

GUJARAT TECHNOLOGICAL UNIVERSITY
DIPLOMA IN COMPUTER ENGINEERING
TEACHING SCHEME (w.e.f. 18th July '2011)

SEMESTER- V

SR. NO	SUB. CODE	SUBJECT	TEACHING SCHEME (HOURS)			CREDITS
			THEORY	TUTORIAL	PRACTICAL	
1	2350701	Internet Application Programming	3	0	4	7
2	2350702	Micro Processor & Peripheral Chips	3	0	2	5
3	2350703	Java Programming	3	0	4	7
4	2350704	Computer Networking	3	0	4	7
5	2350705	Project – I	0	0	4	4
		Total	12	0	18	30

GUJARAT TECHNOLOGICAL UNIVERSITY

DIPLOMA IN COMPUTER ENGINEERING

Semester – V

Subject Code : **2350701**

Subject Name : **Internet Application Programming**

Sr. No.	Subject Content	Hrs.
1.	Unit – I MS .Net introduction 1.1 What is .NET 1.1.1 Definition 1.2 The .NET Framework The Common Language Runtime (CLR) 1.2.1 The common type system (CTS) 1.2.2 Managed code and unmanaged code 1.2.3 The common language specification(CLS) 1.3 The .NET framework class library 1.3.1 Namespaces 1.3.2 Assemblies	8
2.	Unit – II C# Basics 2.1 introducing C# Data Types (including Boxing – Unboxing) 2.2 C# Control structures 2.2.1 Conditional structure 2.2.2 Looping structure 2.3 Constructor and Destructor 2.4 Arrays (one dimensional, multidimensional, jagged) 2.5 Understanding Properties and Indexers 2.5.1 Get Accessor, Set Accessor 2.5.2 Indexers(One Dimension) and property 2.6 Delegates and events 2.6.1 Delegates 2.6.1.1 Definition & declaration 2.6.1.2 Using delegate in C# 2.6.1.3 Simple delegate example 2.6.2 Anonymous method 2.6.3 Events 2.6.3.1 Generating events 2.7 Inheritance	17

	2.7.1 Types of inheritance 2.7.2 Implementation Inheritance 2.7.2.1 Calling base version of function 2.7.2.1 Abstract class & function 2.7.2.1 Sealed class & method 2.7.2.1 Constructors of derived class 2.7.3 Modifiers 2.7.3.1 Visibility modifiers 2.7.3.2 Other modifiers 2.7.4 Overview of Abstraction 2.7.5 Interfaces 2.7.5.1 Definition & declaration 2.7.5.2 Derived interface	
3.	UNIT –III ADO.Net & Object Oriented Concepts Using C# 3.1 Introduction to Ado. NET, Understanding the Connection Object 3.2 Building the Connection String. 3.3 Understanding the Command Object. 3.4 Understanding Data Readers. 3.5 Understanding DataSets and DataAddapters 3.6 Data Table, Data Column, Data Row 3.7 Working with System Data OleDB. System data 3.8 Data Grid	9
4.	UNIT –IV 4.1 Web Application Development with ASP .Net 4.2 ASP. NET Server Control 4.2.1 Label, Dropdown list box, Validation Controls, List Box, Textbox, RadioButton, Checkbox 4.3 Authentication (window,.Net Passport, Forms Based) 4.4 Understanding the Global.Asax Page 4.5 Understanding the Web.Config File	8
	Total	42

List of Practicals:

1. Write a simple program to get value from user and print it on screen using C#.
2. Write a program of binary operator overloading.
3. Write a program using delegation in which addition and subtraction of two integer's value possible
4. Writing a program-using Interface
5. Write a program to display the caption, height of command button into label.
6. Write a window program for list box give the facility for adding, removing and clearing the list with conformation and store the deleted file in another list box
7. Create an window form through which user can enter details of employee: empid, empname, basic salary, sex, date of birth, date of joining, Designation, total income, total deduction and gros salary will be calculated automatically
8. Also in above program all details of employee will be appear in Grid and depending upon selection particular actual record will be appear in form
9. Create an ASP.Net web page using different validation controls
10. Create an ASP.Net Web page that lists the customer from customer's database table in Sort able Data Grid with paging option The Data Grid should display three columns, one for the customers' ids, one for the customer's names and one for the customer' phone numbers. The user should be able to sort the Data Grid by customer ID

