PROPOSED CURRICULAR STRUCTURE FOR PART – 2 (2ND YEAR) OF THE FULL- TIME DIPLOMA COURSE IN ENGINEERING AND TECHNOLOGY

WEST BENGAL STATE COUNCIL OF TECHNICAL EDUCATION											
TEACHING AND EXAMINATION SCHEME FOR DIPLOMA IN ENGINEERING COURSES											
COURSE NAME: COMPUTER SOFTWARE TECHNOLOGY											
SEMESTER: FIFTH											
BRANCH: CSWT											
SR. NO.	SUBJECTS	CREDITS	PERIODS			EVALUATION SCHEME					
			L	TU	PR	INTERNAL SCHEME			ESE	PR	TOTAL MARKS
						TA	CT	TOTAL			
1	Software Engineering	4	4			10	20	30	70		100
2	Object Oriented Programming using Java	3+2	3		3	10	20	30	70	100	200
3	Computer Network	4	4			10	20	30	70		100
4	Relational Database Management System	3+2	3		3	10	20	30	70	100	200
5	ELECTIVE- I (Any One)										
	Windows Programming	3+2	3		3	10	20	30	70	50	150
	Network Management and Administration	3+2	3		3	10	20	30	70	50	150
	Unix Administration	3+2	3		3	10	20	30	70	50	150
6	Project (Phase-I)				3						
7	Professional Practice-III (Webpage Development)	2			3					50	50
TOTAL		25	17		15	50	100	150	350	300	800
STUDENT CONTACT HOURS PER WEEK: 32 HRS. Theory and Practical Periods of 60 minutes each. L-Lecture, TU-Tutorials, PR-Practical, TA-Teachers Assessment, CT-Class Test, ESE-End Semester Examination.											

SOFTWARE ENGINEERING

Name of course: Software Engineering			
Subject code: CSWT/S5/TH/SWEGG		**Semester** : 5th	
Duration : 17 weeks		**Maximum Marks** : 100 Marks	
Teaching Scheme		**Examination Scheme**	
Theory : 04 Hrs/week		Class Test:	20 Marks
Tutorial: 00 Hrs./Week		Teachers Assessment(including attendance):	10 Marks
Practical:		End Semester Exam.:	70 Marks
Credit: 4			
Objective: student will be able to			
1	Plan & develop the frame work of project.		
2	Compare various project process models & use in project planning		
3	Use the principles of communication, planning, modeling construction & deployment		

4	Use the principles of communication, planning, modeling construction & deployment
5	Compare various testing methods.
6	Identify the duties & responsibilities of People, team leader & stakeholders while planning the software project.
7	Schedule the project according to time, size, shape, utility & application
8	Monitor & manage the risk during the design of software project.
9	Use the parameters of software quality assurance
10	Calculate the cost of software, using cost estimation models such as COCOMO II.
Pre-Requisite:	
1	Basic knowledge of computer is helpful.

MODULAR DIVISION OF THE SYLLABUS

GROUP	UNIT NO.	TOPIC	CONTACT PERIODS
A	1	Overview of Software Engg. & Software Development Process	12
B	2,3	Software Engineering requirements & Development of Analysis & Design models. Testing Strategies & Methods.	27
C	4,5	Software Project Management & Software Quality Management& Estimation	27

EXAMINATION SCHEME

GROUP	UNIT NO.	OBJECTIVE QUESTIONS				SUBJECTIVE QUESTIONS			
		TO BE SET	TO BE ANSWERED	MARKS PER QUESTION	TOTAL MARKS	TO BE SET	TO BE ANSWERED	MARKS PER QUESTION	TOTAL MARKS
A	1	6	ANY 20	ONE	20x1=20	2	FIVE, TAKING AT LEAST ONE FROM EACH GROUP	10	10x5=50
B	2,3	10				5			
C	4,5	9				3			

Unit No.	Contents(Theory)	Hrs./Unit	Marks
Unit: 1	**Process Overview of Software Engineering & the Software Development:** 1.1The evolving Role of software & changing nature of Software. 1.2 Software Engineering –A layered Technology approach. 1.3 A process framework & software project tracking & control. 1.4 The Capability Maturity Model Integration technique. 1.5 Process patterns, process Assessment, personal & Team Process models & Process Technology Theories. 1.6 Process Models –Waterfall, Incremental, RAD, Prototype, Spiral.	12	
Unit: 2	**Software Engineering requirements & Development of Analysis & Design models:** 2.1 Software Engineering core principles, Communication, Planning, Modeling, Construction & Deployment principles. 2.2 Requirements Engineering Tasks, Initiating the requirement process. 2.3 Analysis approaches of software & preparation of Analysis model using Data modeling, Concepts, Objectoriented Analysis, Flow oriented model, Class-Based model, Behavioral Model.	15	

	2.4 Design approaches of software & preparation of design model using Design concepts, Design model, and pattern based design.		
Unit: 3	**Testing Strategies & Methods:** 3.1 Software Testing Fundamentals. 3.2 A Strategic approach to software testing. 3.3 Test Strategies for conventional software, Unit Testing, Integration Testing, Regression testing, smoke testing. 3.4 Validation testing using Alpha & beta testing, system testing using recovery, security, stress & performance testing. 3.5 Black Box & White Box Testing. 3.6 Debugging process strategies.	12	
Unit: 4	**Software Project Management:** 4.1 The management spectrum – The people, The product, the process & the project. 4.2 Project scheduling – Basic concepts, relationship between people & effort, effort distribution, defining a task for the software project, Defining a task network & scheduling of project. 4.3 Risk Management – Reactive Vs Proactive risk strategies, software Risks, Risk Identification, Risk Projection & Risk refinement, monitoring & management. 4.4 Change Management – SCM scenario, SCM repository & process. 4.5 Formal method & clean room software development & management approach.	15	
Unit: 5	**Software Quality Management& Estimation:** 5.1 Basic Quality Concepts. 5.2 Software Quality Assurance 5.3 Statistical software quality assurance, 5.4 Six sigma strategy. 5.5 Software Reliability 5.6 The ISO 9000 quality standards 5.7 McCall's quality factors. 5.8 Observations on estimation 5.9 The project Planning process ,software scope & feasibility ,Resources 5.10 Decomposition Techniques 5.11 COCOMO II model & the make / Buy design	12	
TOTAL		**66**	

