

COURSE ID: 26

Course Name : NETWORK ADMINISTRATION
Course Code : ITE401
Course Abbreviation : ENAD

TEACHING AND EVALUATION SCHEME:

Pre-requisite Course(s) : ITE306 Computer network
Teaching Scheme: MPECS 2013

Scheme component	Hours / week	Credits
Theory	3	5
Practical	2	

Evaluation Scheme :

Mode of Evaluation	Progressive Assessment		Term End Examination			Total
	Theory	Practical	Theory Examination	Term Work	Oral Examination (External)	
Details of Evaluation	Average of two tests of 20 marks each	i. 25 marks for each practical ii. One PST of 25 marks	Term End Theory Exam (03 hours)	-	As per Proforma-I	
Marks	20	--	80	-	25	125

Rationale:

This subject is network application based subject. It gives the practical knowledge of designing computer network. This subject covers the installation and configuration of any network operating system. With the proper configuration of operating system on the server, the students will be able to manage and administer the network resources. This subject also covers network maintenance, troubleshooting tools and network security.

Objectives:

The students will be able to know:

- 1) Design of computer network
- 2) Different types of network directory services
- 3) Administer the network operating system
- 4) Troubleshoot and repair the network faults
- 5) Understanding Security issues in networking

CONTENT:

A. THEORY :

Section I

Sr. No.	Topics / Sub-topics	Lectures (Hours)	Theory Evaluation (Marks)
1	IMPLEMENTATION OF NETWORK 1.1 Network Design Overview 1.1.1 Reasoning the need 1.1.2 Seeking approval 1.2 Designing a home or small office network 1.2.1 Selecting computers 1.2.2 Selecting a networking protocol - Choosing a network medium - Choosing a network speed 1.2.3 Expanding the network	04	08
2	NETWORK CONNECTION AND PRINTING SERVICES 2.1 Dynamic Host Configuration Protocol (DHCP) 2.1.1 Origins - RARP , BOOTP (introduction) 2.1.2 DHCP Objectives - IP address assignment - TCP/IP Client configuration 2.1.3 DHCP Architecture - DHCP packet structure - DHCP Message Type option 2.2 Remote Network Access 2.2.1 Public Switched Telephone Network (PSTN) 2.2.2 Integrated Services Digital Network (ISDN) 2.2.3 Digital Subscriber Line (DSL) 2.3 Understanding Network Printing Concepts 2.3.1 Network Printing Issues 2.3.2 Printer Connection 2.3.3 Printer Administration	08	12
3	THE DOMAIN NAME SYSTEM 3.1 Need For DNS 3.2 Name Space 3.2.1 Flat Name Space 3.2.2 Hierarchical Name Space 3.2.3 Domain Name space	06	12

Sr. No.	Topics / Sub-topics	Lectures (Hours)	Theory Evaluation (Marks)
	3.3 DNS in Internet 3.3.1 Generic top level domains 3.3.2 Country-code domains 3.2.2 Inverse Domain 3.2.3 Registrar 3.4 DNS Resolution 3.4.1 Resolvers 3.4.2 DNS Message Header 3.4.3 Types of Records - Question Record - Resource Record 3.4.4 Root Name Server		
4	ACTIVE DIRECTORY ARCHITECTURE 4.1 Object types 4.2 Object Naming 4.2.1 Canonical Names 4.2.2 LDAP notation 4.2.3 Globally unique identifiers 4.2.4 User principle names 4.3 Domain, Trees and Forests 4.4 DNS and Active directory 4.5 Global Catalog Server	06	08

Section II

Sr. No.	Topics / Sub-topics	Lectures (Hours)	Theory Evaluation (Marks)
5	NETWORK MAINTENANCE 5.1 Backups 5.1.1 Backup Hardware 5.1.2 Backup Software Functions 5.2 Antivirus Policies 5.2.1 Types of Viruses 5.2.2 Preventing virus infections 5.3 Patches and Updates 5.3.1 Major updates 5.3.2 Patches 5.3.3 Driver Updates 5.3.4 Software upgrades	08	14

Sr. No.	Topics / Sub-topics	Lectures (Hours)	Theory Evaluation (Marks)
6	<p>MANAGEMENT AND TROUBLESHOOTING TOOLS</p> <p>6.1 Operating System Utilities</p> <p>6.1.1 NET</p> <p>6.1.2 NET CONFIG</p> <p>6.1.3 NET DIAG</p> <p>6.1.4 NET START and NET STOP</p> <p>6.1.5 NET SESSION</p> <p>6.1.6 Net Watcher</p> <p>6.2 TCP/IP Utilities</p> <p>6.2.1 Ping</p> <p>6.2.2 Traceroute</p> <p>6.2.3 Route</p> <p>6.2.4 Netstat</p> <p>6.2.5 Nslookup</p> <p>6.2.6 Ipconfig</p>	06	12
7	<p>NETWORK SECURITY</p> <p>8.1 Firewalls</p> <p>8.1.1 Types of firewalls</p> <p>8.1.2 Firewall configuration</p> <p>8.1.3 Limitations of firewalls</p> <p>8.2 IP Security</p> <p>8.2.1 Introduction</p> <p>8.2.2 IPSec Overview</p> <p style="padding-left: 20px;">- Introduction , IPSec protocols , IKE protocol , Security Association</p> <p>8.2.3 Authentication Header(AH)</p> <p style="padding-left: 20px;">- AH format , Dealing with replay attacks , Modes of operation</p> <p>8.2.4 Encapsulating Security Payload(ESP)</p> <p style="padding-left: 20px;">- ESP format , Modes of operation</p> <p>8.2.5 IPSec Key Management</p> <p style="padding-left: 20px;">- Introduction , Oakley key determination protocol, ISAKMP (Packet Format Only)</p> <p>8.3 Virtual Private Networks(VPN)</p> <p>8.3.1 Introduction</p> <p>8.3.2 VPN Architecture</p>	10	14
<p>Semester end exam question paper should be such that total marks of questions on each topic is one and half times the marks allotted above but the candidates are able to attempt questions of the above allotted marks only.</p>			

Specification table for setting question paper for semester end theory examination

Section / Topic no.	Name of topic	Distribution of marks (level wise)			Total marks
		Knowledge	Comprehension	Application	
I / 1	Implementation of network	02	04	02	08
I / 2	Network connection and Printing services	06	04	02	12
I / 3	The Domain Name System	02	05	05	12
I / 4	Active Directory Architecture	03	03	02	08
II / 5	Network Maintenance	04	06	04	14
II / 6	Management and Troubleshooting tools	04	04	04	12
II / 7	Network Security	04	06	04	14

Semester end exam question paper should be such that total marks of questions on each topic is one and half times the marks allotted above but the candidates are able to attempt questions of the above allotted marks only.

Laboratory experiences and related skills developed.

Sr. no	Laboratory experience	Skills developed
1	Identifying and recognizing network components	<ol style="list-style-type: none"> 1. Recognize the functions of various ports on back of computer 2. Distinguish between various types of network
2	Study of Server OS	<ol style="list-style-type: none"> 1. Study of Server Operating System(CASE STUDY-Recent SERVER OS)
3	Installation of server operating system(e.g Windows Server 2000/2003)	<ol style="list-style-type: none"> 1. Understanding hardware requirements and compatibility 2. Determining disk partitioning options 3. Choosing file system 4. Choosing Licensing mode 5. Deciding which protocol to install 6. Determining Domain and workgroup membership
4	Installing Active directory	<ol style="list-style-type: none"> 1. Understanding the concept of active directory
5	User account management	<ol style="list-style-type: none"> 1. Creating an Account 2. Disabling, renaming and enabling an Account 3. Moving an Account 4. Changing an Accounts password 5. Deleting an Account
6	Security group management	<ol style="list-style-type: none"> 1. Creating domain level and global security groups
7	Installing and Configuring a network capable print device	<ol style="list-style-type: none"> 1. Installing a printer 2. Print spooler service 3. Viewing printer preferences

8	Installing DHCP	1. Installing and Configuring DHCP Server
9	Installing DNS Services	1. Understanding the installation of DNS
10	Network Troubleshooting	1. Operating System Utility – Execution Of Commands With all Options
11	Network Troubleshooting	1. TCP/IP Utility – Execution Of Commands With all Options
12	Visit Report	Report based on industrial visit

Progressive Skills Test :

Criteria for Continuous Assessment of Practical work and Progressive skill Test:

Sr. no	Criteria	Marks allotted
1	Attendance at regular practical	05
2	Preparedness for practical & Neat & complete Diagram.	05
3	Observations & computer handling skill	05
4	Logical thinking and approach	05
5	Oral Based on Lab work and completion of task	05
TOTAL		25

Assessment at semester end practical exam as per Pro-forma I.

Criteria for assessment at semester end practical exam:

Sr. no	Criteria	Marks allotted
1.	Technical ability	10
2.	Logical approach	10
3.	Communication skill	05
TOTAL.		25

INSTRUCTIONAL STRATEGIES :

- 1) Lectures and discussions.
- 2) Laboratory experiences and laboratory interactive sessions.
- 3) Time bound assignments.

Teaching and Learning resources, including references:

- 1) Chalk-board.

- 2) Transparencies
- 3) Presentation Slides

REFERENCE MATERIAL:

a) Books / Codes

Sr. No.	Author	Title	Publisher
1.	Craig Zacker	The Complete Reference Networking (For Chapters 1, 2, 4)	McGraw Hill
2.	Microsoft Press	Microsoft Network + Certification training kit(For Chapters 2, 6)	Microsoft Press
3	Atul Kahate	Cryptography and Network Security (For Chapter 8)	McGraw Hill

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COURSE ID: 27

Course Name : Software Engineering
Course Code : ITE402
Course Abbreviation : ESOE

TEACHING AND EVALUATION SCHEME:

Pre-requisite Course(s) : NIL
Teaching Scheme :

Scheme component	Hours / week	Credits
Theory	3	3
Practical	NIL	

Evaluation Scheme:

Mode of Evaluation	Progressive Assessment		Term End Examination			Total
	Theory	Practical	Theory Examination	Term Work	Oral Examination (Internal)	
Details of Evaluation	Average of two tests of 20 marks each	--	Term End Theory Exam (03 hours)	As Per Proforma-III	--	
Marks	20	--	80	25	--	125

RATIONALE:

Today computer Software is the single most important technology on the world stage. Software's are used by almost all peoples for various purposes such as withdrawing payments from ATM machines, paying bills of electricity, telephone using ECS systems. Airline, railway tickets reservation online etc. People can work with computers flawlessly over a long period of time. One can easily modify, upgrade the Software without any problem or error. This subject helps the students to develop, design, analyze, test & implement the Software project during the diploma courses in future.

OBJECTIVES:

- 1) Plan & develop the frame work of project.
- 2) Use the principles of communication, planning, modeling construction & deployment.
- 3) Learn different software life cycle models.
- 4) Learn requirement analysis for software development.
- 5) Student should learn how to calculate estimate of s/w.

