STATE COUNCIL FOR TECHNICAL EDUCATION AND VOCATIONAL TRAINING, ODISHA											
TEACHING AND EVALUATION SCHEME FOR **6th SEMESTER** DIPLOMA IN **COMPUTER SCIENCE & ENGINEERING**(wef 2015-16)											
Sl. No.	Subject Code	Subject	Periods/week			Evaluation Scheme					
			L	T	P	Sessional Exams			End Sem Exams	Practical exams	Term Work
						TA	CT	Total			
		Theory									
1	CST-601	E-Commerce	4	-	-	10	20	30	70	-	-
2	CST-602	Internet & Web Technology	4	-	-	10	20	30	70	-	-
3	CST-603	Cryptography & Network security	4	1	-	10	20	30	70	-	-
4	CST-604	Computer System Management Planning & Maintenance	4	-	-	10	20	30	70	-	-
5	CST-605	Elective	4	-	-	10	20	30	70	-	-
		Total	*20*	*1*		*50*	*100*	*150*	*350*	-	-
		Practical/ Term Work									
6	CSP-601	Project Work & Seminar	-	-	6	-	-	-	-	50	50
7	CSP-602	Computer Maintenance & Networking Lab	-	-	4	-	-	-	-	50	25
8	CSP-603	Web Development Lab	-	-	6	-	-	-	-	50	25
		Library studies	-	-	2	-	-	-	-	-	
		Total	-	-	*18*	-	-	-	-	*150*	*100*
		Grand Total	**20**	**1**	**18**	**50**	**100**	**150**	**350**	**150**	**100**
Abbreviations: L-Lecturer, T-Tutorial, P-Practical, TA-Teachers Assessment, CT-Class Test											
Minimum Pass Mark in each Theory subject is 35% and in each Practical subject is 50%											

Elective Subjects :

- Advanced Microprocessor & Peripherals
- Mobile Computing
- Multimedia And Animation Techniques
- Data Mining and Data Ware housing

6th Semester

E-Commerce

Semester & Branch:	6th sem CSE/IT/ETC	Teachers Assessment :	10 Marks
Theory:	4 Periods per Week	Class Test :	20 Marks
Total Periods:	60 Periods per Semester	End Semester Exam :	70marks
Examination:	3 Hours	TOTAL MARKS :	100 Marks

RATIONALE

E- commerce is the basic foundation paper for any hardcore computer engineer. In this subject students will be exposed to the theoretical aspects of different functional parts of E-commerce.

COURSE CONTENT **PERIODS**

1. Intoroduction to E-Commerce **08**

1.1 Introduction
1.2 What is E-commerce
1.3 E-Business
1.4 Categories of E-Commerce Applications
1.5 Global Trading Environment & Adoption of E-commerce
1.6 Comparison between traditional and E-commerce
1.7 Advantage and Disadvantage

2. Business Models of E-Commerce **05**

2.1 Introduction
2.2 Business Models of E-Commerce
2.3 B2C
2.4 B2B
2.5 Difference between B2C and B2B
2.6 C2C

3. B2B e-Commerce and EDI **10**

3.1 Introduction
3.2 Need for B2B
3.3 EDI
3.4 Paperless Transaction
3.5 EDI standards
3.6 Data Standards used in EDI
3.7 Cost of EDI
3.8 Reasons for Slow acceptability
3.9 Electronic Fund Transfer (Canada case eliminated)
3.10 XML and its application
3.11 Comparison of HTML and XML
3.12 Advantage of XML as a Technology

4. Business Applications of E-Commerce **07**

4.1 Introduction
4.2 Trade Cycle
4.3 Supply Chain
4.4 E-Procurement
4.5 Implementing E-Procurement
4.6 Competitive Advantage
4.7 E-Commerce Application in Manufacturing
4.8 E-Commerce Application in Wholesale

4.9 E-Commerce Application in Retail
4.10 E-Commerce Application in Service Sector

5. E-Commerce in Technology 08
5.1 Introduction
5.2 IT infrastructure
5.3 Internet
5.4 Middleware
5.5 Intranet
5.6 Extranet
5.7 VPN
5.8 Firewall
5.9 Cryptography
5.10 Digital Signature
5.11 Digital Envelope
5.12 Digital certificates
5.13 Contents

6. Electronic Payment System 08
6.1 Introduction
6.2 Electronic Payment Mechanism
6.3 Types of Payment System
6.4 Risks Associated with Electronic Payment
6.5 Risk Management option
6.6 Payment Gateway
6.7 Issues of Electronic Payment Technology
6.8 Recommendations
6.9 Internet Banking
6.10 Security Requirement
6.11 Secure Socket Layer
6.12 Biometrics

7. Security Issues in E-Commerce 08
7.1 Introduction
7.2 E-commerce security issues
7.3 Risks involved in e-commerce
7.4 Protecting e-commerce system
7.5 Common E-commerce Security Tools
7.6 Client server Network security
7.7 Data and Message Security

8. Current Trends in Electronic World 06
8.1 E-waste
8.2 E-Surveillance
8.3 E-governance
8.4 E-care

Books

1. E-commerce and Mobile Commerce Technology By : U.S Pandey and S Sukla (S.Chand)
2. e-commerce ; By : Bhushan Dewan (S.Chand & Company Ltd.)
3. e-Commerce; Bhasker; TMH
4. Concepts of e-commerce ; A.K.Pandey; Katson

