MOHANLAL SUKHADIA UNIVERSITY, UDAIPUR

ADD-ON DIPLOMA COURSES

IT-AD01: ADD-ON DIPLOMA IN VISUAL BASIC .NET

Objective: To provide students with the knowledge and skills needed to develop applications in Microsoft Visual Basic .NET for the Microsoft .NET platform. This course is designed to serve as the basic course for .NET courses

Eligibility: Passed 10+2 examination and proficiency in computer Programming (C language) and Database Management System.

Reservation: SC/ST/OBC as per university rules.

Duration: One year part time, 80 hrs of teaching

Fee: Regular students from Constituent colleges: Rs 2000/- for students of courses where add-on courses are compulsory, Rs 2500/- for others. Students from other institutions: Rs 3000/-

Seats: Thirty . The course will be offered only against admission of a minimum of 15 candidates

Examination: Examination will be conducted by a board consisting of an internal examiner and an external examiner on the basis of a MCQ on-line /off-line test of 1 hr duration (50 questions, 100 marks) and practical test of 3hrs (100 Marks). Total marks of the examination will be 200. Rs 200/- per candidate will be collected by the computer center towards the MCQ based OMR/Online test in addition to the university examination fee.

In order to eligible for the Diploma, candidate is required to score 50% of the total marks. Those who fail to get 50% marks will be required to reappear in the examination as and when conducted by the university. A Certificate will be awarded instead of Diploma to the candidates who are allowed to take this course independently, not as an Add-on course

Syllabus

IT-AD01: Visual Basic .NET Programming

Basic .NET Concepts, Exploring the Development Environment, Creating a Visual Basic .NET Project, Forms and Controls: Understanding Programming Concepts, Working with Windows Forms, Working with Controls, Styling Your Code Variables and Arrays: Introduction to Data Types, Using Variables, Variable Scope, Converting Data Types, Creating and Using Structures, Storing Data in Arrays

Creating and using Forms: Creating Procedures, Using Procedures, Using Predefined Functions

Decision Structures and Loops: Using Conditional Expressions, Using Decision Structures, Using Conditional Loop Structures: **Validating User Input:**Restricting User Input, Validating Field Data, Validating Form Data

Object-Oriented Programming in Visual Basic .NET: Understanding Classes, Working with Classes, Using Shared Members, Inheritance, Polymorphism, and Namespaces, **Handling Errors and Exceptions:** Types of Errors Using the Debugger Handling Exceptions,**Enhancing**

the User Interface: Creating Menus, Creating Status Bars, Creating Toolbars

Web Forms and XML Web Services Working with Web Forms, Using XML Web Services, ADO.NET: Overview of ADO.NET Working with Data. Introduction to Deployment Deploying a Windows-based Application

Practical

Exercise 1: Creating Your First Application in Visual Basic .NET, Exercise 2: Creating the Main Form, Exercise 3: Using Static Variables,Exercise 4: Creating, Using, and Converting Variables,Exercise5: Creating a Structure, Exercise 6: Creating and Using Arrays Exercise 7: Creating Functions in a Module Exercise 8: Working with the Main Form, Exercise 9: Checking User Input, Exercise 10: Validating User Input. Exercise 11: Creating a Derived Form Class, Exercise 12: Using Try…Catch Blocks, Exercise 13: Using Try…Catch…Finally Blocks, Exercise 14: Creating the User Interface, Exercise 15: Using XML Web Services, Exercise 16: Using the Data Form Wizard and setup wizard, Minor project.

Reference books

1.Programming Microsoft Visual Basic .NET (Core Reference) by Francesco Balena

2. Microsoft Visual Basic .NET Language Reference by Microsoft Corporation

IT-AD02 : ADD-ON DIPLOMA IN Microsoft .NET FRAMEWORK

Objective: The goal of this course is to help application developers understand the Microsoft .NET Framework. In addition to offering an overview of the .NET Framework and an introduction to key concepts and terminology, the course provides a series of labs, which introduce and explain .NET Framework features that are used to code, debug, tune, and deploy applications.

Eligibility: Passed 10+2 examination and proficiency in computer Programming (C language) and Database Management System.

Reservation: SC/ST/OBC as per university rules.

Duration: One year part time, 80 hrs of teaching

Fee: Regular students from Constituent colleges: Rs 2000/- for students of courses where add-on courses are compulsory, Rs 2500/- for others. Students from other institutions: Rs 3000/-

Seats: Thirty. The course will be offered only against admission of a minimum of 15 candidates

Examination: Examination will be conducted by a board consisting of an internal examiner and an external examiner on the basis of a MCQ on-line /off-line test of 1 hr duration (50 questions, 100 marks) and practical test of 3hrs (100 Marks). Total marks of the examination will be 200. Rs 200/- per candidate will be collected by the computer center towards the MCQ based OMR/Online test in addition to the university examination fee.

