West Bengal State Council of Technical Education
(A Statutory Body under West Bengal Act XXI of 1995)
Kolkata KarigoriBhavan, 2nd Floor, 110 S. N. Banerjee Road, Kolkata - 700 013.

Format for Syllabus

Name of the Course: Computer Engineering Group **(Advanced Java Programming)**			
Course Code:		**Semester: SIXTH**	
Duration:		**Maximum Marks:100+100**	
Teaching Scheme		**Examination Scheme**	
Theory: 3 hrs./week		Mid Semester Exam.: 20	Marks
Tutorial: hrs./week		Assignment & Quiz: 10	Marks
Practical: 4 hrs./week		End Semester Exam.: 70	Marks
Credit: 3+2		**Practical 50 (int) + 50 (ext)**	

Aim:	
Sl. No.	
1.	To learn how to design web based application.
2.	To catch approach of Object Oriented Programming for building software.
3.	

Objective:	
Sl. No.	Students will able to:
1.	· Create network based applications.
2.	· Create business applications.
3.	· Implement Server side programming.
4.	· Develop dynamic software components.
5.	· Develop database application.
6.	· Design and develop powerful GUI based components.
7.	· Create Animation using Applet, Thread and AWT controls.
8.	· Make best use of facilities that computer systems offer them for solving problems.
9.	

Pre-Requisite:	
Sl. No.	
1.	Basic knowledge of programming.
2.	Knowledge of C & C++ and JAVA languages.
3.	Familiar with object oriented programming.

Contents (Theory)		Hrs./Unit	Marks
Unit: 1	**Introduction the Advanced Web Technology: (AWT)** 1.1 Working with Windows and AWT AWT classes Windows Fundamentals Working with frame windows Creating a frame window in applet Creating windowed program Display information within with in a window 1.2 Working with graphics Working with color Setting the paint mode	**10**	

	Working with Fonts Managing text output using Font Metrics Exploring text & graphics 1.3Using AWT Controls, Layout Managers and Menus Control Fundamentals Labels Using Buttons Applying Check Boxes Checkbox Group Choice Controls Using Lists Managing scroll Bars Using a Text Field Using a Text Area Understanding Layout Managers Menu Bars and Menu Dialog Boxes File Dialog Handling events by Extending AWT Components Exploring the Controls, Menus, and Layout Managers		
Unit: 2	**Networking:** 2.1 Basics Socket overview, client/server, reserved sockets, proxy servers,internet addressing. *2.2* Java & the Net The networking classes & interfaces 2.3 Inet address Factory methods, instance method 2.4 TCP/IP Client Sockets What is URL Format 2.5 URL connection 2.6 TCI/IP Server Sockets 2.7 Data grams Data gram packets, Data gram server & client	**10**	
Unit: 3	**The Tour of Swing** 4.1 J applet, Icons and Labels ,Text Fields, Buttons Combo Boxes Tabbed Panes, Scroll Panes. 4.2 Trees, Tables, Exploring the Swings.	**08**	
Unit: 4	**Servlets** 5.1 Background, The Life Cycle Of a Servlet,The Java Servlet Development Kit, The Simple Servlet, The Servlet API 5.2 The Javax Servlet Package, Reading Servlet Parameters Reading Initialization Parameters The Javax. Servlet. http package, Handling HTTP Requests and responses 5.3 Using Cookies, Session Tracking, Security Issues	07	

	Exploring Servlet.System model, principle necessary		
Unit: 5	**JavaBeans Component :** Bean Writing Process, Using Beans to build an Application, Beans Property Type	05	
Unit: 6	**Security**- Class Loader, Byte code Verification, Security Managers and Permissions, User Authentication, Digital Signatures, Code Signing, Encryption.	05	
Total		**45**	

Contents (Practical)

Sl. No.	Skills to be developed
1.	Intellectual Skills: ・ Use of programming language constructs in program implementation. ・ To be able to apply different logics to solve given problem. ・ To be able to write program using different implementations for the same problem ・ Study different types of errors as syntax semantic, fatal, linker & logical ・ Debugging of programs ・ Understanding different steps to develop program such as ・ Problem definition ・ Analysis ・ Design of logic ・ Coding ・ Testing ・ Maintenance (Modifications, error corrections, making changes etc.)
2.	Motor Skills:・ Proper handling of Computer System**.**