Internet and Web Technology

Semester & Branch:	6th sem CSE/IT	Teachers Assessment :	10 Marks
Theory:	4 Periods per Week	Class Test :	20 Marks
Total Periods:	60 Periods per Semester	End Semester Exam :	70marks
Examination:	3 Hours	TOTAL MARKS :	100 Marks

RATIONALE

Internet is the buzz word in today's society. It is a vast pool of information. Without the knowledge of Internet we are in total darkness. This papers deals with *TCP/IP* which is the backbone of Internet. Web pages are used to project the profile on an organization, product or person etc. This paper also deals with the design aspects of Web Page.

1.0 Internet Fundamentals **10**

1.1 Motivation for internet working
1.2 Internet Architecture Board
1.3 Internet protocol and standardization
1.4 Role of ISP & Factors for choosing an ISP
1.5 Internet service providers in India
1.6 Types of connectivity such as Dial Up, leased, VSAT etc.
1.7 Properties of Internet
1.8 Internet Architecture
1.9 Interconnection through IP Routers
1.10 All Networks are Equal
1.11 Internet address
1.12 Original classful addressing scheme
1.13 Address specify Network connections
1.14 Dotted Decimal Notation
1.15 Internet addressing authority

2.0 TCP / IP **10**

2.1 TCP / IP internet layering model
2.2 Reliable stream transport service (TCP) , Need for stream delivery
2.3 Properties of reliable delivery service
2.4Providing reliability
2.5 Idea behind slide windows
2.6 Ports connections and end points , Segment, stream, sequence number
2.7 TCP segment format
2.8 TCP header
2.9 TCP checksum
2.10 Acknowledgement
2.11 Time out and retransmission
2.12 Response to congestion
2.13 Establishment of a TCP connection
2.14 Source and destination address
2.15 Protocol number
2.16 Checksum
2.17 Closing TCP connection
2.18 TCP connection reset.

3.0 INTERNET PROTOCOL **10**

3.1 Connection less data gram delivery (Internet protocol)
3.2 Concept of unreliable delivery
3.3 Connection less delivery system
3.4 Purpose of internet protocol

3.5 IP header
3.6 Source and destination address
3.7 Protocol number
3.8 Checksum
3.9 Routing in an internet
3.10 Direct and indirect delivery
3.11 Table driven IP rooting
3.12 Default roots
3.13 Host specific roots
3.14 Rooting with IP address

4.0 Subnet Address Extension **04**

4.1 Introduction to subnet address extension
4.2 Minimizing network numbers
4.3 Transparent routers
4.4 Subnet addressing
4.5 Flexibility in subnet address assignment
4.6 Implementation of subnet with mask
4.7 Subnet mask representation
4.8 Routing in the presence of subnet

5.0 UDP **02**

5.1 Introduction to UDP
5.2 Identifying the ultimate destination
5.3 Format of UDP message

6.0 DOMAIN NAME SYSTEM **04**

1.1 Hierarchical Names
6.2 Subnet Authority
1.2 Internet Domain Names
1.3 Official domain Names
1.4 Mapping of domain name to address
1.5 Domain name resolution
1.6 Efficient translation
1.7 Abbreviation of domain name

7.0 Internet Applications & Services **10**

7.1 E-Mail networks
7.2 E-Mail protocols
7.3 Format of an e-mail message
7.4 E-mail routing
7.5 E-mail clients, POP3,IMAP
7.6 Public domain software
7.7 Types of FTP servers
7.8 FTP clients
7.9 Telnet protocol
7.10 Server domain
7.11 clients
7.12 IRC network & servers
7.12 Channels
7.13 World Wide Web
7.14 Browser

8.0 HTML & Interactive Tools **10**

8.1 Document overview Explain Header elements
8.2 Section headings
8.3 Block oriented elements Discuss Lists

8.4 Inline elements
8.5 Visual markup
8.6Hypertext links
8.7 Uniform Resource Locator Discuss Imagers
8.8 Tables
8.9 Special characters
8.10 CGI (Common Gateway Interface) Explain Active X
8.11 VB Script
8.12 Java Script
8.13 XML application
8.14 XML rules
8.15 Displaying XML documents
8.16 Parts of XML document
8.17 Concepts of DTD
8.18 Entity definition & classification Concepts of templates & its use
Filtering & sorting

Books:

1. Internet working with TCP/IP Vol-I: Principles, Protocols & architecture By Douglas E. Comer - PHI
2. HTML: The definitive guide - By Chuck Musciano & Kennedy
3. Internet working with TCP/IP Vol-II: Design, implementation & internals By Douglas E. Comer -& David L. Stevens – PHI
4. Internet & Web page Design, By : Sisodia; BPB Publication
5.Web Technologies by U.K Roy, Oxford Univ.Press

Cryptography & Network Security

Semester & Branch:	6th sem CSE/IT	Teachers Assessment :	10 Marks
Theory:	4 Periods per Week	Class Test :	20 Marks
Total Periods:	60 Periods per Semester	End Semester Exam :	70marks
Examination:	3 Hours	TOTAL MARKS :	100 Marks

RATIONALE

Now a day almost all It related jobs use the internet as the backbone service. Therefore it is highly essential for an IT professional to have a fare idea on the security aspect of internet service. This paper aims to provide the student with the various security threats in internet and discuss the different techniques to implement this. One of such technique is implementation of cryptography in the confidential data to be floated in the internet.