In order to eligible for the Diploma, candidate is required to score 50% of the total marks. Those who fail to get 50% marks will be required to reappear in the examination as and when conducted by the university. A Certificate will be awarded instead of Diploma to the candidates who are allowed to take this course independently, not as an Add-on course

Syllabus

Microsoft .NET FRAMEWORK

Overview of the Microsoft .NET Framework: Overview of the Microsoft .NET Framework, Overview of Namespaces **Introduction to a Managed Execution Environment:** Writing a .NET Framework Application, Compiling and Running a .NET Framework Application

Creating simple console applications in Visual Basic .NET., Explaining how code is compiled and executed in a managed environment, Explaining the concept of garbage collection.

Working with Components: An Introduction to Key .NET Framework Development Technologies, Creating a Simple .NET Framework Component, Creating a Simple Console Client, Creating an ASP.NET Client

Deployment and Versioning: Introduction to Application Deployment, Application Deployment Scenarios

Common Type System: Introduction to the Common Type System, Elements of the Common Type System, Object-Oriented Characteristics

Working with Types: System.Object Class Functionality, Specialized Constructors, Type Operations, Interfaces, Managing External Types

Strings, Arrays, and Collections: Strings, Collections Defined, .NET Framework Arrays, .NET Framework Collections

Delegates and Events: Delegates, Multicast Delegates, Events, When to Use Delegates, Events, and Interfaces

Memory and Resource Management: Memory Management Basics, Non-Memory Resource Management, Implicit Resource Management, Explicit Resource Management
Optimizing Garbage Collection
Data Streams and Files:Streams. Readers and Writers, Basic File IO

Internet Access: Internet Application Scenarios, The WebRequest and WebResponse Model, Application Protocols,Handling errors,security, best practices Serialization: Serialization Scenarios and attributes,Object graph,Serialization process,custom serialization,security issues Remoting and XML Web Services: Remoting, Remoting Configuration Files,XML Web Services

Reference Books

1. Applied Microsoft .NET Framework by Jeffrey Richter
2. Microsoft .NET Framework 1.1 Class Library Reference Volumes 1-4: System, Paperback, Microsoft Press,

IT-AD03 ADD-ON DIPLOMA COURSE IN WEB DATABASE DEVELOPMENT

Objective: To provide students with intermediate IT training, advanced knowledge and skills needed in utilizing and leveraging IT databases on the Internet. After training students will be able to incorporate database design, development, and deployment into e-commerce sites, dynamic web sites, and business-to-business data collaboration.

Eligibility: Passed 10+2 examination and proficiency in computer Programming (C language), basics of computer networks and Database Management System.

Reservation: SC/ST/OBC as per university rules.

Duration: One Year part time, 80 hrs of teaching

Fee: Regular students from Constituent colleges: Rs 2000/- for students of courses where add-on courses are compulsory, Rs 2500/- for others. Students from other institutions: Rs 3000/-

Seats: Thirty. The course will be offered only against admission of a minimum of 15 candidates

Examination: Examination will be conducted by a board consisting of an internal examiner and an external examiner on the basis of a MCQ on-line /off-line test of 1 hr duration (50 questions, 100 marks) and practical test of 3hrs (100 Marks). Total marks of the examination will be 200. The Test will be conducted by the University computer either by online or by using OMR. Rs 200/- per candidate will be collected by the

computer center towards the MCQ based OMR/Online test in addition to the university examination fee.

In order to eligible for the Diploma Certificate, candidate is required to score 50% of the total marks. Those who fail to get 50% marks will be required to reappear in the examination as and when conducted by the university. A Certificate will be awarded instead of Diploma to the candidates who are allowed to take this course independently, not as an Add-on course

Syllabus

IT-AD03: Web Database Development

HTML Series:Creating High Quality Web Graphics,Layout and Design for Your Web Pages, Making Your Web Pages Interactive, Start Creating Your Own Web Pages, Start Using JavaScript, Using Advanced JavaScript,Using JavaScript for Interactivity,Dynamic HTML Series,Data from Other Sources,DHTML and Style Sheets,Objects and Events,Styles and Content using JavaScript

Dreamweaver :Interface and Web Page Creation Basics, Project Planning, Link Creation, and HTML Editing,Images, Image Maps, and Assets,Tables, Frames, and Framesets,Dynamic HTML,Advanced Behaviors and Forms,Uploading Projects and Working with Templates

Flash: Flash Overview,Drawing, Painting, and Using the Library,Creating Animations,Using Shape Tween and Timeline Effects,Using Sound and Layers, Adding Symbols and Buttons, ActionScript, Behaviors, and Publishing

SQL: Database Maintenance,Database Objects,Query Techniques,Joining Tables

ColdFusion; Introduction and Installation,Talking With the Database,Displaying Data,Programming and Application Framework,Custom Tags and Building Blocks,Using E-mail, Complex Data Types, and FTP,Securing, Debugging, and Improving Application Performance,Using Flash, Java, and XML,Integration and Understanding Fusebox and FliP, Functions, Tags, and Resources

PHP / MySQL :Installing Required Software,PHP Basics,Programming with PHP,Creating Dynamic Web Sites,SQL and MySQL,Advanced SQL and MySQL,Error Handling and Debugging,Using PHP with MySQL

CGI /Perl: Getting Familiar with Forms,Building Programs,Web Applications,Interacting with Databases,XML Series,Viewing and Understanding XML,Creating a Basic Document,Building DTDs and Checking Documents,Entities ,he Document Object Model,CSS and XSL Style Sheets

XML : Viewing and Understanding XML,Creating a Basic Document,Building DTDs and Checking Documents,Entities,The Document Object Model,CSS and XSL Style Sheets

Reference books:

Web Database Development : Step by Step: Books: Jim Buyens

IT-AD04: ADD-ON DIPLOMA COURSE IN WEB SITE DESIGN

Objective: The course focuses on developing the visual graphic and information design skills required to create compelling Web sites.

