

3) Total of On Semester + End Semester Evaluation is of 200 Marks

4) To pass a theory course, the student should obtain

   Minimum: - 80 Marks out of 200.

Criterion for passing and failing in the theory courses: -

a) The students will have to obtain 35% Marks in theory and 80 Marks in aggregate of On Semester and End Semester Evaluation for passing. If the above passing criterion is not fulfilled, the student will be awarded "Reappear".

b) On Semester Marks will not be changed. Only the theory marks will be modified as obtained in "Reappear".

c) If the attendance in a course is below 75%, the student will not be permitted to appear in the Final Examination.

FOR ALL PRACTICAL (LABORATORY) COURSES: -

I) On Semester Evaluation of all Practical (Laboratory) Courses

Total: 120 Marks.

> Distribution

Attendance	60 Marks
Record of Practicals/ Experiments	30 Marks
Teacher's Assessment	30 Marks

II) End Semester Evaluation (Final Lab Examination + Oral Test or Viva Voce)

Total: 80 Marks

III) Total of On Semester Evaluation (Final Lab Examination) + End Semester Evaluation is of 200 Marks.

IV) To pass a lab course, the student should obtain

Minimum: 80 Marks out of 200.

Criterion for passing and failing in the lab course is just like the theory course.

CALCULATION OF SEMESTER GRADE POINT AVERAGE: -

Semester grade point average (SGPA) is the weighted average of the grade for the subjects registered **in a Semester** and is computed as follows:

$$SGPA = \frac{\sum_i C_i \times G_i}{\sum_i C_i}$$

C_i denotes the Credits (or Units) assigned to the ith subject and G_i denotes the Grade Point Equivalent to the Letter Grade obtained for the ith subject.

Cumulative Grade Point Average (CGPA) is the weighted average of the grades of the subjects for the registered in the semester.

N. C. COLLEGE OF ENGINEERING, ISRANA

SCHEME OF STUDIES AND EXAMINATION
B. Tech. – Computer Science & Engineering
3rd Year (Semester–V) 2015-19

Sr. No.	Course no.	Subjects	BO	Teaching Schedule			Contact Hours	Credits
				L	T	P		
1	CSE-351	Java Programming	CSE	3	1		4	4
2	CSE-352	Computer Networks	CSE	3	1	-	4	4
3	CSE-353	Design and Analysis of Algorithms	CSE	4	1	-	5	5
4	CSE-354	Theory of Computation	CSE	3	1	-	4	4
5	CSE-35P1	Java Programming Lab	CSE	-	-	3	3	2
6	CSE-35P2	Computer Networks Lab	CSE	-	-	3	3	2
7	CSE-35P3	Design and Analysis of Algorithms Lab	CSE	--	--	3	3	2
8		Departmental Elective		3	1	-	4	4
9		Elective Lab		--	--	2	2	1
		TOTAL		16	5	11	32	28

Departmental Elective

1) CSE- 35E1   Software Testing
2) CSE-35E2   ADBMS
3) CSE-35E3   Oracle 10G

Elective Lab

1) CSE-35EP1   Software Testing Lab
2) CSE-35EP2   ADBMS lab
3) CSE-35EP3   Oracle 10G Lab

B. Tech. (CSE) 5th & 6th Semester, Syllabus 2015-19

5th Semester (Computer Science & Engineering)
JAVA PROGRAMMING
CSE-351

L   T   **On Semester Evaluation : 100 Marks**
3   1   **End Semester Evaluation : 100 Marks**

Note: 1. There are nine questions in a set of question paper. All questions will   carry equal marks.
     2. The students are required to attempt five questions in all selecting at least one from each unit and First question is compulsory.

UNIT-I
Introduction to Java & Principles of Object Oriented Programming: Importance & features of Java, Java's Magic: The Byte-code, Java Program Structure, Defining class & methods. Array & Strings. Inheritance, Using Final Modifier
Understanding Packages, Understanding CLASSPATH, Standard Packages, Access Protection in Packages, Concept of Interface.

Exception Handling: The Idea behind Exceptions, Types of Exceptions, Dealing with Exceptions, Defining Your Own Exceptions, Checked and Unchecked Exceptions.

UNIT-II
Multithreading Programming: Understanding Threads, The Main Thread, Creating a Thread: extending Thread and implementing Runnable, multithreaded programming, Thread Priorities, Synchronization of threads.
Input/Output in Java: I/O Basic, Byte and Character Structure, I/O Classes, Reading Console Input, Writing to Console Output, Reading and Writing on Files, Random Access Files, chaining streams.
Creating Applets in Java: Applet Basics, Applets Architecture, Applet Life Cycle, Simple Applet

Display Methods, Requesting Repainting, Using the Status Window, The HTML APPLET

Tag, Passing parameters to Applets.

UNIT-III
Networking: Basics, Networking Classes and Interfaces, Using Java.net Package, doing TCP/IP Programming by Server Socket and Socket Classes.
Java Data Base Connectivity (JDBC): Database Connectivity- Relation Databases, JDBC API, Reusing Database Objects.
Working with Windows: AWT Classes, Window Fundamentals, Working with Frame, Creating a Frame Window in an Applet, displaying information within a Window.

UNIT-IV
Event Handling: Two Event Handling Mechanisms, The Delegation Event Model, The Event Handling Process, Event Classes, Sources of Events, event Listener Interfaces, Using the Delegation Event Model, Adapter Classes.
A Tour of Swings: Japplet, Icons & Labels, Text Fields, Buttons, Comboboxes, labels, exploring swing.

B. Tech. (CSE) 5th & 6th Semester, Syllabus 2015-19

Books Recommended:
1. Java-2 The complete Reference by Patrick Naughton and Herbertz Schildt, TMH.
2. Beginning JAVA 2 (JDK1.3 Edition), Ivor Horton, WROX Public.
3. Thinking in Java, Bruce Eckel
4. JAVA 2 UNLEASHED, Tech Media Publications.
5. JAVA 2(1.3) API Documentations.
6. "Programming with Java", By E Balaguruswamy.

B. Tech. (CSE) 5th & 6th Semester, Syllabus 2015-19

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COMPUTER NETWORKS
CSE-352

L	T		On Semester Evaluation: 100 Marks
3	1		End Semester Evaluation: 100 Marks

Note: - 1. **There are NINE questions in a set of question-paper. All questions carry equal marks.**

2. **Attempt five questions in all. FIRST question is compulsory which covers the whole syllabus. Attempt ONE question from each of the other four Units.**

UNIT – I
Basics of Computer Networks, Need and evolution of computer networks, LAN, MAN, WAN Topologies, Physical Media, Ethernet – Simple, Fast, and gigabit, LAN and WAN devices – Hub, Repeater, Switch, Bridge, Router, Modem and SCU/DSU, OSI model , Functions of each layer, Introduction to services and protocols of each layer, TCP/IP model.