List of Practical:

Sr. No.	Practical
1	Write a program to design a form using components textbox, text field, checkbox, buttons, list and handle various events related to each component.
2	Write a program to design a calculator using Java components and handle various events related to each component and apply proper layout to it.
3	Write a program to demonstrate use of Grid Layout.
4	Write a program to demonstrate use of Flow Layout.
5	Write a program to demonstrate use of Card Layout.
6	Write a program to demonstrate use of Border Layout.
7	Write a program to display any string using available Font and with every mouse click change the size and / style of the string. Make use of Font and Font metrics class and their methods.

8	Write a program to create a menu bar with various menu items and sub menu items. Also create a checkable menu item. On clicking a menu Item display a suitable Dialog box.
9	Write a program to increase the font size of a font displayed when the value of thumb in scrollbar increases at the same time it decreases the size of the font when the value of font decreases.
10	Write a program to retrieve hostname using methods in Inet Address class.
11	Write a program that demonstrates TCP/IP based communication between client and server.
12	Write a program that demonstrates UDP based communication between client and server.
13	Write a program to demonstrate use of URL and URL Connection class for communication.
14	Write a program to design a form using basic swing components.
15	Write a program to demonstrate the use of scroll panes in Swing.
16	Write Java Program to map Directory tree.
17	Write a Java program to demonstrate the use of Tables.
18	Write a servlet for demonstrating the generic servlet class.
19	Write a servlet for demonstrating the generic servlet class.
20	Write a servlet to demonstrate the Http Servlet class using do Get ().
21	Write a servlet to demonstrate the Http Servlet class using do Post ().
22	Write a servlet to demonstrate the cookie.

Text Books:

Name of Authors	Title of the Book	Edition	Name of the Publisher
Horstmann, Cornell	Core Java Vol II		PEARSON
Savaliya	Advance Java Technology		Dreamtech
Debasish Jana	Java and Object Oriented Programming Paradigm		PHI
Geary / Horstmann	Core Java Server Faces, 3e		Pearson
De Jonge	Essential App Engine: Building High-Performance Java Apps with Google App Engine		Pearson
Hall	Core Servlets and Java Server Pages Volume II: Advanced Technologies 2e		Pearson
Hall	Core Servlets and JavaServer Pages: Volume I: Core Technologies, 2e		
kogent	Java Server Programming Java EE6		Dreamtech
C. Darby, J. Griffin and others	Beginning Java Networking	2nd	Wrox
Mahesh P. Matha	JSP and Servlets		PHI

Reference Books:

Name of Authors	Title of the Book	Edition	Name of the Publisher
Herbert Schildt	JAVA 2: The Complete Reference		Tata Mc-Graw Hill Pub. Co. Ltd
Harold	Java Network Programming		SPD

Suggested list of Laboratory Experiments:

Sl. No.	Laboratory Experiments
1.	Design employee information form and perform the validations.
2.	Program for user login using JSP.

3.	Program for client server communication.
4.	
Suggested list of Assignments / Tutorial:	
Sl. No.	Topic on which tutorial is to be conducted
1.	Assignment on AWT, event controls, layout manager, menus.
2.	Assignment on different JDBC connections in Java.
3.	Assignment of servlet life cycle.
Note:	
Sl. No.	
1.	Question Paper setting tips: **End Semester Examination: Question should be made as per class weight and must cover whole syllabus. Objective Type: 20 marks (answered in one or two sentences. Subjective type: 50 marks. To be set at least 8 question and to be answered 5 questions each carrying 10 marks**

Format for Syllabus

Name of the Course: Computer Engineering Group **(System Programming & Compiler Design)**	
Course Code:	**Semester:** SIXTH
Duration:	**Maximum Marks:100+50**
Teaching Scheme	**Examination Scheme**
Theory: 3 hrs./week	Mid Semester Exam.: 20 Marks

Tutorial: hrs./week	Assignment & Quiz: 10 Marks
Practical: 2 hrs./week	End Semester Exam.: 70 Marks
Credit: 3+1	**Practical 25(int) + 25(ext)**

Aim:

Sl. No.	
1.	To study techniques for development of system related applications and services.
2.	It is the activity of programming system software.
3.	It aims to produce software which provides services to the user.