1. Possible attacks on computers **05**

1.1 The need for security
1.2 Security approach
1.3 Principles of security
1.4 Types of attacks

2. Cryptography concepts **10**

2.1 Plain text & Cipher Text
2.2 Substitution techniques
2.3 Transposition techniques
2.4 Encryption & Decryption
2.5 Symmetric & Asymmetric key cryptography

3. Symmetric & Asymmetric key algorithms **15**

3.1 Symmetric key algorithm types
3.2 Overview of Symmetric key cryptography
3.3 Data encryption standards
3.4 Over view of Asymmetric key cryptography
3.5 The RSA algorithm
3.6 Symmetric & Asymmetric key cryptography
3.7 Digital signature

4. Digital certificate & Public key infrastructure **10**

4.1 Digital certificates
4.2 Private key management
4.3 PKIX Model
4.4 Public key cryptography standards

5. Internet security protocols **10**

5.1 Basic concept
5.2 Secure socket layer
5.3 Transport layer security
5.4 Secure Hyper text transfer protocol(SHTTP)
5.5 Time stamping protocol (TSP)
5.6 Secure electronic transaction (SET)

6. User authentication **04**

6.1 Authentication basics
6.2 Password
6.3 Authentication Tokens
6.4 Certificate based authentication
6.5 Biometric authentication

7. Network Security & VPN **06**

7.1 Brief introduction of TCP/IP
7.2 Firewall
7.3 IP Security
7.4 Virtual Private Network (VPN)

Books :

1. Cryptography & Network security ; By: A. Kahate : TMH
2. Cryptography & Information security; Pachghare ;PHI
3. Cryptography & Network Security – Principals and Practices; By: W.Stallings, Prentice Hall.

Computer System Management, Planning & Maintenance

Semester & Branch:	6th sem CSE/IT	Teachers Assessment :	10 Marks
Theory:	4 Periods per Week	Class Test :	20 Marks
Total Periods:	60 Periods per Semester	End Semester Exam :	70marks
Examination:	3 Hours	TOTAL MARKS :	100 Marks

RATIONALE

This is a subject which will prepare the student to face the industrial environment, in a theoretical manner. It will expose the student to the various computer center management techniques, as well as computer selection procedures. It will acquaint the students to various types of site preparations. In this paper, the student will learn about the various components inside the computer system and their maintenance procedures. Here the student will also learn the various computer trouble shooting methodologies.

1.0 INTRODUCTION **08**

1.1 Describe Need of Management in Computer Centres
1.2 Describe Types of Job carried out in computers in an organisation
1.3 Discuss Duties & responsibilities of personnel involved
1.4 Discuss Hierarchy of position of different levels
1.5 Explain need for training of staff.
1.6 Idea about various computer makes and installations in India
1.7 Name few major vendors in computer hardware and software.

2.0 SELECTION OF COMPUTER SYSTEM **05**

2.1 Discuss Factors affecting selection and evaluation of Computers.
2.2 Discuss Different types of Industries and their computer requirements.
2.3 Give Selection and evaluation of appropriate configuration for different levels of industries.

3.0 SITE PREPARATION & INSTALLATION **12**

3.1 Plan for computer room layout based on size
3.2 Discuss regarding different layout factors & their effect like false Flooring, False roofing, Air conditioning, dust Proofing
3.3 Explain the Need of power conditioning equipments like, CVT, UPS, Isolation circuits, with their principle of functioning.
3.4 Give Interpretation of the installation and wiring diagram
3.5 Describe the steps for actual installation as per the manufacturer's Specified procedures.

4.0 COMPONENTS INSIDE THE COMPUTERS (PC) & THEIR INTERCONNECTION **20**

4.1 Introduction
4.2 Explain Hardware - BIOS interaction
4.3 Give Interconnection between subsystems of PC

4.4 Inside the system unit
> Study of mother board and its components
> Study of functioning of SMPS
> Study of functioning of HDD system interface
> Partitioning and formatting HDD
> Different standards of expansion units ISA, EISA, VESA, PCI.
4.5 Discuss the Post sequence
4.6 Describe Keyboard interface

4.7 Study the steps for Assembling of a computer
4.8 Software settings of computer after installation (CMOS- setup)

5.0 BASIC MAINTENANCE OF COMPUTER AND TROUBLE SHOOTING PROCEDURES. **10**

5.1 Discuss Basic maintenance concepts)
>Preventive
>Corrective and
>On-line maintenance
5.2 Discuss type & nature of fault
5.3 Diagnostic Program and tools
5.4 Give Firmware (POST) concepts
5.5 Discuss Fault elimination process
5.6 Discuss Systematic way of trouble shooting versus adhoc Trouble shooting.
> Symptoms observation
> Symptom analysis
> Fault diagnosis
> Fault rejection

6.0 Basic Networking Devices and their interfacing **05**

6.1 Network Interfacing Card
6.2 Network interconnecting devices such as , Hub, Switch, Router
6.3 Types of network cable.
6.4 Types of network connector.