UNIT – II
Data Link Layer, LLC & MAC sub layer, MAC addressing, frame error control and flow control, Error detection and correction methods - CRC, block codes, Parity and checksums, Elementary data link layer protocols, sliding window protocols, HDLC, PPP.
Channel allocation problem - Static and Dynamic, Multiple access protocol- ALOHA, CSMA/CD, CSMA/CA, LAN Technologies – Ethernet (802.3), Token bus(802.4), Token ring(802.5), FDDI.

UNIT – III
Network Layer, IP addressing, IP address classes, Subnet addressing, Subnetting-subnetworks, subnet mask, IP header, ARP, RARP, BOOTP, DHCP, ICMP, Ipv6 header.
Routing algorithms - Optimality principle, Shortest path routing, Hierarchical routing, Distance vector routing, Link state routing, Routing for mobile host,
Routing protocols - IGP & EGP (RIP, IGRP, EIGRP, OSPF, BGP etc.), VLAN.

UNIT – IV
Application layer, DNS, Email-SMTP, POP, IMAP, FTP, HTTP, Telnet, Transport layer, Transport Layer Protocols TCP and UDP, Three way handshakes open connection establishment and connection termination.

Text Book:
1. Data Communications and Networking, 4th edition, Behrouz A Forouzan, Tata McGraw Hill.
2. Tanenbaum. "Computer Networks", PHI

Reference Books:
1. Darlx, " Computer Network and their protocols", DLA Labs.
2. Freer, "Comp. Communication and Networks", East – West-Press.
3. Data Communications, Computer Networks and open systems (4th Edition).
4. Halsall Fred, 2000, Addtion Weslay, low price Edition.
5. Business data communications, Fitzgerald Jerry.
6. Computer Networks – A system approach, Larry L. Peterson & Bruce S. Davie, 2nd Edition.
7. Computer Networking – ED Title, 2002, T.M.H.

B. Tech. (CSE) 5th & 6th Semester, Syllabus 2015-19

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5th Semester (Computer Science & Engineering)
DESIGN AND ANALYSIS OF ALGORITHMS
CSE-353

L	T		On Semester Evaluation: 100 Marks
4	1		End Semester Evaluation: 100 Marks

Note: - 1. **There are NINE questions in a set of question-paper. All questions carry equal marks.**

2. **Attempt five questions in all. FIRST question is compulsory which covers the whole syllabus. Attempt ONE question from each of the other four Units.**

UNIT-I
Introduction: Review of elementary data structures, analyzing algorithms, asymptotic notations, recurrence relations, Binary search trees, B-trees.
Graph Algorithms: Tree and Graph traversals, minimum spanning trees- Kruskal and prims, Single source shortest paths Dijkstras algorithm, Single source shortest paths for directed acyclic graphs, All pairs shortest paths

UNIT-II
Divide and Conquer: Structure of divide and conquer algorithms, Heapsort, Quicksort, Sorting in linear time, median and order statistics.
Dynamic programming: Elements, Matrix-chain multiplication, longest common subsequence.
Greedy algorithms: Elements, activity- selection problem, Huffman codes.

UNIT-III
Back tracking: Overview, 8-queen problem, and Knapsack problem
Brach and bound: LC searching Bounding, FIFO branch and bound, LC branch and bound application: 0/1 Knapsack problem, Traveling Salesman Problem.

UNIT-IV
Flow and Sorting Networks: Flow networks, Ford- Fulkerson method, Sorting Networks, the zero- one principle, Bitonic sorting network.
Computational Complexity: Polynomial Vs non-polynomial time complexity; NP-hard and NP-complete classes.

Text Books:
1. Corman, Leiserson and Rivest : Introduction to Algorithms, 2/e, PHI
2. Horowitz, Ellis and Sahni, Sartaj : Fundamentals of Computer Algorithms. Galgotia Publications

Reference Books:
1. Aho, Hopcroft and Ullman : The Design and Analyses of Computer Algorithms. Addison Wesley.
2. Sara Basse, A. V. Gelder, " Computer Algorithms," Addison Wesley.

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THEORY OF COMPUTATION
CSE-354

L	T		On Semester Evaluation: 100 Marks
3	1		End Semester Evaluation: 100 Marks

Note: - 1. **There are NINE questions in a set of question-paper. All questions carry equal marks.**

 2. **Attempt five questions in all. FIRST question is compulsory which covers the whole syllabus. Attempt ONE question from each of the other four Units.**

UNIT-I
Finite Automata and Regular Expression: Finite State System, Basic Definition Non-Deterministic finite Automata (NDFA). Deterministic finite Automata (DFA), Minimization of DFA, Equivalence of DFA and NDFA, Conversion of NDFA and NFA, Finite Automata with E-moves, minimizations.

UNIT-II
Regular Expression, Equivalence of finite Automata and expression. Regular expression conversion and Vice-Versa.
Introduction to Machines: Concept of basic machines, Properties and limitations of FSM, Moore and Mealy Machines, Equivalence of Moore and Mealy Machines. Conversion of NFA and DFA by Arden's method. Pumping lemma

UNIT-III
Grammars: Definitions, Context free and Context sensitive Grammar, Ambiguity, Conversion from Regular Expression to CFG, Conversion from FA to CFG, Dangling Else problem, Regular Grammar, Reduced forms, Removal of useless symbols and unit production, Chomsky Normal form (CNF), Griebach Normal Form (GNF).
Pushdown Automata: Introduction to pushdown machines, Application of push down machines.

UNIT-IV
Turing Machines, Deterministic and Non-Deterministic Turing Machines, Design of T.M., recursive enumerable and recursive languages, Halting Problem of T.M.

Chomsky Hierarchy: Chomsky hierarchies of grammars, unrestricted grammar, Context sensitive Language.

Text Books
1. John C. Martin: Introduction to Language and the Theory of Computation, MGH.
2. Theory of Computer Sc. (Automata, Languages & Computation): K.I..P. Mishra & N. Chandershekaran.

Books
1. Daniel I.A. Cohen: Introduction to Computer Theory: John Wiley.
2. R.B. Patel, & Prem Nath, Theory of Automata and Formal Languages, Umesh Publication, New Delhi, Ist Edition 2005, ISBN-81-88114-53-7, pp. 1-496

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JAVA PROGRAMMING LAB
CSE-35P1

P   **On Semester Evaluation: 120**
2   **End Semester Evaluation: 80**

NOTE: At least 10 experiments are to be performed from list below.

1. **(a)** WAP to print Floyd Triangle:

   1

   2   3

   4   5   6

   7   8   9   10

   11   12   13   14   15

   .

   .

   .

   (b) WAP to modify Floyd Triangle to

   1

      0   1

      1   0   1

   0   1   0   1

   1   0   1   0

   0   1   0   1   0

        .

