# GUJARAT TECHNOLOGICAL UNIVERSITY

## DIPLOMA IN INFORMATION TECHNOLOGY

**TEACHING SCHEME (w. e. f. Jan' 12)**

**SEMESTER- VI**

| SR. NO | SUB. CODE | SUBJECT | TEACHING SCHEME (HOURS) | | | CREDITS |
|---|---|---|---|---|---|---|
| | | | THEORY | TUTORIAL | PRACTICAL | |
| 1 | 2361601 | ASP.NET and VB.NET Web Programming | 3 | 0 | 4 | 7 |
| 2 | 2361602 | Information Security | 3 | 0 | 2 | 5 |
| 3 | | Elective | 4 | 0 | 2 | 6 |
| 4 | 2361608 | Project - II | 0 | 0 | 12 | 12 |
| | | **TOTAL** | 10 | 0 | 20 | 30 |

Select **ANY ONE** from the following subjects

**LIST OF ELECTIVE SUBJECTS**

| SR. NO | SUB. CODE | ELECTIVE |
|---|---|---|
| 1 | 2361604 | Enterprise resource planning ( ERP ) |
| 2 | 2361606 | Mobile Computing |
| 3 | 2361607 | Computer Logic Design |

# GUJARAT TECHNOLOGICAL UNIVERSITY

## DIPLOMA IN INFORMATION TECHNOLOGY

## SEMESTER- VI

**Subject Name: ASP.NET and VB.NET Web Programming**
**Subject Code: 2361601**

| Sr. No. | Subject Content | Total Hrs. |
|---|---|---|
| 1 | **Introduction to .NET and Visual Studio 2005**<br>1.1 What's Wrong with Classic ASP?<br>1.2 Basics of ASP.NET 1.0<br>1.3 An Introduction to Microsoft .NET<br>1.4 The Common Language Runtime<br>1.5 Assemblies<br>1.6 An Introduction to Visual Studio 2005<br>Creating a New Web Project (ASP.NET)<br>Opening an Existing Web Site<br>Building Web Sites<br>Accessing a Web Site<br>Debugging | 4 |
| 2 | **ASP.NET Web Forms .**<br>2.1 Using the Web Forms Designer (Adding Controls)<br>2.2 Page Life cycle<br>2.3 Web Form Processing Stages<br>2.4 Master Page | 3 |
| 3 | **ASP.NET Controls**<br>3.1 HTML Server Controls<br>(HtmlAnchor, HtmlButton, HtmlForm, HtmlImage,<br>HtmlInputCheckBox, HtmlInputImage, HtmlInputRadioButton,<br>HtmlInputText, HtmlTable, HtmlTableCell, HtmlTableRow,<br>HtmlTextArea)<br>3.2 Web Server Controls<br>(Button, CheckBox, CheckBoxList,<br>DropDownList,HyperLink, Image, ImageButton,<br>Label, LinkButton, ListBox, ListItem, Panel,<br>PlaceHolder, RadioButton, RadioButtonList, TextBox)<br>3.3 Working with Control Properties and Events<br>3.4 Validation Controls<br>(RequiredFieldValidator, RangeValidator Control,<br>CompareValidator, RegularExpressionValidator,<br>CustomValidator, ValidationSummary) | 6 |