Books :

1. Computer Management & Planning - by Utpal Baneljee (TMH)
2. PC Hardware, B.Singh; Firewall
3. PC Architecture & Peripherals Part I & II; Firewall

Advanced Microprocessor & peripherals (ELECTIVE)

Semester & Branch: 6th sem CSE/IT	Teachers Assessment : 10 Marks
Theory: 4 Periods per Week	Class Test : 20 Marks
Total Periods: 60 Periods per Semester	End Semester Exam : 70marks
Examination: 3 Hours	TOTAL MARKS : 100 Marks

RATIONALE

Microprocessor is the nervous system of any digital computer and is the major component in the field of Computer Engineering. This subject focuses on the latest developments in the field of microprocessor. It gives the Hardware knowledge to the students in the area of different microprocessor's pin configuration, their specification, internal architecture, I/O interfacing through PPI Intel 8255,8259 etc and overall knowledge in the field of Assembly Language programming for advanced microprocessors. Moreover the students will be exposed towards the real time advanced application of the microprocessor in different areas.

1. THE PROCESSORS: 8086/8088 – ARCHITECTURE, PIN DIAGRAMS AND TIMING DIAGRAM 10

1.1 Register Organisation of 8086.
1.2 Architecture.
1.3 Signal Description of 8086.
1.4 Physical Memory Organisation.
1.5 General Bus Operation.
1.6 I/O Addressing Capability.
1.7 Special Processor Activities.
1.8 Minimum Mode 8086 System & Timing.
1.9 Maximum Mode 8086 System & Timing.
1.10 The Processor 8086.

2. 80286-80287 A MICROPROCESSOR WITH MEMORY MANAGEMENT AND PROTECTION 10

2.1 Salient Features of 80286.
2.2 Internal Architecture of 80286.
2.3 Signal Description of 80286.
2.3 Real addressing Mode.
2.4 Protected Virtual Address Mode (PVAM).
2.5 Privilege.
2.6 Protection.
2.7 Special Operation.
2.8 80286 Bus Interface.
2.9 Basic Bus Operation.
2.10 Fetch Cycle of 80286.
2.11 80286 Minimum System Configuration.
2.12 Interfacing Memory and I/O Device with 80286.
2.13 Priority of Bus Use by 80286.
2.14 Bus Hold and HLDA Sequence.
2.15 Interrupt Acknowledge Sequence.
2.16 Instruction Set Features.
2.17 80287 Math Coprocessor.

3. 80386 - 80387 AND 80486 THE 32-BIT PROCESSOR 10

3.1 Salient Features of 80386DX.
3.2 Architecture and Signal Description of 80386.
3.3 Register Organisaion of 80386.
3.4 Addressing Mode.
3.5 Data Types of 80386.

3.6 Real Address Mode of 80386.
3.7 Protected Mode of 80386.
3.8 Segmentation.
3.9 Paging.
3.10 Virtual 8086 Mode.
3.11 Enhanced Instruction Set of 80386.
3.12 The Coprocessor 80387.
3.13 The CPU with a Numeric Coprocessor – 808486DX.

4. RECENT ADVANCE IN MICROPROCESSOR ARCHITECURE – A JOURNEY FROM PENTIUM ON WARDS 10

4.1 Salient Features of 80586 (Pentium).
4.2 A Few Relevant Concepts of Computer Architecture.
4.3 System Architecture.
4.4 Branch Prediction.
4.5 Enhanced Instruction Set of Pentium.
4.6 What is MMX.
4.7 Intel MMX Architecture.
4.8 MMX Data Types.
4.9 Wraparound and Saturation Arithmetic.
4.10 MMX Instruction Set.
4.11 Salient Points About Multimedia Application Programming.
4.12 Journey to Pentium-Pro and Pentium-II.
4.13 Pentium III (P-III) - The CPU of the next Millennium.

5. PENTIUM 4 – PROCESSOR OF THE NEW MILLENNIUM 10

5.1 Genesis of Birth of Pentium 4.
5.1 Salient Features of Pentium **4.**
5.1 Net-burst Micro-architecture of Pentium 4.
5.1 Instruction Translation Look-aside Buffer (ITLB) and Branch Prediction.
5.1 Why Out of Order Execution.
5.1 Rapid Execution Module.
5.1 Memory Subsystem.
5.1 Hyper-threading Technology.
5.1 Hyper-threading in Pentium.
5.1 Extended Instruction Set in Advanced Pentium Processors.
5.1 Instruction Set Summery.
5.1 Need for Formal Verification.

6. AN INTRODUCTION TO MICROCONTROLLERS 8051 AND 80196 10

6.1 Intel's Family of 8-bit Microcontrollers.
6.1 Architecture of 8051.
6.1 Signal Description of 8051.
6.1 Register Set of 8051.
6.1 Important Operational Features of 8051.
6.1 Memory and I/O Addressing by 8051.
6.1 Interrupts of 8051.
6.1 Instruction Set of 8051.
6.1 Design of a Microcontroller 8051 Based Length Measurement system for Continuously Rolling Cloth or Paper.
6.1 Intel's 16-bit Microcontroller Family MCS-96.