Objective:

Sl. No.	After studying the subject students will be able to
1.	Understand various design aspect of the system software.
2.	Develop software tools like editors and debuggers.
3.	Develop various system software.

Pre-Requisite:

Sl. No.	
1.	Knowledge of programming languages.
2.	Knowledge of system tools available in computer system.
3.	Knowledge of assembly language program.

	Contents (Theory)	Hrs./Unit	Marks
Unit: 1	**Features of System Programming** 1.1 What is System Software 1.2 Components of System Software : Assemblers; Loaders; Macros;Compilers 1.3 Evolution of System Software 1.4 Foundations of system Programming.	**04**	
Unit: 2	**Assemblers** 2.1 General design procedure 2.2 Design of the assembler - Statement of the problem; DataStructure; Format of databases; Algorithm; Look for modularity. 2.3 Table Processing: Searching and Sorting- Linear Search; Binary Search	**06**	
Unit: 3	**Macro Language and Macro Processors** 3.1 Macro Instructions 3.2 Features of a Macro facility - Macro Instruction Arguments;Conditional macro expansion; Macro call within Macros; MacroInstruction defining Macros. 3.3 Implementation - Implementation of restricted faculty : Two PassAlgorithm, A Single Pass Algorithm, Implementation of macro callswithin Macros, Implementation within an assembler	**08**	
Unit: 4	**Loaders** 4.1 Loaders Schemes - “Compile and go” loaders; General LoaderSchemes; Absolute Loaders; Subroutine linkages; Relocatingloaders; Direct linking loaders; Other loaders scheme: Binders,Linking loaders Overlays, Dynamic Binders.	04	

	4.2 Design of Absolute loaders 4.4 Design of Direct Linking Loaders: Specification Problem;Specification of data structures; Format of database; Algorithm.		
Unit: 5	**Compliers** 5.1 Statement of a problem - Recognizing basic elements; Recognizing Syntactic units and Interpreting meaning;Intermediate from: Arithmetic statements, Non-Arithmetic statement, Non-executable statements; Storage Allocation; Code Generation: Optimization(M/c independent), Optimization(M/c dependent); Assembly Phase; General Model of Compiler. 5.2 Phases of Compiler	03	
Unit: 6	**Lexical Analysis** 6.1The role of the lexical analyzer, Tokens, Patterns, Lexemes, Input buffering, Specifications of a token, Recognition of a tokens. .	05	
Unit: 7	**Syntax Analysis** 7.1 The role of a parser, Context free grammars, 7.2 Writing a grammar, Top down Parsing, 7.3 Non-recursive Predictive parsing (LL), 7.4 Bottom up parsing, Handles, 7.5 Viable prefixes, 7.6 Operator precedence parsing.	**05**	
Unit: 8	**Syntax directed translation** 8.1Syntax director definitions, Construction of syntax trees.	**02**	
Unit: 9	**Intermediate code generation** 9.1 Intermediate languages, 9.2 Graphical representation, 9.3 Three-address code, 9.4 Implementation of three address statements (Quadruples, Triples, Indirect triples). **Code optimization** 9.5 Introduction, 9.6 Basic blocks & flow graphs, 9.7 Transformation of basic blocks, 9.8 Dag representation of basic blocks, 9.9 The principle sources of optimization, 9.10 Loops in flow graph, Peephole optimization.	**08**	
Total		**45**	

Contents (Practical)	
Sl. No.	Skills to be developed
1.	**Practical:**

	Skills to be developed: 1. Programming skills 2. Design of assemblers 3. Logical Thinking
2.	Motor Skills:・ Proper handling of Computer System**.**

List of Practical:

Sr. No.	Practical
1	Programming on sorting and searching techniques Liner search, Binary search, Interchange sort; Shell sort; Bucket sort; Radix exchange sort; Address calculation sort; Comparisons of sort; Hash or Random entry searching.
2	Design of a single pass assembler or two pass assembler.
3	Design of Macro Processor.
4	Design of Loaders.
5	Design of various phases of Compiler.