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| **4** | **State Management**<br>4.1 ASP.NET State Management<br>4.1 View State<br>4.1.1 Storing Objects in View State<br>4.1.2 Assessing View State<br>4.2 The Query String<br>4.2.1 Cross-Page Posting and Validation<br>4.2.2 Cookies (create, set, add and expire cookie)<br>4.3 Session State<br>4.3.1 Session Architecture<br>4.3.2 Using Session State(HttpSessionState Members)<br>4.4 Application State | **6** |
| **5** | **ASP.NET Configuration** 5.1<br>5.1 The Global. sax Application File<br>5.1.1 Application Events<br>5.2 ASP.NET Configuration<br>5.2.1 The Machine.config. File<br>5.2.2 The Web.config File<br>5.2.3 Configuration Settings | **3** |
| **6** | **ADO.NET Fundamentals**<br>6.1 The ADO.NET Architecture<br>6.1.1 ADO.NET Data Providers<br>6.1.2 Standardization in ADO.NET<br>6.1.3 Fundamental ADO.NET Classes<br>6.2 Connection Strings<br>6.3 The Command and DataReader Classes<br>6.3.1 Command Basics<br>6.3.2 The DataReader Class<br>6.3.3 The ExecuteReader() Method and the DataReader<br>6.3.4 The ExecuteScalar() Method<br>6.3.5 The ExecuteNonQuery() Method | **6** |
| **7** | **Data Components and the DataSet**<br>7.1 Concept of Disconnected Data<br>7.1.1 Web Applications and the DataSet<br>7.2 The DataSet Class<br>7.2.1 The DataTable Class<br>7.2.2 The DataRow Class<br>7.3 The DataAdapter Class<br>7.3.1 Filling a DataSet<br>7.4 The DataView Class<br>7.4.1 Sorting with a DataView<br>7.4.2 Filtering with a DataView | **7** |

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| **8** | **Data Binding**<br>8.1 Basic Data Binding<br>8.1.1 Single-Value Binding<br>8.1.2 Repeated-Value Binding<br>8.2 The SqlDataSource<br>8.2.1 Selecting Records<br>8.2.2 Updating Records<br>8.2.3 Parameterized Commands<br>8.2.4 Disadvantages of the SqlDataSource<br>8.3 The ObjectDataSource<br>8.3.1 Selecting Records<br>8.3.2 Updating Records<br>8.3.3 Updating with a Data Object | **7** |
| | **Total** | **42** |

**NOTE: - Following are the minimum experiences required, but the college can do more experiences if possible.**

## Laboratory Experiences:

Student should write programs on the basic of prescribed syllabus of this course. It should include the following.

1. Creating ASP.NET Web Forms with ASP.NET Controls
2. State Management Practical
3. Web.config setup illustrating Practical
4. ADO.NET Connection related practical
5. Use of DataSet illustrating Practical
6. Data Binding through controls

## Reference Books:


1. Beginning Object Oriented ASP.NET 2.0 with VB.NET From Novice to Professional by Brian R. Myers – Apress.
2. Pro ASP.NET 2.0 In VB 2005 by Laurence Moroney and Matthew MacDonald – Apress.
3. Beginning ASP.NET 2.0 by Chris Hart, John Kauffman, Dave Sussman, Chris Ull

# GUJARAT TECHNOLOGICAL UNIVERSITY

## DIPLOMA IN INFORMATION TECHNOLOGY

## SEMESTER- VI

**Subject Name: Information Security**
**Subject Code: 2361602**

| Sr. No. | Subject Content | Total Hrs. |
|---|---|---|
| 1 | **INTRODUCTION TO INFORMATION SECURITY**<br>1.1 What Is Information Security?<br>1.2 Overview of information Security<br>1.3 Security Services, Mechanisms and Attacks<br>1.4 The OSI Security Architecture<br>1.5 A Model for Network Security | 4 |
| 2 | **SYSTEM SECURITY**<br>2.1 Intruders<br>2.1.1 Intruders<br>2.1.2 Intruders detection<br>2.1.3 Password management.<br>2.2 Malicious Software<br>2.2.1 Viruses and Related Threats<br>2.2.2 Virus Countermeasures<br>2.3 Firewalls<br>2.3.1 Firewalls Design principle<br>2.3.2 Trusted Systems | 8 |
| 3 | **SYMMETRIC KEY CRYPTOGRAPHY**<br>3.1 Symmetric Cipher Model<br>3.2 Cryptography, Cryptanalysis | 4 |
| 4 | **SUBSTITUTION TECHNIQUES**<br>4.1 Creaser Cipher, Monoalphabetic Ciphers, Playfair Cipher<br>4.2 One Time Pad, Transposition Techniques , Stegnography | 4 |
| 5 | **BLOCK CIPHERS AND THE DATA ENCRYPTION STANDARD**<br>5.1 Simplified DES , Block Cipher Principles<br>5.2 The Data Encryption Standard , The Strength of DES<br>5.3 Block Cipher Modes of Operation | 6 |
| 6 | **CONFIDENTIALITY USING SYMMETRIC ENCRYPTION**<br>6.1 Placement of Encryption Function | 6 |