Text Books:

1. [Beginning ASP.NET 2.0 with C# \(Wrox Beginning Guides\)](#)

Chris Hart, John Kauffman, David Sussman, Chris Ullman

2. C# Complete Reference TMH

Reference Books:

1. C# Black Book
Comprehensive Problem Solver (Black Book (Paraglyph Press))
1 edition
2. Beginning Visual C# 2005 (Wrox Beginning Guides) by Karli Watson

GUJARAT TECHNOLOGICAL UNIVERSITY

DIPLOMA IN COMPUTER ENGINEERING Semester – V

Subject Code : **2350702**

Subject Name : **Micro Processor & Peripheral Chips**

Sr. No.	Subject Content	Hrs.
1.	16 bit Processor: 8086 1.1 Register Organization of 8086 1.1.1 General Data Registers 1.1.2 Segment Registers 1.1.3 Pointer and Index Registers 1.1.4 Flag Register 1.2 Internal Organization of 8086 1.2.1 Bus Interface Unit (BIU) 1.2.2 Execution Unit (EU) 1.2.3 Memory Segmentation 1.2.4 Flag register and description of all flag bits 1.3 Signal description of 8086 1.3.1 Physical memory organization 1.3.2 General Bus operation 1.3.3 I/O Addressing capability 1.3.4 Special processor activities 1.3.5 Minimum mode and Maximum mode of 8086	7
2	8086 Assembler Directives: 2.2. Introduction 2.3. Symbols, Variables and Constants 2.4. Data Definition and storage allocation directives 2.5. Program organization directives 2.6. Alignment directives 2.7. Value-retrieving attribute directives 2.8. Procedure definition directives 2.9. Macro definition directives 2.10. Data control directives 2.11. Branch displacement directives 2.12. Header file inclusion directives	4

3	8086 Instruction set: 3.1. Machine language instruction formats 3.2. Addressing modes of 8086 3.2.1. Immediate addressing mode 3.2.2. Implicit addressing mode 3.2.3. Direct addressing mode 3.2.4. Indirect addressing mode 3.2.5. Register Addressing Mode 3.2.6. Register Indirect 3.2.7. Based Indexed 3.2.8. Register Relative 3.2.9. Relative Based Indexed 3.3. Assembler instruction format 3.4. Data transfer instructions 3.5. Arithmetic and Logical Instructions 3.6. Shift and Rotate instructions 3.7. Branch instructions 3.8. Processor control instructions 3.9. String operation instructions	11
4	8086 Assembly Language Programming: 4.1 Introduction 4.2 Program Segment 4.3 Procedures 4.4 Program Structure 4.5 Programming with macros 4.6 Input-output structure and programming 4.7 Program development tools 4.8 Program development process 4.9 ASCII and Integer conversion	9
5	Advance Processor: 5.1 Intel Pentium Processor 5.1.1 Block Diagram 5.1.2 Organization 5.1.3 Integer Pipelined	3
6	Peripheral Chips: 6.1 8255 Programmable Input-Output Port 6.1.1 Functional block diagram 6.1.2 Operational modes 6.1.2.1 Input/Output Mode 6.1.2.1.1 Mode 0 : Simple I/O	8

	6.1.2.1.2 Mode 1 : Strobed I/O 6.1.2.1.3 Mode 2 : Strobed bidirectional I/O 6.1.2.2 Bit Set/Reset Mode 6.1.3 Control Word Format 6.1.3.1 Input/Output mode format 6.1.3.2 BSR mode Forma 6.2 8259 Programmable Interrupt Controller 6.2.1 Interfacing, Basic Operation, Operating Modes 6.2.2 Programming ICWs and OCWs 6.2.3 Cascading	
	Total	42

Laboratory Experiences:

8086 Programs based on following area:

1. Arithmetic operations
2. Data conversion, series conversion, computation
3. Searching & Sorting
4. Matrix Operations
5. Recursion
6. String Operations.

