6.1   WEB DESIGNING

L   T   P
2   -   3

RATIONALE

The course will enable the students to understand the basics of internet and various applications of internet such as e-mail, FTP, telnet, newsgroups and video conferencing. The students will also be introduced to upcoming technologies such as WAP, Voice Over Internet Protocol (VOIP) This course develops competency amongst the students to design professional web sites and interactive web pages. They will have overview of different technologies like of HTML, DHTML, ASP, Java scripts, VB scripts.

NOTE:

Since this subject is practice-oriented, theoretical instructions may be given during the practical sessions/class. The detailed contents have been given to have an idea about the exercises to be done in practical class.

DETAILED CONTENTS

1.   Internet Basics   (4 hrs)

Introduction to internet and its applications, E-mail, telnet, FTP, e-commerce, video conferencing, e-business. Internet service providers, domain name server, internet address

2.   World Wide Web (WWW)   (4 hrs)

World Wide Web and its evolution, uniform resource locator (URL), browsers – internet explorer, netscape navigator etc. search engine, web saver – apache, proxy server, HTTP protocols

3.   Web Designing Technologies   (6 hrs)

Introduction to HTML, ASP, JSP, Java scripts, VB scripts, HTML/DHTML – file creation, HTML tags, titles footers, text formatting, forms, images, lists, tables, linking documents, front page editing, frame sets, order list, unorderlist, special characters

4.   Java Script   (4 hrs)

Introduction to Java script, writing java script into HTML

5.   Building of Java Script Syntax   (4 hrs)

Data types of variables, arrays, operators, expressions, programming construct of conditional checking, loop ends functions, dialogue boxes

6.   Java Script Document Object Model   (4 hrs)

Understanding objects in HTML – properties and methods, browsers objects, understanding DOM, web page events

7.   Forms Used by a Website   (4 hrs)

Forms objects, user defined object

LIST OF PRACTICALS

1.   Design Web page Using HTML

2.   Design Table such as

3.   Design forms such as registration form

Note: **All the programmes should be interactive.**

Write an interactive program for the following:

4.   Fibonacci Series

5.   Factorial of given number

6.   Create a table

7.   Create different images on mouse events

RECOMMENDED BOOKS

1.   Internet 6-in-1 by Kraynak and Habraken, Prentice Hall of India Pvt. Ltd., New Delhi

2.   Using the Internet IV edition by Kasser, Prentice Hall of India Pvt. Ltd., New Delhi

3.   Using the World Wide Web, (IInd edition) by Wall, Prentice Hall of India Pvt. Ltd., New Delhi

4.   Internet for Everyone by Alexis Leon and Mathews Leon; Vikas Publishing House Pvt. Ltd., New Delhi

5.   Practical Guide and Internet by AB Tiwana; Galgotia Publications Pvt. Ltd., New Delhi

6.   HTML – 4 for World Wide Web by Castro Addison Wesley (Singapore) Pvt. Ltd., New Delhi

7. Design Shopping Cart for e-commerce applications

8. Develop hit home for each client i.e. number of visitors

9. HTML 4.0 Unleashed by Rick Dranell; Tech Media Publications

10. Principles of Web Designing Joel Sklar, Web Warrior Series Available with Vikas Publishing House Pvt. Ltd., New Delhi

6.2 (a)   NETWORK SECURITY
(Common with Computer Engineering)

L T P
3 - 4

RATIONALE

This course has been designed by keeping in view the basic computer users and information system managers. The concepts needed to read through the ripe in the market place and understanding risks and how to deal with them. It is hoped that the student will have a wider perspective on security in general and better understanding of how to reduce and manage the security risks.