Text Books:

Name of Authors	Title of the Book	Edition	Name of the Publisher
Aho, Sethi, Ullman	Compilers principles, techniques, and tools		PEARSON
Beck	Systems Software, 3e	2nd	PEARSON
PAL	System Programming		OXFORD
Grune	Modern Compiler Design		WILEY
Muneeswaran	Compiler Design		Oxford
Chattopadhyay	Compiler Design		pHI
Shalini	System Software		Scitech
chattopadhyay	System software		pHI
Sadasivam	Compiler Design		Scitech

Reference Books:

Name of Authors	Title of the Book	Edition	Name of the Publisher
John J. Donovan	System Programming		Tata McGraw-Hill Edition2003
Mr.Dhamdhere	System Programming and Operating System		Tata McGraw-Hill Edition

Suggested list of Laboratory Experiments:

Sl. No.	Laboratory Experiments
1.	Take a simple piece of code and separate the tokens from it.
2.	Program for simple macro processing.
3.	Program for pass-I assembler.

Suggested list of Assignments / Tutorial:

Sl. No.	
1.	Different phases in compilations.
2.	Macro processing in details.
3.	Assignment of compiler, assemblers, macro, linkers and loaders.

Note:

Sl. No.	
1.	Question Paper setting tips: **End Semester Examination: Question should be made as per class weight and must cover whole syllabus. Objective Type: 20 marks (answered in one or two sentences. Subjective type: 50 marks. To be set at least 8 question and to be answered 5 questions each carrying 10 marks**

Format for Syllabus

Name of the Course: ELECTIVE II (Numerical Methods)	
Course Code:	**Semester: Sixth**
Duration:	**Maximum Marks: 100+50**
Teaching Scheme	**Examination Scheme**
Theory: 3 hrs./week	Mid Semester Exam.: 20 Marks
Tutorial: hrs./week	Attendance, Assignment & Quiz: 10 Marks
Practical: 4 Hrs./week	End Semester Exam.: 70 Marks
Credit: 3 +2	Practical: 25(INT)+25(EXT)
Aim:	
Sl. No.	

1.	This subject enhances the knowledge of students about numerical side of mathematical analysis. It also intends to teach methods and means for estimating the accuracy of numerical results.
Objective: Student will be able to	
Sl. No.	
1.	Understand Error Handling
2.	Understand Numerical methods of Polynomial Interpolation
3.	Understand Numerical methods of Algebraic and Transcendental Equation.
4.	Understand Numerical Differentiation & Integration

Pre-Requisite:	
Sl. No.	
1.	Basic knowledge of Mathematics is helpful.
2.	Basic knowledge of C programming is helpful.
3.	

Contents (Theory)		Hrs./Unit	Marks
Unit: 1 Name of the Topics: **Error Handling**	1.1 Approximation in Numerical Computation 1.2 Significant Figures 1.3 Absolute, Relative and Percentage Errors 1.4 Truncation and Round-off Errors 1.5 Accumulation and Propagation of Errors	4	
Unit: 2 Name of the Topics: **Polynomial Interpolation**	2.1 Forward, Backward and Divided Difference Table 2.2 Newton's Forward and Backward Interpolation Formula 2.3 Newton's General Interpolation Formula with the remainder term 2.4 Lagrange's Interpolation Formula 2.5 Inverse Interpolation	12	
Unit: 3 Name of the Topics: **Solution of Algebraic and transcendental Equation.**	3.1 Method of Tabulation 3.2 Bisection Method 3.3 Newton-Raphson Method.	8	
Unit: 4 Name of the Topics: **Numerical Differentiation & Integration**	4.1Differentiation of Forward and Backward Formula 4.2 Trapezoidal rule 4.3 Simpson's 1/3 rule	8	
Unit: 5 Name of the Topics: **Numerical Solution of a System of Linear Equation**	5.1 Gauss-Elimination Method 5.2 Matrix Inversion Method 5.3 Gauss-Jacobi Method 5.4 Gauss-Siedal Method	9	
Unit: 6 Name of the Topics: **Solution of Ordinary Differential Equation**	6.1 Solution of first order Differential Equation by Euler's Method 6.2 Modified Euler's Method and Runge-Kutta Method	4	
Total		**45**	