Eligibility: Passed 10+2 examination and proficiency in computer Programming (C language) and Database Management System.

Reservation: SC/ST/OBC as per university rules.

Duration: One Year part time, 80 hrs of teaching

Fee: Regular students from Constituent colleges: Rs 2000/- for Students of courses where add-on courses are compulsory, Rs 2500/- for others. Students from other institutions: Rs 3000/-

Seats: Thirty. The course will be offered only against admission of a minimum of 15 candidates

Examination: Examination will be conducted by a board consisting of an internal examiner and an external examiner on the basis of a MCQ on-line /off-line test of 1 hr duration (50 questions, 100 marks) and practical test of 3hrs (100 Marks). Total marks of the examination will be 200. Rs 200/- per candidate will be collected by the computer center towards the MCQ based OMR/Online test in addition to the university examination fee.

In order to eligible for the diploma, candidate is required to score 50% of the total marks. Those who fail to get 50% marks will be required to reappear in the examination as and when conducted by the university. A

Certificate will be awarded instead of Diploma to the candidates who are allowed to take this course independently, not as an Add-on course

Syllabus

WEB SITE DESIGN

Intro to Web Design: Learn how the Web evolved, cover the technical fundamentals, and learn the design principles that characterize the leading sites. Through exposure to best (and worst) practices on the Web, you'll learn how to intelligently critique a Website design, both from a functional and an aesthetic standpoint.

Photoshop Basics: Learn the basics of Photoshop in this thorough six-lesson beginner help course. You will learn how to select, enhance, distort, color, scale and manipulate scanned images and artwork — or create them from scratch. Even if you just took your software out of the box, the course will help you learn and tame this creative powerhouse of a program.

HTML :Creating High Quality Web Graphics,Layout and Design for Your Web Pages, Making Your Web Pages Interactive, Start Creating Your Own Web Pages, Start Using JavaScript, Using Advanced JavaScript,Using JavaScript for Interactivity,Dynamic HTML Series,Data from Other Sources,DHTML and Style Sheets,Objects and Events,Styles and Content using JavaScript

Dreamweaver :Interface and Web Page Creation Basics, Project Planning, Link Creation, and HTML Editing,Images, Image Maps, and Assets,Tables, Frames, and Framesets,Dynamic HTML,Advanced Behaviors and Forms,Uploading Projects and Working with Templates

Flash: Flash Overview,Drawing, Painting, and Using the Library,Creating Animations,Using Shape Tween and Timeline Effects,Using Sound and Layers, Adding Symbols and Buttons, ActionScript, Behaviors, and Publishing

SQL: Database Maintenance,Database Objects,Query Techniques,Joining Tables

Color theory for Web design: How We See Color,Color Systems,The Color Wheel Primary, Secondary & Tertiary Colors,Warm and Cool Colors, Variations of Warm & Cool Colors,Three Basic Attributes of Color,, Hue, Value, Comparing Values of Colors, Value Matching Tests, Why Value Matters, Why Value and Text Matter, Web Site Value Contrasts - Page Analysis, Web Site Value Contrasts - ,backgrounds Web Site Value Contrasts – Buttons, Web Site Value Contrasts, Banners, Saturation,Tints, Tones & Shades,Complementary Colors, Color Harmony : Guidelines for Web Site Color Harmonies ,Harmonies & Non-Harmonies, Harmony Guidelines: Color effects :Substance and Surface, Substance & Surface in Web Site Design, Color Interaction, Color and Shape, The Illusion of Transparency, Transparency and Web Design, Fundamentals of Typography,Classification of typefaces and their creative use, Design and Composition for web site **,** Information Design.
Web Design: Project planning, layout, usability, learning different design styles, adding popup windows, forms, and CSS.
E-Commerce sites Building a well-conceived e-commerce Web site for small business clients.

Reference books:

Professional Web Site Design from Start to Finish (Paperback) by Anne-Mare Concepcion

IT-AD05 ADD ON DIPLOMA COURSE IN DATA MINING

Objective: To provide in depth professional knowledge in the area of Data mining by introducing students to different data mining methods. This course is mainly designed as an add-on course for post graduate students

Eligibility: Graduate in Science subjects with 50% marks

Reservation: SC/ST/OBC as per university rules.