Text Book

1. Advanced Microprocessor and Peripherals ; By: A.K.Ray, K.M.Bhurchandi (TMH)
2. Advanced Microprocessor and Peripherals ; By: B.Ray (TMH)
3. The Intel MP Family hw, sw & Applications; J.L.Antonakos ; Cengage Learning

Mobile Computing (ELECTIVE)

Semester & Branch:	6th sem CSE	Teachers Assessment :	10 Marks
Theory:	4 Periods per Week	Class Test :	20 Marks
Total Periods:	60 Periods per Semester	End Semester Exam :	70marks
Examination:	3 Hours	TOTAL MARKS :	100 Marks

RATIONALE

Mobile Computing is the basic foundation paper for any hardcore computer engineer. In this subject students will be exposed to the theoretical aspects of different functional units of a digital computer and fundamental idea how different units of a computer system work together to achieve a common goal.

COURSE CONTENT — PERIODS

1. Introduction to Wireless networks & Mobile Computing — 06
1.1 Networks
1.2 Wireless Networks
1.3 Mobile Computing
1.4 Mobile Computing Characteristics
1.5 Application of Mobile Computing

2. Introduction to Mobile Development Frameworks — 06
2.1 C/S architecture
2.2 n-tier architecture
2.3 n-tier architecture and www
2.4 Peer-to Peer architecture
2.5 Mobile agent architecture

3. Wireless Transmission — 06
3.1 Introduction
3.2 Signals
3.3 Period, Frequency and Bandwidth.
3.4 Antennas
3.5 Signal Propagation
3.6 Multiplexing
3.7 Modulation
3.8 Spread Spectrum
3.9 Cellular System

4. Medium Access Control — 06
4.1 Introduction
4.2 Hidden/ Exposed Terminals
4.3 The basic Access Method
4.4 Near / Far Terminals
4.5 SDMA, FDMA,TDMA, CDMA

5. Wireless LANs — 06
5.1 Wireless LAN and communication
5.2 Infrared
5.3 Radio Frequency
5.4 IR Advantages and Disadvantages
5.5 RF Advantages and Disadvantages
5.6 Wireless Network Architecture Logical
5.7 Types of WLAN
5.8 IEEE 802.11

5.9 MAC layer
5.10 Security
5.11 Synchronization
5.12 Power Management
5.13 Roaming
5.14 Bluetooth Overview

6. Ubiquitous Wireless Communication 06

6.1 Introduction
6.2 Scenario of Mobile Communication
6.3 Mobile Communication Generations 1G to 3G
6.4 3rd Generation Mobile Communication Network
6.5 Universal Mobile telecommunication System (UMTS)

7. Mobile IP 06

7.1 Overview
7.2 Working with mobile IP
7.3 Mobile IP Entities
7.4 Mobility Agents
7.5 Components of Mobile IP
7.6 Mobile IPv6 Features
7.7 Mobile IPv6 Address Types
7.8 Mobile IPv6 Address Scope
7.9 Mobile IP Operation

8. Mobile Computing 06

8.1 WWW architecture for Mobile computing
8.2 Need of WAP
8.3 Benefits of WAP
8.4 Examples of WAP
8.5 WAP- Architecture
8.6 WAP protocols
8.7 WML
8.8 WAP Push architecture
8.9 Push-Pull based data acquisition
8.10 I-mode
8.11 WAP 2.x

9. Wireless Telecomm Networks 06

9.1 GSM
9.2 GPRS
9.3 IS-95
9.4 CDMA-2000
9.5 W-CDMA
9.6 Wireless Sensor Networks

10. Messaging Services 06

10.1 Short Message Services (SMS)
10.2 Multimedia Message Services (MMS)
10.3 Multimedia transmission over wireless

Books

1. Mobile Computing ; By : Dr. N.NJani, Kamaljit I. Lakhtaria, Dr. Ashish N. Jani & Nita Kanabar (S.Chand & Company Ltd.)

Data Mining & Data Ware Housing (Elective)

Semester & Branch: 6th sem CSE	Teachers Assessment : 10 Marks
Theory: 4 Periods per Week	Class Test : 20 Marks
Total Periods: 60 Periods per Semester	End Semester Exam : 70marks
Examination: 3 Hours	TOTAL MARKS : 100 Marks

RATIONALE

Data Mining & Data ware Housing is the upcoming features in the fields of Information Technology which is based on coverage of large databases and making queries, optimization of queries , statistical analysis of query results and deriving future trends.