        .

        .

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2. WAP to implement a stack of 10 integers.

3. WAP to convert decimal number into binary.

4. WAP to implement method overloading.

5. WAP to perform sorting of strings given through command line arguments.

6. WAP to implement multiple inheritance.

7. WAP to search a sub string from a given string.

8. WAP to implement polymorphism.

9. WAP to implement access modifiers of packages.

10. WAP to implement multiple threads.

11. WAP to copy one file into another file.

12. WAP to accept data from keyboard and write it into a file.

13. WAP to implement Random Access File.

14. WAP to implement applets, which reads parameters from users.

15. WAP to implement server socket and socket classes.

16. WAP to implement JDBC connectivity.

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COMPUTER NETWORKS LAB
CSE-35P2

P   **On Semester Evaluation: 120 Marks**
3   **End Semester Evaluation: 80 Marks**

Note: At least ten experiments are to be performed by the students.

S. No.	Experiment
1	Study of different types of Network cables and Practically implement the cross-wired cable and straight through cable using clamping tool.
2	Study of Network Devices in Detail.
3	Establishing Local Area Network using Switch/Hub in your Lab.
4	Study of basic network commands and Network configuration commands.
5	Configure a Network topology using Packet Tracer software.
6	Study Functioning of Router & Configure Router as a Gateway for connecting LAN & WAN.
7	Analyze different types of IP Addresses, Subnet Mask, Network Address and Sub-netting in Networks.
8	Configure a Network using Distance Vector Routing protocol.
9	Configure a Network using Link State Vector Routing protocol.
10	Configure VLAN using CISCO Manageable Switches.
11	To setup Wireless Network using Wireless Access Points and Wireless Routers.

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DESIGN AND ANALYSIS OF ALGORITHMS LAB
CSE-35P3

P   **On Semester Evaluation: 120 Marks**
3   **End Semester Evaluation: 80 Marks**

1. Write a program to implement Quick-sort using Divide and conquer method.
2. Write a program to implement Knapsack problem using Greedy method.
3. Write a program to implement Matrix Chain Multiplication using Dynamic Programming.
4. Write a program to implement Longest Common Subsequence using Dynamic programming.
5. Write a program to implement Activity Selection problem using Greedy method.
6. Write a program to implement Prim's method of computing minimum cost spanning tree.
7. Write a program to implement Dijkstra's algorithm of computing single source shortest paths.
8. Write a program to implement Warshall's algorithm of computing all pair shortest paths.
9. Write a program to implement algorithm for Single Source Shortest Paths in Directed Acyclic Graphs.
10. Write a program to implement Topological sort.

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SOFTWARE TESTING
CSE-35E1

L	T		On Semester Evaluation: 100 Marks
3	1		End Semester Evaluation: 100 Marks

Note: - 1. There are NINE questions in a set of question-paper. All questions carry equal marks.

 2. Attempt five questions in all. FIRST question is compulsory which covers the whole syllabus. Attempt ONE question from each of the other four Units.

UNIT I
INTRODUCTION :Testing as an Engineering Activity – Role of Process in Software Quality – Testing as a Process – Basic Definitions – Software Testing Principles – The Tester's Role in a Software Development Organization – Origins of Defects – Defect Classes – The Defect Repository and Test Design – Defect Examples – Developer/Tester Support for Developing a Defect Repository.

UNIT II
 TEST CASE DESIGN :Introduction to Testing Design Strategies – The Smarter Tester – Test Case Design Strategies – Using Black Box Approach to Test Case Design Random Testing – RequiremenTs based testing – positive and negative testing -— Boundary Value Analysis – decision tables - Equivalence Class Partitioning state-based testing– causeeffect graphing – error guessing - compatibility testing – user documentation testing – domain testing Using White–Box Approach to Test design – Test Adequacy Criteria – static testing vs. structural testing – code functional testing - Coverage and Control Flow Graphs – Covering Code Logic – Paths – Their Role in White–box Based Test Design – code complexity testing – Evaluating Test Adequacy Criteria.

UNIT III
LEVELS OF TESTING : The Need for Levels of Testing – Unit Test – Unit Test Planning – Designing the Unit Tests. The Test Harness – Running the Unit tests and Recording results – Integration tests – Designing Integration Tests – Integration Test Planning – scenario testing – defect bash elimination -System Testing – types of system testing - Acceptance testing – performance testing - Regression Testing – internationalization testing – ad-hoc testing - Alpha – Beta Tests – testing OO systems – usability and accessibility testing

UNIT IV
TEST MANAGEMENT :People and organizational issues in testing – organization structures for testing teams –testing services - Test Planning – Test Plan Components – Test Plan Attachments – Locating Test Items – test management – test process - Reporting Test Results – The role of three groups in Test Planning and Policy Development – Introducing the test specialist – Skills needed by a test specialist – Building a Testing Group.

CONTROLLING AND MONITORING : Software test automation – skills needed for automation – scope of automation – design and architecture for automation – requirements for a test tool – challenges in automation.

TEXT BOOKS:

1. Srinivasan Desikan and Gopalaswamy Ramesh, " Software Testing – Principles and Practices", Pearson education, 2006.
2. Aditya P.Mathur, "Foundations of Software Testing", Pearson Education,2008.
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REFERENCES:

1. Boris Beizer, "Software Testing Techniques", Second Edition,Dreamtech, 2003
2. Elfriede Dustin, "Effective Software Testing", First Edition, Pearson Education, 2003.
3. Renu Rajani, Pradeep Oak, "Software Testing – Effective Methods, Tools and Techniques", Tata McGraw Hill, 2004.

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ADVANCE DATABASE MANAGEMENT SYSTEM (ADBMS)
CSE-35E2

L	T		On Semester Evaluation: 100 Marks
3	1		End Semester Evaluation: 100 Marks

Note: - 1. There are NINE questions in a set of question-paper. All questions carry equal marks.

2. Attempt five questions in all. FIRST question is compulsory which covers the whole syllabus. Attempt ONE question from each of the other four Units.

UNIT-I
Parallel & Distributed Databases: Introduction to parallel database, Speed up and Scale up, Architecture for parallel databases, Parallel query evaluation, Parallelizing individual operations, Parallel query optimization.
Introduction to distributed databases. Distributed DBMS architectures, storing data in a distributed DBMS. Distributed catalog management, Query processing in distributed databases, Data fragmentation, Replication, Distributed concurrency control and recovery.

UNIT-II
Data Mining and Data Ware Housing: Need of Data mining, Market Basket analysis, mining for rules: - Association rules, Classification and regression rules, tree-structured rules, clustering algorithm, Introduction to Data warehousing, maintaining a arehouse, OLAP.