- 6) Apply testing strategies & methods on Software projects.
- 7) Compare various testing methods.
- 8) Identify the duties & responsibilities of People, team leader & stakeholders while planning the Software project.
- 9) Schedule the project according to time, size, shape, utility & application.
- 10) Monitor & manage the risk during the design of Software project.
- 11) Use the parameters of Software quality assurance.
- 12) Learn the maintenance of s/w.

CONTENT:

B. THEORY :

Section I

Sr. No.	Topics / Sub-topics	Lectures (Hours)	Theory Evaluation (Marks)
1	INTRODUCTION 1.1 Evolving Role of Software 1.2 What is Software Engg and Software Engg. approach Software Definition , Software Characteristics Software Components, Software applications. 1.3 Role of Management in Software Development	04	08
2	SOFTWARE LIFE CYCLE MODELS 2.1 Definition of software life cycle 2.2 Software life cycle Models 2.2.1 Build and fix model 2.2.2 Waterfall model 2.2.3 Prototyping Model 2.3.4 Spiral Model 2.4.5 The Rapid Application Development (RAD) Model 2.5 Selection of Life Cycle Model	06	10
3	SOFTWARE REQUIREMENT ANALYSIS 3.1 Requirements Engg. Crucial Process Steps , 3.2 Types of Requirements(known, unknown, undreamt) 3.2.1 Functional and Non functional requirement 3.2.2 User and System requirement	08	12

Sr. No.	Topics / Sub-topics	Lectures (Hours)	Theory Evaluation (Marks)
	3.3 Requirement Elicitation 3.3.1 Interviews 3.3.2 Brainstorming sessions 3.3.3 Facilitated Application specification Technique(FAST) 3.4 Requirement Analysis 3.4.1 Data Flow Diagram – Leveling(level 0, 1) 3.4.2 Data Dictionaries 3.4.3 Entity- Relation Diagrams 3.5 Characteristics of good SRS, format of SRS with example		
4	SOFTWARE PROJECT PLANNING 4.1 Planning and its importance. 4.2 Activities during project planning 4.3 Size estimation 4.3.1 Lines of code(LOC) 4.3.2 Function Count 4.3.3 cost estimation 4.4 Risk Analysis 4.4.1 What is Risk 4.4.2 Typical Software Risks 4.4.3 Risk Management Activities	08	10
Semester end exam question paper should be such that total marks of questions on each topic is one and half times the marks allotted above but the candidates are able to attempt questions of the above allotted marks only.			

Section II

Sr. No.	Topics / Subtopics	Lectures (Hours)	Theory Evaluation (Marks)
5.	SOFTWARE DESIGN AND IMPLEMENTATION 5.1 What is Design - Conceptual and Technical design - Objectives of designs - Why Design is important 5.2 Modularity - Coupling, Cohesion	06	14

	<p>5.3 Strategy of Design- Bottom up, top Down, Hybrid</p> <p>5.4 Program Language Characteristics</p> <ul style="list-style-type: none"> - A Syntactic and semantic Model - Choosing a Language <p>5.5 Efficiency – Code Efficiency, Memory Efficiency, Input /Output Efficiency</p>		
6	<p>SOFTWARE QUALITY ASSURANCE AND TESTING</p> <p>6.1 Software Quality and Software Quality Assurance</p> <ul style="list-style-type: none"> - Software Quality Factors - Software Quality Assurance - Software Quality Activities <p>6.2 Testing Process</p> <ul style="list-style-type: none"> - What is Testing? - Why should we Test? - Who should do the testing? - What should we test? - Terminology – error, mistake, bug, fault, failure <p>6.3 Test ,Test case and Test Suite, verification & validation ,Alpha , Beta & Acceptance testing</p> <p>6.4 Levels of testing</p> <ul style="list-style-type: none"> - Unit, Integration, System testing - Basic Concept of White Box ,Black Box Testing 	08	14
7	<p>SOFTWARE MAINTENANCE</p> <p>7.1 What is software maintenance</p> <p style="padding-left: 20px;">7.1.1 Categories of Maintenance</p> <p>7.2 Problems during Maintenance</p> <p>7.3 Potential Solution to Maintenance Problems</p> <p>7.4 The maintenance Process</p> <ul style="list-style-type: none"> - Program Understanding - Generating Particular maintenance Proposal - Ripple Effects - Modified Program Testing - Maintainability 	08	12
<p>Semester end exam question paper should be such that total marks of questions on each topic is one and half times the marks allotted above but the candidates are able to attempt questions of the above allotted marks only.</p>			

Specification table for setting question paper for semester end theory examination:

Section / Topic no.	Name of topic	Distribution of marks			Total marks
		Knowledge	Comprehension	Application	
I / 1	Introduction	04	03	01	08
I / 2	Software Life Cycle	03	04	01	08
I / 3	Software Requirement Analysis	05	05	02	12
I / 4	Software Project Planning	04	04	04	12
II / 5	Software Design and Implementation	05	05	04	14
II / 6	Software Quality Assurance & Testing	06	06	02	14
II / 7	Software Maintenance	05	05	02	12

Semester end exam question paper should be such that total marks of questions on each topic is one and half times the marks allotted above but the candidates are able to attempt questions of the above allotted marks only.

C. TERM WORK

Term work shall consist of the following:

i) Laboratory experiments and related skills to be developed :

Sr. No.	Title of Experiment	Skills to be developed
01	Introduction To Software Engg	To study Software Engg concepts, role and Characteristics
02	Study of Life cycle Models	To Study different Life cycle Models
03	Study Of Requirements	Do requirement analysis for suggested system
04	Study Of SRS	Do SRS for suggested system
05	Study Of Project Planning	To Study Project Planning, its importance & activities during project planning
05	Study of Software Design	To perform the function oriented diagram : DFD
06	Study of Software Design	To perform the function oriented diagram : ER Diagram
07	Study of Testing	To perform various testing using the testing tool unit testing, Integration testing, System Testing
08	Study of Software Effort	Estimating effort using FP Estimation for chosen system.
09	Study Of Software Maintenance	To Study Software Maintenance, Categories & Problems

INSTRUCTIONAL STRATEGIES:

Instructional Methods:

- 1) Lectures and discussions.
- 2) Time bound assignments.

Teaching and Learning resources:

1. Books
2. Transparencies
3. Power Point Presentation
4. Self-learning

REFERENCE MATERIAL:

a) Books / Codes

Sr. No.	Author	Title	Publisher
1.	K.K. Agrawal & Yogesh Singh	Software engineering	Copyright © Age International
2.	Rogar Pressman	Software Engineering A Practitioner's Approach	McGraw Hill Education
3	Jalote Pankaj	An Integrated Approach to Software Engineering	Narosa Publication New Delhi

b) Websites for references:

- <http://cplus.about.com/od/beginnerctutoriali/a/blctut.htm>
- <http://computer.howstuffworks.com/c.htm>
- Objective questions:
<http://www.indiastudycenter.com/studyguides/sc/objtest/default.asp>

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COURSE ID: 28

Course Name : DATA STRUCTURE
Course Code : ITE403
Course Abbreviation : EDAS

TEACHING AND EVALUATION SCHEME:

Pre-requisite Course(s) : ITE104/ IT304
Teaching Scheme: MPECS 2013

Scheme component	Hours / week	Credits
Theory	3	7
Practical	4	

Evaluation Scheme:

Mode of Evaluation	Progressive Assessment		Term End Examination			Total
	Theory	Practical	Theory Examination	Term Work	Practical Examination (External)	
Details of Evaluation	Average of two tests of 20 marks each	i. 25 marks for each practical ii. One PST of 25 marks	Term End Theory Exam (03 hours)	Nil	Proforma-I	
Marks	20	--	80	--	50	150

RATIONALE:

For efficient implementation of algorithms, proper organization and structuring data is essential. The primary objective of this course is to provide the student with an advanced treatment of computer programming with an emphasis on design and implementation of abstract data structures. The coding language is C/C++.

OBJECTIVES:

- The student should be able to
1. To develop & improve skill in programming in systematic way & preparing the students for advanced computer courses.
 2. To understand elementary data structure & algorithm those build & manipulate them .
 3. To choose appropriate data structure for modeling given problem.
 4. To analyze & compare various methods to solve the problem.
 5. To work in small teams to accomplish all the objectives above

CONTENT:

D. THEORY :

Section I

Sr. No.	Topics / Sub-topics	Lectures (Hours)	Theory Evaluation (Marks)
1	<p>INTRODUCTION TO DATA STRUCTURE</p> <p>1.1 General Concept of Data - - Data, Data Types and their classification, Data variables, Constant and their storage representation</p> <p>1.2 Data Structure and their Types, Abstract data types, Pseudo code</p> <p>1.3 operations on data structures – insertion, deletion, searching, traversing, sorting</p> <p>1.4 Recursion-Direct, Indirect recursion</p> <p>1.5 Algorithms</p> <p>1.5.1 Complexity of algorithms in terms of time and space</p> <p>1.5.2 Big ‘O’ Notation, Omega Ω notation, theta Notation</p>	05	08
2	<p>SORTING & SEARCHING</p> <p>2.1 Sorting-An Introduction</p> <p>2.2 Sorting Techniques –</p> <p style="padding-left: 20px;">2.2.1 Bubble Sort</p> <p style="padding-left: 20px;">2.2.2 Selection Sort</p> <p style="padding-left: 20px;">2.2.3 Quick Sort</p> <p style="padding-left: 20px;">2.2.4 Insertion Sort</p> <p style="padding-left: 20px;">2.2.5 Merge Sort</p> <p>2.3 Searching-An Introduction</p> <p style="padding-left: 20px;">2.3.1 Importance of searching</p> <p style="padding-left: 20px;">2.3.2 Linear Search</p> <p style="padding-left: 20px;">2.3.3 Binary Search</p>	07	12
3	<p>STACK</p> <p>3.1 Definition & Example of Stack, Stack as an Abstract Data Type</p> <p>3.2 Primitive operations of stack</p> <p>3.3 Representation of Stack through Arrays</p> <p>3.4 Applications of stack</p> <p>3.5 INFIX, POSTFIX & PREFIX representation.</p> <p>3.6 Stack and Recursion- Factorial & Fibonacci sequence using recursion.”</p>	07	10

Sr. No.	Topics / Sub-topics	Lectures (Hours)	Theory Evaluation (Marks)
4	<p>QUEUES</p> <p>4.1 Definition & Example of Queue, Queue as an Abstract Data Type</p> <p>4.2 Representation of Queue</p> <p>4.3 Applications of Queue</p> <p>4.4 Operations on queue: Searching, Insertion, Deletion.</p> <p>4.5 Circular Queue</p> <p>4.6 Priority Queue</p> <p>4.7 Double Ended Queue</p>	05	10

SECTION – II

5	<p>LINKED LIST</p> <p>5.1 Definition & Example of Linked List</p> <p>5.2 Terminologies Node, Address, Pointer, Information, Next, Null Pointer, Empty list etc.</p> <p>5.3 Operations on list - Searching, Insertion and Deletion</p> <p>5.4 Types of lists - Linked list and Circular list(Operation), Doubly linked list(Introduction)</p> <p>5.5 Implementation of stack, queue using linked list</p>	08	12
6	<p>TREES</p> <p>6.1 Terminology- tree, node, leaf node, father, Binary Tree, Binary Search Tree, height of tree, descendant, ancestor, strictly binary tree, degree, level of node, complete binary tree</p> <p>6.2 Applications of trees</p> <p>6.3 Operation on binary tree-copy, equal</p> <p>6.4 Operations on Binary Search Tree – Insertion, searching , deletion</p> <p>6.5 Traversing methods- Pre-order, In-order and Post-order</p>	06	10
7	<p>GRAPH</p> <p>7.1 Terminology - graph, node (vertices), arcs (edge), directed</p>	6	10

Sr. No.	Topics / Sub-topics	Lectures (Hours)	Theory Evaluation (Marks)
	graph, in-degree, out-degree, adjacent, successor, Predecessor, weight, weighted graph, path, length, cycle, Connected graph, multigraph, complete graph, strongly Connected graph 7.2 Sequential Representation of Graphs 7.3 Wars hall's Shortest Path algorithm, Depth in search, Breadth first search 7.4 Introduction to Multiway tree		
8	HASHING 8.1 Basic concept of hashing 8.2 Hash functions 8.3 Collision Resolution by linear probing 8.2 Inserting ,Deleting and Searching items using hash tables	04	08
Semester end exam question paper should be such that total marks of questions on each topic is one and half times the marks allotted above but the candidates are able to attempt questions of the above allotted marks only.			