1. Introduction to Data Mining & Data Warehousing **10**

1.1 Motivation
1.2 Data mining & Data warehousing Technology
1.3 Data Models
1.4 Data warehousing and OLAP:User Perspective
1.5 Data Mining User Perspective
1.6 Related disciplines
1.7 Other issues and future trends

2. Frequent Pattern Mining **10**

2.1 Basic Problem Definition
2.2 Mining Association rules
2.3 Applications
2.4 Variations
2.5 Interestingness
2.6 FIM Algorithms

3. Classification **10**

3.1 Basic Problem Definition
3.2 Applications
3.3 Evaluation of classifiers
3.4 Other issues
3.5 Classification Techniques

4. Clustering **10**

4.1 Basic Problem definition
4.2 Clustering Applications
4.3 Measurement of similarity
4.4 Evaluation of clustering algorithms
4.5 Classification of clustering algorithms
4.6 Partitioning Methods
4.7 Hierarchical Methods
4.8 Density Based methods
4.9 Grid based methods
4.10 Outlier Detection

5. Pattern Discovery in Real world data **10**

5.1 Relational data
5.2 Transactional data
5.3 Multidimensional data
5.4 Distributed data
5.5 Spatial data
5.6 Data streams
5.7 Time series Data
5.8 Text and Web data
5.9 Multimedia Data

6. Data Warehousing **10**

6.1 Fundamentals
6.2 Data Warehouse Data characteristics
6.3 Data Warehouse components
6.4 Approaches to build Data marts and Data Warehouse
6.5 ETL
6.6 OLAP
6.7 Storage and chunks

Text Book : Data Mining by V. Pudi and PRadha Kishna, Oxford University Press.

MULTIMEDIA AND ANIMATION TECHNIQUES (Elective)

Semester & Branch: 6th sem CSE		Teachers Assessment :	10 Marks
Theory:	4 Periods per Week	Class Test :	20 Marks
Total Periods:	60 Periods per Semester	End Semester Exam :	70marks
Examination:	3 Hours	TOTAL MARKS :	100 Marks

Topic

1.0 Multimedia Elements Multimedia Application **10**

1.1 I/P, O/P devices,
1.2 Evaluation of Multimedia systems
1.3 Storage media

2.0 Architecture & Issues For Distributed Multimedia System. **10**

2.1 Multimedia System Architecture.
2.2 Distributed Multimedia.
2.3 Synchronization, Orchestration & QOS Architecture
2.4 Framework for Multimedia System.

3.0 Compression/Decompression & File Formats **10**

3.1 Need
3.2 Types
3.3 Evaluating & Visibility
3.4Video Compression Technique
3.5 Introduction to Standardization of Algorithm
3.6 File Formats
3.7 History of RIF, TIFF
3.8 Introduction to RIFF, AVI
3.9 JPEG-objectives, Architecture, JPEG-DCT encoding, Quantization.
3.10 JPEG-stastical coding, predictive lossless coding, JPEG performance
3.11 MPEG-objectives, Architecture, BIT stream syntax performance
3.12 MPEG2 & MPEG4

4.0 Multimedia Authoring and User Interface **10**

4.1 Multi Media Authoring System and its type
4.2 Hypermedia Application Design consideration
4.3 User Interface Design
4.4 Information Access
4.5 Object Display / Playback Issues

5.0 Distributed Multimedia Systems **10**

5.1 Components of Distributed Multimedia Systems
5.2 Distributed Client Server Operation
5.3 Multimedia Object Server
5.4 Multi Server Network topologies
5.5. Distributed Multimedia Databases

6.0 Multimedia Tool **10**

6.1 Introduction to Multimedia tool – Flash
6.2 Creating & Modifying elements
6.3 Line tool, fill/attributes, different shapes, text tools & pen tool
6.4 Selecting lines fill with arrow tool, selecting shapes, using lasso tool performing basic editing tools, selecting & deselecting elements, modifying created objects.

Books:

1. Multimedia Systems; Buford; Pearson
2. Multimedia Systems, Tech & Comm.; S.Pandey,; M.Pandey Katson
3. Principles of Multimedia , Parekh; TMH
4. Multimedia Technology , Banerji, Ghos; TMH

Project Work & Seminar

Semester & Branch:	6th sem CSE	Practical Exam :	50 Marks
Practical:	6 Periods per Week	Term Work :	50 Marks
Total Periods:	90 Periods per Semester	TOTAL MARKS :	100 Marks
Examination:	4 Hours		

1. The students should be divided into a group of not more than 5 students. Each faculty should preferably guide one group & he should act as project guide. The students should select the projects of advanced topic of their own choice (Hardware / Software) in consultation with project guide.

2. The sessional records should be maintained and evaluated by a team of faculty members and the final marks awarded by the team.

3. In the end examination, students will be evaluated by External Examiner from outside and Internal Examiner.

Computer Maintenance & Networking Lab

Semester & Branch:	6th sem CSE	Practical Exam :	50 Marks
Practical:	4 Periods per Week	Term Work :	25 Marks
Total Periods:	60 Periods per Semester	TOTAL MARKS :	75 Marks
Examination:	4 Hours		

1. STUDY OF COMPUTER COMPONENTS

1.1 Study of motherboard
1.2 Study of HDD and interface
1.3 Study of expansion slab and signals
1.4 Study of SMPS functioning

2. ASSEMBLING A COMPUTER PC

2.1 Connecting hardware components.
2.2 Setting up the CMOS
2.3 Loading operating system (windows 98/2k)
2.4 Loading different available application softwares

3. SYSTEM MAINTENANCE &TROUBLE SHOOTING

3.1 Different methods of preventive maintenance
3.2 Software level (CMOS or OS) troubleshooting
3.3 Card level trouble shooting
3.4 Elementary troubleshooting of SMPS faults
3.5 Elementary troubleshooting of monitor faults
3.6 Elementary trouble shooting of printer faults.