Text Books:

1. Advance Microprocessor and Peripherals, A.K.Ray, K.M.Bhurchandani TMH.
2. Microprocessor X86 Programming, K.R.Venugopal, Rajkamal. BPB.

Reference Books:

1. The 8086 microprocessor Architecture, Programming and interfacing, Das Person.
2. 8085 Microprocessor, R S Gaokar.
3. The 8085 microprocessor Architecture, Programming and interfacing, K.Udaykumar Pearson.
4. The 8088 & 8086 Microprocessors, Walter A. Triebel, Avatar Singh Person.
5. The Intel Microprocessors 8th ed., Barry B. Brey.

GUJARAT TECHNOLOGICAL UNIVERSITY

DIPLOMA IN COMPUTER ENGINEERING

Semester – V

Subject Code : 2350703

Subject Name : **Java Programming**

Sr. No.	Subject Content	Hrs.
1.	INTRODUCTION TO JAVA 1.1 Advantages of Java 1.2 Features of Java 1.3 Data types, variables and array 1.4 Operators 1.5 Overview of control statements 1.6 Input and output in Java	2
2.	INTRODUCTION TO CLASSES. 2.1 Class fundamentals 2.2 Declaring objects 2.3 Assigning object reference variables 2.4 Introducing methods 2.5 Constructors 2.6 The this keyword 2.7 Garbage collection 2.7.1 The finalize method 2.8 Wrapper class	3
3.	MORE ABOUT METHODS AND CLASSES 3.1 Overloading methods 3.2 Using object as parameters 3.3 Returning objects 3.4 Recursion 3.5 Static and Final keyword 3.6 Nested and inner classes 3.7 Command line arguments	5
4.	INHERITANCE 4.1 Inheritance basics 4.2 Super keyword 4.3 Creating multilevel hierarchy 4.4 Method overriding 4.5 Using abstract classes 4.6 Using final with inheritance	4

5.	PACKAGES AND INTERFACES. 5.1 Packages (Defining package, CLASS PATH) 5.2 Access protection 5.3 Importing packages 5.4 Interfaces	4
6.	EXCEPTION HANDLING 6.1 Exception – Handling fundamentals 6.2 Exception types 6.3 Using try and catch 6.4 Un caught exceptions 6.5 Multiple catch clauses 6.6 Nested try statements • Throw • Throws • Finally 6.7 Creating your own exception sub classes	4
7.	MULTITHREDED PROGRAMMING 7.1 The Java thread model 7.2 The main thread 7.3 Creating a thread 7.4 Creating multiple threads. 7.5 Using alive() & join() 7.6 Thread priorities 7.7 Synchronization 7.8 Inter thread communication 7.9 Suspending, resuming, stopping threads	5
8.	STRING HANDLING 8.1 The string constructors 8.2 String length 8.3 Special string operation 8.4 Character Extraction 8.5 String comparison 8.6 Searching strings 8.7 Modifying a string 8.8 Using valueOf() 8.9 String buffer. • Give the overview of Vector Class	4
9.	APPLETS AND APPLICATIONS 9.1 The applet class 9.2 Applets and HTML (The applet Tag) 9.3 Life cycles of an applets. (Init(), start, stop, destroy method) 9.4 Graphics class - Drawstring, drawline, drawrect, fillrect, clearrect, fillroundrect, drawoval) 9.5 Painting the applet - Update, paint, repaint method	5

	9.6 Passing parameters to applets getparameter() method	
10.	USING AWT IN APPLICATION 10.1.1 The AWT classes 10.1.1 Layout Managers 10.1.1.1 Flow Layout 10.1.1.2 Grid Layout 10.1.1.3 Border Layout 10.1.1.4 Card Layout 10.1.2 Containers 10.1.2.1 Panel & Canvas 10.2 Window fundamentals 10.3 The frame class 10.4 The dialog class 10.5 Controls Textbox, push button, label	6
	Total	42