Reference Books:

Name of Authors	Title of the Book	Edition	Name of the Publisher
Rajib Mall	Fundamental of Software Engineering		PHI
Bell	Software Engineering for Students, 4e		Pearson
Sommerville	Software Engineering, 9e		Pearson
Roger S. Pressman	Software Engineering –A Practitioner's Approach		TMH

Object Oriented Programming using Java

Name of course: Object Oriented Programming using Java	
Subject code: CSWT/S5/TH/OOP	**Semester** : 5th
Duration : 17 weeks	**Maximum Marks** : 200 Marks
Teaching Scheme	**Distribution of Marks**
Theory : 03Hrs/week	Class Test: 20 Marks
Tutorial: 00 Hrs./Week	Teachers Assessment(including attendance):10 Marks
Practical: 03 hrs./week	End Semester Exam.: 70 Marks
Credit: 3+2	Practical / Sessional : 50 (Internal) +50 (External)
	1. Continuous **Internal Assessment** of 50 marks is to be carried out by the teachers throughout 5th Semester. Performance of Job - 35, Notebook -15. 2**. External Assessment** of 50 marks shall be held at the end of 5th Semester on the entire syllabus. One job per student from any one of the jobs done is to be performed. Job is to be set by lottery system. On spot job - 25, Viva-voce - 25

Objective:

Now-a-days object oriented methodology is adopted almost for every computer based programmers due to the reusability of the objects. This subject exposes the learner to the various typical object oriented concepts like classes, objects, inheritance, operator overloading, constructors, destructors, templates etc. It also makes the reader to realize the advantages of object oriented programming methodology over conventional procedural programming methodology.

Note: *Language features of this course should be taken from Java Programming language.*

Pre-Requisite:

1	Basic knowledge of computer fundamental

Question Paper Setting Tips

End Semester Examination: Objective Type: 20 marks (answered in one or two sentences). Subjective type: 50 marks, To be set at least 8 questions and to be answered 5 questions each carrying 10 marks

Unit No.	Contents(Theory)	Hrs./Unit	Marks
Unit:1	**Fundamentals of Object Oriented Programming** Procedure Oriented paradigm, Object Oriented paradigm, Fundamentals of Object Oriented Programming: Object and Classes, Data abstraction and encapsulation, Inheritance, Polymorphism, Dynamic Binding **Java Features** Compiled and Interpreted, Platform independent and portable, Object oriented, Distributed, Multithreaded and interactive, High performance **Java Fundamentals** Constant, Variables and Data Types Constant, Data Types, Scope of variable, Symbolic Constant, Type casting, Standard default values, Operator and Expression: Arithmetic Operators, Relational Operators, Logical Operators, Assignment Operator Increment and Decrement Operator, Conditional	**08**	

	Operator, Bit wise, Operator, Special Operator, Decision making and Branching: Decision making with if statement, Simple if statement, The if else statement, The else if ladder, The switch statement, The? : Operator, Decision making and Looping: The While statement, The do statement, The for statement, Jumps in Loops, Labeled Loops		
Unit:2	**Classes, Object and Methods** Defining a class, Creating object, Accessing class members, Constructor, Methods Overloading, Static Member **Inheritance** Extending a Class (Defining a subclass Constructor, Multilevel inheritance, Hierarchical inheritance, Overriding Methods, Final variable and Methods, Final Classes, Abstract method and Classes **Visibility Control** Public access, friend access, Protected access, Private access, Private Protected access **Array, Strings and Vectors** Arrays, One Dimensional array, Creating an array, Two Dimensional array, Strings, Vectors, Wrapper Classes	**08**	
Unit:3	**Interfaces and Packages** **Interface:** Defining interfaces, Extending interfaces, Implementing interfaces, Accessing Interface variable **Packages:** Putting Classes Together System Package, Using system Package, Naming Convention, Creating Package, Accessing a package, Using a package, adding a class to a package	**06**	
Unit: 4	**Exception Handling and Multithreaded Programming** **Exception Handling:** Types of errors, Exception, Exception as objects, Exception hierarchy Try catch finally, Throw, throws, Multiple catch statement, User Defined Exception, Managing Errors and Exceptions **Multi Threading:** Creating Thread, Extending a thread class, Stopping and Blocking a thread, Life cycle of thread, Using thread method, Thread exceptions, Thread priority, Synchronization, Implementing a 'Runnable' 'Interface.	**08**	
Unit: 5	**IO package** Input streams, Output streams classes, Object serialization Deserialization, Sample programs on IO files, Filter and pipe streams	**05**	
Unit: 6	**Java Applets and GUI Programming** Applet Programming Local and remote applets, How applet differ from application, Preparing to write applets, Building applet code, Applet life cycle, Creating an Executable Applet, Designing a Web page, Applet tag, Adding Applet to HTML file, Running the Applet, Passing parameter to Applet, The Graphics Class, Lines and rectangle, Circle and Ellipse, Drawing Arcs, Drawing Polygons, Line Graphs, Introduction to AWT programming Layout and component managers Event handling	**08**	

Unit: 7	**Database Connectivity** JDBC architecture Establishing connectivity and working with connection interface Working with statements Creating and executing SQL statements Working with Result Set	**06**	
Total:		**49**	
Practical / Sessional			
Name of course: Object Oriented Programming (using Java) Lab			
Subject code: CSWT/S5/PR/OOPL			
List of practical: 1. Java Programs based on basic syntactical constructs of Java like: a) Operators and expressions, b) Looping statements, c) Decision making statements, d) Type casting 2. Java Program to define a class, creating objects, methods for setting and retrieving values of instance variables and instantiate its object 3. Java Programs using constructor, constructors overloading, use of method overloading. 4. Java Program using single Dimensional array, multidimensional array. 5. Java Program to implement array of objects. 6.Java Programs to demonstrate inheritance, super class, sub class, use of method overriding, dynamic method invocation, inheritance by applying various access controls to its data members and methods, 7. Java Programs to implement the concept of multiple inheritance using interfaces. 8. Java Program to implement Wrapper classes and their methods. 9. Java program to demonstrate use of command line arguments. 10. Java program to implement the concept of importing classes from user defined package and creating packages. 11. Java programs for Exception Handling using predefined exception, creating user defined exceptions. 12. Java programs on Multithreading concept. 13. Java programs using IO streams. 13. Java programs using files. 14. Java Applet programs 15. Java Programs using AWT 16. Java Programs using JDBC.		
Reference Books:			