UNIT-III
Object Database Systems: Introduction, Types of objects Database system, Structured data types. Objects & reference types. Inheritance. Database Design for object relational database, ORDBMS implementation challenges, OODBMS. Systems comparison of RDBMS, OODBMS, ORDBMS , An Example:- Informix universal Server.

UNIT-IV
Advance topics: Advance transaction processing, transaction processing monitors, web interfaces to databases, Performance Tuning, Mobile databases, main memory databases, multimedia databases, GIS.

Text Books:
1. Raghu Ramakrishnan, Johannes Gehrke, Database Management Systems [3e], McGraw-Hill.

Reference Books:
1. Elmasri and Navathe, Fundamentals of Database Systems [4e], Pearson Education
2. Korth, Silberchatz, Sudarshan , Database System Concepts, McGraw-Hill.

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6th Semester (Computer Science & Engineering)
ORACLE 10G
CSE-35E3

L   **T**
3   **1**

On Semester Evaluation: 100 Marks
End Semester Evaluation: 100 Marks

Note: - 1.   **There are NINE questions in a set of question-paper. All questions carry equal marks.**
      2.   **Attempt five questions in all. FIRST question is compulsory which covers the whole syllabus. Attempt ONE question from each of the other four Units.**

UNIT-I
Oracle database architecture, database structures, oracle memory structures, process structures, oracle instance management,, server process and database buffer cache, Physical database structure, Tablespaces and data files, Segments extents and blocks, logical and physical database structures. Database configuration assistant (DBCA), Using DBCA to create and delete a database, password management, creating a database design template. Managing the Oracle Instance.

UNIT-II
Managing Database Storage Structures: Tablespaces and data files, Oracle Managed Files (OMF), Create and manage tablespaces, obtain tablespace information, Automatic Storage Management (ASM)
Administering User Security: Create and manage database user accounts, Authenticate users, Assign default storage areas (tablespaces),Grant and revoke privileges, Create and manage roles and profiles
Managing Schema Objects: Define schema objects and data types, Create and modify tables, Define constraints
View the columns and contents of a table; create indexes, views and sequences, temporary tables, Data Dictionary.
Managing Undo Data: Monitor and administer undo, describe the difference between undo and redo data. Configure undo retention. Guarantee undo retention. Use the undo advisor. Describe triggers and triggering events. Monitor and resolve locking conflicts

UNIT-III
Implementing Oracle Database Security: Describe DBA responsibilities for security. Apply the principal of least privilege. Enable standard database auditing. Specify audit options. Review audit information. Maintain the audit trail
Proactive Maintenance: Automatic Workload Repository (AWR), Automatic Database Diagnostic Monitor (ADDM).Describe advisory framework, Alerts, Use automated tasks
Performing Database Backups: Create consistent database backups. Back your database up without shutting it down. Create incremental backups. Automate database backups. Monitor the flash recovery area

UNIT-IV
Performing Database Backups: Create consistent database backups. Back your database up without shutting it down. Create incremental backups. Automate database backups. Monitor the flash recovery area

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Performing Database Recovery: Recover from loss of a control file. Recover from loss of a redo log file. Perform complete recovery following the loss of a data file, Perform complete recovery following the loss of a data file.

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SOFTWARE TESTING LAB
CSE-35EP1

P   **On Semester Evaluation: 120 Marks**
2   **End Semester Evaluation: 80 Marks**

1 Write Programs in 'C' Language to demonstrate the working of the following constructs:
    i)   do...while
    ii)   while..do
    iii)   if..else
    iv)   switch
    v)   for

2 "A program written in 'C' Language for Matrix Multiplication fails "Introspect the causes for its failure and write down the possible reasons for its failure.

3 Take any system (e.g. ATM system) and study its system specifications and report the various bugs.

4 Create a Test Plan document for any application (e.g. Library Management System).

5 Study of any test management tool (e.g. Test Director)

6 Study of any testing tool (e. g. Win Runner)

7 Write the test cases for any known application (e.g. Banking Application)

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ADVANCED DATABASE MANAGEMENT SYSTEM LAB (ADBMS Lab)
CSE-35EP2

P   **On Semester Evaluation: 120 Marks**
2   **End Semester Evaluation: 80 Marks**

1. Implement a system using multivalued Attributes and Inheritance in ORDBMS.

2. Write SQL code to implement NESTED Tables

3. To study Horizontal Partitioning

4. Study of how to take the hot and cold back up of a database.

5. Study how parallel join operation is performed in parallel database.

6. Study of how we can restore the database using log files in case non-catastrophic failure and assume we are using write back policy.

7. Study OF LDAP (Light weight Directory Access Protocol)

8. Case Study of Oracle.

9. Case Study of SQL SERVER.

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ORACLE 10G LAB
CSE-35EP3

P   **On Semester Evaluation: 120 Marks**
2   **End Semester Evaluation: 80 Marks**

Note: At least ten experiments are to be performed by the students.

1. Installing the Oracle software by using Oracle Universal Installer.

2. Creating tablespaces.

3. Administering Users

4. Proactively managing your database by using ADDM

5. Monitoring and Improving Performance

6. Creating Database Backups

7. Performing Database Recovery

8. Using Flashback

9. Moving Data

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N. C. COLLEGE OF ENGINEERING, ISRANA
SCHEME OF STUDIES AND EXAMINATION
B. Tech. – Computer Science & Engineering
3rd Year (Semester–VI) 2015-19

Sr. No.	Course no.	Subjects	BO	Teaching Schedule			Contact Hours	Credits
				L	T	P		
1	CSE-361	Network Security and Cryptography	CSE	3	1	-	4	4
2	CSE-362	Computer Graphics	CSE	3	1		4	4
3	CSE-363	Unix & Linux Programming	CSE	3	1	-	4	4
4	CSE-364	Web Technologies	CSE	3	1	-	4	4
5	CSE-36P1	Computer Graphics Lab	CSE	-	-	2	2	1
6	CSE-36P2	. (Dot) Net Lab	CSE	-	-	3	3	2
7	CSE-36P3	Web Technologies Lab	CSE	-	-	2	2	1
8	SSAA-360	Soft Skills and Analytical Ability	CSE	1	0	2	3	2
9	CSE-365	General Proficiency and Fitness	CSE	-	-	-	-	1
10		Departmental Elective	CSE	3	1	-	4	4
11		Elective Lab	CSE	-	-	2	2	1
		Total		16	5	11	32	28

Departmental Elective			Elective Lab		
1	CSE-36E1	Advanced Java	1	CSE-36EP1	Advanced Java LAb
2	CSE-36E2	IT Foundation Program	2	CSE-36EP2	IT Foundation Program Lab
3	CSE-36E3	Multimedia, Gaming and Animation	3	CSE-36EP3	Multimedia Lab

- The evaluation of 6th semester training (NC-CSE-417) will be in the 7th semester.