DETAILED CONTENTS

1.   Introduction   (3 hrs)
      Why Secure Network – Attackers Vs Hackers; attack from within and external

2.   How Much Security   (5 hrs)
      Promoting Risk analysis; developing security policy – accessibility, defining security goals, justifying the policy, roles and responsibility, consequences of non-compliance, level of privacy

3.   Firewalls   (5 hrs)
      Defining and access control policy, definition of firewalls and types, Firewalls (UNIX and NT), address translation, firewall logging, firewall deployment

4.   Intrusion Detection System (IDS)   (4 hrs)

      IDS introduction; IDS limitations – teardrop attacks, counter measures; Host based IDS set up

5.   Authentication and Encryption   (10 hrs)
      Authentication: Clear text transmission, session tracking; Encryption – methods, weaknesses, government interaction; Solutions – data encryption standards, digital certificate servers, IP security, Point to Point Tunneling Protocol (PPTP), RSA encryption, Secure Socket Layer (SSL), secure shell, Simple Key Management for IP (SKIP)

6.   Visual Private Network (VPN)   (6 hrs)
      Basics, setting of VPN – proposing with firewalls, VPN diagram, configuration of required objects, exchanging keys, modifying security policy

7.   Virus, Trojans and Worms   (8 hrs)
      What is Virus: replication, concealment, bomb, social engineering viruses; Worms; Trojan Horses; Preventive measures – Access Central, checksum verification, process neutering,

virus scanners, neuristic scanners, application level virus scanners, deploying virus protection.

8.   Disaster, Prevention and Recovery   (10 hrs)
Disaster categories; network disasters – cabling, topology, single point of failure, save configuration files; server disasters – UPS, RAID, Clustering, Backups, server recovery, reluctant servers

LIST OF PRACTICALS

1.   Installation of Anti-virus Package
2.   Checking and removal of virus from the system
3.   Expert lectures on Firewall
4.   Expert lectures on Encryption, Decryption and Security Measures
5.   Visit to higher organizations for the demonstration about Network security and exposure to software available

INSTRUCTIONAL STRATEGY

Since the facilities are not available in the polytechnic, students need exposure to various security systems and software available in some organisations, universities and engineering colleges. For this, visits may be organised for students. The teachers should also be exposed in this area. Some practicals can be conducted in the laboratory.

RECOMMENDED BOOKS

1.   Mastering Network Security by Christ Breton; BPB Publication, New Delhi

2.   Web-sites by Chris Breton, BPB Publication, New Delhi

3.   Network Firewalls by Kiranjeet Syan; New Rider Publication

4.   Internet Security, New Rider Publication

Elective-II
6.2 (b)   .NET
(Common with Computer Engineering)

L T P
3 - 4

RATIONALE

This is an upcoming technology, so the teacher should take pain in making the students conversant with this. The demonstration should be given using .NET software for describing the various features of .NET technology

DETAILED CONTENTS

1.   .NET – evolution   (3 hrs)

Need and perspective in current scenario, .net framework over view structural diagram

2.   .NET framework Base classes   (3hrs)

User and program interfaces, windows forms, web forms, console applications

3.   XML   (6 hrs)
An overview of XML, use of XML, integrity of XML with databases, XML as the .NET Meta language

4.   Visual Studio .NET   (6 hrs)
Common IDE for all languages, the common language specification, all .net languages, management of multiple language, projects

5.   Language changes   (6 hrs)
Visual basic, C++, C#+, overview of C#, data types in C#, control flow in C#, C# classes

6.   Anatomy of .NET Applications: (8 hrs)
Assembly, module, type custom types, metadata and managed data

7.   What is new in visual basic .NET ?   (8 hrs)

8.   What is new in visual studio .NET ?   (8 hrs)

LIST OF PRACTICALS

1.   Installation of .net

2.   Exploring the various features of .net

3. Ability to work an start various tasks and features of .net framework

4. Able to work and develop program in Visual Basic.net

5. To explore in detail Visual Studio.net

INSTRUCTIONAL STRATEGY

.NET being a new technology subject, the teacher should lay considerable emphasis on giving various examples while imparting instructions to the students. Practice exercises will reinforce understanding of various features of this language and will develop requisite abilities to develop programs.