Name of Authors	Title of the Book	Edition	Name of the Publisher
E. Balaguruswamy	Programming with Java A Primer		Tata McGraw Hill Companies.
Herbert Schildt	JAVA 2: The Complete Reference		Tata Mc-Graw Hill Pub. Co.
Ivor Horton's	Beginning Java		Wiley India
Debasish Jana	Java and Object Oriented Programming Paradigm		PHI
Horstmann, Cornell	Core Java Vol I		PEARSON
Deitel	Core Java,		PEARSON
Liang	Introduction to Java Programming		PEARSON

COMPUTER NETWORK

Name of course: Computer Network			
Subject code: CSWT/S5/TH/CN		**Semester** : 5th	
Duration : 17 weeks		**Maximum Marks** : 100 Marks	
Teaching Scheme		**Distribution of Marks**	
Theory : 04 Hrs/week		Class Test:	20 Marks
Tutorial: 00 Hrs./Week		Teachers Assessment(including attendance):	10 Marks
Practical: 00 hrs./week		End Semester Exam.:	70 Marks
Credit: 4			
Objective: student will be able to			
1	Know about different transmission media characteristics		
2	Know about different types of networking		
3	Know about network models		
4	Know about standards and protocols		
5	know how internetworking works		
6	Gain knowledge of network security		
7	Know the different type of Topology		
Pre-Requisite:			
1	Communication Technique		
2	Data Structure		

MODULAR DIVISION OF THE SYLLABUS

GROUP	UNIT NO.	TOPIC	CONTACT PERIODS
A	1	Basic Network Concepts	05
	2	Network topology(Logical & Physical)	03
	3	Transmission Modes	02
	4	Transmission Media	04
	5	NETWORK REFERENCE MODEL, PROTOCOLS, SERVICES & STANDARDS	10
B	6	Network components, switching, flow control, error control, MAC, Ethernet	22
	7	Network layer and addressing	09

C	8	Upper layer protocols and security	06

EXAMINATION SCHEME

GROUP	UNIT NO.	OBJECTIVE QUESTIONS				SUBJECTIVE QUESTIONS			
		TO BE SET	TO BE ANSWERED	MARKS PER QUESTION	TOTAL MARKS	TO BE SET	TO BE ANSWERED	MARKS PER QUESTION	TOTAL MARKS
A	1,2,3,4,5	10	ANY 20	1(ONE)	20x1=20	4	FIVE, TAKING AT LEAST ONE FROM EACH GROUP	10(TEN)	10x5=50
B	6,7	10				4			
C	8	5				3			

Unit No.	Contents(Theory)	Hrs./Unit	Marks
	GROUP-A		
Unit: 1	**Basic Network Concepts**: 1.1 Data communications- components, data representation 1.2 Definition & Application- Network, Internetwork, Intranetwork, Workstation, Hosts, Client, Server 1.3 Benefits of Network - Sharing Information; Sharing Resources; Facilitating Centralized Management – Managing Software, Maintaining the Network, Backing Up Data 1.4 Classification of Network- Classifying Networks by their Geography – LAN, MAN, WAN; Classifying Networks by their Component Role - Peer to Peer, Server based Network 1.5 NOISE- Definition and different types of Noise, Nyquist rate, Shannon's Capacity	05	
Unit: 2	**Network topology(Logical & Physical):** Bus, Ring, Star, Mesh, Tree, and Hybrid- Advantages & Disadvantages of each.	03	
Unit: 3	**Transmission Modes:** 3.1 Characterized by direction of the exchange- Simplex, Half-duplex, and Full-duplex 3.2 Characterized by the transmission mode- Serial and Parallel transmission 3.3 Characterized by the synchronization between the transmitter and receiver- Synchronous and asynchronous transmission	02	
Unit: 4	**Transmission Media:** 4.1 Guided media- twisted pair- UTP & STP, co-axial cable, optical fiber- structure, working principle, propagation mode 4.2 Unguided media-wireless communication-radio wave, microwave, infrared, light wave; Propagation methods- ground, sky, and line-of-sight; satellite communication.	04	
Unit: 5	**NETWORK REFERENCE MODEL, PROTOCOLS, SERVICES & STANDARDS:** 5.1 layered network architecture, OSI model-function of the layers, TCP/IP – function of the layers, comparison of OSI and TCP/IP 5.2 Protocols, Services and Standards (in brief): X.25, ATM, ISDN	10	
	GROUP-B		
Unit: 6	6.1 Network components and devices-hub, switch, repeater, bridge, router, gateway, Modem. 6.2 Switching methods-circuit switch, packet switch, virtual circuit switch, message switch, comparative study. 6.3 Flow control- Stop-and-wait, Sliding window. 6.4 Error control- Stop-and-wait ARQ: Piggybacking, Sliding window ARQ: Go-back-n, selective-reject; idea of error detection and	22	

	correction- parity, block codes, hamming codes, cyclic codes 6.5 MAC sublayer protocols- ALOHA-pure and slotted, CSMA, CSMA/CD, collision free-token bus, token ring, FDDI. 6.6 Standard Ethernet (Thick, Thin, Twisted pair) – VLAN.		
Unit: 7	**Network layer and addressing :** 7.1 routing- static and dynamic, least-cost routing, non-adaptive and adaptive routing, inter domain and intra domain, path vector, link state, BGP, OSPF. 7.2 IP addressing scheme, class less and classful addressing, subnetting, supernetting, masking, IP protocol and packet format(V-4) 7.3 Concept logical and physical addressing-ARP, RARP. 7.4 Other network layer protocols –ICMP, IGMP, congestion control.	09	
GROUP-C			
Unit: 8	**Upper layer protocols and security :** 8.1 Transport layer function-SAP or port addressing, connection oriented and connection less protocols-TCP, UDP, SCTP. 8.2 Network security – encryption (Private and Public key), decryption, digital signature, and authentication. 8.3 Application layer protocols- HTTP, URL, TELNET, DNS, DHCP, FTP, SMTP.	06	
Total:		61	