Specification table for setting question paper for semester end theory examination

Section / Topic no.	Name of topic	Distribution of marks (level wise)			Total marks
		Knowledge	Comprehension	Application	
I / 1	Introduction to data structure	02	02	04	08
I / 2	Searching & Sorting	04	04	04	12
I / 3	Stacks	02	04	04	10
I / 4	Queues	02	04	04	10
I / 5	Linked List	04	04	04	12
II / 6	Trees:	04	02	04	10
II / 7	Graphs	04	02	04	10
II / 8	Hashing	02	02	04	08

Semester end exam question paper should be such that total marks of questions on each topic is one and half times the marks allotted above but the candidates are able to attempt questions of the above allotted marks only.

Laboratory experiences and related skills developed.

Sr. no	Laboratory experience	Skills developed
1	Implementation of Bubble sort	<ol style="list-style-type: none"> 1. Definition of sorting 2. Understanding of Bubble sort , 3. Implementation of Bubble sort
2	Implementation of Insertion Sort	<ol style="list-style-type: none"> 1. Understanding concept of Insertion Sort 2. Implementation of Insertion Sort
3	Implementation of Selection Sort	<ol style="list-style-type: none"> 1. Understanding concept of Selection Sort 2. Implementation of Selection Sort
4	Implementation of Quick Sort	<ol style="list-style-type: none"> 1. Understanding concept of Quick Sort 2. Implementation of Quick Sort
5	Implementation of Merge Sort	<ol style="list-style-type: none"> 1. Understanding concept of merge Sort 2. Implementation of merge Sort
6	Linear and Binary Search	<ol style="list-style-type: none"> 1. Definition of searching 2. Understanding concept of Linear and Binary Search 3. Comparison between Linear Search and Binary Search 4. Implementation of Linear and Binary Search
7	Stack using array	<ol style="list-style-type: none"> 1. Understanding LIFO structure of stack 2. Implementation of push and pop operations of Stack using array
8	Recursion using stack	<ol style="list-style-type: none"> 1. Understanding the use of stack in recursion 2. Calculating factorial and Fibonacci sequence using stack
9	Linear Queue using array	<ol style="list-style-type: none"> 1. Understanding FIFO structure of linear queue 2. Implementation of operations on linear queue using array
10	Circular Queue using array	<ol style="list-style-type: none"> 1. Comparison between linear queue and circular queue 2. Implementation of operations on circular queue using array
11	Priority Queue	<ol style="list-style-type: none"> 1. Understanding concept and applications of priority queue

	using array	2. Implementation of operations on priority queue using array
12	Deque using array	1. Understanding concept of dequeue 2. Implementation of operations on dequeue using array
13	Implementation of linear list	1. Understanding and implementation of insertion, deletion, searching operations on linear linked list
14	Implementation of circular list	1. Understanding and implementation of insertion, deletion, searching operations on circular list
15	Stack using linked list	1. Implementation operations of Stack using linked list
16	Queue using linked list	1. Implementation of operations on queue using linked list
17	Binary tree	1. Understanding definition and terminologies of binary tree 2. Implementation of insertion, deletion, search operations on binary search tree 3. Implementations of binary tree traversal
18	Graph	1. Understanding the concept and terminologies of graph 2. Implementation of shortest path algorithm for graph
19	Hash functions	1. Understanding hashing and implementation of a hash function 2. Understanding and implementation of collision resolution

Criteria for Continuous Assessment of Practical work and Progressive Skill Test:

Sr. no	Criteria	Marks allotted
1	Attendance	10
2	Algorithm	10
3	Technical preparation	10
4	Logical thinking and approach	10
5	Implementation	10
	Total	50

Instructional strategies:

1. Lectures and discussions.
2. Laboratory experiences and laboratory interactive sessions.
3. Time bound assignments.
4. Group tasks

Teaching and Learning resources, including references:

1. Chalk-board.

2. Transparencies
3. Presentation Slides
4. Demonstrative video files

Books:

1. Data structure – complete Course Book : – Samarjeet kaur, Sandhir Sharma, P.P. Singh
Deep & Deep Publications Private Ltd.
2. Data structures using C And C++ :- Langsam ,Augenstein , Tenenbaum
3. Data structures (SCHAUM’s OUTLINES):- Lipschutz
4. Data structures & Program Design :- Robert L.Kruse.
5. Data Structure using C- ISRD group New Delhi

Criteria for assessment at semester end practical exam:

Sr. no	Criteria	Marks allotted
1	Technical Ability	15
2	Logical Approach	10
3	Implementation	15
4	Presentation	10
	Total	50

Assessment at semester end practical exam as per Pro-forma I

Websites:

- www.cs.auckland.ac.nz
- <http://en.wikipedia.org>
- <http://en.wikibooks.org>
- <http://www.cplusplus.com>

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COURSE ID: 29

Course Name : Web Technology
Course Code : ITE404
Course Abbreviation : EWET

TEACHING AND EVALUATION SCHEME:

Pre-requisite Course(s) : NIL
Teaching Scheme:

Scheme component	Hours / week	Credits
Theory	3	7
Practical	4	

Evaluation Scheme :

Mode of Evaluation	Progressive Assessment		Term End Examination			Total
	Theory	Practical	Theory Examination	Term Work	Practical Examination (External)	
Details of Evaluation	Average of two tests of 20 marks each	i. 25 marks for each practical ii. One PST of 25 marks	Term End Theory Exam (03 hours)	--	As per Proforma-I	
Marks	20	--	80	--	50	150

RATIONALE:

This is a technology subject. This subject requires knowledge of web page designing. It involves the technologies used today to develop interactive and sophisticated web sites such as ASP, ASP.net . Web Technology is based on dot net technology, which is a frame work, which supports many languages so that application designed in one language(like C++, COBOL, JAVA, etc) can be connected/interfaced with this frame work hence it is more flexible and advanced.

OBJECTIVES:

The students will be able to:

1. Understand built-in ASP.net objects
2. Understand ASP components
3. Connect to and manipulate database using ADO.Net
4. Use basic and advance . net controls.
5. Build applications integrated with .net Framework
6. Can do Asp Transaction.

CONTENT:

E. THEORY :

Section I

Sr. No.	Topics / Sub-topics	Lectures (Hours)	Theory Evaluation (Marks)
1	INTRODUCTION TO ASP.NET 1.1 Difference between ASP and ASP.Net 1.2 Introduction to IIS. 1.3 What is web application? Why it is used? 1.4 ASP.Net IDE. 1.5 Creation of web forms. 1.6 Using web form controls – Textbox, lable, listbox, command button, combo box, Option button, Check list box	06	10
2	USING COOKIES 2.1 What are Cookies? 2.2 Advantages and Disadvantages of Cookies 2.3 Creating a Cookies 2.4 Removing Cookies	04	06
3	APPLICATION, SESSION AND SERVER OBJECTS 3.1 Session Objects - Using session variables 3.2 Application Objects - Using application variables 3.3 Initializing Application and Session variables 3.4 Creating a global.asa file 3.5 Server object- Methods- CreateObject, Execute, HTMLEncode, MapPath, Transfer 3.6 Adding assembly file,web.config file.	10	12
4	INTEGRATING WITH DATABASE 4.1 Microsoft’s universal data access strategy – OLEDB, ODBC, RDO, ADO,ADO.net 4.2 The Connection object 5.1.1 Making a connection 5.1.2 Using data link file 5.1.3 Closing a connection 4.3 Using Errors collections	10	12
Semester end exam question paper should be such that total marks of questions on each topic is one and half times the marks allotted above but the candidates are able to attempt questions of the above allotted marks only.			

Section II

Sr. No.	Topics / Subtopics	Lectures (Hours)	Theory Evaluation (Marks)
5	<p>ADO.NET</p> <p>5.1 ADO.Net in ASP.Net - Connection and Command Object. - Dataset and data reader. - Data table and Data row. - Web.config introduction. - Binding data with data grid. - Accessing and manipulating data using command Object.</p> <p>5.2 The Recordset and Field object - Executing a query - Opening a recordset - Navigating in a recordset</p> <p>5.3 ADO.Net : Server control templates and Data binding techniques - Understand data access in .Net using ADO.Net - Data List and Data Grid Controls.</p>	10	12
6	<p>ASP TRANSACTIONS AND E-MAIL</p> <p>- Transactions. - Transaction db design. - CDONTS object. - Email sending web page creation.</p>	04	06
7	<p>ASP.Net Security</p> <p>7.1 What is Security 7.2 Types of security 7.3 Authentication 7.3.1 Implementing Basic Authentication 7.3.2 Integrated Windows Authentication 7.3.3 Implementing form based Authentication 7.3.4 Forms Based Authentication using a Database</p>	10	12
8	<p>XML</p> <p>8.1 The evolution of GML, SGML, HTML 8.2 The evolution of XML 8.3 What is XML? 8.3.1 Definition</p>	10	10

	8.3.2 XML as meta language 8.3.3 XML as a markup language 8.4 XML document components 8.4.1 XML declaration 8.4.2 Document Type Definition 8.4.3 Processing Instructions		
Semester end exam question paper should be such that total marks of questions on each topic is one and half times the marks allotted above but the candidates are able to attempt questions of the above allotted marks only.			

Specification table for setting question paper for semester end theory examination

Section / Topic no.	Name of topic	Distribution of marks (level wise)			Total marks
		Knowledge	Comprehension	Application	
I / 1	Intro to ASP.Net	02	04	04	10
I / 2	Using Cookies	02	02	02	06
I / 3	Application, Session And Server Objects	02	04	06	12
I / 4	ADO.Net	04	04	04	12
II / 5	Integrating With Database	02	04	06	12
II / 6	Asp transaction and Email	02	02	02	06
II / 7	ASP.Net security	02	02	08	12
II / 8	XML	02	04	04	10

Laboratory experiences and related skills developed.