Practical:

Practical Content:
All of the experiment shall be performed using C or MATLAB

List of Experiments:
1 Implementation of Forward, Backward and Divided Difference Table
2 Implementation of Newton's Forward and Backward Interpolation Formula

3 Implementation of Newton's General Interpolation Formula with the remainder term
4 Implementation of Lagrange's Interpolation Formula
5 Implementation of Inverse Interpolation
6 Implementation of Bisection Method
7 Implementation of Newton-Raphson Method
8 Implementation of Differentiation of Forward and Backward Formula
9 Implementation of Trapezoidal rule
10 Implementation of Simpson's 1/3 rule
11 Implementation of Gauss-Elimination Method
12 Implementation of Matrix Inversion Method
13 Implementation of Gauss-Jacobi Method
14 Implementation of Gauss-Siedal Method
15 Implementation of Euler's method
16 Implementation of Runge-Kutta Method
***** Any type of Image processing task can be done. Some task may be performed without using the library function of MATLAB(I,e. by programming).**

Text Books:

Name of Authors	Title of the Book	Edition	Name of the Publisher
Babu Ram	Numerical Methods		Pearson
Thandaraj	Computer-Oriented Numerical Methods with c language		PHI
Sujata Sinha	Numerical and Statistical Methods with Programming in C		Scitech
Bradie	A Friendly Introduction to Numerical Analysis		Pearson
J. B. Scarborough	Numerical Mathematics Analysis		Oxford
Dasgupta	Applied Mathematical Methods		Pearson
Sastry	Introductory Methods of Numerical Analysis, 5th ed. •		PHI
Jain, Iyengar& Jain	Numerical Methods (Problems & Solutions)		
Gerald	Applied Numerical Analysis, 7e		Pearson
C. Froberg	Introduction to Numerical Analysis		Addison Wesley

Reference Books:

Name of Authors	Title of the Book	Edition	Name of the Publisher
Balagurusamy	Numerical Methods		TMH
Fausett	Applied Numerical Analysis Using MATLAB, 2e		Pearson
AruMugam	Numerical Methods		Scitech

Note:

Sl. No.	
1.	Question Paper setting tips: **End Semester Examination: Question should be made as per class weight and must cover whole syllabus. Objective Type: 20 marks (answered in one or two sentences. Subjective type: 50 marks. To be set at least 8 question and to be answered 5 questions each carrying 10 marks**

Format for Syllabus

Name of the Course: Computer Engineering Group **(**Advanced Web Technology **(ELECTIVE - II))**	
Course Code:	**Semester:** SIXTH
Duration:	**Maximum Marks: 100 + 50**
Teaching Scheme	**Examination Scheme**
Theory: 3 hrs./week	Class Test: 20 Marks
Tutorial: hrs./week	Teachers Assessment: 10 Marks
Practical: 4 hrs./week	End Semester Exam.: 70Marks
Credit: 3+2	**Practical 25(int) + 25(ext)**

Aim:	
Sl. No.	
1.	To Study the techniques to develop web communication services.
2.	It provides information about web technologies that relate to the interface between web servers and their clients
3.	Web technologies are used to support the world wide web and more are being developed all the time.
Objective:	
Sl. No.	Students will able to:

1.	· Use GUI tools of. Net framework
2.	· Use basic and advance. Net controls.
3.	· Interface back-end and front-end.
4.	· Build applications integrated with .Net Framework.
5.	· Build net based applications.
6.	· Transfer code form VB to VB.net.
7.	· Can do Asp Transaction.

Pre-Requisite:	
Sl. No.	
1.	Basic knowledge of web technology- web1.0, web2.0, semantic web.
2.	Knowledge of client-server system, java-script, php, etc.
3.	Knowledge of HTML, CSS, XML, ASP, JSP, etc.

