**E.G.S Pillay Engineering College – Nagapattinam**

**Department of Computer Applications**

**Course plan – MC9243 /Visual Programming L T P C**

**3 0 0 3**

**Subject Code/Name** : MC9243 /Visual Programming **Batch**  : 2012-2015

**Class** : II MCA **Semester** : IV

**Prescribed Hours** : 45 **Required Hours** : 45

**Staff Name** : Mr. S.Selvaganapathy, MCA **Website:**www.egspselva.weebly.com

**AIM**:

The aim of the course is to provide the students with the fundamental knowledge of Visual Programming and enable the students to

develop applications using Visual Basic and VC++

**COURSE OBJECTIVES & OUTCOMES**:

|  |  |
| --- | --- |
| **Course Objectives** | **Course Outcomes** |
| 1. To understand the concepts of windows Programming. 2. To develop applications using Visual Basic. 3. To develop applications using VC++. | On completion of this course the students will be able to   1. explain the concepts of windows programming. 2. write pseudo code for windows program. 3. develop program using Visual Basic. 4. develop program using VC++. 5. develop real time applications using VB and VC++ |

**PREREQUISITE**:

* + 1. **MC9212** Problem Solving and Programming - I Semester
    2. **MC9222** Object Oriented Programming - II Semester

**COURSE MAPPING WITH POs AND PEOs**:

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| **MC9243 /Visual Programming** | | | | | | | | | | | | | | | | |
| Course designed by | Anna University, Chennai (2009 Regulations) | | | | | | | | | | | | | | | |
| PO mapping with Course outcome | a | b | | c | d | | e | f | | g | h | i | | j | k | l |
| ii | i | | iii, iv |  | |  |  | |  | v |  | |  |  |  |
| PEO mapping with Course outcome | Preparation | | Core  competence | | | Breadth | | | Professionalism | | | | Learning Environment | | | |
| X | | X | | | X | | |  | | | |  | | | |