Networking Lab

4. HARDWARE INSTALLATION:

4.1 Define the procedure of Installation of LAN Pre- installation
4.2 Cable Installation
4.3 Network Equipment (Hub, Switch etc) Installation
4.4 Post-installation

5. SOFTWARE INSTALLATION:

5.1 Installation & Administration of Window NT/2000 server
5.2 Server & workstation installation
5.3 Interconnection, domain network
5.4 Network Management
5.5 Network Printer management & Application Management

Web Development Lab

Semester & Branch:	6th sem CSE/IT	Practical Exam :	50 Marks
Practical:	6 Periods per Week	Term Work :	25 Marks
Total Periods:	90 Periods per Semester	TOTAL MARKS :	75 Marks
Examination:	4 Hours		

HTML

1. Creation of simple HTML pages, using the following tags.

<Hn> </Hn>
<P> </P>

<A HREF> </A>
<Img>
<FONT>

2.Creation of tables and lists using HTML
3. Creation of simple fOIms incorporating GUI components (command button, text box, radio button, check box, combo box) in HTML pages
4. Practical on different Internet services (WWW.Mail. FTP, Chat)
5. Simple application using conditional statements
6. Develop application using loop constraints
7. Creation of classes, interfaces and packages
8. Simple application using threads and runable interface
9. Simple application using thread synchronization methodology
10. Creating application to create user defined exception
11. Simple application to handle inbuilt exceptions
12. Write application to incorporate simple I/O classes
13. Creating application for text file handling
14. Creating application for random file handling
15. Writing applet and embedding it into HTML file
16. Create applet to display different graphical shapes (line, circle, ellipse, arcs, rectangle) and incorporate colour in those shapes
17. Create applet to incorporate GUI components (command button, text box, text area, list box, combo box, check box, frame, check box group)
18. Create applet-using layout manager
19. Write applet to incorporate events
20. Create multi threaded applet3

XML

1. Creation of XML file
2. Viewing XML file using Cascading Style Sheet Viewing XML file using Extended Style Sheet (XSL)
3. Display single record
4. Display all records
5. Sorting & filtering of records
6. Displaying records in the table
7. XML data binding in HTML
8. Displaying single record
9. Navigating between records using buttons Embedding XML data in HTML table Displaying the records in table in different page
10. XML file with attribute

Laboratory Requirement For Diploma in CS&E

Sl. No.	Name of Lab./ Comp. Centre	Semester	Name of the Practical
1	Common Computer Centre	3rd	Data Structure Lab using C
		3rd	MIS Lab
		4th	Operating System Lab
		4th	OOP Lab
2	Advanced Computer Centre	5th	DBMS Lab
		5th	Graphics & Multimedia Lab
		5th	Programming in Java
		6th	Web Development Lab
3	Digital Electronics Lab.	3rd	Digital Electronics lab
4	Microprocessor Lab.	4th	Microprocessor & Interfacing lab
5	Computer Maintenance & Networking Lab.	6th	Computer Maintenance & Networking Lab

Suggested Equipment for different Laboratories For Diploma in CS&E

Sl. No.	Name of the Lab.	Name & Specification of Equipments	Quantity
1	Common Computer Centre (The PCs should be on LAN either wireless or wired) (For 60 Students / batch)	**Server PC –** Intel Xeon E 3110 (Dual Core) 3.00GHz & 6MB Cache 1333MHz FSB & 2GB RAM 146 GB SAS 15k rpm & 3.5" Hot Swap Optical DVD- ROM; pre loaded MS server Software, 3 Years Onsite warranty or **Higher version**	01 no.
		Desktop PC – a. CPU: Intel Core 2 Duo 8400, 3 GHz, 6 MB L2 cache and 1333 MHz FSB. b. Chipset : Intel Q 35 or better on OEM Motherboard. c. Bus Architecture : Integrated Graphics, 2 PCI,1 PCI Express x 1 and 1 PCI Express x 16. d. Memory: 2 GB 667 MHz DDR2 RAM Expandable to 8 GB. e. Hard Disk Drive : 360 GB 7200 rpm Serial ATA HDD. f. Monitor : 43.2 cm (17 inch) TFT Digital Colour Monitor TCO-03 certified. g. Keyboard : 104 keys . h. Mouse : Optical Scroll. i. Bays: 4 Nos.(2 Nos. 5.25 inches for Optical Media Drives and 2 Nos. 3.5 inches for Hard Disk Drives). j. Ports : 6 USB Ports (with at least 2 in front)audio ports for microphone and	30 nos