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|---|---|---|
| | 6.2 Traffic Confidentiality<br>6.3 Key Distribution<br>6.4 Random Number Generation | |
| **7** | **PUBLIC-KEY CRYPTOGRAPHY AND RSA**<br>7.1 Principles of Public-key Cryptosystems<br>7.2 RSA<br>7.3 Key Management in public-key cryptosystem<br>7.4 Diffie-Hellman Key Exchange | **6** |
| **8** | **Digital Signature and Authentication Protocols**<br>8.1 Digital Signatures<br>8.2 Authentication Protocols<br>8.3 Digital Signature Standard | **4** |
| | **Total** | **42** |

## Laboratory Experiences:

1. Write a 'c' program to Encrypt the plaintext and display the cipher text using Ceaser Cipher.
2. Write a 'c' program to Decrypt the cipher text and display the plain text using Ceaser Cipher.
3. Write a 'c' program to Encrypt the plaintext and display the cipher text using Monoalphabetic Substitution Cipher.
4. Write a 'c' program to Decrypt the cipher text and display the plain text using Monoalphabetic Substitution Cipher.
5. Write a 'c' program to Encrypt the plaintext and display the cipher text using playfair Cipher.
6. Write a 'c' program to Decrypt the cipher text and display the plain text using playfair Cipher.
7. Write a 'c' program to Encrypt the plaintext and display the cipher text using Vigenere Cipher.
8. Write a 'c' program to Decrypt the cipher text and display the plain text using Vigenere Cipher.
9. Write a 'c' program to Encrypt the plaintext and display the cipher text using Autokey Vigenere Cipher.
10. Write a 'c' program to Decrypt the cipher text and display the plain text using Autokey Vigenere Cipher.
11. Write a 'c' program to Encrypt the plaintext and display the cipher text using Columnar Transposition Cipher.
12. Write a 'c' program to Decrypt the cipher text and display the plain text using Columnar Transposition Cipher

## Text Book:

(1) Cryptography and Network Security By William Stallings(Pearson Education)

## Reference Books:

(1) Computer Security Basics By Debby Russell, G.T. Gangemi, Sr.(Oreilly)
(2) Network Security private communication in a PUBLIC world By Charlie Kaufman, Radia Perlman , Mike Speciner
(3) Security in Computing, Charless P. Pfleeger, Shari Lawrence Pfleeger.
(4) Enterprise Security, Robert C. Newman(Pearson Education)

# GUJARAT TECHNOLOGICAL UNIVERSITY
## DIPLOMA IN INFORMATION TECHNOLOGY
## SEMESTER- VI

**Subject Name: Enterprise Resource Planning (Elective-I)**
**Subject Code: 2361604**

| Sr. No. | Subject Content | Total Hrs. |
|---|---|---|
| 1 | **Introduction to ERP**<br>1.1 An overview<br>1.2 Integrated Management Information<br>1.3 Supply chain Management<br>1.4 Resource Management<br>1.5 Integrated Data Model<br>1.6 Scope<br>1.7 Technology<br>1.8 Benefits of ERP<br>1.9 Evolution<br>1.10 ERP and the Modern Enterprise | 5 |
| 2 | **Business engineering & ERP**<br>2.1 An overview<br>2.2 Business Engineering<br>2.3 Significance & principal of Business Engineering<br>2.4 BRP, ERP and IT<br>2.5 Business Engineering with Information Technology | 6 |
| 3 | **Business Modeling for ERP**<br>3.1 An overview<br>3.2 Building the Business Model<br>3.3 ERP Modules (Finance, Plant Maintenance, Quality Management, Materials Management) | 7 |
| 4 | **ERP implementation Lifecycle**<br>4.1 Pre-evaluation Screening<br>4.2 Package Evaluation<br>4.3 Project Planning Phase<br>4.4 Gap Analysis<br>4.5 Reengineering, Configuration, Implementation Team Training Testing<br>4.6 End-user Training, Post-implementation (Maintenance mode) | 7 |