**DETAILED LESSON PLAN**:

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| **UNIT I WINDOWS PROGRAMMING**  The windows programming Model – Event driven programming – GUI concepts – Overview of Windows programming – Creating and displaying the window – Message Loop – windows procedure – WM\_PAINT message – WM\_DESTROY message – Data types – Resources – An Introduction to GDI – Device context – Text output – Scroll Bars – Keyboard – Mouse – Menus. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **S.No** | | **Topics To Be Covered** | | | | | | **Text Book** | | **Chapter No. and Page No** | | **Instruction Delivery** | | | | | | **Testing**  **Method** | | | | | | | **Course Objective** | | | **Course**  **Outcome** | | | | |
| **Method** | | | | **Level** | |
| 1 | | The windows programming model | | | | | | Charles Petzold, “Windows Programming”, Microsoft Press, 1996. | | Chapter 3 Pg 41-56 | | BB & Chalk | | | | Knowledge | | SAT, Assignment | | | | | | | **1. To Understand the concepts of Windows Programming** | | | **i. On completion of this course the students will be able to explain the concepts of windows programming.**  **ii. On completion of this course the students will be able to write pseudo code for windows program.** | | | | |
| 2 | | Event driven programming | | | | | | BB & Chalk | | | | Understanding | | Assignment | | | | | | |
| 3 | | GUI concepts | | | | | | BB & Chalk | | | | Knowledge | | Discussion | | | | | | |
| 4 | | Overview of Windows programming | | | | | | BB & Chalk | | | | Knowledge | | Unit Test | | | | | | |
| 5 | | Creating and displaying the window | | | | | | Chapter 3Pg 57-59 | | PPT | | | | Application | | Unit Test,  Assignment | | | | | | |
| 6 | | Message Loop, Windows Procedure | | | | | | Chapter 3Pg 60-63 | | PPT | | | | Understanding | | Unit Test | | | | | | |
| 7 | | WM\_PAINT message  WM\_DESTROY message | | | | | | Chapter 3Pg 64-66 | | PPT | | | | Understanding | | Unit Test | | | | | | |
| 8 | | Data types, Resources | | | | | | Chapter 3Pg 47-51 | | PPT | | | | Understanding | | SAT, Assignment | | | | | | |
| 9 | | An Introduction to GDI, Device context | | | | | | Chapter 4Pg 74-79 | | PPT | | | | Understanding | | Unit Test,  Assignment | | | | | | |
| 10 | | Text output, Scroll Bars, Keyboard, Mouse, Menus | | | | | | Chapter 4Pg 80-119  Chapter 6Pg 211-272  Chapter 10Pg 439-482 | | PPT | | | | Understanding | | Unit Test | | | | | | |
| **UNIT II VISUAL BASIC PROGRAMMING**  Visual Basic Applications – Form and properties – Variables and Constants – Variant type – Procedure scope – Main – Control statements – control arrays – Creating and using Controls – Menus and Dialogs – Programming fundamentals – Objects and instances – Debugging – Responding to mouse events – Drag and Drag drop events Responding to keyboard events – keypress, keyup, keydown events – Using grid control – Graphics controls – shape and line control – File system controls – Common dialog controls – Processing files – Accessing databases with the data controls. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **S No** | | **Topics to be covered** | | | | | **Text book** | | | **Chapter no. and page no** | | | **Instruction delivery** | | | | | | | | **Testing**  **method** | | | | **Course Objective** | | | **Course**  **Outcome** | | | | |
| **Method** | | | **Level** | | | | | |  | | | |  | |  | | | | |
| 11 | | Visual Basic Applications, Form and properties | | | | | Deitel, “ Visual Basic 6.0 How to Program”, Pearson Education, 1999  David J. Kruglinski, George Shepherd and Scot Wingo, “Programming Visual C++”, Microsoft press, 1999. | | | Chapter 14  Pg 6114-622 | | | PPT | | | Understanding | | | | | Unit Test | | | | **2. To develop applications using Visual Basic.** | | | **iii. On completion of this course the students will be able to develop program using Visual Basic** | | | | |
| 12 | | Variables and Constants, Variant type | | | | | Chaper 4 Pg 130-138 | | | PPT | | | Understanding | | | | | SAT, Assignment | | | |
| 13 | | Procedure scope, Main, Control statements | | | | | Chapter 5  Pg 163-211 | | | PPT | | | Understanding | | | | | Unit Test | | | |
| 14 | | Control arrays, Creating and using Controls ,Menus and Dialogs | | | | | Chapter 14 Pg 653-661 | | | PPT | | | Understanding | | | | | Unit Test | | | |
| 15 | | Programming fundamentals, Objects and instances | | | | | Chapter 10 Pg 417-447 | | | BB & Chalk | | | Understanding | | | | | Discussion,  Unit Test | | | |
| 16 | | Debugging , Responding to mouse events | | | | | Chapter 14 Pg 647-649 | | | PPT | | | Application | | | | | Unit Test | | | |
| 17 | | Drag and Drag drop events Responding to keyboard events , keypress, keyup, keydown events | | | | | Chapter 14 Pg 650-652 | | | PPT | | | Application | | | | | Unit Test | | | |
| 18 | | Using grid control | | | | | Chapter 14 Pg 679-690 | | | PPT | | | Application | | | | | Unit Test, Assignment | | | |
| 19 | | Graphics controls, shape and line control | | | | | Chapter 16 Pg 796-823 | | | PPT | | | Application | | | | | Unit Test | | | |
| 20 | | File system controls, Common dialog controls | | | | | Chapter 18 Pg 889-928 | | | PPT | | | Application | | | | | Unit Test | | | |
| 21 | | Processing files, Accessing databases with the data controls. | | | | | Chapter 15 Pg 775-780 | | | PPT | | | Application | | | | | Unit Test | | | |
| **UNIT III VISUAL C++ PROGRAMMIMG**    Visual C++ components – Introduction to Microsoft Foundation Classes Library – Getting started with AppWizard – Class Wizard – Event handling – Keyboard and Mouse events - WM\_SIZE, WM\_CHAR messages - Graphics Device Interface - Pen, Brush, Colors, Fonts - Single and Multiple document interface - Reading and Writing documents - Resources – Bitmaps creation, usage of BMP and displaying a file existing as a BMP. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Session No** | | **Topics to be covered** | | | | | **Text book** | | | **Chapter no. and page no** | | | **Instruction delivery** | | | | | | **Testing**  **method** | | | | | | | | **Course Objective** | | | | **Course**  **Outcome** |