Duration: One Year part time, 80 hrs of teaching

Fee: Regular students from Constituent colleges: Rs 2500/- for Students of courses where add-on courses are compulsory, Rs 3000/- for others. Students from other institutions: Rs 3500/-

Seats: Thirty. The course will be offered only against admission of a minimum of 15 candidates

Examination: Examination will be conducted by a board consisting of an internal examiner and an external examiner on the basis of a MCQ on-line /off-line test of 1 hr duration (50 questions, 100 marks) and practical test of 3hrs (100 Marks). Total marks of the examination will be 200. Rs 200/- per candidate will be collected by the computer center towards the MCQ based OMR/Online test in addition to the university examination fee.

In order to eligible for the diploma, candidate is required to score 50% of the total marks. Those who fail to get 50% marks will be required to reappear in the examination as and when conducted by the university. A

Certificate will be awarded instead of Diploma to the candidates who are allowed to take this course independently, not as an Add-on course

SYLLABUS

DATA MINING

Introduction to data mining: basic data mining tasks, Data mining versus knowledge discovery in database, data mining issues and metrics, practical applications of data mining.

Basic concepts: Database/OLTP systems, Fuzzy sets and Fuzzy logic, information retrivel,Decision support systems, Dimensional modeling, Data warehousing, OLAP,Web search engines, Statistics, Machine learning, pattern matching

Data mining techniques: Statistical perspective on data mining, similarity measurements, decision trees, Neural networks, Genetic algorithms

Classification: Issues in classification, Statistical based algorithms, distance based algorithms, decision tree based algorithms, Neural network based algorithms, rule based algorithms, combining techniques

Clustering: Similarity and distance measures, outliers, **hierarchical algorithms**: *Agglomerative and divisive algorithms*, **partitional algorithms**: *Minimum spanning tree, Squared error clustering,K-Means clustering,Nearest neighbour,PAM,Bond energy, clustering with genetic, clustering with neural networks*.
Clustering large databases: *BRCH,DBSCAN,CURE*, clustering with categorical attributes, comparison.

Association Rules:

Large itemsets, basic algorithms : *Apriori algorithms, sampling algorithm,partitioning,* parallel and distributed algorithms*: Data parallelism and Task parallelism*, comparing approaches,incremental rules, Advanced association rule techniques: *Generalised Association rules,Multiple level,Quantitative association rules, Using Multiple minimum supports,Correlation rules,* Measuring the quality of rules.

Web Mining: Web content mining: *Crawlers, Harvest system, Virtual Web view,personalization,*Web structure mining*: PageRank,Clever*, Web usage mining: *Preprocessing, data structures, pattern discovery ,pattern analysis.*

Spatial Mining: Spatial data Overview: *Spatial Queries, Spatial Data Structures, Thematic maps, Image databases.* Spatial data mining primitives, Generalization and Specialization:*Progressive refinement,Generalisation,Nearest Neighbour,STING*

Spatial rules, Spatial classification algorithm:*ID3 extension and Spatial Decision tree.*

Spatial clustering Algorithms:

CLARANS,SD(CLARANS),DBCLASD,BANG,Wave cluster.

Temporal Mining: Modelling Temporal Events, Time series: *Time series analysis,Trend Analysis,Transformation,Similiarity,Prediction*, Pattern Detection, introductory concepts of Sequences and , Temporal association rules.

Introduction to data mining softwares

Reference Book:

Data Mining : Introductory and Advanced Topics, Margaret H Dunham, Pearson Education 2003

IT-AD06 ADD-ON DIPLOMA IN COMPUTATIONAL METHODS IN BIOINFORMATICS

Objective: To provide basics about the computational problems in the emerging areas Bioinformatics, Computational Biology, and Genomics to the students having varied backgrounds of engineering, computer science, and the life sciences. The course is aimed at training these students in computational to work in the area of bioinformatics and computational biology.

Eligibility: 10+2 or Higher and regular students of Life Sciences, Biotechnology with working knowledge of computers

Reservation: SC/ST/OBC as per university rules.

Duration: One Year part time, 80 hrs of teaching

Fee: Regular students from Constituent colleges: Rs 2000/- for Students of courses where add-on courses are compulsory, Rs 2500/- for others. Students from other institutions: Rs 3000/-

Seats: Thirty. The course will be offered only against admission of a minimum of 15 candidates

Examination: Examination will be conducted by a board consisting of an internal examiner and an external examiner on the basis of a MCQ on-line /off-line test of 1 hr duration (50 questions, 100 marks) and practical test of 3hrs (100 Marks). Total marks of the examination will be 200. Rs 200/- per candidate will be collected by the computer center

towards the MCQ based OMR/Online test in addition to the university examination fee.