Contents (Theory)		Hrs./Unit	Marks
Unit:1	**Introduction** 1.1 Why dot Net - Introduction to Microsoft .Net Framework. - Building blocks in .Net - Drawback of previous languages. - Understand what is .Net 1.2 VB.Net - VB.Net overview. - Difference between VB and VB.Net 1.3 Introduction to .Net - Types of application architecture. - .Net initiative. - .Net framework: components of .Net framework, Advantages, requirement of .Net.	**08**	
Unit: 2	**Introduction and implementation** 2.1 Introduction to VB.Net - Features. - VB.Net IDE. - Data Types, Loops, Control structures, Cases, Operators. - Creating forms. - Procedures and functions. - Form controls. 2.2 Implementation of OOP - Creation of class and objects. - Inheritance. - Constructors. - Exception handling. 2.3 Component based programming - Working with Private assembly, shared assembly. - Using COM components developed in VB or other language.	**06**	

Unit: 3	**Introduction to ADO.Net and data manipulation** 3.1 Introduction to ADO.Net - What is database? - Writing XML file. - ADO.Net architecture. - Creating connection. - Dataset and Data reader. - Types of Data adapter and ADO controls. - Reading data into dataset and data adapter. - Binding data to controls. - Data table and Data row. 3.2 Accessing and manipulating data - Selecting data. - Insertion, deletion, updating, sorting. - How to fill dataset with multiple tables. 3.3 Multi-threading - Working with multithreading. - Synchronization of Threads. 3.4 Migrating from VB 6.0 to VB.Net - Updating the applications developed in VB to VB.net	**06**	
Unit: 4	**Introduction to ASP.Net** - Difference between ASP and ASP.Net - Introduction to IIS. - What is web application? Why it is used? - ASP.Net IDE. - Creation of web forms. - Using web form controls.	**04**	
Unit: 5	**ASP.Net objects and components** - Response. - Server. - Application. - Session. - ASP.Net scope, state, view state, post back and configuration. - Object creation: Scripting, Drive, folder, file. - How to use objects? - Server components : Ad rotator, Content linker, Browser capabilities. - Use and creation of global .asa file. - How to use Application object. - Events - Methods and collection. - Example. - How to use session object : enabling and disabling of session, Event, properties, methods, collection. - Example.	08	
Unit: 6	**ADO.Net** 6.1 ADO.Net in ASP.Net	08	

	- Connection. - Dataset and data reader. - Data table and Data row. - Web.config introduction. - Binding data with data grid. - Accessing and manipulating data. 6.2 ADO.Net : Server control templates and Data binding techniques - Understand data access in .Net using ADO.Net - Understand various Server Control Templates available for Data Binding like Repeater. - Data List and Data Grid Controls.		
Unit: 7	**ASP transactions and e-mail** - Transactions. - Transaction db design. - CDONTS object. - Email sending web page creation.	**05**	
Total		**45**	

Contents (Practical)

Sl. No.	Skills to be developed
1.	**Practical:** Skills to be developed: Intellectual skills: Use of programming language constructs in program implementation. ・ To be able to apply different logics to solve given problem. ・ To be able to write program using different implementations for the same problem ・ Study different types of errors as syntax semantic, fatal, linker & logical ・ Debugging of programs ・ Understanding different steps to develop program such as ・ Problem definition ・ Analysis ・ Design of logic ・ Coding ・ Testing ・ Maintenance (Modifications, error corrections, making changes etc.)
2.	Motor Skills:・ Proper handling of Computer System**.**

List of Practicals:

1. Introduction to .Net framework.

2. a) Design Login form with validation.
b) Design Registration form with validation of email address, date of birth,
blank field, telephones and mobile numbers etc.
3. Design form, make it a class, create its object and access it from another form.
4. Design student class, marks class, inherits it in result class and access it using form.
5. Create instance of class using new operator of above example.
6. Design mark sheet of student using XML file and dataset.
7. Design employee details with help of database (back-end) using data adapter,
data reader and datasets. Use data grid to display result.
8. Generation of database (data table) of employee or student with help of data tables of .Net.
9. To use multiple table design example of employee and department.
10. Design registration form of college using text box, text area, radio list, check list,
button etc. using Autopostback property.
11. Simple application for following function: (1) Login (2) Surfing (3) Logout taking
into considerations (Application, Session, Server object, global .asa file and their
events, methods and collection) also demonstrates enabling and disabling of session.)
12. Creation of file, entry, reading data from a file.
13. Using components create:
(1) Advertisement (using Ad rotator)
(2) Book example (using Next function)
(3) Find capabilities of browser (Browser object capabilities)
14. Online application (student, employee, product, shopping mall)
(a) Using dataset, data reader.
(b) Same application using data table and data row. (use data grid to display data)
(c) Bind the data to data grid using properties / templates.
(d) Display details (student, employee, product, etc.) using data list. (4 cols per line)
15. Application which sends email.
Mini Project :
Design the mini project by integrating all the experiment performed as mentioned in the curriculum