B. Tech. (CSE) 5th & 6th Semester, Syllabus 2015-19

6th Semester (Computer Science & Engineering)
NETWORK SECURITY AND CRYPTOGRAPHY
CSE-361

L   T   **On Semester Evaluation: 100 Marks**
3   1   **End Semester Evaluation: 100 Marks**

Note: - 1.   There are NINE questions in a set of question-paper. All questions carry equal marks.
2.   Attempt five questions in all. FIRST question is compulsory which covers the whole syllabus. Attempt ONE question from each of the other four Units.

UNIT-I
Traditional Cryptography: needs and basic goals for computer security, Security Threats, Cryptographic Building Blocks: (symmetric and asymmetric key cryptograph), General design framework for block cipher; substitution and transposition tech.; Examples DES, IDEA, AES etc.

UNIT-II
Concepts and techniques: Key management, Diffie-Hellman key exchange, Comparison of Symmetric and asymmetric, Digital signature, message digest Cryptographic Hash Function : MD5 etc.
Operating system security: Access control models such as Bell-la-padula, Biba, Chinese Wall; Discretionary, Mandatory and Access Control Tech.

UNIT-III
Malicious code: viruses, worms, Trojan horses: how they work and how to defend against them.
Network security: problem in network security, kinds of attacks, digital certificates, private key management, kerberoes , IPSEC,VPN,SSL,SMIME etc.

UNIT-IV
Internet Security Protocols: Introduction, Basic concepts, SHTTP, electronic money, email security, passwords
Tools for network security such as firewalls and intrusion detection system

Books:

1. Richard H.Backer, Network Security, Mcgraw Hill International Ed. 1996
2. D.Schneier, Applied Cryptography, John Wiley, New York, 1996
3. C.Kaufman et. AI, Network Security, Prentice Hall International, 1998
4. Cryptography and network security ,Atul kahate

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B. Tech. (CSE) 5th & 6th Semester, Syllabus 2015-16

COMPUTER GRAPHICS
CSE-362

L	T		On Semester Evaluation: 100 Marks
3	1		End Semester Evaluation: 100 Marks

Note: - 1. **There are NINE questions in a set of question-paper. All questions carry equal marks.**
2. **Attempt five questions in all. FIRST question is compulsory which covers the whole syllabus. Attempt ONE question from each of the other four Units.**

UNIT -I
Introduction: What is Computer Graphics, Computer Graphics Applications, Computer Graphics hardware and Software, Two dimensional Graphics Primitives: Points and Lines, Point Plotting Techniques: Coordinate system, Incremental Method, Line drawing algorithms: DDA, Bresenhams's. Circle drawing algorithms: Using polar coordinates, Mid point circle drawing algorithms, Filled area algorithms: Scan line, Polygon filling algorithms, Boundary filled algorithms.

UNIT-II
Two Dimensional Viewing: Viewing pipeline, Window to view port transformation, Window to view port mapping.
Clipping: Point & Line clipping algorithm. 4-bit code algorithm. Cohen-Sutherland Line clipping algorithms, Liang-Barsky line clipping algorithms.
Polygon clipping: Sutherland-Hodgeman Polygon clipping algorithm. Curve clipping, Text clipping.

UNIT-III
Three Dimensional Viewing: Viewing pipeline, Viewing coordinates, Projection: Parallel. Perspective.
Two Dimensional Geometric Transformations: Two Dimensional transformations: translation, scaling, rotation transformations, other transformations: reflection, shear. Homogeneous Coordinate system.
Raster Graphics: Raster graphics fundamental, solid area scan conversion, interactive raster graphics and raster graphics system.

UNIT-IV
Representation of 3-D Curves and Surfaces: Curved lines and surfaces, spline representations, interpolation and approximation splines, Parametric continuity conditions, Geometric continuity conditions.
Bezier curves and surfaces: Bezier curves, properties of Bezier curves, Bezier surfaces, B-spline curves and surfaces.
Hidden Surfaces removal: Hidden surface elimination, depth buffer algorithm, scan line coherence and area coherence algorithm, priority algorithm.

Books Recommended:

1. Hearn & Baker – Computer Graphics, 2nd Ed. PHI.
2. Newmann & Sprawl – Introduction to interactive Computer Graphics, MGH.
3. Harrington – Computer Graphics – A programming Approach.
4. Rogers – Principles of Computer Graphics – MGH.
5. Folay – Fundamental of Interactive Computer Graphics – Addison Wesley

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B. Tech. (CSE) 5th & 6th Semester, Syllabus 2015-16

UNIX AND LINUX PROGRAMMING
CSE-363

L	T	On Semester Evaluation: 100 Marks
3	1	End Semester Evaluation: 100 Marks

Note: - 1. **There are NINE questions in a set of question-paper. All questions carry equal marks.**
     2. **Attempt five questions in all. FIRST question is compulsory which covers the whole syllabus. Attempt ONE question from each of the other four Units.**

Unit-1
Linux Startup: User accounts, accessing Linux - starting and shutting processes, Logging in and Logging out, Command line, simple commands
Shell Programming: Unix file system: Linux/Unix files, i-nodes and structure and file system related commands, Shell as command processor, shell variables, creating command substitution, scripts, functions, conditionals, loops, customizing environment

Unit-2
Regular Expressions and Filters: Introducing regular expressions patterns, syntax, character classes, quantifiers, introduction to egrep, sed, programming with awk and perl.

Unit-3
The C Environment: The C compiler, vi editor, compiler options, managing projects, memory management, use of makefiles, dependency calculations, memory management - dynamic and static memory, building and using static and dynamic libraries, using ldd, soname, dynamic loader, debugging with gdb

Unit-4
Processes in Linux: Processes, starting and stopping processes, initialization processes, rc and init files, job control - at, batch, cron, time, network files, security, privileges, authentication, password administration, archiving, Signals and signal handlers, Linux I/O system.

Reference Books:
1. John Goerzen: Linux Programming Bible, IDG Books, New Delhi, 2000.
2. Sumitabha Das: Your Unix - The Ultimate Guide, TMH, 2000.
3. Mathew: Professional Linux Programming, vol.l & 2, Wrox-Shroff, 2001. .
4. Welsh & Kaufmann: Running Linux, O'Reiley & Associates, 2000.