RECOMMENDED BOOKS

Introducing .NET by James Conard, Patrick Rengler, Birn Eranics, Jay Elynn Wron Publications

Elective-II
6.2 (c)   VISUAL C++
(Common with Computer Engineering)

L T P
3 - 4

RATIONALE

Visual programming is the programming technique to make the task easy. This type of programming has become very helpful for designing widow based application. This subject will give the student in depth understanding of the function used in visual C++

DETAILED CONTENTS

1.   Visual C++

(10 hrs)

VC++ developer studio, VC++ Runtime library, VC++ MFC and template libraries, VC++ Building tool, Active X

2.   C++ Classes

(6 hrs)

Class creation, accessing class members, encapsulation, constructor, destructors

3.   Deriving C++ Classes

(8 hrs)

Class derivation, constructor for derived classes, creation of numbers of classes, managing classes, using class view, overloading operation, C++ template, exception handling in C++

4.   Windows GUI programming with MFC library   (10 hrs)
Creation and building the programs, source code generation, building and running program, adding message handling function, adding menu commands, adding tool bar and status bar, scrolling and splitting views

5.   Dialog Boxes

(6 hrs)

Dialog boxes, design of dialog boxes, creating classes to manage dialog boxes, defining message handler

6.   Dialog Based Application

(8 hrs)

Creation of a simple dialog based application, multiple document interface

INSTRUCTIONAL STRATEGY

This subject is a practice based, so the emphasis may be given to practical exercises of visual C++ during the course of the study which in turn will reinforce the understanding of the subject.

RECOMMENDED BOOKS

1.   Master Visual C++ by Michal J Young; BPB Publication, Delhi

2.   Visual C++ by Davis Chapman, SAMS, Tech Media Publication, Delhi

3.   Visual C++ Programming by Stene Holzmer; Pustak Mahal, IDG Books, Delhi

6.3   E-COMMERCE AND APPLICATIONS

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L   T   P
2   -   4
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RATIONALE

"Electronic commerce" or "Doing, business online" is becoming critical in three inter-related dimensions. Customer-to-business interactions, customer-to-customer, intra-business interactions and business-to-business interactions. Electronic Commerce facilitates the network form of organization where small flexible firms rely on other partner companies for component supplies and product distribution to meet changing customer demand more effectively. The transaction management aspect of electronic commerce enables firms to reduce costs by enabling better coordination in sales, production and distribution processes and automated supply chain network. Electronic Data Interchange (EDI), Electronic Mail and Electronic Fund Transfer (EFT), streamline business process, reduces paperwork and increase automation. The course will enable the students to understand e-commerce, its applications, the processes and the security issues.

DETAILED CONTENTS

1. Electronic Commerce Framework   (6 hrs)
    Defining electronic commerce; technology of digital convergence; convergence of content and transmission types of electronic commerce – inter-organizational E-commerce, EDI over WAN, Extra nets, Electronic Fund Transfer, e-mail, Fax, Intra-organizational e-mail, Customer to Business e-mail, (B2B, B2C, C2C)

    Components of E- commerce
    -       Institutions- Government, Merchants, Manufacturers, Suppliers, consumers, banks, financial institutions
    -       Processes-Marketing, Sales, Payments, Fulfillment, Support
    -       Networks- Corporate, Internet, Commercial

2. Architectural Frame Work of E-Commerce   (6 hrs)

    -       Web architecture – web browser, HTTP, TCP/IP, Web server, HTML, CGI Scripts;
    -       Standards – EDIFACT, EDI

3. Security Issues   (6 hrs)
    Firewalls and proxy application gateways, Secure Electronic Transaction (SET), public and private key encryption, digital signatures and digital certificates, Secure Socket Layer (SSL)

4. Electronic Payment Systems   (8 hrs)
    Digital cash, electronic signatures, Debit cards at Point of Sale (POS), Smart Cards, Online Credit Card based Systems, Electronic Fund Transfer (EFT), Payment gateways

5. Electronic Commerce Applications (8 hrs)
E-Commerce Banking, Online shopping, Business Models and Revenue Models, On-line publishing, E-commerce in retailing industry, Digital Copyrights, Electronic Data Interchange, Electronic Fund Transfer, Electronic Bulletin Boards, Electronic Catalogue

6. Implementation of E-commerce (6 hrs)
Visit most popular sites (as amazon, novle.com, indiamarket.com, Glidemart.com, E Greetings.com, Indian saway.com, himline.com and other latest sites