Reference Books:

Name of Authors	Title of the Book	Edition	Name of the Publisher
B.A. Forouzan	Data Communications and Networking		Tata McGraw Hill
William Stallings	Data and Computer Communications		Prentice Hall of India
M.A. Miller	Data Networking Communication		Vikas Publishing House
	Networking Protocols and Standards		Prentice Hall of India
M. Tulloch	Encyclopaedia of Networking		Prentice Hall of India
	Basics of Network Security		Prentice Hall of India
B.A. Forouzan	TCP/IP Protocol suite		Tata McGraw Hill
P.C. Gupta	Data Communications		Prentice Hall of India

Relational Database Management System

Name of course: Relational Database Management System	
Subject code: CSWT/S5/TH/RDBMS	**Semester** : 5th
Duration : 17 weeks	**Maximum Marks** : 200 Marks
Teaching Scheme	**Distribution of Marks**
Theory : 03 Hrs/week	Class Test: 20 Marks
Tutorial: 00 Hrs./Week	Teachers Assessment(including attendance): 10 Marks
Practical: 03 hrs./week	End Semester Exam.: 70 Marks
Credit: 3+2	Practical / Sessional : 50 (Internal) +50 (External)
	1. Continuous **Internal Assessment** of 50 marks is to be carried out by the teachers throughout 5th Semester. Performance of Job - 35, Notebook -15.

	2**. External Assessment** of 50 marks shall be held at the end of 5th Semester on the entire syllabus. One job per student from any one of the jobs done is to be performed. Job is to be set by lottery system. On spot job - 25, Viva-voce - 25

Objective: student will be able to	
1	Understand the concept of Database system and Client Server Architecture
2	Understand and develop the concepts of Data Modeling, Security and Integrity
3	Understand and execute different SQL queries and PL / SQL programs
4	Normalize the database using normal forms
5	Understand the concept of query processing and Transaction processing
Pre-Requisite:	
1	Basic knowledge of file system is helpful

MODULAR DIVISION OF THE SYLLABUS

GROUP	UNIT NO.	TOPIC	CONTACT PERIODS
A	1	Database System Concept & Data Modeling	10
	2	Relational Data Model and Security and Integrity Specification	08
	3	SQL and PL-SQL	14
B	4	Relational Database Design, Storage and File systems	08
	5	Query Processing and Transaction Processing	05

EXAMINATION SCHEME

GROUP	UNIT NO.	OBJECTIVE QUESTIONS				SUBJECTIVE QUESTIONS			
		TO BE SET	TO BE ANSWERED	MARKS PER QUESTION	TOTAL MARKS	TO BE SET	TO BE ANSWERED	MARKS PER QUESTION	TOTAL MARKS
A	1,2,3	16	ANY 20	ONE	20x1=20	6	FIVE, TAKING AT LEAST ONE FROM EACH GROUP	10	10x5=50
B	4,5	09				4			

Unit No.	Contents(Theory)	Hrs./Unit	Marks
	GROUP-A		
Unit: 1	**Database System Concept & Data Modeling**: 1.6 Basic concepts, Advantages of a DBMS over file processing system, Data Abstraction, Database Languages, Data Independence 1.7 Components of a DBMS and overall structure of a DBMS 1.8 Data Models- Network Model , Hierarchical Model, E-R Model 1.9 Client Server Architecture	10	
Unit: 2	**Relational Data Model and Security and Integrity Specification**: 2.1 Relational Model: Basic concepts, attributes and domains; Keys concept : Candidate key and primary key; Integrity constraints: Domain ,Entity Integrity constraints and On delete cascade 2.2 Security and Authorization 2.3 Query Languages: • Relational Algebra , Relational Calculus • Views	08	
Unit: 3	**SQL and PL-SQL**: 3.1 Introduction to SQL queries, Creating ,Inserting ,Updating and deleting tables and using constraints, Set operations & operators, Aggregate functions ,string functions and date ,time functions, Null values, Nested sub queries, Complex queries, Join concepts 3.2 PL/SQL Introduction, PL/SQL block structure , variables, SQL statements in PL/SQL, PL/SQL control Structures ,Cursors , Triggers ,	14	

	Functions ,Packages, procedures, Error handling in PL/ SQL		
GROUP-B			
Unit: 4	**Relational Database Design, Storage and File systems**: 4.1 Purpose of Normalization, Data redundancy and updating anomalies, Functional Dependencies and Decomposition, Process of Normalization using 1NF, 2NF, 3NF, BCNF, multivalued dependencies and 4NF. 4.2 E-R Model details. 4.3 File Organization, Organization of records in files, Storage of Object Oriented databases, Basic concept of Indexing and Hashing	08	
Unit: 5	**Query Processing and Transaction Processing:** 5.3 General strategies for query processing, Equivalence expressions, Selection & join operation 5.4 Concept of transaction, States of transactions, Concurrent Executions, Serializability, Recoverability, Transaction Definition in SQL 5.5 Lock based protocols : share & exclusive models	05	
Total:		45	

Practical / Sessional

Name of course: Relational Database Management System Lab

Subject code: CSWT/S5/PR/RDBMSL

Skills to be developed:
Intellectual skills:
1. Develop the fields of data base
2. Decide proper specifications
3. Query Processing and transaction processing
Motor skills:
1. Prepare appropriate data tables
2. Sequential writing of steps

List of Practical:
1) Creating & Executing DDL in SQL.
2) Creating & Executing Integrity constraints in SQL.
3) Creating & Executing DML in SQL.
4) Executing relational, logical and mathematical set operators using SQL.
5) Executing group functions
6) Executing string operators & string functions.
7) Executing Date & Time functions.
8) Executing Data Conversion functions.
9) Executing DCL in SQL.
10) Executing Sequences and synonyms in SQL.
11) Execute 50 SQL queries (operators, functions, clauses, join concepts)
12) Program for declaring and using variables and constant using PL/SQL.
13) Program using if then else in PL/SQL
14) Program using for loop & while loop in PL/SQL.
15) Program using nested loop in Pl/SQL.