In order to eligible for the Diploma, candidate is required to score 50% of the total marks. Those who fail to get 50% marks will be required to reappear in the examination as and when conducted by the university. A Certificate will be awarded instead of Diploma to the candidates who are allowed to take this course independently, not as an Add-on course

SYLLABUS

COMPUTATIONAL METHODS IN BIOINFORMATICS

Computing Infrastructure: (Brief survey) Computer Architecture, Computer Networks, PC's, Desktops, Workstations, Parallel and Super computer, Operating System, Basics of Computer Software: Algorithms, Data Structures, programming Languages, Networks: Communication Models, Transmission Technology, Protocol, Bandwidth, Toplogy, hardware and Software for Networks, Network Security, Web Pages

Introduction to computational biology and bioinformatics

DATABASES: Definition, Data Management, Data Life Cycle, Database Technology, Interfaces, Implementation using MS Access

Search Engines : The Search Process, Serach Engine Technology, Searching and Information theory, Search Algorithms and Approximate searches, Search engines and Knowledge Management

Data Visualization: Sequence Visualization-Sequence Maps, Structure Visualization: Visualization and Rendering tools, User Interface, Animation and Simulations, Software for Visualization and simulations

Biostatistics: Basics, Quantifying Randomness, Data Analysis, tool Selection, Statistics of alignment, Clustering and Classification

Data Mining: Methods: Slection and sampling, Preprocessing and Cleaning, Transformation and Reduction, Data Mining methods, Evaluation and Visualization, Desiging new queries, Overview of Data Mining Technologies, Pattern Recoginition and Discovery, Introductio0n to Machine Learning :Inductive Logic programming, Genetic algorithms,Neural networks, Statistical methods, Decuision Tress, Hidden Markov Models. Text mining: Natural Language Processing, Text summarization. Tools for Machine learning

Pattern Matching : Fundamentals: Pairwise Sequence Alignmnet,Local Versus Global Alignment, Multiple Sequence Alignment, Fot Matrix Analysis, Substitution Matrices, Dynamic Programming

Brief introduction to Bioinformatics Tools and databases for Molecular and Genome Analyses, Case studies: Any two tools (Each candidate will be required to select two tools for case study

Reference book

Bioinformatics computing, Bryan Bergeron, Pearson Education 2003

IT-AD 07 ADD-ON DIPLOMA COURSE IN MODERN EDUCATIONAL TECHNOLOGIES

Objective of the course: This course is designed for the teachers and corporate trainers who are interested in making use of modern IT technologies in teaching and training program. The programme can be persued as a Add-on Diploma programme by the students of B.Ed course or Post-graduate students of the university or as a Part-time diploma programme by others.

Eligibility: Graduate with B.Ed or Post Graduate with 50% marks. Regular students of B.Ed. and Post Graduate courses will be eligible to offer this course as an add-on Diploma course.

Admission: Merit list on the basis of an entrance examination of 1 hour duration to test proficiency in computer basics and English language. Candidate must be prepared to give online examination if required.

Reservation: SC/ST/OBC as per university rules.

Duration: One year part time, 80 hrs of teaching

Fee: Regular students from Constituent colleges: Rs 2000/- for Students of courses where add-on courses are compulsory, Rs 2500/- for others. Students from other institutions: Rs 3000/-

Seats: Thirty. The course will be offered only against admission of a minimum of 15 candidates

Course structure: There will be one theory and one practical papers. Theory papers will be of 40 hrs duration per year and practical will be of 40 hrs.Multimedia Projector based class room, broad band based Internet connectivity, Webserver and a networked computer laboratory consisting minimum 15 computers for 30 students in two batches(One computer per student) Rs 200/- per candidate will be collected by the University Computer center towards the MCQ based OMR/Online test in addition to the university examination fee.

Examination: Examination will be conducted by a board consisting of an internal examiner and an external examiner on the basis of a MCQ on-line /off-line OMR based theory test of 2 hr duration (50 questions, 100 marks and a practical test of 3hrs (100 Marks). Total marks of the examination will be 200.

In order to eligible for a Diploma, candidate is required to score 50% of the total marks. Those who fail to get 50% marks will be required to reappear in the examination as and when conducted by the university. A Certificate will be awarded instead of Diploma to the candidates who are allowed to take this course independently, not as an Add-on course

SYLLABUS

MODERN EDUCATIONAL TECHNOLOGIES

Networking Basics, Network protocols, Network Topologies, Data Communications Basics (band width, data rate, communication channel).Wireless network,WI-FI campus, Basic information and visual identification of local area network devices: Network Interface cards, RJ-45 socket and connector, UTP cables and colour codes, OFC cable, Wireless Network Interface cards, UTP cables for megabit and Gigabit

networks, Identification of network I/O sockets, Hubs,Switches and Routers . Campus LAN and WAN

Wide area networks, Telephony, ISDN, Broadband, Leased line and VSAT connections,Internet Connection, IP addresses and Domains, The Internet Server ,Internetworking ,Building a "Quick & Easy" Peer-to-Peer LAN, Client-Server networks.
Hardware :Selection ,Installation,Troubleshooting and maintenance ,Administration, Upgrades,Software:Selection, Installation, Troubleshooting and maintenance, Administration, Upgrades, Educational Computer Networks, Planning

Installation, Troubleshooting and maintenance,Administration, Facilities: Computer lab design, classroom technology integration, Multimedia networks, Band width requirement, audio and video formats, Streaming, campus community radio, IP radio and IP TV broad casting, Video conferencing, Brief survey of current Audio/Video Technologies.,

Web based Educational Tools: Web servers, Mail servers, FTP and Telnet. Undertsanding URL, Web browsers, Internet searching, advanced searching techniques, Web portals, Case study: Yahoo ,Google. Setting of Internet explorer. Web pages: Introduction to HTML, HTML Tags and Page Composition, Web Page Style Considerations**:** Basic Color, Graphics and Typefaces for Web Pages

Introduction to WYSIWYG Web Page Editors, MS Front Page, Page design and style considerations , Advanced Page Design: Using Tables and Frames to Control Page Format, Optimizing Web Pages for Instructional Use, Preparing Graphics and Animations, Forms, Introduction to Cascading Style Sheets (CSS),Building an In-School

Intranet, Directions in Educational use of the Web, Course home page design.