Sr. no	Laboratory experience	Skills developed
1	Introduction to ASP.net Environment	.1)Introduction to .Net framework
2	Textbox, command button and Label controls Using ASP.net	1) Textbox – use of properties, methods and events 2) Label - use of properties, methods 3) Command button - use of properties, methods and events
3	Option button, Checkbox using ASP.Net	1) Difference in use of Option button, Checkbox 2) Option button - use of properties, methods and events 3) Checkbox - use of properties, methods and events
4	Listbox and Combobox using ASP.Net	1) Listbox - use of properties, methods and events 2) Combobox - use of properties, methods and events
5	Implementation of Controls in ASP.net	1)Design registration form of college using text box, text area, radio list, check list,button etc. using Autopostback property. 2). Simple application for following function: (1) Login (2) Surfing (3) Logout
6	Reading & Writing cookies	1. To understand cookies and its advantages/disadvantages 2. To know how to read and write cookies
7	Accessing session variables	1. To understand Session object, SessionID, Session.Timeout and Session.Abandon

		2. To make use of Session Variables
8	Creating Global.asa file	1. To understand OnStart and OnEnd events of Session and Application obj. 2. To know how to create Global.asa file
9	Database Connection	1. To establish connection to database
10	Database Manipulation	1. To manipulate the data in database
11	Database Implementation	1. Design Application which sends email.
12	Online Application	1. Online application (student, employee, product, shopping mall) (a) Using dataset, data reader. (b) Same application using data table and data row. (use data grid to display data) (c) Bind the data to data grid using properties / templates. (d) Display details (student, employee, product, etc.) using data list. (4 cols per line)
13	XML DTD	1. To learn XML Document Type Definition
14	XML	1. Any 2 example programs based on XML

Criteria for Continuous Assessment of Practical work and Progressive Skill Test:

Sr. no	Criteria	Marks allotted
1	Attendance	5
2	Preparedness for practical	4
3	Technical Ability	4
4	Logical Approach	4
5	Correct figures/diagrams	4
6	Presentation	4
		25

Instructional strategies:

- 4) Lectures and discussions.
- 5) Laboratory experiences and laboratory interactive sessions.
- 6) Time bound assignments.

Teaching and Learning resources, including references:

1. Books
2. Transparencies
3. Power Point Presentation

Criteria for assessment at semester end practical exam:

Sr. no	Criteria	Marks allotted
1	Technical Ability	15
2	Logical Approach	10
3	Presentation	15
4	Applications	10
	Total	50

Assessment at semester end practical exam as per Pro-forma I

Books:

1. Active Server Pages 3.0 in 21 Days – Mitchell and Atkinson (Techmedia)
2. ASP Programming Bible
3. ASP.net -Dave Mercer TATA Mc Grow Hill
4. .net Framework- Anthony Jones
5. Wroxs Publication-Beginners
6. Wroxs Publication-Professional
7. Website: www.w3school.com

* * *

COURSE ID: 30

Course Name : LINUX
Course Code : ITE405
Course Abbreviation : ELIN

TEACHING AND EVALUATION SCHEME:

Pre-requisite Course(s) : NIL
Teaching Scheme: MPECS 2013

Scheme component	Hours / week	Credits
Theory	3	5
Practical	2	

Evaluation Scheme:

Mode of Evaluation	Progressive Assessment		Term End Examination			Total
	Theory	Practical	Theory Examination	Term Work	Practical Examination (Internal)	
Details of Evaluation	Average of two tests of 20 marks each	i.25 marks for each practical ii.One PST of 25 marks	Term End Theory Exam (03 hours)	--	As per Proforma-II	
Marks	20	--	80	--	50	150

RATIONALE:

Operating system are most essential components of computer science. Multi-user operating system like Linux is most reliable & efficient system. It is essential to study the same & explore them in-depth knowledge.

Objectives:

The students will be able to:

1. Operate Linux Operating System efficiently.
2. Implement data types and structures related to problems.
3. Solve the problems / tasks in a structured way.
4. Use basic commands in Linux.

CONTENT:

SECTION - I

Sr. No.	Topics / Sub-topics	Lectures (Hours)	Theory evaluation Marks
1	<p>Introduction to Operating System</p> <p>1.1 Definition, Role of Operating System</p> <p>1.2 Open source: Concept</p> <p>1.3 Introduction to Linux</p> <p style="padding-left: 20px;">1.3.1 History</p> <p style="padding-left: 20px;">1.3.2 Linux principles</p> <p style="padding-left: 20px;">1.3.3 Comparative study with other OS's</p> <p>1.4 Common Linux Features- Multiuser, Multitasking, Hardware support, Networking connectivity, Network servers, GUI, Application Support</p> <p>1.5 File system</p> <p>1.6 Basic hardware requirement of Linux</p> <p>1.7 Preparing for installation</p> <p>1.8 Linux installation</p> <p style="padding-left: 20px;">1.8.1 Linux installation media</p> <p style="padding-left: 20px;">1.8.2 Study File Formats (ext2,ext3,swap)</p> <p style="padding-left: 20px;">1.8.3 Partitioning</p> <p>1.9 User login-GNOME,KDE</p> <p>1.10 Understanding Shell, Kernel-Role and services</p>	07	10
2	<p>Learning Linux Basics</p> <p>2.1 passwd, su command and su -l command</p> <p>2.2 Running commands and getting help - whatis ,man and info command</p> <p>2.3 Checking login sessions with who,checking current</p>	06	12

	<p>directories with pwd command, listing directories with permissions :ls Command.</p> <p>2.4 creating directories and files : mkdir and touch command, changing directories with cd,cd ..,cd - ,removing directories with rmdir command</p> <p>2.5 working with files cp : Copies a file, mv : moves or renames a file, head :displays Beginning of File, tail : Displays End of File grep : Finding a string in a File find and locate :Finds Files</p>		
3	<p>Basic utilities</p> <p>3.1 Basic utilities cat :Displays a Text File rm: Deletes a file less and more : Displaying a Text File One Screen at a Time hostname: Displays the System Name date :Displays displays Time and Date system-config-date : To set Date and Time</p> <p>3.2 Compressing and Archiving Files Bzip2,bunzip2 and bzip2, gzip ,tar</p> <p>3.3 User group Permissions Chown, chgrp, chmod</p> <p>3.4 Links : ln command Hard links, Symbolic Links.</p> <p>3.5 Standard Input and Output</p>	07	12

	<p>The Screen as a File</p> <p>The Keyboard and Screen as Standard Input and Output</p> <p>Redirection</p> <p>Pipes</p>		
4	<p>Security Enhanced Linux</p> <p>4.1 understanding Security Enhanced Linux</p> <p>4.2 Types and roles in SELinux</p> <p>4.3 Users in SELinux</p> <p>4.4 Policies in SELinux</p> <p>4.5 Tools in SELinux</p>	03	06

SECTION – II

5	<p>System Administration</p> <p>5.1 Understanding System Administration</p> <p style="padding-left: 20px;">Using the root user account</p> <p style="padding-left: 20px;">Fdisk utility</p> <p>5.2 Administrative configuration files-</p> <p style="padding-left: 20px;">/etc(alias, fstab, group, gshadow, mtab, passwd, shadow)</p> <p>5.3 Administering Linux System</p> <p>5.4 RAID</p> <p>5.5 Checking system specification :</p> <p style="padding-left: 20px;">Commands: parted /dev/sda print,</p> <p style="padding-left: 40px;">df, df -h</p> <p style="padding-left: 40px;">du, du -h</p>	05	10
6	<p>Publishing with Linux</p> <p>6.1 Linux Text processors and word processors</p>	05	08

	6.1.1 Introduction of Open Office 6.1.2 Introduction to other word processors 6.2 Different types of Editors Emacs, vim 6.3 Printing documents with printing commands: lpr, lprm, lpc 6.4 Working with Graphics Manipulating images with GIMP Taking screen capture		
7	Using the Shell 7.1 Introduction to shell 7.2 various types of shell 7.3 Definition &. Features of default Linux Shell-bash 7.4 Understanding Shell command Line. 7.5 Filename generation and path Expansion The? Special Character The * Special Character The [] Special Character	06	08
8	Shell Programming 8.1 Understanding & setting shell variables. 8.2 Predefine variables PATH ,PSI ,BASH,BASH-VERSION, HOME, HOSTNAME, OSTYPE, PPID, UID 8.3 Parameters and variables Array variables, scalar, vector variables. 8.4 Control Structures If...then If...then...else If ...then ...elif For...in While Case 8.5 Builtin commands: type,read,exec,echo,sleep command	09	14

	8.6 Expressions Arithmetic evaluation Logical evaluation String pattern matching Operators		
	8.7 Running a script from current directory		

Specification table for setting question paper for semester end theory examination

Section / Topic no.	Name of topic	Distribution of marks (level wise)			Total marks
		Know ledge	Comprehension	Application	
I / 1	Introduction to Operating System	03	03	04	10
I / 2	Learning Linux Basics	04	04	04	12
I / 3	Basic Utilities	04	02	04	10
I / 4	System Administration	03	03	02	08
II / 5	Security Enhanced Linux	02	02	04	08
II / 6	Publishing with Linux	04	04	04	12
II / 7	Using the Shell	04	04	02	10
II / 8	Shell Programming	04	02	04	10

Laboratory experiences and related skills developed.

Sr. no	Laboratory experience	Skills developed
1	Introduction and installation of Linux OS	1. Definition of Linux 2. Advantages of linux over other operating systems. 3. Installation
2	Study of file system	1. Study of Linux file system
3	Study of pwd,ls,su,who commands	1. Syntax 2. Description 3. Options (hyphens) 4. Use of given commands
4	Study of directory related commands	1. Syntax of Mkdir,cd,rmdir commands

		<ol style="list-style-type: none"> 2. Description 3. Options (hyphens) 4. Use of commands given commands
5	Study of file related commands	<ol style="list-style-type: none"> 1. Syntax of Touch, cp, mv, head, tail commands 2. Description of this commands 3. Options (hyphens)& use of commands
6	Study of commands used to find files	<ol style="list-style-type: none"> 1. Study of commands used to find files and matching strings :Find,locate,grep
7	Study of basic utilities	<ol style="list-style-type: none"> 1 Syntax of Cat, rm, less, more, hostname,date commands 2. Description of this commands 3. Options (hyphens)& use of commands
8	Understanding system administration	<ol style="list-style-type: none"> 1. Fdisk utility 2. Administering linux system 3. Commands used to check system specification-parted,df,du
9	Study of vim and emacs editor	<ol style="list-style-type: none"> 1. Study of vim and emacs
10	Introduction to shell	<ol style="list-style-type: none"> 1. Types of shell 2. Features of bash 3. Special characters(?,*,[])
11	Introduction to shell scripting	<ol style="list-style-type: none"> 1. Definition and features of shell scripting 2. Understanding shell command line
12	Study of variables	<ol style="list-style-type: none"> 1. Types of variables 2. Study of predefines variables
13	Study of Control structures in shell programming	<ol style="list-style-type: none"> 1. If ...then ,If...then.....else,If...then...elif 2. For..in 3. While 4. Case, 5. Select
14	Study of expressions,arithmetic evaluation,logical evaluation and string	<ol style="list-style-type: none"> 1. Program to demonstrate expressions, arithmetic evaluation, logical evaluation and

	pattern matching	string pattern matching
15	Running C language program using linux	1. steps required to Run C language program using linux & program to demonstrate it.
16	Report on current trends in linux	1. New inventions 2. Recent versions of linux (different versions of different linux flavors) Cerifications available.