6th Semester (Computer Science & Engineering)
WEB TECHNOLOGIES
CSE-364

L	**T**	**On Semester Evaluation: 100 Marks**
3	**1**	**End Semester Evaluation: 100 Marks**

Note: - 1. **There are NINE questions in a set of question-paper. All questions carry equal marks.**
2. **Attempt five questions in all. FIRST question is compulsory which covers the whole syllabus. Attempt ONE question from each of the other four Units.**

UNIT-I
Web : Basics of World Wide Web.
Web planning and analysis: Principles of web planning, web planning techniques, a web plan example, web analysis processes, web analysis principles
Web design & implementation: An overview of web design, principles of web design, web design methodologies, design techniques, design problems, sample web design, web designer's Check, The State of the art in web implementation, an implementation overview, implementation Principles, implementation Processes, web implementer's Check

UNIT-II

Web promotion & Innovation: Web promotion Principles, Web promotion Techniques, Web Business Models, Web Promoter's Check, an Innovation Overview, web Innovation Techniques, and web Innovator's Check.
Object oriented concepts: object oriented programming,inheritance,abstract classes,polymorphism

UNIT-III

Basics of HTML5: Introduction to HTML5, difference between HTML and HTMl5,basic HTML5 tags, HTML5 new elements, semantic elements,form elements and attributes, HTML5 Media Elements: audio and video, Removed Elements.

Cascading Stylesheets: Introduction to cascading stylesheets, external ,internal and inline stylesheets.

Basic of XML valid documents: Syntax, elements & attributes of XML, Document Type Definition.,, Displaying XML using CSS and XSL.

UNIT-IV
JAVASCRIPT: Features of JavaScript, Variables, Control Structures, operators, loping, conditional statements & functions in JavaScript.
Core Language Objects: Array, Boolean, date, Math, String, Global, Number JavaScript with DOM Objects – Event Handling through JavaScript, Window, Document & Forms, Frame Object, Form Validation through JavaScript, JavaScript vs. CGI.
Business tier using POJO(plain old java objects): Introduction to frameworks,introduction to POJO,,multithreaded programming,java i/o,java database connectivity(JDBC).

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B. Tech. (CSE) 5th & 6th Semester, Syllabus 2015-16

Text books:
1)Kogent Learning Solutions(2012). HTML 5 Black Book.
2)JavaScript – Unleased - 3 rd Edition from SAMS – Tech Media.
3)Yong, XML in steps by step – PHI

Reference books:

1)HTML – Complete Reference By Thomas A Powell – TMH.

2)HTML 3.2 and CGI Professional Reference Edition by John December & Mark Ginsburg – SAMS – Tech Media
3). Pardi, XML in Action, Web Technology, PHI

COMPUTER GRAPHICS LAB
CSE-36P1

P   **On Semester Evaluation: 120 Marks**
2   **End Semester Evaluation: 80 Marks**

Note: All the experiments are to be performed by the students.

List of experiments:

1. Write a program to implement DDA line drawing algorithm.

2. Write a program to implement Bresenham's line drawing algorithm.

3. Implement the Bresenham's circle drawing algorithm.

4. Write a program to draw a decagon whose all vertices are connected with every other vertex using lines.

5. Write a program to show a ship moving using the concepts of 2-D transformations.

6. Write a program to show a ball moving on the screen according to the given requirements.

7. Write a program to implement the midpoint circle drawing algorithm.

8. Write a program to implement the Beizer curve.

9. Implement the line clipping algorithm using C.

10. Implement boundary fill algorithm using C.

11. Implement the depth buffer algorithm using C.

B. Tech. (CSE) 5th & 6th Semester, Syllabus 2015-16

CSE-36P2
. (DOT) NET LAB

P   **On Semester Evaluation: 120 Marks**
3   **End Semester Evaluation: 80 Marks**

Note: At least ten experiments are to be performed by the students.

1.   Find the sum of series
        1^2+2^2+ ---------------n^2
        Input n from the integer.
        ^ Represents square.

         a. Using function.
         b. Using Procedure

2   Write a program Sort an array of 10 numbers using any sorting.

3.   Use a program to search student record using student id to see if record of that student
        already exists. If yes then display the details of that student.

4.   Write a program that takes a month and year from user as input in integer form and
        display that month in character form and tell whether the year is leap or not. Use the select
        statement.

5.   Write a program to create a calculator that performs addition, subtraction, multiplication
        and division.

6.   Create a window form that contains 4 buttons,1 textbox and 1 label and upon clicking on
        any button a text must be appeared in textbox, label and in a message box. E.g. on clicking
        button1 the text "you have clicked button1" should be appeared in textbox, label and in
        message box.

7.   Create a web form for registration for a distance-learning site. On clicking the submit button
        the data should be inserted in a table and the message should be displayed to user that you
        are registered. Also use the appropriate validators.

8.   Create a web form that is divided in to two parts. First part takes employee details as input
        and inserts it in a table and the second part takes the id of the employee as input and
        displays the details of employ.

9.   Modify the above form to include two more parts. The third part updates the details of
        employ and the fourth part deletes the record of a particular employ.

10.   Write a program that takes the user name and password from the user and then redirect the
        user to the next form if they match and the next from contains the radio buttons and redirect
        the user to the appropriate pages based on radio button selected.

11.   Write a program that takes user id and password as input and save in a cookie if they match
        and display the details of user in the next from by using the user id from the cookie.

12. Create a Web from that contains a data grid and a drop down list and display the detail of the students (stored in a table) having branch as selected from drop down list.

13. Create a web form that contains an ad rotator.

14. Create a window form that takes date from the user and display the day corresponding to that date in a label.

15. Create a web form that contains a button. On clicking that button a question and a text box to put answer should be appeared and also a timer is started and user must be given 1 minute to answer the question and after that a form containing the message "your time is over" should be appeared.

WEB TECHNOLOGIES LAB
CSE-36P3

P   **On Semester Evaluation: 120 Marks**
2   **End Semester Evaluation: 80 Marks**

LIST OF EXPERIMENTS:

1. Create a menu or a table of content web page. Each menu item or section of the table of content should load a different web page. For example, if the user clicks on menu one or section I then the link should take him to respective menu html or section and so on.

2. Design the following Form on WEB Pages:
                Employee Details of the Company

Type the Password

Employee Code

Employee Name

City

Benefits   M☐thly   Daily   ☐

Grade   ◯   B   ◯

                     OK

3. Write a program in HTML5 to create a list using <datalist> tag.
4. Write a program in HTML5 to include audio and video in your web page.
5. Write a program in JAVASCRIPT to check that the string is palindrome or Not.

6.
(a) Write a Program in JAVA Script to make an email registration form.
(b) Validate all the input fields.
(c) Display all user details on a new page.

7. Use Style sheet to modify the following:
a) Change background to modify the following.
b) Change font type, face and color.
c) Align Text.

8. Write a program in XML for creation of DTD.
9. Write a program in JavaScript for displaying browser information.
10. Write a program in JAVASCRIPT which will show the current date & time.