Developing E-commerce Enabled Applications- getting an internet, merchant bank account, web hosting, obtaining digital certificate, finding a provider of online transactions, creation of purchasing a shopping cart software

7. Legal and Social Issues (4 hrs)

8. Tools for e-commerce: Cold fusion, e-shop etc. (4 hrs)

9. E-Governance, issues, latest scenario of e-commerce in India, resources required for implementing an E-Governance project, guidelines etc.
(8hrs)

LIST OF PRACTICAL

1. Visit most popular e-commerce sites on the internet and comment on their design related issues
2. Crate a site which enables the acceptance of credit card
3. Create a site that includes shopping card to shop on any e-shop
4. List down the security level of various sites their strengths and limitations
5. How you can integrate an e-commerce site with other sites to make a distributed network

INSTRUCTIONAL STRATEGY

The teacher should take the help of inter-net and latest trends to teach this subject effectively. Every topic should be completed with suitable examples and case studies

RECOMMENDED BOOKS

1. Electronic Commerce – A Manager's Guide by Ravi Kalakota and Andrew B. Whinston; Addison Wesley (Singapore) Pvt Ltd, New Delhi
2. "E-Business – Roadmap for Success" by Ravi Kalakota and Maxia Robinson; Addison Wesley (Singapore) Pvt Ltd, New Delhi
3. E-Business (R) Evolution by Amor; Addison Wesley (Singapore) Pvt Ltd, New Delhi
4. Ontiers of Electronic Commerce by Ravi Kalakota and Andrew B. Whinston; Addison Wesley (Singapore) Pvt Ltd, New Delhi
5. E-Business with Net Commerce (with CD) by Shurety; Addison Wesley (Singapore) Pvt Ltd, New Delhi

6.4   COMPUTER GRAPHICS
(Common with Computer Engineering)

L   T   P
2   -   3

RATIONALE

This subject will enable the students to have awareness about fundamental graphics which can be generated through computers using programming language C. He will be able to make picture and introduce motion in them using basic transformation.

DETAILED CONTENTS

1.   Graphic Systems   (6 hrs)
Display devices, physical input and output devices, display processors graphics software coordinate representation, graphics functions and standards.

2..   Scan conversion and Output Primitives   (6 hrs)

-        Scan converting the point
-        Scan converting the straight line - Bresenham's line algorithm.
-        Scan converting a circle - Defining a circle
-        Bresenham's circle algorithm.
-        Region filling - introduction, flood filling, boundary filling
-        Side effects of scan conversion.

Graphic primitives in C, Point plotting, line drawing algorithms – DDA algorithms, Bresenham's line algorithms, circle-generating algorithms, ellipses

3.   Two-Dimensional Transformations   (6 hrs)
Basic transformations-translation, scaling, rotation, matrix representations and homogeneous coordinates, composite transformations – scaling relative to a fixed pivot, rotation about a pivot point, general transformation equations, other transformation – reflection.

4.   Windowing and Clipping Techniques   (6 hrs)
Windowing concepts clipping algorithms, area clipping, line clipping, polygon clipping, text clipping, blanking, window to-viewpoint transformation, Cohen Sutherland clipping algorithm.

5.   Three Dimensional Graphics   (4 hrs)
Three dimensional transformation, wire frame model, hidden line and hidden surface elimination

6.   Perspective and Parallel transformations, vanishing points, perspective anomalies   (4 hrs)

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LIST OF PRACTICALS

Write programs for following:

1.   To draw a line

2.   To move a character about a line

3.   To move two characters in. opposite direction.

4.   To draw a circle

5.   To move a character along circumference

6.   To move along radius.

7.   To use 2-d translation technique,

8.   To use 2-d scaling technique

9.   Ta use 2-d rotation technique.

10.   To use 2-d reflection technique

11.   Animation using corel move.

INSTRUCTIONAL STRATEGY

As the subject deals with Core Graphics Packages and techniques with vast applications in Medical Science, Animation Software, Image Processing, Compression techniques. Teacher is required to expose basic idea of graphics and implementation of various algorithms in C Programming language. The teacher should make the students to write the algorithm first and then based on those algorithms make them implement.