		headphone in front. k. Cabinet : Mini tower. l. DVD ROM Drive : 8X or better DVD R/W Drive. m. Networking facility: 10/100/1000 on board integrated Network Port with remote booting facility remote system installation, remote wake up, out of band management using any standard management software. n. Operating System : Windows XP/Vista Business preloaded with Media and Documentation and Certificate of Authenticity. o. OS Certifications : Win Logo XP/Vista Business OS and Linux certification. p. Power Management: Screen Blanking, Hard Disk and System Idle Mode in Power On, Set up Password, Power supply SMPS Surge protected. q. Preloaded Software: Quick heal Antivirus (Latest Version) with 1 Year License. r. Multimedia: Stereo Headphone with microphone. s. Warranty: Three years onsite warranty. or **Higher version**	
		0.65 KVA UPS (offline) with 15 min Backup	30 Nos.
		1 KVA UPS (On Line) with 30 min backup	01 No.
		Application Softwares : MS Office, Turbo C, Visual studio, C++	30 User
		Laser Printer	01 no.
		Image Scanner	01 no.
2	Advanced Computer Centre (The PCs should be on LAN either wireless or wired with internet connection to each PC) (For 30 Students / batch)	**Server PC –** Intel Xeon E 3110 (Dual Core) 3.00GHz & 6MB Cache 1333MHz FSB & 2GB RAM 146 GB SAS 15k rpm & 3.5" Hot Swap Optical DVD- ROM; pre loaded MS server Software, 3 Years Onsite warranty or **Higher version**	01 no.
		Desktop PC – a. CPU : Intel Core 2 Duo 8400, 3 GHz, 6 MB L2 cache and 1333 MHz FSB. b. Chipset : Intel Q 35 or better on OEM Motherboard. c. Bus Architecture : Integrated Graphics, 2 PCI,1 PCI Express x 1 and 1 PCI Express x 16.	30 nos

		d. Memory: 2 GB 667 MHz DDR2 RAM Expandable to 8 GB. e. Hard Disk Drive : 360 GB 7200 rpm Serial ATA HDD. f. Monitor : 43.2 cm (17 inch) TFT Digital Colour Monitor TCO-03 certified. g. Keyboard : 104 keys . h. Mouse : Optical Scroll. i. Bays: 4 Nos.(2 Nos. 5.25 inches for Optical Media Drives and 2 Nos. 3.5 inches for Hard Disk Drives). j. Ports : 6 USB Ports (with at least 2 in front)audio ports for microphone and headphone in front. k. Cabinet : Mini tower. l. DVD ROM Drive : 8X or better DVD R/W Drive. m. Networking facility: 10/100/1000 on board integrated Network Port with remote booting facility remote system installation, remote wake up, out of band management using any standard management software. n. Operating System : Windows XP/Vista Business preloaded with Media and Documentation and Certificate of Authenticity. o. OS Certifications : Win Logo XP/Vista Business OS and Linux certification. p. Power Management: Screen Blanking, Hard Disk and System Idle Mode in Power On, Set up Password, Power supply SMPS Surge protected. q. Preloaded Software: Quick heal Antivirus (Latest Version) with 1 Year License. r. Multimedia: Stereo Headphone with microphone. s. Warranty: Three years onsite warranty. or **Higher version**	
		0.65 KVA UPS (offline) with 15 min Backup	30 Nos.
		1 KVA UPS (On Line) with 30 min backup	01 No.
		Application Softwares : MS Office, Turbo C, Visual studio, C++, SQL, Oracle, Java, Sound forge, Photoshop, Premier, Author ware / tool book, flash.	30 User
		Laser Printer	01 no.
		Image Scanner	01 no.

3.	Digital Electronics Lab. (For 30 Students / batch)	Digital Electronics Trainer With power supply and interfacing boards. Trainer board capable of performing 16 bit digital operation for performing experiments on digital electronics. It should be capable of performing at least the following experiments – To study operation of all logic gates. Binary Addition : Half Adder, Full Adder, 2 bit binary Parallel adder. Binary Subtraction. Binary to Gray Code Conversion. Gray Code to Binary Conversion. Binary to Excess-3 Code Conversion. R-S, J-K, T, D, Master-Slave Flip-Flops. 4 Bit Up Down Counter. Johnson Counter.	15 nos.
		Offline UPS .65 KVA , 15 min backup	15 nos.
4.	Microprocessor Lab. (For 30 Students / batch)	Microprocessor Trainer with interfacing ccts. 8085 based Based on 8085 CPU operating at 6.144 MHz 8 K bytes of EPROM Monitor 8 K bytes of RAM with BATTERY Backup (Optional) On-board memory expansion upto 64 KB Three Ch. TIMER/COUNTER using 8253 48 I/O lines using 2 nos. of 8255 RS232 C interface through SID/SOD lines Two mode of commands: - Hex Key pad Mode, - Serial Mode 28 keys hexadecimal keyboard and six seven segment displays through 8279 All address, data & control lines are available on 50 pin FRC Facility for Downloading/Uploading files from/to PC Power Supply of +5 V / 1.5 A, ±12 V / 250 mA Interfacing cards for – Stepper Motor control with 2KG Stepper Motor, Traffic light control, DC Motor control, A/D & D/A Conversion, Logic Board Control, KB & Display interface board, 8255 interface board	15 nos
		Offline UPS .65 KVA, 15 min backup	15 nos.
5.	Computer Maintenance &	PC layout demonstrator with all	01 no.

	Networking Lab. (For 30 Students / batch)	components	
		PC Spare parts	15 sets
		Digital Multi meter	15 nos.
		Tool Kit Set (For servicing PC)	15 sets
		Networking Cable (CAT-6 (Twisted pair) Fiber Optics))	
		Clamping Tool	05
		Router	01
		Switch	01
		Operating Software(Windows XP, Linux / Unix, Windows NT)	01 each
		Antivirus Software	05 nos.
		Diagnostic software	01 no.
		Offline UPS .65 KVA, 15 min backup	20 nos.