SOFT SKILLS AND ANALYTICAL ABILITY
SSAA-360

L   T   P
1   0   2

UNIT I   5 Weeks (5L+0T+10P)

QUANTITATIVE APTITUDE
Arithmetic/ Algebraic/ rigonometry

1.   Numbers, Divisibility Test, HCF and LCM
2.   Logarithms, Surds and Indices
3.   Functions
4.   Sequences and Series
5.   Set Theory

Word Problems

1.   Averages
2.   Percentages
3.   Profit and Loss
4.   Simple and Compound Interest
5.   Ratio, Proportion and Variation
6.   Time, Speed and Distance/ Upstream and Downstream / Train
7.   Time and Work
8.   Mixtures and Alligation

UNIT II 5 weeks (5L+0T+10P) QUALITATIVE APTITUDE AND DATA INTERPRETATION

Data Interpretation and Logical Reasoning
1.   Tabular Presentation
2.   Bar Charts
3.   X - Y Charts
4.   Pie Charts
5.   Mixed diagrams

Logical reasoning

1.   Family Tree
2.   Conditional ties and Grouping
3.   Codes
4.   Data Sufficiency

Text Books

1. Quantitative Aptitude by R.S Aggarwal
2. Verbal and Non Verbal Reasoning by R.S Aggarwal
            Syllabus 'English for Professional Purposes (EPP) for 6th Semester Students'

UNIT III   5 Weeks (5L+0T+10P)

1. **Antonyms:** It tests the extent of vocabulary. Among the four/five choices offered, the word that means the opposite of the given word is to be chosen.
2. **Analogies:** It tests the ability to see a relationship in a pair of words, to understand the ideas expressed in the relationship, and to recognize a similar or parallel relationship. Each analogy question begins with a pair of capitalized stem words. The task is to determine the relationship between the stem words and to choose the pair of words with the same relationship from the answer choices.
3. **Sentence completion:** It tests the ability to recognize relationships among parts of a sentence. These problems present an incomplete sentence. In some problems there is one word missing, in others, two words. In both cases, the word or words that best complete the sentence must be chosen from the answer choices.
4. **Reading comprehension:** It tests the ability to read and understand a passage. Passages can be about any subject (the most common themes are politics, history, science, business and the humanities), followed by a series of questions.
5. **Spotting the errors:** It tests the command over the structure of English language by finding error in the structure of a given sentence.

Antonyms and Analogies test the vocabulary. Sentence Completion and Reading Comprehension test the reading skills.

Reference Books:
1. Sharon Weiner Green and Ira K. Wolf (latest edn.): Barron's How to Prepare for the GRE, Graduate Record Examination, New York.
2. David Kaplan (2011): Kaplan New GRE 2011-2012 Premier (English), New York.
3. David Kaplan (2008): Kaplan GMAT Verbal Workbook (2nd edn.), New York.
4. Doug French (2nd edn.): Verbal Workout for the GMAT, (Graduate School Test Preparation), Princeton Review.
5. P.C. Wren and H. Martin (1995): High School English Grammar and Composition, N.D.V. Prasada Rao (ed.), S. Chand and Company, New Delhi.

ADVANCED JAVA
CSE-36E1

L	T	On Semester Evaluation: 100 Marks
3	1	End Semester Evaluation: 100 Marks

Note: - 1. **There are NINE questions in a set of question-paper. All questions carry equal marks.**

    2. **Attempt five questions in all. FIRST question is compulsory which covers the whole syllabus. Attempt ONE question from each of the other four Units.**

UNIT – I
Introduction- HTML and Forms, Collections- ArrayList, List, Enumerator, Iterator, Servlets, CGI v/s Servlet, Servlet Container, Advantages of Servlets, HttpServlet Basics- Request, Response, Request methods, web application architecture, Servlet life cycle- loading, init, service and destroy, Deployment Descriptor, Building and deploying the application using Servlet.

UNIT – II
Servlet Config and Servlet Context, Single Threaded model, Session Tracking- life cycle of HTTP session, managing sessions, User Authentication, Hidden Form Field, URL Rewriting, Session migration, Cookies, Persistence Cookies, Create, send, retrieve, expiration and destroying a cookie,

UNIT – III
Introduction to MVC Framework, Java Server Pages: Introduction, Life cycle and Initialization of JSP, working with JSP, includes and forwards, JSP custom tag, JSP Document, Implicit Objects, scope, EL Expressions, EL Implicit Objects,

UNIT – IV
Deploying web application- configuring welcome file in DD, Configuring Error pages in DD, Configuring Servelet Initialization in DD, Creating WAR Files, JDBC, JDBC Drivers, Access Database and performing database operations, RMI, Creating RMI applications, security configuration,

Text Books:

1. Head First Servlets and JSP by Kathy Sierra and Bert Bates, O'REILLY 2009.
2. Java EE 5 for Beginners by Ivan Bayross, Sharanam Shah, SPD 2008.
3. Java Servet Programming by Jason Hunter with William Crawford, O'REILLY 2005.

Reference Books:

1. Java Servlet and JSP Cookbook, O'REILLY 2009.

IT FOUNDATION PROGRAM-I
CSE-36E2

L	T		On Semester Evaluation: 100 Marks
3	1		End Semester Evaluation: 100 Marks

Note: - 1. **There are NINE questions in a set of question-paper. All questions carry equal marks.**

2. **Attempt five questions in all. FIRST question is compulsory which covers the whole syllabus. Attempt ONE question from each of the other four Units.**

UNIT-I
Introduction to Computer Systems
- To explain various terminologies like hardware, software (application vs. system), firmware, program and data.CPU: functions such as fetch, decode and execute of an instruction.
- Classification of Memory: Internal, Primary and Secondary. Volatile/Non-Volatile
- Comparison of different types of memories them with respect to speed and volume.
- Different types of information kept in each of the above mentioned memories.
- To explain the usage of I/0 devices and examples. Requirement of Bus : functionality and Types,. Computer Configuration To explain various components of computer(like processing units, memory). Execution of Instructions
- To explain various phases involved in execution of an instruction
- Language translators To make the trainees to understand the need of a Compiler, Assembler and Interpreter

UNIT-II
Problem Solving Techniques
- Introduce essential skills for a software engineer; focusing on problem solving and analytical skills, Logic To formulate analytical and logical thinking for solving computational problems
- Introduction to problem solving Analyze and classify different problems based on control flow
- Introduction to algorithms: Define algorithm and it's properties, Implementation of algorithms using flowchart, Introduce flow charting using RAPTOR tool for different computational problems which involves sequence, selection and iteration concepts
- Searching and sorting algorithms, Introduce standard searching and sorting algorithms with flow chart e.g. linear search, binary search, bubble sort and selection sort
- Introduction and classification to Data Structures, Introduce the concept of different data structures and their usage in different applications
- Basic Data Structures: Introduce array, record, link list, stack and queue Advanced Data Structures, Introduce tree, graph and hashing

UNIT-III
Programming and Testing
- To introduce Programming Paradigms and Pseudo code, To introduce the participants to algorithmic thinking, Introduction to pseudo code, trace table and dry run ,Programming Style