RECOMMENDED BOOKS

1.   Principles of Interactive Computer Graphics by WM Newman and RF Spraull

2.   Theory and problems of Computer Graphics by Roy A Plastock and Gordon Kalley. McGraw Hill Publishers, Schaum's Outline series.

3.   Interactive Computer Graphics by Harengton

4.   Computer Graphics Programming Approach by Steven Harrington

5.   Computer Graphics by Donald Hearn and M Pauline Baker

6.   Computer Graphics for Engineers by A Rajaraman, Narosa Publishing House Pvt Ltd Daryaganj, New Delhi 110002

6.5   ENTREPRENEURSHIP DEVELOPMENT AND MANAGEMENT

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RATIONALE

Entrepreneurship Development and Management is one of the core competencies of technical human resource. Creating awareness regarding entrepreneurial traits, entrepreneurial support system, opportunity identification, project report preparation and understanding of legal and managerial aspects can be helpful in motivating technical/ vocational stream students to start their own small scale business/enterprise. Based on the broad competencies listed above, following detailed contents are arrived to develop the stated competencies.

DETAILED CONTENTS

(1)   Entrepreneurship   (4 hrs)

    1.1   Concept/Meaning
    1.2   Need
    1.3   Competencies/qualities of an entrepreneur

(2)   Entrepreneurial Support System   (6 hrs)

    2.1   District Industry Centres (DICs)
    2.2   Commercial Banks
    2.3   State Financial Corporations
    2.4   Small Industries Service Institutes (SISIs), Small Industries Development Bank of India (SIDBI), National Bank for Agriculture and Rural Development (NABARD), National Small Industries Corporation (NSIC) and other relevant institutions/organizations at State level

(3)   Market Survey and Opportunity Identification (Business Planning)   (6 hrs)

    3.1   How to start a small scale industry
    3.2   Procedures for registration of small scale industry
    3.3   List of items reserved for exclusive manufacture in small scale industry
    3.4   Assessment of demand and supply in potential areas of growth
    3.5   Understanding business opportunity
    3.6   Considerations in product selection
    3.7   Data collection for setting up small ventures

(4)   Project Report Preparation   (6 hrs)

    4.1   Preliminary Project Report
    4.2   Techno-Economic feasibility report

4.3   Project Viability

(5)   Managerial Aspects of Small Business   (8 hrs)

5.1   Principles of Management (Definition, functions of management viz planning, organisation, coordination and control
5.2   Operational Aspects of Production
5.3   Inventory Management
5.4   Basic principles of financial management
5.5   Marketing Techniques
5.6   Personnel Management
5.7   Importance of Communication in business

(6)   Legal Aspects of Small Business   (6 hrs)

6.1   Elementary knowledge of Income Tax, Sales Tax, Patent Rules, Excise Rules
6.2   Factory Act and Payment of Wages Act

(7)   Environmental considerations   (6 hrs)

7.1   Concept of ecology and environment
7.2   Factors contributing to Air, Water, Noise pollution
7.3   Air, water and noise pollution standards and control
7.4   Personal Protection Equipment (PPEs) for safety at work places

(8)   Miscellaneous   (6 hrs)

8.1   Human relations and performance in organization
8.2   Industrial Relations and Disputes
8.3   Relations with subordinates, peers and superiors
8.4   Motivation – Incentives, Rewards, Job Satisfaction
8.5   Leadership
8.6   Labour Welfare
8.7   Workers participation in management

(9)   Motivation   (4 hrs)

9.1   Factors determining motivation
9.2   Characteristics of motivation
9.3   Methods of improving motivation
9.4   Incentives – pay, promotion, rewards

(10)   Leadership   (2 hrs)

10.1   Need for leadership
10.2   Functions of a leader
10.3   Factors to be considered for accomplishing effective leadership