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| **5** | **ERP Implementation & Advantages**<br>5.1 An overview<br>5.2 Different Role<br>5.3 Customization<br>5.4 Precautions<br>5.5 ERP Implementation Methodology<br>5.6 Guidelines for ERP implementation<br>5.7 Advantages | **8** |
| **6** | **ERP Domains**<br>6.1 An overview<br>6.2 SAP<br>6.3 SAP R/3 Application | **4** |
| **7** | **Case studies**<br>7.1 E-Commerce to E-business<br>7.2 E-Business structural transformation, Flexible Business Design, Customer Experience | **5** |
| | **Total** | **42** |

## Practical and Term work:

The Practical and Term work will be based on the topics covered in the syllabus. Minimum **Four Case Studies** should be carried out during practical hours.

## Reference Books:


1. Enterprise Resource Planning — Vinodkumar Garg & N.K.venkitakrishnan (PHI )
2. Enterprise Resource Planning — Alexix Leon , Tata McGraw Hill.
3. E-Business Roadmap For Success — Dr. Ravi Kalakota ,Marcia Robinson
4. Enterprise Resource Planning — Ravi Shankar & S.Jaiswal , Galgotia.
5. The SAP R/3 Handbook

# GUJARAT TECHNOLOGICAL UNIVERSITY
## DIPLOMA IN INFORMATION TECHNOLOGY
## SEMESTER- VI

**Subject Name: Mobile Computing (Elective-I)**
**Subject Code: 2361606**

| Sr. No. | Subject Content | Total Hrs. |
|---|---|---|
| 1 | **Introduction to mobile computing.**<br>1.1. Evolution of mobile computing<br>1.2. Mobile computing functions<br>1.3. Architecture for mobile computing<br>1.4. Adhoc networks<br>1.5. Middleware and Gateways<br>1.6. Application and Services<br>1.7 Security and Standards | 7 |
| 2 | **Mobile Network and Transport Layer**<br>2.1 Mobile IP<br>2.2 Packet Delivery, handover management and Location management<br>2.3 Registration, Tunneling and encapsulation<br>2.4 Dynamic host configuration<br>2.5 Indirect, snooping and Mobile TCP<br>2.6 TCP over 2.5/3.0 G mobile | 10 |
| 3 | **Wireless LAN**<br>3.1 Introduction<br>3.2 Architecture<br>3.3 Types<br>3.4 Roaming Issues | 7 |
| 4 | **Wireless Application languages and operating systems**<br>4.1 Understanding of Wireless Application languages<br>4.2 XML,JAVA,J2ME,JAVA CARD<br>4.3 Understanding of Mobile operating system<br>4.4 Palm OS,Windows CE,<br>4.5 Symbian,Linux | 9 |
| 5 | **CDMA technology**<br>5.1 Spread spectrum technology<br>5.2 Architecture<br>5.3 Speech and channel coding<br>5.4 Channel structure | 9 |

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| | 5.5 Call processing<br>5.6 Channel capacity<br>5.7 CDMA vs. GSM | |
| | **Total** | **42** |

## Laboratory Experiences:

1. To understand architecture of Mobile computing
2. To setup wireless LAN.
3. To understand mobile transport layer.
4. To understand mobile network layer.
5. To understand Mobile languages
6. To understand Mobile operating systems
7. To study call processing in CDMA mobile technology.