Laboratory Experiences:

Students should write programmes on the basic of prescribed curriculum of this Subjects (minimum 20 programmes)

It should includes the followings:

1. Class & Object related programs.
2. Programs for Constructors, this keyword finalizes method.
3. Programs by using Final keyword, and static keyword
4. Programming for Command Line Arguments.
5. Programs for Array, Inner class and Nested class
6. Using Inheritance which also enhance the Super & This keyword
7. Abstract class and use of Final key word in Inheritance
8. Creating Package, and the scope of data in packages
9. Importing Packages
10. Programs using Interface, Creating Multiple Inheritance Using Interface.
11. Exception Handling using pre-defined Exception Class.
12. Creating User –defined Exception class.
13. Multi-Threading Programming
14. Programs for I/O stream class, Reading the data from Console Input etc.
15. String Handling Programs
16. Use of Vector Class
17. Creating Applet
18. Event Handling Programs.
19. Programs for the applet using AWT classes, Frame and File Dialog.
20. Programs for the applet using Layout and Menus.

Note : Number of programs for any topics can be vary, depends on the weightage of the topic.

Text Books:

1. Complete Reference Java 2, Herbert Schildt, TMH.
2. Java programming , E.Balagurusamy, TMH.

Reference Books:

1. Java Programming, Sachin Malhotra, Saurabh Choudhary, Oxford.
2. Programming with Java, M. P. Bhav S.A. Patekar, Pearson.
3. Introduction to Java Programming 7th ed., Y. Daniel Liang, Pearson.
4. Java For programmers, Paul J. Deitel & Harvey M. Deitel , Pearson.
5. Teach yourself Java 2 in 21 Days, Rogers Cadenhead, Laura Lemay, SAMS.

GUJARAT TECHNOLOGICAL UNIVERSITY

DIPLOMA IN COMPUTER ENGINEERING

Semester – V

Subject Code : **2350704**

Subject Name : **Computer Networking**

Sr. No.	Subject Content	Hrs.
1.	Introduction to Pc Hardware: 1.1 Definition & historical review n of network 1.2 Network criteria 1.3 Network Applications 1.4 Definition of Protocol 1.5 Standard organization (ISO, CCITT, ANSI, IEEE, ITU, ISOC, IETF)	4
2.	Basic Concepts: 2.1 Line Configuration 2.1.1 Point to point 2.1.2 Multipoint 2.2 Topology 2.2.1 Mesh 2.2.2 Star 2.2.3 Ring 2.2.4 Bus 2.2.5 Tree 2.3 Categories of network 2.3.1 LAN 2.3.2 WAN 2.3.3 MAN 2.3.4 INTERNETWORKS 2.4 Different types of servers 2.4.1 File 2.4.2 Application 2.4.3 Print 2.4.4 Mail 2.4.5 Proxy 2.4.6 Web servers	9
3.	The Reference Model: 3.1 OSI model & function of each Layer 3.2 TCP/ IP model	5

	3.3 Comparison of OSI & TCP/IP (Refer books 1, 2)	
4.	Transmission Media: 4.1 Guided Media 4.2 Unguided media	2
5.	Networking Basics: 5.1 Network devices 5.1.1 Network Adapters 5.1.2 Hubs 5.1.3 Switches 5.1.4 Routers 5.1.5 Access Points 5.1.6 Gateways 5.2 Network software 5.3 Wired Network 5.4 Wireless Networks 5.5 Bridges	5
6.	Network & Transport Layer in Internet: 6.1 IP protocol 6.2 IP V4 Header & protocol functions 6.3 IP addressing schemes 6.4 Subnet & subnet masking	6
7.	Network Applications & Security: 7.1 DNS (Domain Name System) 7.1.1 Name Server 7.2 File transfer protocol & Trivial FTP 7.3 Electronic Mail 7.3.1 Functions of E-mail systems (mail box & address) 7.3.2 User agents 7.3.3 Message format 7.3.4 Mail Protocols (SMTP, POP, IMAP, MIME) 7.5 Firewall 7.5.1 Packet Filter Firewall 7.5.2 Proxy Firewall 7.6 Cryptography 7.6.1 Symmetric Key cryptography 7.6.2 Public Key Cryptography	6
8.	Building a Small Lan: 8.1 Installation of Network (H/W, S/W)	5