Curriculum Integration using Web, on line course assignments, Authoring ,Consulting, Resource integration. Web delivery of distant education, digital repositories, e-books and digital libraries, virtual laboratories, quality of information sources, Design of Lecture room and conference room for use of modern ICT equipments, Language lab equipments and softwares, on line examination, Understanding operation and specifications of Multimedia projectors, Display boards, Electronic writing boards. Presentation software, brief study of facilities in MS Powerpoint for prepartion of presentations, integration of audio, graphics and video into the presentation. Budget and Acquisitions: Budget planning, Emerging Technologies.

Case studies: Course home pages hosted by schools, colleges and universities, Internet educational resources: Tutorials, e-books, Lecture notes and Virtual Laboratories in different subjects, e-journals

Practical

1. Study of specification, configuration and installation of computers & note book computers
2. Study of network topology, network devices and network media
3. Network configuration
4. Setting up internet connection and configuration of Internet browser
5. E-mail account creation, participating discussion forums, chat

6. Use of FTP, Telnet
7. Web page creation using HTML and Front page
8. Web hosting and preparing course home pages
9. Searching methods
10. Preparing presentation incorporating audio, graphics and video
11. Study of specification and working of Multimedia Projectors
12. Use of Electronic boards
13. Video conferencing
14. On line examination: Preparation of MCQ, conducting on line exams
15. Case studies: use of virtual labs

Reference Books:

1. Information Technology:Principles , Practices and Oppertunities by James A Senn, Printice Hall

2. Computer Essentials in Education the Teaching Tools (Paperback) by Erickson

IT-AD08: ADD ON DIPLOMA IN COMPUTER NETWORK DESIGN AND INSTALLATION

Objective of the course: This course is designed to impart professional training to the students of computer Science, computer applications, computer engineering in design and installation of computer networks. The training is designed to meet the present industry standards so as to qualify the CISCO certifications.

Eligibility: 10+2 or higher . Regular students of undergraduate or post graduate courses in Computer Science, IT, Computer Engineering, Electronics Engineering, Electronics, Physics, Computer Applications will be eligible to offer this course as an add-on Diploma course.

Reservation: SC/ST/OBC as per university rules.

Duration: One year part time, 120 hrs of teaching

Fee: Regular students from Constituent colleges: Rs 3000/- for students of courses where add-on courses are compulsory, Rs 3500/- for others. Students from other institutions: Rs 4000/-

Seats: Thirty. The course will be offered only against admission of a minimum of 15 candidates

Course structure: There will be one theory and one practical papers. Theory papers will be of 60 hrs duration per year and practical will be of 60 hrs.Multimedia Projector based class room, Network Lab as per standard prescribed for CISCO Certification, broad band based Internet

connectivity, Webserver and a networked computer laboratory consisting minimum 15 computers for 30 students in two batches(One computer per student)

Examination: Examination will be conducted by a board consisting of an internal examiner and an external examiner on the basis of a MCQ on-line /off-line OMR based theory test of 2 hr duration (50 questions, 100 marks and a practical test of 3hrs (100 Marks). Total marks of the examination will be 200. RS 200/- will be collected by the University Computer Centre for conducting the MCQ/On-line examination in addition to the prescribed examination fee of the university.

In order to eligible for a Diploma, candidate is required to score 50% of the total marks. Those who fail to get 50% marks will be required to reappear in the examination as and when conducted by the university. A Certificate will be awarded instead of Diploma to the candidates who are allowed to take this course independently, not as an Add-on course

SYLLABUS

COMPUTER NETWORK DESIGN AND INSTALLATION

Networking fundamentals : communication model, communication tasks, categories of communication networks into lan,man,wan. Protocols: characteristics and functions, network models: layered models, using layers for data communication, the osi reference model, osi layers and functions, tcp/ip model, encapsulation process, overview of different protocols associated with each layers. Overview of network devices: repeaters, hubs, network interface cards, switches, bridges, routers. Voice, DSLl, Cable modem and optical devices, security devices, wireless devices.