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Text Books:

Name of Authors	Title of the Book	Edition	Name of the Publisher
Esposito	Programming Microsoft ASP.Net		WILEY
Chavan	Visual BasiC. NET	2nd	PEARSON
Anita &Bradely	Prog. In VB.Net		TATA Mc Grow Hill
Esposito	Professional ASP.Net 4 in C# and VB		WILEY

Reference Books:

Name of Authors	Title of the Book	Edition	Name of the Publisher
Ivan Bayross	Teach Yourself Web Technologies - Part I		BPB Publications
Deitel	XML: How to Program		Pearson

Suggested list of Laboratory Experiments:	
Sl. No.	Laboratory Experiments
1.	Design the customer information form and perform the different validations.
2.	Write a program to access values from the previous form.
3.	Write a code in asp.net to perform the login validation.
4.	
Suggested list of Assignments / Tutorial:	
Sl. No.	Topic on which tutorial is to be conducted
1.	The details of asp.net, vb.net and ADO.net.
2.	Assignment on ASP.net objects and components.
3.	Assignment on web technologies in vb.net.
Note:	
Sl. No.	
1.	Question Paper setting tips: **End Semester Examination: Question should be made as per class weight and must cover whole syllabus. Objective Type: 20 marks (answered in one or two sentences. Subjective type: 50 marks. To be set at least 8 question and to be answered 5 questions each carrying 10 marks**

Format for Syllabus

Name of the Course: ELECTIVE II (Digital Image Processing)	
Course Code:	**Semester: Sixth**
Duration:	**Maximum Marks: 100 +50**
Teaching Scheme	**Examination Scheme**
Theory: 3 hrs./week	Mid Semester Exam.: 20 Marks
Tutorial: hrs./week	Attendance, Assignment & Quiz: 10 Marks
Practical: 4 Hrs./week	End Semester Exam.: 70 Marks
Credit: 3 +2	Practical: 25(INT)+25(EXT)

Aim:	
Sl. No.	
1.	Student should able to do various image processing task
Objective: Student will be able to	
Sl. No.	
1.	Understanding of digital image fundamentals.
2.	Understanding of image digitization.
3.	Understanding of image display hardware and software.
4.	Ability to understand and apply image enhancement and restoration techniques.
5.	Understanding of image encoding techniques.
6.	Ability to apply compression techniques.

Pre-Requisite:	
Sl. No.	

1.	Basic knowledge of Digital Image is helpful.
2.	Basic knowledge of Color and graphics is helpful.
3.	

Contents (Theory)		Hrs./Unit	Marks
Unit: 1 Name of the Topics: **Basics of Image Processing**	1.1 Overview & Nature of Image Processing 1.2 Digital Image Representation & types of Images 1.3 Steps in Image Processing. 1.4 Image Processing Applications 1.5 Components of Image Processing system.	4	
Unit: 2 Name of the Topics: **Digital Image Fundamentals**	2.1 Elements of Visual Perception 2.2 Image Sensing and Acquisition 2.3 Image Sampling and Quantization. 2.4 Basic Relationships Between Pixels 2.5 Linear and non-linear operations.	3	
Unit: 3 Name of the Topics: **Image Enhancement in the Spatial Domain**	3.1 Some Basic Gray Level Transformations, 3.2 Histogram Processing in details, 3.3 Enhancement UsingArithmetic/Logic Operations, 3.4 Basics of Spatial Filtering, 3.5 Smoothing Spatial Filters, 3.6 Sharpening Spatial Filters, 3.7 Combining Spatial Enhancement Methods	10	
Unit: 4 Name of the Topics: **Image Restoration.**	4.1 A Model of the Image degradation/Restoration process, 4.2 Noise Modelling, 4.3 Image Restoration in thePresence of Noise Only–Spatial Filtering, • Arithmetic mean filter • Geometric mean filter • Median filter 4.4 Image Restoration Techniques • Inverse filter • Wiener Filter 4.5 Geometric Transformations	10	
Unit: 5 Name of the Topics: **Color Image Processing**	5.1 Color image storage & processing 5.2 Color Models • RGB, HSI, HSV,CMY, CMYK color models. 5.3 Pseudocolor Image Processing 5.4 Basics of Full-Color Image Processing 5.5 Color Transformations 5.6 Smoothing and Sharpening	8	
Unit: 6 Name of the Topics: **Image Compression**	6.1 Fundamentals of image compression 6.2 Image Compression Models 6.3 Compression Algorithms 6.4 Error-Free/lossless Compression • Run Length Coding • Huffman Coding • Shannon –Fano Coding • Bit-plane Coding	10	