| **Method** | | | | **Level** | |
| 22 | | Visual C++ components, Introduction to Microsoft Foundation Classes Library | | | | | J. David Kruglirski, “Programming Microsoft Visual C++”,  Fifth Edition, Microsoft press, 1998. | | | Chapter 1  Pg 6-16 | | | PPT | | | | Understanding | | Assignment, Discussion | | | | | | | | **3. To develop applications using VC++.** | | | | **iv. On completion of this course the students will be able to develop program using VC++.** |
| 23 | | Menus − Keyboard accelerators | | | | | Chapter 13  Pg 287-289 | | | PPT | | | | Understanding | | Unit Test | | | | | | | |
| 24 | | Getting started with AppWizard , Class Wizard | | | | | Chapter 3 Pg 32-38 | | | PPT | | | | Understanding | | Unit Test | | | | | | | |
| 25 | | Event handling, Keyboard and Mouse events | | | | | Chapter 4 Pg 47-66 | | | PPT | | | | Application | | Unit Test | | | | | | | |
| 26 | | WM\_SIZE, WM\_CHAR messages | | | | | http://msdn.microsoft.com | | | PPT | | | | Application | | Unit Test | | | | | | | |
| 27 | | Graphics Device Interface - Pen, Brush, Colors, | | | | | Chapter 5 Pg 75-102 | | | PPT | | | | Application | | Unit Test, Assignment | | | | | | | |
| 28 | | Single and Multiple document interface | | | | | Chapter 3 Pg 32 | | | PPT | | | | Understanding | | Unit Test | | | | | | | |
| 29 | | Reading and Writing documents | | | | | Chapter 17,18  Pg 413-468 | | | PPT | | | | Understanding | | Unit Test | | | | | | | |
| 30 | | Resources | | | | | Chapter 3 Pg 40-43 | | | PPT | | | | Understanding | | Assignment | | | | | | | |
| 31 | | Bitmaps creation, usage of BMP and displaying a file existing as a BMP | | | | | Chapter 11 Pg 231-242 | | | PPT | | | | Application | | Unit Test | | | | | | | |
| **UNIT IV CONTROLS**  Dialog Based Applications, controls – Animate control, image list, CRect tracker – Tree control – CtabControl – Dynamic controls – slider control – progress control – Inheriting CTreeView – CRicheditView – Modal Dialog, – Modeless Dialog – CColorDialog – CfileDialog. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Session No** | | **Topics to be covered** | | | **Text book** | | | | **Chapter no. and page no** | | **Instruction delivery** | | | | | | | | **Testing**  **method** | | | | **Course Objective** | | | | | | **Course**  **Outcome** | | | | | |
| **Method** | | | **Level** | | | | |
| 32 | Dialog Based Applications, controls | | | | J. David Kruglirski, “Programming Microsoft Visual C++”, Fifth Edition, Microsoft press, 1998. | | | | Chapter 6 Pg 103-104 | | PPT | | | Understanding | | | | | SAT | | | | **3. To develop applications using VC++.** | | | | | | | **iv. On completion of this course the students will be able to develop program using VC++** | | | | |
| 33 | Animate control, image list | | | |  | | PPT | | | Understanding | | | | | Unit Test | | | |
| 34 | CRect tracker , Tree control | | | |  | | PPT | | | Understanding | | | | | Unit Test | | | |
| 35 | CtabControl , Dynamic controls | | | |  | | PPT | | | Understanding | | | | | Unit Test | | | |
| 36 | Slider control, progress control | | | |  | | PPT | | | Understanding | | | | | Unit Test | | | |
| 37 | Inheriting CTreeView, CRicheditView | | | |  | | PPT | | | Understanding | | | | | Unit Test | | | |
| 38 | Modal Dialog | | | | Chapter 6 Pg 104-130 | | PPT | | | Application | | | | | Unit Test | | | |
| 39 | Modeless Dialog | | | | Chapter 7 Pg 147-164 | | PPT | | | Application | | | | | Unit Test | | | |
| 40 | CColorDialog , CfileDialog. | | | | Chapter 7 Pg 156-164 | | PPT | | | Application | | | | | Unit Test | | | |
| **UNIT V ADVANCED CONCEPTS**    Domain Name System – Email – World Wide Web (HTTP) – Simple Status bars – Splitter windows and multiple views – Dynamic Link Library – Data base Management with ODBC – TCP/IP – Winsock and WinInet, – ActiveX control – creation and usage – Container class. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Session No** | | | | **Topics to be covered** | **Text book** | | | | **Chapter no. and page no** | | **Instruction delivery** | | | | | | | | **Testing**  **method** | | | | **Course Objective** | | | | | | **Course**  **Outcome** | | | | |
| **Method** | | | | **Level** | | | |  | | | | | | |  | | | |
| 41 | | | Domain Name System | | | J. David Kruglirski, “Programming Microsoft Visual C++”,  Fifth Edition, Microsoft press, 1998. | | | Chapter 34 Pg 991-993 | | PPT | | | | Understanding | | | | | Unit Test | | | | **3. To develop applications using VC++.** | | | | | | **v. On completion of this course the students will be able to develop real time applications using VC++** | | |
| 42 | | | Email | | | Chapter 34 Pg 991-993 | | PPT | | | | Understanding | | | | | Unit Test | | | |
| 43 | | | World Wide Web (HTTP) | | | Chapter 34 Pg 994-996 | | PPT | | | | Understanding | | | | | Unit Test | | | |
| 44 | | | Simple Status bar , Splitter windows and multiple views | | | Chapter 14 Pg 323-328  Chapter 20 Pg 491-493 | | PPT | | | | Application | | | | | Unit Test | | | |
| 45 | | | Dynamic Link Library | | | Chapter 22 Pg 527-555 | | PPT | | | | Understanding | | | | | Unit Test | | | |
| 46 | | | Data base Management with ODBC | | | Chapter 31 Pg 897-928 | | PPT | | | | Application | | | | | Unit Test | | | |
| 47 | | | TCP/IP – Winsock and WinInet | | | Chapter 34 Pg985-1028 | | PPT | | | | Understanding | | | | | Unit Test | | | |
| 48 | | | ActiveX control creation and usage | | | Chapter 8 Pg 166-194 | | PPT | | | | Application | | | | | Unit Test | | | |
| 49 | | | Container class | | | PPT | | | | Understanding | | | | | Unit Test | | | |