Suggested List of Laboratory Experiments :
1 VB database connectivity
2 Miniproject-1
3 3 Miniproject-2

Suggested List of Assignments/Tutorial :

1 Create ER diagram for student database. 2 Create ER diagram for Hospital management. 3 Write difference between DDL and DML
Text/Reference Books:

Name of Authors	Title of the Book	Edition	Name of the Publisher
Korth	Database Sytem Concept		TMH
C J Date	An Introduction to Database System		Pearson
Navathe	Fundamentals of Database System		Pearson
2006 ISRD Group	Introduction to Database Management System		TMH
Desai	An Introduction to Database System		West publishing Company
Allen	Introduction to Relational Databases and SQL programming		Wiley
Raghu Ramakrishnan, Johannes Gehrke	Database Management Systems		TMH
Deshpande	SQL and PL/SQL for Oracle 11g		Dreamtech

WINDOWS PROGRAMMING

Name of course: Windows Programming	
Subject code: CSWT/S5/TH/E-I(WP)	**Semester** : 5th
Duration : 17 weeks	**Maximum Marks** : 150 Marks
Teaching Scheme	**Distribution of Marks**
Theory : 03 Hrs/week	Class Test: 20 Marks
Tutorial: 00 Hrs./Week	Teachers Assessment(including attendance): 10 Marks
Practical: 03 hrs./week	End Semester Exam.: 70 Marks
Credit: 3+2	Practical / Sessional : 25 (Internal) +25 (External)
	1. Continuous **Internal Assessment** of 25 marks is to be carried out by the teachers throughout 5th Semester. Performance of job-18, Notebook-7 2**. External Assessment** of 25 marks shall be held at the end of 5th Semester on the entire syllabus. One job per student from any one of the jobs done is to be performed. Job is to be set by lottery system.

Objective: student will be able to	
1	Use Visual environment.
2	Write simple programs using VC++.
3	Develop program for drawing dot, lines and shapes.
4	Handle Keyboard and Mouse input through programs.
5	Create Checkbox, Scroll bars etc.
Pre-Requisite:	
1	Student should know C programming.
2	Student should know C++ programming.
MODULAR DIVISION OF THE SYLLABUS	

GROUP	UNIT NO.	TOPIC	CONTACT PERIODS
A	1,2	Overview of Windows messaging, GDI and Basic Drawings	21
B	3,4	The Keyboard, The Mouse	17
C	5	Client Window Controls	17

EXAMINATION SCHEME

GROUP	UNIT NO.	OBJECTIVE QUESTIONS				SUBJECTIVE QUESTIONS			
		TO BE SET	TO BE ANSWERED	MARKS PER QUESTION	TOTAL MARKS	TO BE SET	TO BE ANSWERED	MARKS PER QUESTION	TOTAL MARKS
A	1,2	09	ANY 20	ONE	20x1=20	03	FIVE, TAKING AT LEAST ONE FROM EACH GROUP	10	10x5=50
B	3,4	09				04			
C	5	05				03			

Unit No.	Contents(Theory)	Hrs./Unit	Marks
Unit: 1	Overview of Windows messaging:- 09.1 The Windows Environment, History of Windows, Aspects of Windows, Windows Programming Options, APIs and Memory Models, The Programming Environment, Your First Windows Program 1.2 The Message Box Function, A Brief History of Character Sets 20 American Standards, Wide Characters and C, The char Data Type, Windows' String Functions, Using printf in Windows, Formatting Message Box. 1.3 Registering the Window Class, Creating the Window, Displaying the Window, the Message Loop and the Window Procedure.	10	
Unit: 2	GDI and Basic Drawings:- 2.1 An Introduction to GDI, The Structure of GDI, The GDI Philosophy, The GDI Function Calls, The GDI Primitives, The Device Context. 2.2 Drawing Dots and Lines, Setting Pixels, Filling in the Gaps, Drawing Filled Area, The GDI Mapping Mode Rectangles, Regions, and Clipping.	11	
Unit: 3	The Keyboard:- 09.1 Keyboard Basics, Keystrokes and Characters, Using Keystroke Messages, Character Messages, Keyboard Messages and Character Sets, The KEYVIEW1 Program, The Foreign-Language Keyboard Problem, The Caret (Not the Cursor), The Caret Functions.	08	
Unit: 4	The Mouse:- 4.1 Mouse Basics, Client-Area Mouse Messages, Simple Mouse Processing: An Example, Mouse double-clicks, No client-Area Mouse Messages, The Hit- Test Message, A Sample Program. 09.1 Emulating the Mouse with the Keyboard, Using Child Windows for Hit- Testing, Capturing the Mouse.	09	
	Client Window Controls:- 5.1 The Button Class, Creating the Child Windows, Push Buttons, Check Boxes, Radio Buttons, Group Boxes, Changing the Button Text, Visible and		

Unit: 5	Enabled Buttons, Buttons and Input Focus, Controls and Colors, System Colors, 5.2 The Button Colors, The WM_CTLCOLORBTN Message. The Scroll Bar Class 383 The COLORS1 Program Coloring the Background, Coloring the Scroll Bars and Static Text, The List box Class, List Box Styles, Putting Strings in the List Box, Selecting and Extracting Entries, A Simple List Box application.	10	
Total:		48	

Practical / Sessional

Name of course: Windows Programming Lab

Subject code: CSWT/S5/PR/E-I(WPL)

Contents (Practical)

1. Intellectual skills:
Use of programming language.
To be able to apply different logics to solve given problem.
To be able to write program using different implementations for the same problem.
Identify different types of errors as syntax semantic, fatal, linker & logical.
Debugging of programs.
Understanding different steps to develop program such as.
2. Motor skills:
Proper handling of Computer System.

List of practical:

LIST OF SAMPLE PROBLEMS FOR WINDOWS PROGRAMMING LAB(for example)

01. Demonstration of Visual Environment.
02. Writing simple VC++ programs.
03. Writing programs on drawing dots, lines, rectangles, filling different shapes.
04. Program on reading keystrokes from Keyboard.
05. Program on displaying text at desired window.
06. Finding size, Resizing windows.
07. Program on handling mouse.
08. Creating different controls (such as checkbox, scrollbar, etc).
09. Program on timer demonstration.