	6.5 Lossy Compression • Lossy Predictive Coding • Transform Coding 6.6 Image Compression Standards		
Total		**45**	

Practical:

Practical Content:

All of the experiment shall be performed using MATLAB

List of Experiments:

1. Image resizing, Image type conversion.
2. Extraction of color band, Creation of a synthetic image.
3. Image addition and Image complement.
4. Image geometric operations
5. Histogram operations, contrast stretching and gamma correction.
6. Image noise models
7. Spatial filtering
8. Implement the Wiener filter
9. Image segmentation
10. Color image operation – color model transformation, contrast stretching, histogram manipulation etc.

***** Any type of Image processing task can be done. Some task may be performed without using the library function of MATLAB(I,e. by programming).**

Text Books:

Name of Authors	Title of the Book	Edition	Name of the Publisher
Gonzalez	Digital Image Processing		Pearson
Sridhar	Digital Image Processing		Oxford
Joshi	Digital Image Processing—An Algorithmic Approach •		PHI
Chanda&Majumdar	Digital Image Processing and Analysis, 2nd ed. •		PHI
Castleman	Digital Image Processing		Pearson
Annadurai	Fundamentals of Digital Image Processing		Pearson

Reference Books:

Name of Authors	Title of the Book	Edition	Name of the Publisher
Gopi	Digital Image Processing using Matlab		Scitech
Gonzalez	Digital Image Processing using Matlab		TMH

Note:

Sl. No.	
1.	Question Paper setting tips: **End Semester Examination: Question should be made as per class weight and must cover whole syllabus. Objective Type: 20 marks (answered in one or two sentences. Subjective type: 50 marks. To be set at least 8 question and to be answered 5 questions each carrying 10 marks**

Format for Syllabus

Name of the Course:Professional Practice-IV(Seminar Work)	
Course Code:	**Semester: Sixth**
Duration: 3 hrs/week **For preparing their presentation.**	**Maximum Marks: 50 (Internal marks to be given at end of Sixth semester)**
Credit: 3	
	Examination Scheme:
1.	Seminar on Project Work **is intended to provide opportunity for students to present the Project Work/Modern development in Computer Science, in front of a technical gathering (Student / Teacher and others) with the help of different oral, aural and visual communication aids which they learnt through different courses in the diploma course. In the Seminar, students are not only expected to present their Project Work, but also to defend the same while answering questions arising out of their presentation.**

Format for Syllabus

Name of the Course: General Viva - Voce	
Course Code:	**Semester: Sixth**
Duration:	**Maximum Marks: 100 (to be given at end of Sixth semester) 50(int) + 50(ext)**
Credit: 3	
	Examination Scheme:
1.	**The Final Viva-Voce Examination shall take place at the end of the Part – III Second Semester. It is to be taken by one External and one Internal Examiner. The External Examiner is to be from industry / engineering college / university / government organisation and he / she should give credit out of 50 marks; whereas, the Internal Examiner should normally be the Head of the**

	Department and he / she should give credit of 50 marks. In the absence of the Head of the Department, any other lecturer will act as the Internal Examiner.
3.	
4.	
5.	