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| **TEXT BOOKS** | | | |
| **S.No** | **Title of the book** | **Author** | **Publisher** |
| 1 | Windows Programming | Charles Petzold | Microsoft press, 1996 |
| 2 | Programming Microsoft Visual C++ | J. David Kruglirski | Pearson Education, 2000 |
| 3 | Visual Basic | Marion Cottingham | Peachpit Press, 1999 |
| **REFERENCE BOOKS** | | | |
| 1 | Visual C++ 6 programming | Steve Holzner | Wiley Dreamtech India Private Ltd., 2003 |
| 2 | Using Visual C++ | Kate Gregory | Prentice Hall of India Pvt. Ltd., 1999 |
| 3 | MFC from the Ground Up | Herbert Sheildt | McGraw Hill India Pvt. Ltd., Second Edition |
| 4 | Visual Basic 6.0 How To Program | Deitel | Pearson Education, 1999 |
| **WEB REFERENCES** | | | |
| 1. <http://www.edunotes.in/visual-programming> 2. <http://www.faadooengineers.com/threads/9498-Visual-programming-ppt-full-notes-pdf-e-books> 3. <http://notesengine.com/dept/it/6sem/anna-university-it-6-sem-visual%20-prog-notes.html> | | | |

**GAP ANALYSIS**

The syllabus in detail provide understanding about the Visual Programming tools Visual Basic and VC++ but it does not elaborately discuss the Visual Programming language (VPL). The VPL will be provided as content beyond syllabus.

**Content beyond syllabus:**

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| --- | --- | --- | --- |
| **S.No** | **Topic** | **Hours** | **Mode of delivery** |
| **1.** | Introduction to Visual Programming Language (VPL) | **3** | PPT |

**Content beyond syllabus mapping with PEO and PO**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **MC9243/Visual Programming** | | | | | | | | | | | | | | |
| PO mapping with Content beyond syllabus | a | b | | c | d | | e | f | g | h | i | j | k | l |
|  |  | |  |  | |  |  | X |  |  |  |  |  |
| PEO mapping with Content beyond syllabus | Preparation | | Core  competence | | | Breadth | | | | Professionalism | | Learning Environment | | |
| X | |  | | |  | | | |  | | X | | |