Reference Books:

Name of Authors	Title of the Book	Edition	Name of the Publisher
Charles Petzold	Programming Windows		Microsoft Press
Charles Petzold	Programming Windows		Addison Wesley
Jeffrey Ritcher	Advanced Windows		Microsoft Press, 1997 ISBN 1572315482, 9781572315488

Suggested list of Laboratory Experiments:

1. Write a Program to send message through network.
2. Program to capture packet through network.
3. Program to find out IP address from computer name.

Suggested list of Assignments / Tutorial:

1. What is an API? Explain Windows API.
2. Write a detailed note on GDI?
3. Write a note on keyboard and mouse messages?

Network Management and Administration

Name of course: Network Management and Administration	
Subject code: CSWT/S5/TH/E-I(NMA)	**Semester** : 5th
Duration : 17 weeks	**Maximum Marks** : 150 Marks
Teaching Scheme	**Distribution of Marks**
Theory : 03 Hrs/week	Class Test: 20 Marks
Tutorial: 00 Hrs./Week	Teachers Assessment(including attendance): 10 Marks
Practical: 03 hrs./week	End Semester Exam.: 70 Marks
Credit: 3+2	Practical / Sessional : 25 (Internal) +25 (External)
	1. Continuous **Internal Assessment** of 25 marks is to be carried out by the teachers throughout 5th Semester. Performance of job-18, Notebook-7 2**. External Assessment** of 25 marks shall be held at the end of 5th Semester on the entire syllabus. One job per student from any one of the jobs done is to be performed. Job is to be set by lottery system.

Objective: student will be able to	
1	Compare different types of network.
2	Describe the different types of network directory services
3	Design the computer network
4	Configure the networking resources and software from the server
5	Know the network management and administration
6	Apply the different types of network technologies for internet connection
7	Troubleshoot and repair the network faults
Pre-Requisite:	
1	Basic concept of computer network.
2	Basic knowledge of network management and Administration
3	Basic knowledge of network faults and troubleshooting

MODULAR DIVISION OF THE SYLLABUS

GROUP	UNIT NO.	TOPIC	CONTACT PERIODS
A	1	Exploring Directory Services and Remote Network Access	08
	2	Network Connection and Printing Services	O9
	3	Implementation of Network	10
B	4	Administering Windows 2000/2008 Server (The Basics)	08
	5	Troubleshooting and security of Network	10

EXAMINATION SCHEME

GROUP	UNIT NO.	OBJECTIVE QUESTIONS				SUBJECTIVE QUESTIONS			
		TO BE SET	TO BE ANSWERED	MARKS PER QUESTION	TOTAL MARKS	TO BE SET	TO BE ANSWERED	MARKS PER QUESTION	TOTAL MARKS
A	1,2,3	15	ANY 20	ONE	20x1=20	7	FIVE, TAKING AT LEAST TWO FROM EACH GROUP	10	10x5=50
B	4,5	10				4			

Unit No.	Contents(Theory)	Hrs./Unit	Marks
	GROUP-A		
Unit: 1	**Exploring Directory Services and Remote Network Access**: 3.1 Network Related Jobs – Network Administrator, Network Engineer, Network Architecture / Designer, Other Network Related Jobs	08	

	3.2 Directory Services - Define Directory Services, Definition of Novelle Directory, Windows NT domains, Microsoft's Active Directory, X500 Directory Access Protocol, Lightweight Directory Access Protocol, Forests, Trees, Roots and Leaves 3.3 Active Directory Architecture – Object Types, Object Naming, Canonical Names, LDAP Notation, Globally unique identifiers, User Principle Names, Domain, Trees & Forests 3.4 Remote Network Access – Need of Remote Network Access, Public Switched Telephone Network, Integrated Services Digital Network, Digital Subscriber Line, CATV 3.5 Virtual Private Network – VPN Protocols, Types of VPNs, VPN Clients, SSL VPNs.		
Unit: 2	**Network Connection and Printing Services**: 2.1 Dynamic Host Configuration Protocol (DHCP) – DHCP Origins, Reverse Address Resolution Protocol (RARP), The Bootstrap Protocol (BOOTP), DHCP Objectives, IP Address Assignment, DHCP Architecture 2.2 Introduction to Domain Name System(DNS) - DNS Objectives, Domain Naming, Top Level Domains, Second Level Domains, Sub domains, DNS Functions, Resource Records, DNS Name Resolution, Resolves, DNS Requests, Root Name Servers, Resolving a Domain Name, DNS Name Registration 2.3 Understand Network Printing Concepts - Understand Network Printing Concepts, Locally connected print devices, Setting up local print devices, Shared print devices, Sharing Locally Attached Print Devices, Describe Windows Network Printing, and Add Print Wizard	09	
Unit: 3	**Implementation of Network**: 3.3 Designing Network – Accessing Network Needs, Applications, Users, Network Services, Security and Safety, Growth and Capacity Planning, Meeting Network Needs – Choosing Network Type, Choosing Network Structure, Choosing Servers. 3.4 Installing and Configuring Windows 2003/2008/Linux Server - Preparing for Installation, Creating windows 2003/2008 server boot disk, Installing windows 2003/2008/Linux server, Configuring server/ client 3.5 Setting windows 2003/2008 server - Creating Domain controller, Adding the DHCP and WINS roles, Adding file server and print server, Adding Web based Administration	10	
GROUP-B			
Unit: 4	**Administering Windows 2000/2008 Server (The Basics)**: 4.1 Working With User Accounts - Adding a User, Modifying User Account, Deleting or Disabling a User Account 4.2 Working With Windows 2000/2008 Security Groups – Creating Group, Maintaining Group Membership 4.3 Working with Shares – Understanding Share Security, Cresting Shares, Mapping Drives 4.4 Administering Printer Shares – Setting up Network Printer 4.5 Working with Windows 2000/2008 Backup – Using Windows2000/ 2008 Servers Backup Software	08	
Unit: 5	**Troubleshooting and security of Network**: 5.6 Understanding the Problem – Troubleshooting, Segmenting the	10	

	Problem, Isolating the Problem, Setting Priorities 5.7 Troubleshooting Tools – Hardware Tools, Software Tools, Monitoring and Troubleshooting Tools 5.8 Internal Security – Account Security, File and Directory permissions, Practices and user education. 5.9 External Threats – Front Door threats, Back Door threats, Denial services threats, Viruses, worms and other Malicious codes		
Total:		45	

Practical / Sessional

Name of course: Network Management and Administration Lab

Subject code: CSWT/S5/PR/E-I(NMAL)

Skills to be developed:
Intellectual skills:

- Fault finding of network
- Troubleshooting of network
- Proper installation of network

Motor skills:

- Proper handling of Computer System hardware

List of Practical

Practical Name
1 Creating Windows 2003/2008 Server/Linux Boot Disk.
2 Installing Windows 2003/2008 Server/Linux
3 Installing Active Directory
4 Creating AD Objects
5 Setting up Local Print Device
6 Installing and Configuring a Network – Capable Print Device
7 Create new Users & give the Permission
8 Group of four students prepare a mini report on Latest Networking Technology.