Transmission terminology: frequency,spectrum,bandwidth, transmission impairments. Network topologies: bus,star and ring, hierarchical topology, full mesh and partial mesh topologies, logical topology

Networking Media :Copper Media: American Wire Gauge, Twisted pair cable,STP and UTP, Coaxial cable, Cable specification and Termination. Optical Media: The Electromagnetic Spectrum, Total Internal reflection, OFCs, Multimode and Single Mode cables, Cable Designs, Optical Networking components, Signals and Noises in OFC, Installation, care and Testing of Optical Fiber. Network Cabling and Testing: Analog and Digital bandwidth, Signals and Noises on Network media, Structured Cabling Systems, Standards and Codes, Tools, Installation process. Cabling the LANs: LAN physical layer, Ethernet Media and Connection Requirements, LAN connection Devices, Peer-peer Networks and Client Server Network installation., Cabling WAN:WAN physical layer, WAN serial connection, Routers and Serial, ISDN,DSL and Cable connections. Setting up Console connection

Ethernet fundamentals Introduction to Ethernet, Ethernet and OSI model,MAC addressing, Ethernet frame structure and fields. Ethernet Operation: Media Access control, Ethernet MAC, Simplex, Duplex operations, Ethernet timing, Interframe spacing, Error Handling, Types of collisions, Ethernet errors, Collision Domains and Broadcast Domains.

ethernet technologies and ethernet switching: 10 and 100 mbps ethernet, gigabits, 10gbps and future ethernet, ethernet switching:layer 2 and layer 3 switching, microsegmentation, swirching modes and brief overview of spanning tree protocol

TCP/IP Protcol and IP addressing TCP/IP model and its comparison with OSI Model, Internet Architecture. IP address: IPV4 addressing, IP address classes, Reserved IP addresses, Public and Private addresses, Subnetting ,Fields in IPV4 Header, overview of IPV6 and its comparison with IPV4. Obtaining IP addresses, Static assignment, ARP and RARP, BOOTP and DHCP.

Routing Fundamentals and Subnets: Routed, Routable and Routing protocols. The mechanism of Subnetting , CIDR. TCP/IP Transport and Application Layer: TCP/IP transport layer :Flow control, Sessions. Windowing, TCP and UDP, port Numbers. Application layer: DNS, FTP, TFTP,HTTP,SMTP,SNMTP, Telnet

Routing & Routers

WANs and Routers: WAN characteristics, WAN routers. Router Fundamentals: Router Boot Sequences and setup mode, Establishing HyperTerminal session, CISCO IOS software fundamentals. Router Configuration.

Managing CISCO IOS software, Introduction to CDP, getting information about remote Devices. Routing and Routing protocols: Routing basics, Static routing, Dynamic routing, Identifying the class of routing protocols.

Distance Vector Routing protocols: Distance vector Routing, Examining Routing table, RIP features, IGRP.

TCP/IP Error and Control Messages: ICMP, TCP/IP suite Control Messages. Basic Router trouble shooting. Intermediate TCP: The TCP/IP protocol suite, Overview of Transport layer ports, TCP/IP and Internet Layer.

Access Control Lists: ACL overview, Creating and Using ACL, Working of ACL, Standard ACLs, Extended ACLs, Named ACLs, Firewall.

Switching Basics and Intermediate Routing

Introduction to classless Routing: CIDR, VLSM, Route summarisation, Route Flapping, RIP version 2, default routers. Single area OSPF: Concepts of OSPF, configuration of OSPF. Enhanced IGRP overview,EIGRP features and Technologies, EIGRP packet types, convergence, configuring EIGRP

Switching concepts and LAN design: Ethernet LANs, LAN switching, Basic operation of a switch LAN design. Switches: Overview, Starting switches, LAN switches and Hierarchical network design, Core layer Overview.

Switch configuration: Microsegmentation, Switch forwarding, Switches and Collison domains, Communication between switches and PCs. Configuration of a Catalyst switch. Managing MAC address Table. Spanning Tree protocol: redundant topology overview, Spanning Tree overview, STP and RSTP.
Virtual LANs: VLAN introduction, Broadcast Domain with VLAN and Routers, Operation and benefits of VLANs, VLAN configuration, VLAN

frame identification. VLAN trunking protocol: Trunking, VTP, Inter-VLAN routing.

Wireless Networking: Brief introduction to Protocols, Standards, Wireless Networking devices

Case studies of CISCO Routers and Switches.

Reference Books

CCNA Official Exam Certification Guide, Second Edition,CISCO Press 2007

CCNA Official Exam Certification Library, Third Edition 2007

CCNA Self-Study: Interconnecting Cisco Network Devices (ICND) 2007

CCNA Self-Study: Introduction to Cisco Networking Technologies 2007

IT-AD09: ADD ON ADVANCE DIPLOMA IN LINUX OPERATING SYSTEM, COMPUTER NETWORK ADMINISTRATION AND MANAGEMENT

Objective of the course: This course is designed to impart advanced professional training to the students of computer Science, computer applications, computer engineering who are already trained in the design and installation of computer networks to administer and manage networks. The training is designed to meet the present industry standards so as to qualify the CISCO certifications.

Eligibility: 10+2 or higher and successfully completed ITD-AD08. Regular students of undergraduate or post graduate courses in Computer Science, IT, Computer Engineering, Electronics Engineering, Electronics, Physics, Computer Applications and successfully completed ITD-AD08: **DIPLOMA IN COMPUTER NETWORK DESIGN AND INSTALLATION** will be eligible to offer this course as an add-on Diploma course.

Reservation: SC/ST/OBC as per university rules.