- Basic Programming concepts, Character data type Explain the basic data types, concept of variables, constants, ASCII character set and operators
- Recap of Control structures: Bring in concept of selection/condition by the usage of if and switch statements, Bring in concept of iteration by the usage of while, do while and for loops
- To introduce coding standards and best practices that are used in real life projects, To introduce industry coding standards
- Introduction and Demonstration of basic Data Structure, 1-D and 2-D array, Introduce the concept and demonstrate the storage of data items in a 1-D Array and 2-D Array
- Demonstration of stack using Arrays To enable participants to understand and   String handling functions and use of pointers Explain string manipulation functions with demo programs Revision and Practice Session
- To introduce Code Optimization techniques Ability to write optimized code
- Recap of functions Introduce the concept of modularity, reusability of code using functions, problem solving using top down approach by division into sub-problems
- To introduce SDLC Unit testing Experience Project life cycle, To introduce Unit Testing and different

Books:
1. Andrew S. Tanenbaum, Structured Computer Organization, PHI, 3rd ed., 1991
2. Silberschatz and Galvin, Operating System Concepts, 4th ed., Addision-Wesley, 1995
3. Dromey R.G., How to solve it by Computers, PHI, 1994
4. Kernighan, Ritchie, ANSI C language PHI,1992
5. Wilbert O. Galitz, Essential Guide to User Interface Design, John Wiley, 1997
6. Alex Berson, Client server Architecture, Mc Grew Hill International, 1994
7. Rojer Pressman, Software Engineering-A Practitioners approach, McGraw Hill, 5th ed., 2001
8. Alfred V Aho, John E Hopcroft, Jeffrey D Ullman, Design and Analysis of Computer Algorithms, Addison Wesley Publishing Co., 1998
9. Henry F Korth, Abraham Silberschatz, Database System Concept, 2nd ed. McGraw-Hill International editions, 1991
10. Brad J Cox, Andrew J.Novobilski, Object – Oriented Programming – An evolutionary approach, Addison – Wesley, 1991

MULTIMEDIA, GAMING AND ANIMATION
CSE-36E3

L	T		On Semester Evaluation: 100 Marks
3	1		End Semester Evaluation: 100 Marks

Note: - 1. **There are NINE questions in a set of question-paper. All questions carry equal marks.**

2. **Attempt five questions in all. FIRST question is compulsory which covers the whole syllabus. Attempt ONE question from each of the other four Units.**

UNIT-I
Basics of Multimedia Technology: Multimedia introduction & emerging applications, Multimedia information representation, Framework for multimedia systems, Multimedia devices, Multimedia presentation & authoring professional tools, Brief survey of speech recognition and generation, MIDI, Data models for multimedia and hyper media information.

UNIT-II
Text Audio Video & Image Compression: Introduction to compression, Text compression: Static Huffman coding, Dynamic Huffman Coding, Arithmetic Coding, Lempel- Ziv Coding, Audio compression & decompression, GIF, TIFF, JPEG, MPEG (Motion video compression standard), DVI technology, Video Compression Techniques, Evaluating a compression system.

UNIT-III
Multimedia Services: Multimedia services over the public network: Multimedia system service architecture, Network Services, Network Protocol, Media stream protocol, Hyperapplications, Barriers to widespread use. Multimedia Interchange: Real Time interchange, QMF, MHEG. Multimedia Conferencing: Teleconferencing system.

UNIT-IV
Animation & Virtual Reality: Introduction to Animation, Animation techniques & animation file formats, Introduction to MAYA, Applications of virtual reality, intelligent multimedia systems, Desktop virtual reality, VR operating system, Virtual environment displays & orientation making, Visual coupled system requirement, Intelligent VR software systems.

Text Books:
1. Multimedia Systems by John. F. Koegelbuford.
2. Multimedia Communication by Fred Hallsall.

Reference Books:
1. Multimedia: Computing, Communication & application by Ralf Steinmetz, Klara Nahrstedt.
2. Multimedia Making It Work by Tay Vaughan.
3. Multimedia Communication System: Technique, Standard & N/w by K.R Rao, Zoran S.Bojkovic

ADVANCED JAVA LAB
CSE-36EP1

P   **On Semester Evaluation: 120 Marks**
2   **End Semester Evaluation: 80 Marks**

Note: All the experiments are to be performed by the students.

1. Write a program to demonstrate the life cycle of a servlet.
2. Write a program to create a servlet that counts the times it has been accessed, the number of instances created by the server, and the total times all of them have been accessed.
3. Write a program to implement MVC framework. Design three classes for model view and controller.
4. Write a program to access the value of servlet init parameters and context init parameters.
5. Create a servlet Listener that just counts the number of running http sessions and prints the details whenever a session gets created or destroy. Create three jsp files adduser.jsp that will add user in the session variable, destroysession.jsp that will invalidate the session, index.jsp that will display the list of users
6. Create a shopping cart in jsp and use session tracking API of servlet to store information about shopping session and display items stored in the session.
7. Create a servlet that will display a form containing username and password, create cookies to store user information and when the user again visit the page display the value of username and password in the form.
8. Create an Array List that store the information of 10 employees in a java file. Create a jsp page to display information of those employees.

IT FOUNDATION PROGRAM LAB
CSE-36EP2

P   **On Semester Evaluation: 120 Marks**
2   **End Semester Evaluation: 80 Marks**

Note: At least four experiments are to be performed from each unit as per IT Foundation

Program   Syllabus (CSE-324). The detailed List of experiments is to be decided as per the

Campus Connect Program of Infosys Technologies.

MULTIMEDIA LAB
CSE-36EP3

P   **On Semester Evaluation: 120 Marks**
2   **End Semester Evaluation: 80 Marks**

1. Perform the following using Multimedia Software:
   - Video Capturing
   - Video Editing and
   - Creating Video CD.
2. Animate a ball by changing it color, size, & position.
3. Animate the object using frame to frame and tweened animation in Flash.
4. Using Adobe Deluxe Photoshop edit a digital photo by changing the background color, changing the theme, changing the part of the photo, creating the different parts of the photo and edit them.
5. Animate the following:
   - Image
   - Banner Text
6. Perform the following using Multimedia Software:
   - Clip a portion of an audio wave file
   - Add another audio file to the above clipped file
7. Perform the following using multimedia software:
   - Extract audio from video file like .avi/.dat/.mpeg and save it in MP3
   - Change the format of above audio file into midi/ wav/ asf/ wm/ cda
8. Perform the following using Multimedia software:
   - Capture video with web camera.
   - Add the required audio.
   - Synchronize the Audio and Video
9. Create a documentary film of your Department, which includes audio, Video, graphics, images and animation.
10. Create a website of your department using HTML tags.