Criteria for Continuous Assessment of Practical work and Progressive Skill Test:

Sr. no	Criteria	Marks allotted
1	Attendance at regular practical	05
2	Preparedness for practical	05
3	Correct figures / diagrams	05
4	Logical Thinking and Approach	05
5	Application	05
	Total	25

Criteria for assessment at semester end practical exam:

Sr. no	Criteria	Marks allotted
1	Technical Ability	15
2	Logical Approach	10
3	Practical	15
4	Applications	10
	Total	50

Assessment at semester end practical exam as per Pro-forma II.

Instructional strategies:

- 1) Lectures and discussions.
- 2) Laboratory experiences and laboratory interactive sessions.
- 3) Time bound assignments.

Teaching and Learning resources, including references:

- 1) Chalk-board.
- 2) Presentation Slides
- 3) Demonstrative video files

Books:

Sr.No	AUTHOR	TITLE	PUBLICATION
1	Mark.G.Sobell	A Practical guide to linux	Pearsons Edition
2	Christopher Negus	Red Hat Linux 9 Bible	Wiely Publication

b) Websites

- ✓ www.linux-tutorial.info/
- ✓ www.ee.surrey.ac.uk/Teaching/Unix/
- ✓ www.tutorialspoint.com/listtutorials/linux/1

* * *

COURSE ID: 31

Course Name : Java Programming
Course Code : ITE406
Course Abbreviation : EJAP

TEACHING AND EVALUATION SCHEME:

Pre-requisite Course(s) : NIL
Teaching Scheme :

Scheme component	Hours / week	Credits
Theory	3	7
Practical	4	

Evaluation Scheme:

Mode of Evaluation	Progressive Assessment		Term End Examination			Total
	Theory	Practical	Theory Examination	Term Work	Practical Examination (External)	
Details of Evaluation	Average of two tests of 20 marks each	i. 25 marks for each practical ii. One PST of 25 marks	Term End Theory Exam (03 hours)	--	As per Proforma-I	
Marks	20	--	80	--	50	150

RATIONALE:

Java language enhances and refines the object oriented paradigm. Java supports development of dynamic, secure and portable web based applications. This subject knowledge is essential for development of customized and web based applications. Java being platform independent language is widely used in various business applications

OBJECTIVES:

The students will be able to:

1. Design and implement classes and methods
2. Understand and implement various concepts in OOP
3. Create packages and interfaces and use it in programs
4. Design and implement multithreaded programs
5. Manage errors and exceptions
6. Design GUI using java.awt package
7. handle events using listeners

8. Design and implement applet and graphics programming
CONTENT:

F. THEORY :

Section I

Sr. No.	Topics / Sub-topics	Lectures (Hours)	Theory Evaluation (Marks)
1	<p style="text-align: center;">INTRODUCTION TO JAVA</p> <p>1.1 Java features</p> <ul style="list-style-type: none"> • Compiled & Interpreted • Simple • Object oriented • Distributed • Robust & secure • Architecture Neutral • Platform independent & portable • Multithreaded & interactive • High performance • Dynamic <p>1.2 How Java differ from C & C++</p> <p>1.3 Java environment</p> <p>1.4 Data types of Java Constants & Symbolic Constants, variables, dynamic initialization, data types, array & string, scope of variable, type casting, standard default values</p> <p>1.5 Operators in Java Arithmetic Operators, Relational Operators, Logical Operators, Increment & Decrement, Conditional Operators, Bit wise Operators, Instance of Operators, Dot Operators, Operator precedence & associatively, Evaluation of Expressions, Type conversions in expressions, Mathematical Functions - min(), max(), sqrt(), pow(), exp(), round(), abs().</p> <p>1.6 decision making, branching & looping</p> <ul style="list-style-type: none"> 1.6.1 The if...else statement 1.6.2 Switch 1.6.3 While, Do....while 1.6.4 For loop 1.6.5 Jumps in loops and labeled loops 1.6.6 Breaking control flow 	04	10

Sr. No.	Topics / Sub-topics	Lectures (Hours)	Theory Evaluation (Marks)
2	<p>OBJECTS & CLASSES, METHODS</p> <p>2.1 Fundamentals of Object Oriented Programming -- Object and Classes, Data abstraction and encapsulation, Inheritance, Polymorphism, Dynamic Binding</p> <p>2.2 class –</p> <ul style="list-style-type: none"> • Add variable • Adding methods • Creating object • Accessing class members <p>2.3 Visibility Control Public, Private, Protected, default, friendly private Protected access</p> <p>2.3 Static fields & methods</p> <p>2.4 Constructor , Constructotr overloading</p> <p>2.5 Inheritance in Java</p> <p>2.6 Method overloading & overriding</p> <p>2.7 Visibility controls – public, private, protected ,friend, private protected</p> <p>2.7 final variable & methods and final classes</p> <p>2.8 abstract method & classes</p> <p>2.9 finalize method, Use of this keyword</p>	04	10
3	<p>ARRAY, STRINGS, & VECTORS, Inheritance</p> <p>3.1 arrays</p> <p>3.2 one dimensional array</p> <p>3.3 creating an array</p> <p>3.4 two dimensional array</p> <p>3.5 String and String Buffer class</p> <p>3.6 Vector class</p> <p>3.7 wrapper classes</p>	04	06
4	<p>PACKAGE</p> <p>4.1 system package</p> <p>4.2 using system package</p> <p>4.3 naming convention</p>	06	08

Sr. No.	Topics / Sub-topics	Lectures (Hours)	Theory Evaluation (Marks)
	4.4 creating package 4.5 accessing a package 4.6 using a package 4.7 adding a class to a package 4.8 hiding classes		
5	INTERFACES & INNER CLASSES 5.1 defining interfaces 5.2 implementing interface 5.3 accessing interface, variables& methods, 5.4 use of interface in Multiple Inheritance 5.5 using inner class to access object state 5.6 special syntax rules 5.7 local and static inner classes	06	06
Semester end exam question paper should be such that total marks of questions on each topic is one and half times the marks allotted above but the candidates are able to attempt questions of the above allotted marks only.			

Section II

Sr. No.	Topics / Subtopics	Lectures (Hours)	Theory Evaluation (Marks)
6	GRAPHICS PROGRAMMING 6.1 Creating frame 6.2 Frame positioning 6.3 displaying info in a panel 6.4 drawing 2D shapes <ul style="list-style-type: none"> • lines • rectangle • circle • ellipse • arcs • polygons 7.5 color and filling shapes 7.6 text and fonts	04	08

7	<p>APPLET</p> <p>7.1 local & remote applets 7.2 how applet differ from application 7.3 preparing to write applets 7.4 building applet code 7.5 applet life cycle 7.6 creating an executable applet 7.7 designing a web page 7.8 applet tag 7.9 adding applet to HTML file 7.10running the applet 7.11 passing parameter to applet</p>	06	10
8	<p>MULTITHREADING AND EXCEPTION HANDLING</p> <p>8.1 What is thread? 8.2 Thread properties / States 8.3 Running and starting threads, 8.4 Stopping and blocking threads 8.5 Implementing Runnable interface 8.6 dealing with Errors <ul style="list-style-type: none"> • classification of exceptions • advertising exceptions that a method throws • How to throw an exception • Creating Exception classes 8.7 Catching exception 8.8 using finally statement</p>	04	08
9	<p>AWT PACKAGE</p> <p>9.1 Layout manager <ul style="list-style-type: none"> • Border layout • Panel layout • GridLayout • GridBagLayout 9.2 Text field 9.3Input validation and password fields 9.4 Text area 9.5 label 9.6 check box 9.7 radio button 9.8 combo box 9.9 building menus</p>	04	06

10	EVENT HANDLING 10.1 Basics of event handling 10.2 selecting event listeners 10.3 window events, Action events, Mouse events 10.4 adapter classes 10.5 awt event hierarchy 10.6 semantic and low level events in awt 10.10 low level event types <ul style="list-style-type: none"> • focus event • keyboard event • consuming event • mouse events 	06	08
Semester end exam question paper should be such that total marks of questions on each topic is one and half times the marks allotted above but the candidates are able to attempt questions of the above allotted marks only.			

Specification table for setting question paper for semester end theory examination

Section / Topic no.	Name of topic	Distribution of marks (level wise)			Total marks
		Knowledge	Comprehension	Application	
I / 1	Introduction to Java	04	04	02	10
I / 2	Objects & Classes, Methods	02	04	04	10
I / 3	Array, Strings, & Vectors	02	02	02	06
I / 4	Package	02	02	04	08
I / 5	Interfaces And Inner Classes	02	02	02	06
I / 6	Graphics Programming	02	02	04	08
II / 7	Applet	02	02	06	10
II / 8	Multithreading & Exception Handling	02	02	04	08
II / 9	AWT package	02	02	02	06
II / 10	Event Handling	02	02	04	08

Semester end exam question paper should be such that total marks of questions on each topic is one and half times the marks allotted above but the candidates are able to attempt questions of the above allotted marks only.

Laboratory experiences and related skills developed.