RECOMMENDED BOOKS

1.   A Handbook of Entrepreneurship, Edited by BS Rathore and Dr JS Saini; Aapga Publications, Panchkula (Haryana)

2.   Entrepreneurship Development by CB Gupta and P Srinivasan, Sultan Chand and Sons, New Delhi

3.   Environmental Engineering and Management by Suresh K Dhamija, SK Kataria and Sons, New Delhi

4.   Environmental and Pollution Awareness by Sharma BR, Satya Prakashan , New Delhi

5.   Thakur Kailash, Environmental Protection Law and policy in India: Deep and Deep Publications, New Delhi

6.   Handbook of Small Scale Industry by PM Bhandari

7.   Marketing Management by Philip Kotler, Prentice Hall of India, New Delhi

8.   Total Quality Management by Dr DD Sharma, Sultan Chand and Sons, New Delhi.

9.   Principles of Management by Philip Kotler TEE Publication

6.6   MAJOR PROJECT WORK
(Industry /Field Oriented)

L T P
- - 10

RATIONALE

Major Project Work aims at developing innovative skills in the students whereby they apply in totality the knowledge and skills gained through the course work in the solution of particular problem or by undertaking a project. The individual students have different aptitudes and strengths. Project work, therefore, should match the strengths of students. For this purpose, students should be asked to identify the type of project work, they would like to execute. It is also essential that the faculty of the respective department may have a brainstorming to identify suitable project assignments for their students. The project assignment can be individual assignment or a group assignment. There should not be more than 3 students if the project work is given to a group. The students should identify themselves or accept the given project assignment at least two to three months in advance. The project work identified in collaboration with industry should be preferred.

Each teacher is expected to guide the project work of 5–6 students. Some of the the project assignments may consist of:

- Handling different software and Surfing Internet

- Web Page Designing

- Software Development

- Networking

- Web site designing hosting and maintenance using web designing tools

- Database Management system using oracle 8i

- Management Information System

- Developing application based on C and C++

- Developing application using Visual languages

- Developing system software using C and C++

- Developing projects related to office automation

- Developing projects related to industrial automation

- Developing software related to E-Commerce

- Developing Interactive applications using Java Applets etc

- Developing Internet applications using Java script

A suggestive criteria for assessing student performance by the external (personnel from industry) and internal (teacher) examiner is given in table below:

Sr No	Performance criteria	Max.** marks	Rating Scale				
			Excellent	Very good	Good	Fair	Poor
1.	Selection of project assignment	10	10	8	6	4	2
2.	Planning and execution of considerations	10	10	8	6	4	2
3.	Quality of performance	20	20	16	12	8	4
4.	Providing solution of the problems or production of final product	20	20	16	12	8	4
5.	Sense of responsibility	10	10	8	6	4	2
6.	Self expression/ communication skills	5	5	4	3	2	1
7.	Interpersonal skills/human relations	5	5	4	3	2	1
8.	Report writing skills	10	10	8	6	4	2
9.	Viva voce	10	10	8	6	4	2
Total marks		100	100	80	60	40	20

The overall grading of the practical training shall be made as per following table:

	Range of maximum marks	Overall grade
i)	More than 80	Excellent
ii)	79 <> 65	Very good
iii)	64 <> 50	Good
iv)	49 <> 40	Fair
v)	Less than 40	Poor

In order to qualify for the diploma, students must get "Overall Good grade" failing which the students may be given one more chance of undergoing 8 -10 weeks of project oriented professional training in the same industry and re-evaluated before being disqualified and declared "not eligible to receive diploma ". It is also important to note that the students must get more than six "goods" or above "good" grade in different performance criteria items in order to get "Overall Good" grade.

Important Notes:

1. **This criteria must be followed by the internal and external examiner and they should see the daily, weekly and monthly reports while awarding marks as per the above criteria.**

2. **The criteria for evaluation of the students have been worked out for 100 maximum marks. The internal and external examiners will evaluate students separately and give marks as per the study and evaluation scheme of examination.**

3.   **The external examiner, preferably, a person from industry/organization, who has been associated with the project-oriented professional training of the students, should evaluate the students performance as per the above criteria.**

4.   **It is also proposed that two students or two projects which are rated best be given merit certificate at the time of annual day of the institute. It would be better if specific nearby industries are approached for instituting such awards.**