## Reference Books:


1. Mobile Computing: by Asoke K Talukder TMH
2. Mobile communication: by Rappaport PHI
3. Mobile Computing: by Raj Kamal OXFORD

# GUJARAT TECHNOLOGICAL UNIVERSITY

## DIPLOMA IN INFORMATION TECHNOLOGY

## SEMESTER- VI

**Subject Name: Computer Logic Design (Elective-I)**
**Subject Code: 2361607**

| Sr. No. | Subject Content | Total Hrs. |
|---|---|---|
| 1 | **Register Transfer Logic**<br>1.1 Basic components of Register Transfer Logic<br>1.2 Interregister Transfer ( Bus Transfer and Memory Transfer )<br>1.3 Arithmetic Microoperations<br>1.4 Logic Microoperations<br>1.5 Shift Microoperations (Logic , Arithmetic and circular shift )<br>1.6 Decimal Data, Floating point Data, Nonnumeric Data | 4 |
| 2 | **Basic Computer design**<br>2.1 Instruction codes and instruction code formats<br>2.2 Basic computer registers<br>2.3 Classification of computer instructions<br>2.4 Hard- wired control & microprogrammed control comparison<br>2.5 Execution of instruction (Opcode fetch, MemoryR/W and I/O R/W )<br>2.6 Design of a simple computer | 6 |
| 3 | **Processor Logic Design**<br>3.1 Processor and Bus organization<br>3.2 Accumulator register<br>3.3 Arithmetic logic unit and its design<br>3.4 Design of 4 bit adder / subtractor<br>3.5 Design of accumulator | 6 |
| 4 | **Control Logic Design**<br>4.1 Control organization<br>4.2 Sequence register and decoder method<br>4.3 PLA control<br>4.4 Micro program control<br>4.5 Design of hard wired control<br>4.6 Micro program sequence organization<br>4.7 Micro programmed CPU organization | 8 |

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| **5** | **Computer Design**<br>5.1 System configuration<br>5.2 Computer Instructions<br>5.3 Timing and Control<br>5.4 Design of control ( Hard wired control and PLA control )<br>5.5 Microprogram control for computer<br>5.6 Computer Console | **8** |
| **6** | **Advance Processors**<br>6.1 Pentium Processor<br>6.2 Pentium architecture, Pentium Real mode<br>6.3 Pentium RISC features and super scalar architecture<br>6.4 Pipelining, instruction, branch prediction<br>6.5 Pentium Pro processor architecture<br>6.6 Pentium MMX architecture<br>6.7 Core- 2 Duo Features<br>6.8 Concept of RISC and comparison of RISC - CISC | **10** |
| | **Total** | **42** |

**NOTE:- Following are the minimum experiences required, but the college can do more experiences if possible.**

## Laboratory Experiences:

1. To Understand Register Transfer Logic
2. To understand Arithmetic Microoperations
3. To understand Logic Microoperations
4. To understand Shift Microoperations
5. To understand and design of simple computer
6. To design an accumulator
7. To design 4 bit adder
8. To design 4 bit subtractor
9. To understand PLA Control
10. To understand microprogrammed CPU organization
11. To understand computer consol
12. To study advanced processors

## Reference Books:


1.Digital Logic and Computer Design By Morris Mano PHI

2.Computer System Architecture - By M. Morris Mano , PHI.

2.Computer Organization -By Carl Hamacher , McGraw Hill

3.The Intel Microprocessors (Eight Editions): Barry B. Brey, Pub: Pearson (Prentice Hall).

4.Advance Microprocessor - Deniel Tabak, TMH

# GUJARAT TECHNOLOGICAL UNIVERSITY
## DIPLOMA IN INFORMATION TECHNOLOGY
## SEMESTER- VI

**Subject Name: Project -II**
**Subject Code: 2361608**

| Sr. No | Subject content | Total Hrs. |
|---|---|---|
| 1 | **Guidelines:**<br>• Fifth semester Project can be extended in 6th semester. | 5 |
| 2 | **Analysis:**<br>• Explain in detail any relationship between the system you intend to produce and the existing manual system.<br>• Identify user requirements for the project . | 15 |
| 3 | **Design:**<br>• Design must include all the requirements gathered in analysis phase.<br>• | 15 |
| 4 | **Implementation:**<br>• Facilities specified in design phase of the software and the hardware must be exploited.<br>• | 25 |
| 5 | **Testing:**<br>• Different test cases must be implemented for the designed software/system. | 10 |
| 6 | **Documentation:**<br>• The student should prepare project report and submit it. The documentation should include below mentioned topics in given sequence. | 14 |
| | **Total** | 84 |