Sr. no	Laboratory experience	Skills developed
1	Introduction to Java Environment	1) Study of java environment 2) Study of JVM, JDK tools 3) Writing and running a java program
2	Control Structures	1) If...else statement, else if ladder 2) For loop 3) Do While loop

		4) While loop 5) Continue and break statements
3	Class	1) Concept of class and objects 2) Defining a class, adding methods and variables 3) Accessing class members
4	Static fields, methods and method overloading	1) Use of static members 2) Use of Method Overloading
5	Inheritance	1) Study and use of various forms of Inheritance- Single, Multilevel, Hierarchical 2) Method Overriding
6	Array, String, Vector	4) Defining, Initializing array (1D, 2D) 5) Accessing array elements (1D, 2D) 6) Use of String and StringBuffer class methods 7) Use of Vector class and its methods
7	Creating a Package	4) Creating a package 5) Adding class to a Package 6) Accessing a Package class
8	Adding class to an existing package	3) Adding class to existing Package 4) Hiding a class in a package 5) Using system packages
9	Interface	6) Defining an interface 7) Use of interface 8) Multiple Inheritance using interface
10	Exception Handling	1) Use of try...catch block 2) Use of Multiple catch statements 3) Using Finally statement 4) Throwing an exception
11	Multithreading	1) Understanding the concept of thread and its states 2) Starting and running thread 3) Stopping and blocking thread 4) Implementing Runnable interface
12	2D Graphics	1) Creating a Frame 2) Drawing 2D shapes – line, circle, ellipse, rectangle, arc, polygon, 3) Filling shapes with various colors
13	Applet	1) creating and executing an applet 2) Drawing shapes on an applet 3) Displaying Text on an applet 4) Passing parameters to an applet
14	java.awt Package - Controls	1) Use of java.awt package for GUI 2) Using various layouts 3) Use of Button, Label, Checkbox, TextField, TextArea,
15	java.awt Package –Menu	1) Use of java.awt package for GUI 2) Using various layouts 3) Adding menu bar to a frame
16	Event Handling - ActionEvent	1) Concept of event handling in Java 2) ActionEvent – using ActionListener Interface
17	Event Handling - MouseEvent	1) MouseEvent – using MouseListener Interface 2) MouseEvent – using MouseMotionListener Interface 3) Using Adapter classes
18	Event Handling – Window Event	1) WindowEvent – using WindowListener Interface 2) Using Adapter classes

Criteria for Continuous Assessment of Practical work and Progressive Skill Test:

Sr. no	Criteria	Marks allotted
1	Attendance at regular practical	10
2	Preparedness for practical	10
3	Algorithm and implementation	10
4	Logical Thinking and Approach	10
5	Application	10
	Total	50

Instructional strategies:

1. Lectures and discussions.
2. Laboratory experiences and laboratory interactive sessions.
3. Time bound assignments.

Teaching and Learning resources, including references:

1. Chalk-board.
2. Transparencies
3. Presentation Slides
4. Demonstrative video files

Criteria for assessment at semester end practical exam:

Sr. no	Criteria	Marks allotted
1	Technical Ability	15
2	Logical Approach	10
3	Presentation	15
4	Applications	10
	Total	50

Assessment at semester end practical exam as per Pro-forma I.

Books:

1. Programming with Java - E. Balgurusamy(TMh)
2. Core Java 2 – Volume I- Sun Microsystems – (Pearson)
3. Core Java 2 – Volume II- Sun Microsystems – (Pearson)

Websites :

<http://www.sun.java.com>
<http://docs.oracle.com/javase/tutorial/>

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COURSE ID: 32

Course Name : ADVANCED JAVA PROGRAMMING
Course Code : ITE407
Course Abbreviation : EAJP

TEACHING AND EVALUATION SCHEME:

Pre-requisite Course(s) : ITE406
Teaching Scheme: MPECS 2013

Scheme component	Hours / week	Credits
Theory	1	5
Tutorial	4	

Evaluation Scheme:

Mode of Evaluation	Progressive Assessment		Term End Examination		Total
	Theory	Practical	Theory Examination	Practical Examination (External)	
Details of Evaluation	--	i.25 marks for each practical ii.One PST of 25 marks	--	As per Proforma- I	
Marks	NIL	--	NIL	50	50

Rationale:

In the today's world of Internet, online transaction processing and managing the dataflow over network becomes an important issue. This subject is essential for providing knowledge and hands on experience over the issues of managing data on web, developing powerful GUI based friendly user interface, developing powerful database applications, server side programming.

Objectives:

The students will be able to:

1. Design powerful GUI
2. Develop database applications
3. Implement server side programming
4. Understanding TCP/IP and UDP communication between client and server
5. Creating web based applications using JSP
6. Invoking remote methods

CONTENT:

THEORY :

Sr. no.	Topics Subtopics	Teaching (Hours)
1	GUI USING SWING 1.1 JFrame, JApplet, JPanel classes 1.2 Adding button, textbox, label, combo box, listbox, tabbed panes, scroll panes on Window 1.3 Displaying menu and toolbar 1.4 JTables and Jtree classes	02
2	JAVA DATABASE CONNECTIVITY 2.1 Java as a Database front end 2.2 Database client/server methodology 2.2.1 Two-Tier Database Design 2.2.2 Three-Tier Database Design. 2.3 The JDBC API- The API Components, Security Considerations, JDBC Drivers, JDBC-ODBC Bridge 2.4 Database Connectivity using JDBC API, inserting, updating and deleting records, sending queries through JDBC bridge & handling result 2.5 Connectivity with Web based Database systems.	04
3	NETWORKING AND SOCKET PROGRAMMING 3.1 Basics Socket overview, client/server, reserved sockets, proxy servers, internet addressing. 3.2 The networking classes & interfaces 3.3 Inet address, Factory methods, instance method 3.4 Creating servers/clients sockets- Sending Data from client to server or vice-versa, 3.5 Creating proxy server, Datagram server & client.	04

Sr. no.	Topics Subtopics	Teaching (Hours)
4	Servlets 4.1 The Life Cycle Of a Servlet, The Java Servlet Development Kit, 4.2 Simple Servlet, The Servlet API 4.3 The Javax Servlet Package 4.4 Reading Servlet Parameters, Reading Initialization Parameters 4.5 Javax. Servlet. http package, 4.6 Handling HTTP Requests and responses 4.7 Using Cookies, Session Tracking, Security Issues	02
5	REMOTE METHOD INVOCATION 5.1 Serialization 5.2 Deserialization, Deserialization exceptions 5.3 Object persistence and RMI, RMI architecture 5.4 RMI example.	02
6	JAVA SERVER PAGES 6.1 What is JSP? 6.2 Advantages 6.3 JSP expressions, JSP declarations, JSP directives 6.4 Example Using Scripting Elements and Directives 6.5 Predefined variables 6.6 Actions	02

Laboratory experiences and related skills developed.

Sr. no	Laboratory experience	Skills developed
1	GUI using javax.swing	1) Displaying frame, panel 2) Displaying components – textbox, label, buttons, listbox, combobox on frame 3) Use of proper layout 4) Handling events related to each component
2	Adding menu	6) Adding menubar to the frame, 7) displaying menuitems, sub menu items and checkable menu items
3	Adding toolbar	4) Displaying toolbar on frame
4	JTree and JTable class	3) Mapping a directory tree 4) Demonstration of use of tables
5	Connecting to database	3) Implement an application or applet to connect to database using JDBC
6	Sending queries to database	8) Implement an application or applet to insert, update, delete and display records
7	TCP/IP based communication	7) TCP/IP based communication between client and server. 8) Sending data between client and server
8	UDP based communication	9) UDP based communication between client and server. 10) Sending data between client and server
9	Servlet	1) Understanding servlet life cycle 2) Generic Servlet class
10	Http Servlet class	5) Understanding request and response 6) Understanding get and post methods 7) Understanding cookies
11	RMI	5) Understanding basic concepts in Remote Method Invocation 6) An RMI example
12	JSP	4) Understanding function of JSP server 5) Example Using Scripting Elements and Directives 6) Example to demonstrate JSP actions

Criteria for Continuous Assessment of Practical work and Progressive Skill Test:

Sr. no	Criteria	Marks allotted
1	Attendance at regular practical	10
2	Preparedness for practical	10
3	Algorithm and implementation	10
4	Logical Thinking and Approach	10
5	Application	10
	Total	50

Criteria for assessment at semester end practical exam:

Sr. no	Criteria	Marks allotted
1	Technical Ability	15
2	Logical Approach	10
3	Presentation	15
4	Applications	10
	Total	50

Assessment at semester end practical exam as per Pro-forma I.

Instructional strategies:

1. Lectures and discussions.
2. Laboratory experiences and laboratory interactive sessions.
3. Time bound assignments.

Teaching and Learning resources, including references:

1. Chalk-board.
2. Transparencies
3. Presentation Slides
4. Demonstrative video files

4) Books:

Sr. No.	Author	Title	Publisher
1.	Sun Microsystems	Core Java 2 – Volume I	Pearson
2.	Sun Microsystems	Core Java 2 – Volume II	Pearson
3.	Herbert Schildt	Complete reference Java 2	
4.	John O'donahue	Java database programming bible	
5.	Steven Holzner	Java 2 Black Book	

5) Websites :

1. <http://www.sun.java.com>
2. [http:// www.jsptut.com](http://www.jsptut.com)

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COURSE ID: 33 (A)

Course Name : INTERNET TECHNOLOGY
Course Code : ITE408
Course Abbreviation : EINT

TEACHING AND EVALUATION SCHEME:

Pre-requisite Course(s) : Computer network (ITE306)
Teaching Scheme: MPECS 2013

Scheme component	Hours / week	Credits
Theory	3	5
Practical	2	

Evaluation Scheme :

Mode of Evaluation	Progressive Assessment		Term End Examination			Total
	Theory	Practical	Theory Examination	Term Work	Practical Examination (Internal)	
Details of Evaluation	Average of two tests of 20 marks each	i.25 marks for each practical ii.One PST of 25 marks	Term End Theory Exam (03 hours)	-	As per Proforma-II	
Marks	20	--	80	-	50	150

Rationale:

The subject gives conceptual and operational details of client Server model, socket interface, internet, email and World Wide Web. This subject will make students familiar with internet technology and transmission details.

Objectives:

The students will be able to understand:

- 1) Internet connection
- 2) Email concepts
- 3) Internet services and Intranet
- 4) Client server Model
- 5) Understand the concept of IPv6 and ICMPv6
- 6) Study of Remote login
- 7) Study of WWW-HTTP, Email and Multimedia in Internet

CONTENT:

G. THEORY :

Section I

Sr. No.	Topics / Sub-topics	Lectures (Hours)	Theory Evaluation (Marks)
1	<p>Client server model & socket interface</p> <p>1.2 Introduction -Birth of Internet -Intranet and Extranet</p> <p>1.3 Internet Services</p> <p>1.4 Internet service Provider</p> <p>1.5 Types of Internet Accounts - Internet PPP and SLIP Accounts - UNIX shell accounts - Online services</p> <p>1.5 Client Server Paradigm -Server -Client</p> <p>1.6 Concurrency -Concurrency in client -concurrency in server, server types</p> <p>1.7 Socket Interfaces -Socket Interface, Socket -Data Structure -Structure of a Socket address -Functions -Communication using UDP(C-Program) -Communication using TCP(C- Program)</p>	08	12
2	<p>Next Generation IPv6 and ICMPv6</p> <p>2.1 IPV6 -Introduction and addressing -Notation -Address space -Address Types and Address space allocation</p> <p>2.2 IPV6 packet format -Base Header -Flow label -Extension headers</p> <p>2.3 Transition from IPV4 to IPV6</p> <p>2.4 ICMPV6 -ICMPV6 messages</p>	06	14

Sr. No.	Topics / Sub-topics	Lectures (Hours)	Theory Evaluation (Marks)
3	Remote Login: TELNET and File Transfer FTP, TFTP 3.1 Concepts-time sharing Environment 3.2 NVT - Embedding -Options -Sub-option negotiation -Controlling the server -Out-of-band signaling, Escape character -Mode of operation, user interface. 3.2 FTP: Connections -Communication -Command processing -File transfer -User interface -Anonymous FTP -TFTP	10	14

Section II

Sr. No.	Topics / Sub-topics	Lectures (Hours)	Theory Evaluation (Marks)
4	ELECTRONIC MAIL 4.1 Architecture – 4 Scenarios - User agents, addresses, - Mail transfer agent 4.2 SMTP commands & responses -Mail transfer phases, MIME, -Mail Delivery, mail access protocols, 4.3 SNMP-Concept , Management Components	08	14
5	World Wide Web – HTTP 5.1 Architecture 5.2 Web Documents, 5.3 HTTP Transaction, -Request & Response messages: header & examples 5.4 Persistent vs. non persistent HTTP, Proxy Servers 5.5 Web Search Engine Architecture	08	12
6	Multimedia in Internet 6.1 Introduction 6.2 Digitizing Audio and Video 6.3 Three Approaches -Streaming stored Audio/Video, -Streaming Live Audio/Video -Real-Time Interactive Audio/Video 6.4 Real-Time Transport Protocol (RTP) 6.5 Real-time Transport Control Protocol (RTCP) 6.6 Voice over IP (VoIP) 6.6.1 Session Initiation Protocol(SIP) -SIP Messages -SIP Address Format 6.6.2 H.323 -Architecture -Protocol	08	14
Semester end exam question paper should be such that total marks of questions on each topic is one and half times the marks allotted above but the candidates are able to attempt questions of the above allotted marks only.			