Suggested List of Laboratory Experiments :

1 Basic TCP/IP utilities and commands. (eg: ping, ifconfig, tracert, arp, tcpdump, whois, host, netsat, nslookup, ftp, telnet etc...)
2 Configure a router (Ethernet & Serial Interface) using router commands including access lists on any network simulator (eg. packet Tracer)
3 Network design and implementation for small network using actual physical components with IP address scheme

Suggested List of Assignments/Tutorial :

1 Configuration of any three of the following of for each student a) Remote Login Service – TELNET/SSH b) Configuration of FTP server and accessing it via FTP Client.
2 Installation of NS-2. Test network animation on Network Simulator2 (NS2).
3 Configuration of any three of the following of for each student a) Remote Login Service – TELNET/SSH b) Configuration of FTP server and accessing it via FTP Client.

Text/Reference Books:

Name of Authors	Title of the Book	Edition	Name of the Publisher

Craig Zacker	The Complete Reference Networking		Tata McGraw-Hill Edition
Bruce Hallberg	Networking A Beginner's Guide		Tata McGraw-Hill Edition
Richard A. McMahon, Sir	Introduction to Networking		Tata McGraw-Hill Edition
Microsoft Press	Networking + Certification Training Kit		
Microsoft Press	MCSE Training Kit Networking Essential Plus		
Andrew S. Tenenbaum	Computer Networks	4th Edition	PHI,ISBN 81-203-2175-8.
StallingsW	Data and Computer Communications	Sixth Edition	Pearson Education 2
Comer D	Computer networks and internet	2 nd	Pearson Education 2

Unix Administration

Name of course: Unix Administration	
Subject code: CSWT/S5/TH/E-I(UA)	**Semester** : 5th
Duration : 17 weeks	**Maximum Marks** : 150 Marks
Teaching Scheme	**Distribution of Marks**
Theory : 03Hrs/week	Class Test: 20 Marks
Tutorial: 00 Hrs./Week	Teachers Assessment(including attendance):10 Marks
Practical: 03 hrs./week	End Semester Exam.: 70 Marks
Credit: 3+2	Practical / Sessional : 25 (Internal) + 25 (External)
	1. Continuous **Internal Assessment** of 25 marks is to be carried out by the teachers throughout 5th Semester. Performance of job-18, Notebook-7 2**. External Assessment** of 25 marks shall be held at the end of 5th Semester on the entire syllabus. One job per student from any one of the jobs done is to be performed. Job is to be set by lottery system.

Objective:

This course is a practical introduction to the Unix operating system and the role of the system administrator. Students will gain enough knowledge and experience with the Unix system to enable them to provide system administration services

Pre-Requisite:

Fundamental knowledge of operating system and computer networking.

Unit No.	Contents(Theory)	Hrs./Unit	Marks
Unit:1	**Overview of System Administration:** Introduction to Unix Operating System, A Brief History of UNIX, Unix features, Architecture of UNIX Operating System, The kernel and the shell , Duties of the Administrator, Administration tools, Overview of permissions.	5	
Unit:2	**Managing User Accounts:**	5	

	Principles, password file, Password security, Shadow file, Groups and the group file, Shells, restricted shells, user management commands, homes and permissions, default files, profiles, locking accounts, setting passwords, Switching user, Switching group, Removing users.		
Unit:3	**UNIX Processes:** Overview of Processes, Process status, Process Space, Process Table, Process creation, The fork/exec Mechanism, The ps Command, Background Processes, Killing processes, process priority, Scheduling Jobs, The cron Daemon, The at Command, The crontab Command, Access to Scheduling Facilities**.**	6	
Unit:4	**System Startup and Shutdown:** Kernel loading, Console, The init Daemon, init and the inittab file, Run-levels, Run level scripts , Single-User Mode, The shutdown Command	3	
Unit:5	**Unix File Systems:** File System Basics, The Hierarchy, Files, Raw and Block files, Directories, Partitions, Swap space, Device Files, Character and Block Devices, The/dev Directory, Links, Symbolic Links, A File System Tour, The df Command, The du Command, The find Command, The Physical File System, The Boot Block, The Inode File, , The Superblock, File Storage in Disk Blocks ,The Free List.	6	
Unit: 6	**Disk Management:** Formatting disks, Making file systems, The mkfs Command, Sharing File systems, Mounting file systems, The mount Command, The fstab File, The fsck Command, The lost+found Directory, File system checker, , Logical Volumes, Network Filesystems, Boot disks	5	
Unit: 7	**IP Addressing & Configuring the TCP/IP Network:** IP Addressing: Basic Network Needs, Ethernet Addresses, IP Addresses, DNS vs /etc/hosts to Resolve IP Addresses, Network Addresses, Network Classes, Broadcast Addresses, Subnet Masks Configuring the TCP/IP Network: Kernel Configuration; Mounting the /proc File system, Setting the Hostname, Assigning IP Addresses, Creating Subnets, Writing hosts and networks Files, Interface Configuration for IP, ifconfig, netstat command, Checking the ARP Tables; Name service and resolver configuration.	6	
Unit: 8	**TCP/IP Firewall :** Methods of Attack, Firewall, IP Filtering, Firewall Configuration; A Sample Firewall Configuration.	4	
Unit: 9	**Network Utilities:** Network Services, telnet - Terminal Emulator, ftp - File Transfer, rcp - Remote Copy, rlogin - Remote Login, rsh - Remote Commands	4	
Unit: 10	**System Backup & Recovery:** Backup Strategies, Log files for system and applications ,Backup Tools, The tar Command, The cpio Command, The dump Command	4	
Total:		48	
Practical / Sessional			
Name of course: Unix Administration Lab			
Subject code: CSWT/S5/PR/E-I(UAL)			