**Internal marks Assessment Method**

**Test : 10**

**Attendance : 5**

**Assignment : 5**

**Total : 20**

**ASSIGNMENTS**

|  |  |
| --- | --- |
| **A. No** | **Assignment Titles** |
| I  (I UNIT) | 1. Discuss briefly Windows Programming model.  2. Write Pseudo code for creating and displaying a window.  3. Briefly explain Data types  4. Briefly discuss about Windows Resources.  5. Explain in detail Device Context. |
| II  (II & III UNIT) | 1. Discuss usage of variables and constants in Visual basic. 2. Display Employee details in a Grid Control 3. Give the classification of Microsoft Foundation Classes Library in detail. 4. Write a windows program to display various shapes using Pen and Brush object. 5. Briefly discuss about VC++ Resources. |
| III  (IV & V UNIT) | 1. With example program explain how to use Animation controls. 2. Write a VC++ Program using CTreeView and CRicheditView controls 3. Write a VC++ Program to display a color pallet. 4. Develop a VC++ application to process student details. 5. Describe in detail container classes. |
| IV  (Innovative Assignment) | 1. Develop VC++ Currency Converter Application.  2. Develop Simple Anti-Virus application using Visual Basic.  3. Develop a Game application using Visual Basic. |

**TEST PORTION**

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| --- | --- | --- | --- |
| **S. No** | **Name of the Test** | **Test Units** | **Examination Date** |
| 1. | SAT1 | Unit 1 |  |
| 2. | Cycle I | Unit 1 |  |
| 3. | SAT2 | Unit 1 to 3 |  |
| 4. | Cycle II | Unit 1 to 3 |  |
| 5. | SAT Model | Full Portion |  |
| 6. | Model | Full Portion |  |

**Course in-charge signature HOD Signature**

**ASSIGNMENTS**

|  |  |  |
| --- | --- | --- |
| **A. No** | **Assignment Titles** | **Assessment level** |
| I  (I UNIT) | 1. Discuss briefly Windows Programming model.  2. Write Pseudo code for creating and displaying a window.  3. Briefly explain Data types  4. Briefly discuss about Windows Resources.  5. Explain in detail Device Context. | 1. Knowledge  2. Application  3. Understanding  4. Understanding  5. Understanding |
| II  (II & III UNIT) | 1. Discuss usage of variables and constants in Visual basic. 2. Display Employee details in a Grid Control 3. Give the classification of Microsoft Foundation Classes Library in detail. 4. Write a windows program to display various shapes using Pen and Brush object. 5. Briefly discuss about VC++ Resources. | 1. Understanding  2. Application  3. Understanding  4. Application  5. Understanding |
| III  (IV & V UNIT) | 1. With example program explain how to use Animation controls. 2. Write a VC++ Program using CTreeView and CRicheditView controls 3. Write a VC++ Program to display a color pallet. 4. Develop a VC++ application to process student details. 5. Describe in detail container classes. | 1. Understanding  2. Understanding  3. Application  4. Application  5. Understanding |
| IV  (Innovative Assignment) | 1. Develop VC++ Currency Converter Application.  2. Develop Simple Anti-Virus application using Visual Basic.  3. Develop a Game application using Visual Basic. | Application |

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| --- | --- | --- | --- | --- |
| **A. No** | **Assignment Titles** | **Assessment level** | **Course Outcome** | **Marks** |
| I  (I UNIT) | 1. Discuss briefly Windows Programming model.  2. Write Pseudo code for creating and displaying a window.  3. Briefly explain Data types  4. Briefly discuss about Windows Resources.  5. Explain in detail Device Context. | 1. Knowledge  2. Application  3. Understanding  4. Understanding  5. Understanding | i. explain the concepts of windows programming.  ii. write pseudo code for windows program. | 50 |
| II  (II & III UNIT) | 1. Discuss usage of variables and constants in Visual basic. 2. Display Employee details in a Grid Control 3. Give the classification of Microsoft Foundation Classes Library in detail. 4. Write a windows program to display various shapes using Pen and Brush object. 5. Briefly discuss about VC++ Resources. | 1. Understanding  2. Application  3. Understanding  4. Application  5. Understanding | iii. develop program using Visual Basic iv. develop program using VC++. | 50 |
| III  (IV & V UNIT) | 1. With example program explain how to use Animation controls. 2. Write a VC++ Program using CTreeView and CRicheditView controls 3. Write a VC++ Program to display a color pallet. 4. Develop a VC++ application to process student details. 5. Describe in detail container classes. | 1. Understanding  2. Understanding  3. Application  4. Application  5. Understanding | iv. develop program using VC++  v. develop real time applications using VC++ | 50 |
| IV  (Innovative Assignment) | 1. Develop VC++ Currency Converter Application.  2. Develop Simple Anti-Virus application using Visual Basic.  3. Develop a Game application using Visual Basic. | Application | iii. develop program using Visual Basic  v. develop real time applications using VC++ | 50 |