Specification table for setting question paper for semester end theory examination

Section / Topic no.	Name of topic	Distribution of marks (level wise)			Total marks
		Knowledge	Comprehension	Application	
I/1	Client Server model socket Interface	04	05	03	12
I/2	Next Generation IPv6 and ICMPv6	04	08	02	14
II/3	Remote Login: TELNET and File Transfer FTP, TFTP	06	04	04	14
II /4	ELECTRONIC MAIL	06	04	04	14
II/5	World Wide Web – HTTP	04	06	02	12
II/6	Multimedia in Internet	06	06	02	14

Semester end exam question paper should be such that total marks of questions on each topic is one and half times the marks allotted above but the candidates are able to attempt questions of the above allotted marks only.

Laboratory experiences and related skills developed.

Sr. no	Laboratory experience	Skills developed
1	Internet- Intranet and Extranet	1. Study of Internet 2. Architecture
2	Client server model	1. Understanding Dial-Up and Leased line internet connection 2. Browsing different web sites
3	Client program using TCP	Client program using TCP to connect to well known services (echo, time of the day service etc.).
4	Client program using UDP	Client program using UDP to connect to well known services (echo, time of the day service etc.).
5	Concurrent TCP multiservice client/server.	1. Implementing concurrent TCP multiservice client/server.
6	UDP Echoclient/server.	1. Implementing Iterative UDP client/server.
7	TCP Echo server	1. Write a program to implement echo server using IPv6 socket
8	DNS tools	Study of following DNS Tools with all its options. 1. nslookup, dig, host, whois
9	DNS tools	1. Implementation of DNS tools
10	FTP Commands	1. Study of FTP commands and tools.

11	SMTP commands	1. Write program to send a mail using SMTP commands and receive a mail using POP3 commands.
12	Web Search Engine	Study of Web Search Engine Architecture (Components)
13	Multimedia Protocols	Study of various streaming multimedia protocols in Internet (Using various audio/video streaming services on the Internet)

Progressive Skills Test :

Criteria for Continuous Assessment of Practical work and Progressive skill Test:

Sr. no	Criteria	Marks allotted
1	Attendance at regular practical	05
2	Preparedness for practical & Neat & complete Diagram	05
3	Observations & computer handling skill	05
4	Logical thinking and approach	05
5	Oral Based on Lab work and completion of task	05
TOTAL		25

Assessment at semester end practical exam as per Pro-forma II.

Criteria for assessment at semester end practical exam:

Sr. no	Criteria	Marks allotted
1.	Technical ability	10
2.	Communication skill	10
3.	Logical approach	10
4.	Oral Based on Lab work and completion of task	20
TOTAL.		50

INSTRUCTIONAL STRATEGIES :

- 1) Lectures and discussions.
- 2) Laboratory experiences and laboratory interactive sessions.
- 3) Time bound assignments.

Teaching and Learning resources, including references:

- 1) Chalk-board.
- 2) Transparencies
- 3) Presentation Slides

REFERENCE MATERIAL:

a) Books / Codes

Sr. No.	Author	Title	Publisher
1.	Forouzan	TCP/IP Protocol Suite	McGraw Hill
2.	Douglas Comer- David L Steven	Internetworking with TCP/IP	Eastern Economy Edition

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COURSE ID: 33 (B)

Course Name : SOFTWARE TESTING
Course Code : ITE409
Course Abbreviation : ESOT

TEACHING AND EVALUATION SCHEME:

Pre-requisite Course(s) : NIL
Teaching Scheme:

Scheme component	Hours / week	Credits
Theory	3	5
Practical	2	

Evaluation Scheme :

Mode of Evaluation	Progressive Assessment		Term End Examination			Total
	Theory	Practical	Theory Examination	Term Work	Oral Examination (Internal)	
Details of Evaluation	Average of two tests of 20 marks each	i.25 marks for each practical ii.One PST of 25 marks	Term End Theory Exam (03 hours)	--	As per Proforma-II	
Marks	20	--	80	--	50	150

RATIONALE:

The complexity and size of today's software makes writing secure, bug-free code is extremely difficult, in such a situation testing of software before release is very essential. Software testing can be considered as "Quality Gate" which will pass/release only quality software. Students will learn how to find bugs/errors in any computer program, how to plan an effective test approach, how to clearly report findings and to tell when software is ready to release. Also it introduces various levels and types of testing so that students will be able to practically apply appropriate testing method on application. It also covers manual testing as well as expanding manual test efforts with various automation tools.

OBJECTIVES:

The students will be able to:

1. Understand how software testing fits into the software development process.
2. Learn various types and levels of software testing.
3. Develop the skills to find bugs in any type of software.
4. Learn how to effectively plan tests, communicate the bugs you find.
5. Use your new testing skill to test not just the software but also the product specification, the raw code and even the user's manual.
6. Understand STLC, test planning, test case writing and testing execution and defect management.

7. Understand the various automated testing tools to improve testing efficiency

CONTENT:

THEORY :

Section I

Sr. No.	Topics / Sub-topics	Lectures (Hours)	Theory Evaluation (Marks)
1	<p>BASICS OF SOFTWARE TESTING</p> <p>1.1 Software Quality, Definition of Software Testing, Role of Testing 1.2 Failure, Error, Fault, Bug Terminology 1.3 Objectives of Testing 1.4 What Is Test Case? 1.5 When To Start and Stop Testing of Software (Entry and Exit Criteria) 1.6 Skills for Software Tester 1.7 Quality Assurance, Quality Control, Verification, V Model</p>	04	10
2	<p>TYPES OF TESTING</p> <p>2.1 White Box Testing : 2.1.1 Static Testing- Inspections, Structured Walkthroughs, Technical Review 2.1.2 Structural Testing- Code Functional Testing, Code Coverage Testing, Code Complexity Testing 2.2 Black-Box Testing : 2.2.1 Techniques for Black Box Testing Requirement Based Testing, Positive and Negative Testing , Boundary Value Analysis, Decision Tables, Equivalence Partitioning, User Documentation Testing, Graph Based Testing. 2.2.2 Sample Examples on White and Black Box Testing</p>	08	14
3	<p>LEVELS OF TESTING AND SPECIAL TESTS</p> <p>3.1 Unit Testing: Driver, Stub 3.2 Integration Testing: Decomposition Based Testing- Top-Down Integration, Bottom-Up Integration, Bi-Directional Integration, Incremental Integration, Non-Incremental Integration 3.3 System Testing: Recovery Testing, Security Testing, Performance Testing, Load Testing, Stress Testing, Usability Testing, Compatibility Testing</p>	12	16

Sr. No.	Topics / Sub-topics	Lectures (Hours)	Theory Evaluation (Marks)
	<p>3.4 Acceptance Testing: Acceptance criteria, Alpha Testing and Beta Testing</p> <p>3.5 Special Tests: Smoke Testing and Sanity Testing, Regression Testing, Usability Testing, GUI Testing, Object Oriented Application Testing: Client-Server Testing, Web based Testing</p>		
<p>Semester end exam question paper should be such that total marks of questions on each topic is one and half times the marks allotted above but the candidates are able to attempt questions of the above allotted marks only.</p>			

Section II

Sr. No.	Topics / Subtopics	Lectures (Hours)	Theory Evaluation (Marks)
4.	<p>TEST MANAGEMENT</p> <p>4.1 Test Planning : Preparing a Test Plan, Scope Management, Deciding Test Approach, Setting Up Criteria for Testing, Identifying Responsibilities, Staffing, Training Needs, Resource Requirements, Test Deliverables, Testing Tasks</p> <p>4.2 Test Management: Choice of Standards, Test Infrastructure Management, Test People Management , Integrating with Product Release</p> <p>4.3 Test Process: Base Lining a Test Plan, Test Case Specification, Update of Traceability Matrix, Executing Test Cases, Collecting and Analyzing Metrics, Preparing Test Summary Report</p> <p>4.4 Test Reporting: Recommending Product Release.</p>	12	16
5	<p>DEFECT MANAGEMENT</p> <p>5.1 Introduction, Defect Classification, Defect Management Process</p> <p>5.2 Defect Life Cycle, Defect Template</p> <p>5.3 Estimate Expected Impact of a Defect, Techniques for Finding Defects, Reporting a Defect</p>	06	12

6	TESTING TOOLS AND MEASUREMENTS 6.1 Limitations of Manual Testing and Need for Automated Testing Tools 6.2 Features of Test Tool: Guideline for Static and Dynamic Testing Tool 6.3 Advantages and Disadvantages of Using Tools 6.4 Selecting a Testing Tool 6.5 When to Use Automated Test Tools, Testing Using Automated Tools 6.6 What Are Metrics and Measurement.: Types of Metrics, Project Metrics, Progress and Productivity Metrics	06	12
Semester end exam question paper should be such that total marks of questions on each topic is one and half times the marks allotted above but the candidates are able to attempt questions of the above allotted marks only.			

Specification table for setting question paper for semester end theory examination:

Section / Topic no.	Name of topic	Distribution of marks			Total marks
		Knowledge	Comprehension	Application	
I / 1	Basics of Software Testing	5	2	3	10
I / 2	Types Of Testing	5	4	5	14
I / 3	Levels of Testing And Special Tests	6	5	5	16
I / 4	Test Management	6	5	5	16
II / 5	Defect Management	4	4	4	12
II/6	Testing Tools And Measurements	4	4	4	12

Semester end exam question paper should be such that total marks of questions on each topic is one and half times the marks allotted above but the candidates are able to attempt questions of the above allotted marks only.