	8.2 Maintenance of Network (ping, Trace out).	
	Total	42

LABORATORY EXPERIENCES:

1. Install & Test Various Network Connectors, Cables Etc.
2. Install and Test Various Network Cards.
3. Study of Network Class and Addressing.
4. Prepare Computer System for Network.
5. Install Network File Server.
6. Install Network Printer Server.
7. Install and test Internet.
8. Study of Router, Repeater And Bridge.
9. Installation and Testing of Network Operating System.
10. Prepare Proxy Server.

Text Books:

1. Data Communication & Networking, by Forouzen TMH.
2. Computer Network, by Andrew Tannebaum Pearson.

Reference Books:

1. Computer and Communication Networks, by Nader F. Mir Pearson.
2. Data Communications & Computer Networks for Computer Scientists & Engineers
 - a. , by Michael Duck Pearson.
3. Data Communication & Computer Networks, by Brijindra Singh PHI.
4. Data & Computer Communication, by Williams Stallings PHI.

GUJARAT TECHNOLOGICAL UNIVERSITY

DIPLOMA IN COMPUTER ENGINEERING

Semester – V

Subject Code : **2350705**

Subject Name : **Project - I**

GENERAL GUIDELINE:

Guidelines:

The guideline is made keeping in view generalizing the work carried out by Students. The project guide or concerned faculty may suggest necessary changes in this guideline to fulfill his/her requirement. The project may be developed considering following points.

Analysis:

Explain in detail any relationship between the system you intend to produce and the existing manual system. Identify qualitative and quantitative evaluation criteria (obviously, these should be heavily influenced by the end-user's requirements specification). Explain clearly how your system will improve the current system (avoid vague statements such as “to save time”, “to improve efficiency”, “to make system user friendly” etc.) What hardware and software will be used and why? You should show an appreciation of the full potential of the hardware and software that you intend to use. List the Inputs, Outputs and Processes. Fully explain the information flow (include a Data Flow Diagram or system flowchart).

Design:

Select Appropriate Database as per your requirement. Follow a process of Normalization. Produce entity-relationship diagrams. Break down all envisaged tasks into sub-tasks (process decomposition).

Implementation:

All or most of the facilities of the software and the hardware must be fully exploited. This means a fully relational database, which utilizes the advantages of relational databases, forms based on multiple tables, reports that include grouping and calculations, sub forms and Action Queries to make the system "reusable". Printing out regularly and annotating fully must show progression of work .

Testing:

Involve clear evidence of end-user testing (e.g. evidence of an end-user test plan being followed). Test outputs should be fully annotated and cross-referenced. Test typical, extreme and erroneous data and ensure that the functionality of the system is tested. Testing should show appreciation of different circumstances (e.g. the difference between a standalone computer and one on a network). Explain the reason for each test

Evaluation:

Consider clearly a full range of qualitative and quantitative criteria for evaluating the solution. Make it clear that these criteria relate to the requirement of the user(s). What problems did you encounter and how did you overcome them? How could your system be developed/extended? Explain any differences between your original design and the system you eventually produced. Show involvement of the end-user in the evaluation stage (a simple letter of acceptance is not sufficient).

“Midterm review with presentation by student in presence of project guide and class audience be invariably carried out. 30% weightage may be given. Individual project group should not exceed four students.”

Layout & Report Generation:

Project should be able to generate various reports using any report generation tools. Student should include minimum required reports in their project.

Documentation:

The student should prepare project report and submit it. The documentation should include below mentioned topics in given sequence. The project guide may suggest necessary changes in the topics if required. Title Page, Preface, Certificate, Acknowledgement, Index, Introduction, Literature Survey, User requirement specifications, Analysis and Design, Data structure, Implementation, Limitations of the system, Future scope of the system, References, Bibliography.