List of practical:

1. **Introduction to Unix , Installing Unix , Startup and shutdown**
   Steps in the boot process
   - The /etc/inittab File
   - Overview of the startup scripts
   - Shutdown, reboot, and halt
   - Common boot problems
2. **User account management:**
   adding and removing accounts, user management commands ,locking accounts, setting passwords, Switching user, Switching group **,**system files that store user account information
   - The /etc/passwd file
   - The /etc/group file
   - Adding a user
   - The useradd command
   - Removing a user
3. **Unix environment: File system and process management**
   Filesystem components, Formatting disks, Making file systems, The mkfs Command, Sharing File systems, Mounting file systems, The mount Command, The fstab File, newfs, du, quot and fsck Command.
   UNIX Processes ,The ps Command, Background Processes, Process creation**,** Killing processes, process priority, Scheduling Jobs, The cron Daemon, The at Command, The crontab Command, Access to Scheduling Facilities.
4. **Configuring the TCP/IP Network :** Setting the Hostname, Assigning IP Addresses, Creating Subnets, Writing hosts and networks Files, Interface Configuration for IP, ifconfig, netstat command, Checking the ARP Tables; Name service and resolver configuration .
5. **TCP/IP Firewall :**
   A simple Firewall Configuration using ipchains or iptables.
6. **Network Utilities :**
   Network Services, telnet - Terminal Emulator, ftp - File Transfer, rcp - Remote Copy, rlogin - Remote Login, rsh - Remote Commands
7. **Backups and Archiving**
   Performing backups and archiving data on a Unix system, Backup Tools, Backing up the system – cpio, dump, pax, tar, and dd.

Reference Books:

Name of Authors	Title of the Book	Edition	Name of the Publisher
Kenneth Rosen , Douglas Host , Rachel Klee , Richard Rosinski	UNIX: The Complete Reference, Second Edition (Complete Reference Series)		McGraw-Hill
Sumitabha Das	Your UNIX: The Ultimate Guide		McGraw-Hill
E. Nemeth, G. Snyder, S. Seebass, T. R. Hein	Unix system administration handbook		Pearson Education
Comer	Internetworking with TCP/IP,	vol. 1(4th Ed.)"	Pearson Education/PHI
W. R. Stevens	Unix network programming	vol. 1(2nd Ed.)	Pearson Education/PHI

Project Phase-I:

See Sixth Semester

WEB Page Development (Professional Practice - III)

Name of course: WEB Page Development (Professional Practice - III)	
Subject code: CSWT/S5/PR/WPDL	**Semester** : 5th
Duration : 17 weeks	**Maximum Marks** : 50 Marks
Teaching Scheme	**Distribution of Marks**
Theory : NA	Class Test: NA
Tutorial: NA	Teachers Assessment(including attendance):
Practical: 03 hrs./week	End Semester Exam.:
Credit: 2	Practical / Sessional : 50 (Internal)
	Continues internal assessment of 50 marks is to be carried out by teachers throughout 5th Semester. Performance of Job – **35**, Notebook – **15**.

Objective:

Students will able to:
1.Design simple Web pages - using HTML
2. Organize information using Tables, collect information from users using forms & present information using Frames.
3. Use style sheets to gain full control of formatting within Web page.
4. Include ASP within Web pages.
5. Embed multimedia to Web pages.
6. Integrate all above to develop Web sites.

Pre-Requisite:

Basic concept of web, internet, web page design, dbms

Unit No.	Contents(Practical / Sessional)	Remarks
Unit:1	**INTERNET BASICS** Familiarity with internet browser(MS-Explorer, Netscape) Working with browser window tool bar , menu bar Browsing a given web site address, Searching a particular topic through search engines. Familiarity with E-Mail, sending viewing printing e-mail message. Use of mailbox (inbox, outbox) in outlook express. Use of attachment facility available in e-mailing.	
Unit:2	**WEB SERVER** Familiarity with web server – IIS, PWS etc. – Configuring web server – Creating virtual directory	
Unit:3	**INTERNET SERVICES**	

	Concept and familiarity of various internet services (www, http, ftp, chat etc).	
Unit: 4	**HTML/XML** • Creating simple HTML & XML file, place it in web server and access it from client Browser. • Creating a HTML form incorporating GUI components (Command button, text box, radio button, check box, combo box etc).	
Unit: 5	**ACTIVE SERVER PAGES / ASP.NET** • Introduction to Active Server Pages. • Elements of ASP (Scripts, Objects, Components). • Making your first Active Server Page.	
Unit: 6	**INTRODUCING VB SCRIPT:** • Variables, Mathematical operators, functions — Logical operators, Loop, Conditional statements — String Function, Date and Time Function. • Subroutine — Formatting Display, Adding Components to scripts — Handling Event driven programming.	
Unit: 7	**WORKING WITH ASP & ASP.NET:** • Using HTTP — Writing simple ASP files — Controlling Execution of server side scripts. • Problems on HTML forms to get user information and retrieving HTML form contents • Working with query string	
Unit: 8	**ASP SESSION:** • Introduction to session. • Familiarity and working with session objects (simple problems). • Using session events. • Familiarity and working with cookies	
Unit: 9	**ASP APPLICATION:** • Introduction to ASP Application features of ASP Application • Creating a Simple ASP Application, Setting the properties of ASP Application — Using Application objects and Application event	
Unit: 10	**ASP COMPONENTS:** Using Components in ASP (Simple problems) — Creating Components with page scope, session scope, Application scope. • Working with browser capability component, file assess components , counter components etc.(Simple problems)	
Unit: 11	**DATABASE MANAGEMENT THROUGH ASP:** • Brief overview of ActiveX Data Objects. • Using ADODB to access a database from ASP (Simple Problem) — Opening, closing database connection • Executing SQL statements	