TERM WORK

Term work shall consist of the following:

ii) Laboratory experiments and related skills to be developed :

Sr. No.	Title of Experiment	Skills to be developed

01	Introduction To Software Testing	To study Software Testing concepts, types and methods.
02	Case Study	To study any one sample system specification and design the test cases for it.(e.g. Student information system, Library management system, Hospital management system etc)
03	Design of Test cases	To design test cases for pen.
04	Study of Test cases	To write test cases on simple calculator application.
05	Design of Form	To design test cases for any login form(Eg: Gmail or Yahoo login form)
06	Design of Test cases for system	To design test cases for mobile phone system(Eg: check battery is inserted in mobile properly, check SIM is inserted properly, check incoming and outgoing call)
07	Design of Test cases for Application	To design test cases for notepad/WordPad/MS-Word application.
08	Design of Test cases for Application	To design test cases for ATM machine.
09	Design of Test cases for Project	To design test cases for mini project developed by students in VB.
10	Automate Microsoft Word Application	Using any freeware automation testing tool, atomize and run test cases for Ms-Word application
11	Study of Web Testing	Testing web application for performance using any automated tool
12	Study of test management tool	Assignment for any test management tool (e.g. Test Director

All above Practical may be performed on **Windows or Linux** Platform, using the tools mentioned below:

Sr. No	Testing Tool	Type of Tool
1	Selenium	Freeware
2	Mantis Bug Tracker	Freeware
3	IBM Rational Functional Tester	Freeware
4	MS-Excel	commercial

5	Bugzila	-
6	Test Director	-

iii) **Progressive Skills Test :**

Criteria for Continuous Assessment of Practical work and Progressive skill Test :

Sr. No.	Criteria	Marks allotted
1	Attendance at regular practical	10
2	Technical preparation	10
3	Logical Thinking and Approach	20
4	Application	10
	TOTAL	50

Criteria for assessment at semester end practical exam:

Sr. no	Criteria	Marks allotted
1	Technical ability	20
2	Communication skill	10
3	Logical approach	20
	TOTAL.	50

Assessment at semester end practical exam as per Pro-forma II

INSTRUCTIONAL STRATEGIES:

Instructional Methods:

- 1) Lectures and discussions.
- 2) Laboratory experiences and laboratory interactive sessions.
- 3) Time bound assignments.
- 4) Group tasks

Teaching and Learning resources:

1. Books
2. Transparencies
3. Power Point Presentation
4. Self-learning

REFERENCE MATERIAL:

c) **Books / Codes**

Sr. No.	Author	Title	Publisher
1.	Srinivasan Desikan Gopaldaswamy Ramesh	Software Testing: Principles and Practices	PEARSON
2.	M G Limaye	Software Testing: Principles, Techniques and Tools	Tata McGraw-Hill
3	Naresh Chauhan	Software Testing: Principles and Practices	Oxford
4	Ron Patton	Software Testing	PEARSON 2 nd edition

d) Web References:

1. <http://www.selenium.com>
2. http://en.wikipedia.org/wiki/Test_automation
3. http://en.wikipedia.org/wiki/Software_testing#Testing_tools
4. <http://www.softwaretestingsoftware.com>

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COURSE ID: 33 (C)

Course Name : PHP
Course Code : ITE410
Course Abbreviation : EPHP

TEACHING AND EVALUATION SCHEME:

Pre-requisite Course(s) : NIL
Teaching Scheme: MPECS 2013

Scheme component	Hours / week	Credits
Theory	3	5
Practical	2	

Evaluation Scheme:

Mode of Evaluation	Progressive Assessment		Term End Examination			Total
	Theory	Practical	Theory Examination	Term Work	Practical Examination (Internal)	
Details of Evaluation	Average of two tests of 20 marks each	i.25 marks for each practical ii.One PST of 25 marks	Term End Theory Exam (03 hours)	--	As per Proforma-II	
Marks	20	--	80	--	50	150

RATIONALE:

The PHP Hypertext Preprocessor (PHP) is a programming language that allows web developers to create dynamic content that interacts with databases.

PHP is basically used for developing web based software applications.

This Syllabus helps student to build your base with PHP.

Objectives:

Students will be able to:

1. Working with PHP, MySQL.
2. Mixing PHP & HTML.
3. Database creation & updation.
4. Dynamic content configuration.
5. File system interfaces.
6. PHP Script to database inserting.

CONTENT:

SECTION - I

Sr. No.	Topics / Sub-topics	Lectures (Hours)	Theory evaluation Marks
1	<p>Introduction To PHP</p> <p>1.1 What is PHP? 1.2 What is MySQL? 1.3 The history of PHP 1.4 The history of MySQL 1.5 Features of PHP & MySQL Cost, Ease to use, HTML-embeddedness, Cross-platform compatibility, Not tag based, stability, Speed, Open source licensing, Many extensions, Fast feature development, Popularity, Not proprietary, strong user communities</p>	04	08
2	<p>Web scripting & Installing PHP</p> <p>2.1 Static HTML 2.2 Client side technologies 2.3 Server side scripting 2.4 Installing PHP 2.4.1 Installing PHP for Windows 2.4.1 Installing PHP for Linux 2.4.2 Configuring Apache to use PHP 2.4.3 Testing the PHP installation</p>	06	10
3	<p>Basics of Coding in PHP</p> <p>3.1 Mixing PHP & HTML -How PHP is Parsed, PHP start & end tags, Code cohabitation, Escaping code, Commenting code 3.2 Variables - Naming variable, Value types 3.3 Operators - Assignment operator, Arithmetic operator, Comparison operator, Logical operator 3.4 Creating variables from Forms - Creating a calculation form, Creating a calculation script, Submitting form & getting result 3.5 HTTP Environment variables - Retrieving and using REMOTE_ADDR - Retrieving and using HTTP_USER_AGENT</p>	07	10

Sr. No.	Topics / Sub-topics	Lectures (Hours)	Theory evaluation Marks
4	<p>Dynamic Content</p> <p>4.1 Displaying Browser-specific content</p> <p>4.2 Displaying Platform-specific content</p> <p>4.3 Working with String function</p> <ul style="list-style-type: none"> - creating as input form - creating a script to display form values - submitting form & getting results <p>4.4 Redirecting to new location</p> <ul style="list-style-type: none"> - creating redirection form - creating the redirection script and testing it 	07	12

SECTION- II

5	<p>File System</p> <p>5.1 File paths and permissions</p> <p>5.2 Displaying directory contents</p> <p>5.3 Working with fopen() & fclose()</p> <ul style="list-style-type: none"> - creating a new file - appending data to a file <p>5.4 File system housekeeping</p> <ul style="list-style-type: none"> - copying file - renaming file - deleting file 	07	12
6	<p>Working with MySQL</p> <p>6.1 Working with user privileges in MySQL</p> <p style="padding-left: 20px;">6.1.1 Creating a new user</p> <p>6.2 Connecting to MySQL</p> <p style="padding-left: 20px;">6.2.1 Breaking connection scrip</p> <p>6.3 Listing databases on a server</p> <p>6.4 Listing tables in a database</p> <p>6.5 Creating a new database</p> <p>6.6 Deleting a database</p>	07	10
7	<p>Creating Database</p> <p>7.1 Planning for tables</p> <ul style="list-style-type: none"> - Basic MySQL data types - Defining fields 	06	10

Sr. No.	Topics / Sub-topics	Lectures (Hours)	Theory evaluation Marks
	- Importance of unique fields 7.2 A two-step form sequence 7.2.1 step 1- Number of fields 7.2.2 step 2- Defining fields 7.3 Creating table-creation script 7.4 Create table		
8	Working with tables 8.1 Creating record addition form 8.2 Creating record addition script 8.3 Populating table	04	08

Specification table for setting question paper for semester end theory examination

Section / Topic no.	Name of topic	Distribution of marks (level wise)			Total marks
		Knowledge	Comprehension	Application	
I / 1	Introduction To PHP	4	2	2	08
I / 2	Web scripting & Installing PHP	4	4	2	10
I / 3	Basics of Coding in PHP	4	4	2	10
I / 4	Dynamic Content	6	4	2	12
I / 5	File System	6	4	2	12
II / 6	Working with MySQL	4	4	2	10
II / 7	Creating Database	4	4	2	10
II/8	Working with tables	2	2	4	08

Semester end exam question paper should be such that total marks of questions on each topic is one and half times the marks allotted above but the candidates are able to attempt questions of the above allotted marks only.

Laboratory experiences and related skills developed.

Sr. no	Laboratory experience	Skills developed
1	Introduction to PHP & MySQL	1. Study of history & features of PHP & MySQL.
2	Installing & configuring MySQL	1. Install MySQL on windows .(optionally on linux)
3	Installing Apache	1. Install Apache web server on windows .(optionally on linux)
4	Installing PHP	1. Configure PHP settings on windows .(optionally on linux) 2. Make modification to Apache.
5	Mixing PHP & HTML	1. Recognize use of different PHP tags. 2. Mingle PHP & HTML in source code.
6	Study of variables &	1. Recognize use & working of PHP variables & operators.

	operators	
7	Using PHP variables	<ol style="list-style-type: none"> 1. Use html forms to send variables to scripts. 2. Use environment variables.
8	Displaying dynamic content	<ol style="list-style-type: none"> 1. Display browser specific HTML. 2. Display platform specific HTML. 3. Use of PHP string function & redirection.
9	Using file system	<ol style="list-style-type: none"> 1. Display contents of a directory. 2. Create new file. 3. Open an existing file. 4. Copy, rename & deletes file.
10	Establishing connection	<ol style="list-style-type: none"> 1. Connect to MySQL. 2. List all database on localhost. 3. List all tables in a database. 4. Create a new database. 5. Drop database.
11	Creating database tables	<ol style="list-style-type: none"> 1. Plan database table. 2. Create tables for one of the application.
12	Inserting data into table	<ol style="list-style-type: none"> 1. Create administrative interface for adding new record. 2. Create a script to insert record into table.

Criteria for Continuous Assessment of Practical work and Progressive Skill Test:

Sr. no	Criteria	Marks allotted
1	Attendance at regular practical	05
2	Preparedness for practical	05
3	Correct figures / diagrams	05
4	Logical Thinking and Approach	05
5	Application	05
	Total	25

Criteria for assessment at semester end practical exam:

Sr. no	Criteria	Marks allotted
1	Technical Ability	15
2	Logical Approach	10
3	Presentation	15
4	Applications	10
	Total	50

Assessment at semester end practical exam as per Pro-forma II.

Instructional strategies:

- 7) Lectures and discussions.
- 8) Laboratory experiences and laboratory interactive sessions.
- 9) Time bound assignments.

Teaching and Learning resources, including references:

- 6) Chalk-board.
- 7) Transparencies
- 8) Presentation Slides
- 9) Demonstrative video files

Books:

Sr.No	AUTHOR	TITLE	PUBLICATION
1	Julie meloni & Matt Telles	PHP 6- fast & easy web development	Corse Technology
2	Tim converse & Joyse Park	PHP 5 & MySQL Bible	Wiley Publication
3	Janet valade	PHP 5 for Dummies	Wiley Publication

b) Websites

- ✓ www.w3schools.com/PHP/
- ✓ www.tutorialspoint.com/php/
- ✓ www.tizag.com/phpT/

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