**Assignment Evaluation Procedure**

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| --- | --- | --- | --- | --- |
| **A. No** | **Assignment Titles** | **Bench Mark** | **Marks** | **Total** |
| I  (I UNIT) | 1. Discuss briefly Windows Programming model. | Windows Programming Model Diagram | 4 | 10 |
| Window Procedure | 2 |
| Messages | 2 |
| Windows Messages and control Notification | 2 |
| 2. Write Pseudo code for creating and displaying window | Initializing the window class members | 1 |  |
| Registering the window class | 3 |
| Creation of Window using CreateWindow() function | 3 |
| Displaying the window using ShowWindow() function | 3 |
| 3. Briefly explain Data types. | Wider Characters | 2 | 10 |
| Uppercase Identifiers | 2 |
| New datatypes | 2 |
| Hungarian Notation | 4 |
| 4. Briefly discuss about Windows Resources. | Resource Script Definition | 1 | 10 |
| Bitmaps and cursors | 3 |
| Strings and Accelerators | 3 |
| Menus, Version and Dialog Boxes | 3 |
| 5. Explain in detail Device Context. | Device Context Definition | 4 | 10 |
| 6 Methods of getting Device context handle | 6 |
| **Total** | | | | **50** |
| II  (II & III UNIT) | 1. Discuss usage of variables and constants in Visual basic. | Variable Definition | 2 | 10 |
| Rules for naming the variables | 2 |
| Scope of variables | 2 |
| Constants, Data type conversions and in-built functions | 4 |
| 2. Display Employee details in a Grid Control | Creation of employee database | 3 | 10 |
| Creation of Grid Control | 3 |
| Associating the database with the grid control using data source property | 3 |
| Sample Output | 1 |
| 1. Give the classification of Microsoft Foundation Classes Library in detail. | MFC Class Hierarchy | 4 | 10 |
| Application Framework discussion | 3 |
| MFC Library Version details | 3 |
| 1. Write a windows program to display various shapes using Pen and Brush object. | Declaration of Objects | 2 | 10 |
| Selection of Objects | 2 |
| Defining Appropriate functions | 4 |
| Sample Output | 2 |
| 5. Briefly discuss about VC++ Resources. | Resource definition statements | 2 | 10 |
| Types of windows resources | 4 |
| Bitmaps | 4 |
| **Total** | | | | **50** |
| III  (IV & V UNIT) | 1. With example program explain how to use Animation controls. | Animation control definition | 2 | 10 |
| Animation control class definition | 2 |
| Animation control operations | 2 |
| Animation control styles | 2 |
| Sample output | 2 |
| 1. Write a VC++ Program using CTreeView and CRicheditView controls | CTreeView and CRicheditView control definition | 2 | 10 |
| CTreeView and CRicheditView control class definition | 2 |
| CTreeView and CRicheditView control operations | 2 |
| CTreeView and CRicheditView control styles | 2 |
| Sample output | 2 |
| 1. Write a VC++ Program to display a color pallet. | Color Pallet control definition | 2 | 10 |
| Color Pallet control class definition | 2 |
| Color Pallet control operations | 2 |
| Common dialog usage | 2 |
| Sample output | 2 |
| 1. Develop a VC++ application to process student details. | Steps in MFC wizard to choose Database | 1 | 10 |
| Creating Database variables | 2 |
| Mapping Records with variables | 2 |
| Access code | 5 |
| 5. Describe in detail container classes. | Container class definition | 2 | 10 |
| Steps in creating container class | 3 |
| Features of container | 3 |
| Limitations of containers | 2 |
| **Total** | | | | **50** |
| IV  (Innovative Assignment) | 1. Develop VC++ Currency Converter Application.  2. Develop Simple Anti-Virus application using Visual Basic.  3. Develop a Game application using Visual Basic. | 1. Step by step procedure | | 10 |
| 1. Coding | | 25 |
| 1. Output Screen shots | | 10 |
| 1. Result | | 5 |
| **Total** | | | | **50** |