Duration: One year part time, 120 hrs of teaching

Fee: Regular students from Constituent colleges: Rs 3000/- for students of courses where add-on courses are compulsory, Rs 3500/- for others. Students from other institutions: Rs 4000/-

Seats: Thirty. The course will be offered only against admission of a minimum of 15 candidates

Course structure: There will be one theory and one practical paper. Theory papers will be of 60 hrs duration per year and practical will be of 60 hrs.Multimedia Projector based class room, Network Lab as per standard prescribed for CISCO Certification, broad band based Internet connectivity, Webserver and a networked computer laboratory consisting minimum 15 computers for 30 students in two batches(One computer per student)

Examination: Examination will be conducted by a board consisting of an internal examiner and an external examiner on the basis of a MCQ on-line /off-line OMR based theory test of 2 hr duration (50 questions, 100 marks and a practical test of 3hrs (100 Marks). Total marks of the examination will be 200. RS 200/- will be collected by the University Computer Centre for conducting the MCQ/On-line examination in addition to the prescribed examination fee of the university.

In order to eligible for a Diploma, candidate is required to score 50% of the total marks. Those who fail to get 50% marks will be required to reappear in the examination as and when conducted by the university.

SYLLABUS

LINUX OPERATING SYSTEM, COMPUTER NETWORK ADMINISTRTATION & MANAGEMENT

BASIC COMPUTER ADMINISTRATION (LINUX/UNIX)

Essential tasks of the system administrator, Booting and shutting down: Bootstrapping,Booting PC's, Booting in single user mode, startup scripts,

rebooting and shutting down. Ownership of files and processes, the superuser, choosing root password and becoming root.

Controlling process: Components of a process, life cycle of a process,signals,Kill, process states, influence scheduling priority, Monitor processes,runaway processes

File System: Path names, mounting and unmounting file systems, organization of the file tree, file types, file attributes

Adding new users: The /ETC/PASSWD file, The FREEBSD/ETC/ ASTER.PASSWD file, The FreeBSD/ETC/LOGIN.CONF file, shadow password file, the etc/group file, adding users, removing users and disabling logins, vendor supplied account management utilities.

Serial Devices: Serial standards,Hardware flow control, serial device files, software configuration, configuration of hardwired terminals, terminal driver, set terminal options. Modems and dial out configurations, debugging a serial line, parallel and USB ports.

Adding Disk: Disk Interfaces, disk geometry, overview of disk installation procedure, check and repair file systems, adding disk to solaris and linux

Periodic processes: schedule commands, format of crontab files,crontab management

Backups: general backup guidelines, Backup devices and media, dumping filesystems, restoring, tar, AMANDA and other backup packages,commercial backup products.

Syslog and Log files: logging policies,finding log files, vendor specific log files,system event logger.

Drivers and the Kernel: Kernel types, configuring solaris, linux. Adding device drivers, device files, loadable kernel modules.

Printing: printer commands, adding printers, printer spoolers.

Maintenance and environment, performance analysis.

NETWORK ADMINISTRATION

NETWORKING: TCP/IP network model, typical network packet, IP addresses and subnetting,IPv6 addressing, routing, ARP,DHCP,PPP,security issues,vendor specific network configuration. Solaris network configuration, Network configuration for RED HAT Linux.

Routing: Packet forwarding, routing daemons and routing protocols,Routed, gated, routing strategy selection criteria, CISCO routers.

DNS: DNS and new features in DNS, DNS namespace,BIND, Working of DNS,BIND client issues,BIND server configuration, BIND configuration examples,DNS database,updating zone files, testing and debugging

Network file system: NFS,server side NFSClient side NFS,NFSSTAT,dedicated NFS file servers,automatic mounting

Sharing system files:Copying files, rdist,rsync, NIS, NIS+, LDAP.

Electronic mail: Mail systems, addressing, mail headers, mail system architecture, mail aliases, SENDMAIL and its configuration.

Network Management: Troubleshhoting a network,Ping, traceroute, netstat, packet sniffers,Network management protocols SNMP,SNMP agents, Network management applications.

Security: Guidelines to secure system, Security problems in /etc/passwd file, security power tools, cryptographic security tools, firewalls.

Web hosting: HTTP server installation, configuring Apache, virtual interfaces caching and proxy servers, anonymous ftp server setup, usenet news.

WAN technologies: Overview, Devices, standards, WAN link operation, WAN Technologies, WAN communication, WAN design

Point to Point protocol: PPP Architecture, Establishing session, Authentication, Serial PPP,TDM, HDLC and its configuration, Configuration of PPP

ISDN and DDR: ISDN overview, standards, Layer model and protocols, ISDN call setup, ISDN functions. ISDN configuration. DDR routing, DDR operation, Configuring DDR dialer information.

Frame Relay: Overview, Global Addressing, Operation. Frame relay Subinterfaces and configuration.

Network Management: Network documentation, Network security,Environment factors ,Network performance, Monitoring Network.

Case study: Network administration under Windows 2003

Reference books

System Administration Handbook, Third edition by Evi Nemeth, Carth Snyder,Scott Seebass and Trent R.Hein, Pearson Education, 2001