STATE BOARD OF TECHNICAL EDUCATION, BIHAR
Scheme of Teaching and Examinations for
VI SEMESTER DIPLOMA IN COMPUTER SCIENCE & ENGINEERING

(Effective from Session 2016-17 Batch)
THEORY

Sr. No.	SUBJECTS	SUBJECT CODE	TEACHING SCHEME	EXAMINATION – SCHEME							Credits
			Periods per Week	Hours of Exam.	Teacher's Assessment (TA) Marks (A)	Class Test(CT) Marks (B)	End Semester Exam. (ESE) Marks (C)	Total Marks (A+B+C)	Pass Marks ESE	Pass Marks in the Subject	
1.	Management (Common)	1600601	03	03	10	20	70	100	28	40	03
2.	System Software	1618602	03	03	10	20	70	100	28	40	03
3.	Visual Basic	1618603	04	03	10	20	70	100	28	40	03
4.	Computer Graphics	1618604	03	03	10	20	70	100	28	40	03
5.	Elective (Any One)	1618605	04	03	10	20	70	100	28	40	03
	Elective - (i) Artificial Intelligence & Expert System (1618605A)					(ii) E-Commerce (1618605B)			(iii) Multimedia (1618605C)		
	Total:- 17						350	500			

PRACTICAL

Sr. No.	SUBJECTS	SUBJECT CODE	TEACHING SCHEME	EXAMINATION – SCHEME					Credits
			Periods per Week	Hours of Exam.	Practical (ESE)		Total Marks (A+B)	Pass Marks in the Subject	
					Internal (A)	External (B)			
6.	Visual Basic Lab	1618606	06	03	15	35	50	20	03
	Total:- 06						50		

TERM WORK

Sr. No.	SUBJECTS	SUBJECT CODE	TEACHING SCHEME	EXAMINATION – SCHEME				Credits
			Periods per week	Marks of Internal Examiner (X)	Marks of External Examiner (Y)	Total Marks (X+Y)	Pass Marks in the Subject	
7.	Computer Graphics -TW	1618607	04	15	35	50	20	02
8.	Elective (Any One) - TW	1618608	06	15	35	50	20	02
	Elective- (i) Artificial Intelligence & Expert System (1618608A) - TW				(ii) E-Commerce (1618608B) -TW		(iii) Multimedia (1618608 C) -TW	
9.	Project Work & Its Presentation in Seminar -TW	1618609	-	30	70	100	40	02
	Total:- 10					200		
Total Periods per week Each of duration One Hours = 33						Total Marks = 750		24

MANAGEMENT (COMMON)

Subject Code 1600601	Theory						Credits
	No. of Periods Per Week			Full Marks	:	100	03
	L	T	P/S	ESE	:	70	
	03	—	—	TA	:	10	
	—	—	—	CT	:	20	

CONTENTS : THEORY

	Name of the Topics	Hrs/week	Marks
Unit -1	**Overview Of Business** 1.1. Types of Business • Service • Manufacturing • Trade 2. Industrial sectors Introduction to • Engineering industry • Process industry • Textile industry • Chemical industry • Agro industry 1.3 Globalization • Introduction • Advantages & disadvantages w.r.t. India • 1.4 Intellectual Property Rights (I.P.R.)	**02**	
Unit -2	**Management Process** 2.1 What is Management? • Evolution • Various definitions • Concept of management • Levels of management • Administration & management • Scientific management by F.W.Taylor 2.2 Principles of Management (14 principles of Henry Fayol) 2.3 Functions of Management • Planning • Organizing • Directing • Controlling	**07**	
Unit – 3	**Organizational Management** 3.1 Organization :- • Definition • Steps in organization 3.2 Types of organization • Line • Line & staff • Functional • Project 3.3 Departmentation • Centralized & Decentralized • Authority & Responsibility • Span of Control 3.4 Forms of ownership • Propriotership • Partnership • Joint stock • Co-operative Society • Govt. Sector	**07**	

Unit – 4	**Human Resource Management**
	4.1 Personnel Management
	   • Introduction
	   • Definition
	   • Functions
	4.2 Staffing
	   • Introduction to HR Planning
	   • Recruitment Procedure
	4.3 Personnel– Training & Development
	   • Types of training
	   ➢ Induction
	   ➢ Skill Enhancement
	4.4 Leadership & Motivation
	   • Maslow's Theory of Motivation
	4.5 Safety Management
	   • Causes of accident
	   • Safety precautions
	4.6 Introduction to –
	   • Factory Act
	   • ESI Act
	   • Workmen Compensation Act
	Industrial Dispute Act
		08	

Unit – 5	**Financial Management**
	5.1. Financial Management- Objectives & Functions
	5.2. Capital Generation & Management
	   • Types of Capitals
	   • Sources of raising Capital
	5.3. Budgets and accounts
	   • Types of Budgets
	   ➢ Production Budget (including Variance Report)
	   ➢ Labour Budget
	   • Introduction to Profit & Loss Account (only concepts) ; Balance Sheet
	5.4 Introduction to –
	   • Excise Tax
	   • Service Tax
	   • Income Tax
	   • VAT
	   • Custom Duty
		08	

Unit – 6	**Materials Management**
	6.1. Inventory Management (No Numerical)
	   • Meaning & Objectives
	6.2 ABC Analysis
	6.3 Economic Order Quantity
	   • Introduction & Graphical Representation
	6.4 Purchase Procedure
	   • Objects of Purchasing
	   • Functions of Purchase Dept.
	   • Steps in Purchasing
	6.5 Modern Techniques of Material Management
	   • Introductory treatment to JIT / SAP / ERP
		08	

Unit – 7	**Project Management** (No Numerical) 7.1 Project Management • Introduction & Meaning • Introduction to CPM & PERT Technique • Concept of Break Even Analysis 7.2 Quality Management • Definition of Quality , concept of Quality , Quality Circle, Quality Assurance • Introduction to TQM, Kaizen, 5 'S', & 6 Sigma	**08**	
		Total	**48**	

Text/ Reference Books:-

Name of Authors	Titles of the Book	Name of the Publishe
Dr. O.P. Khanna	Industrial Engg & Management	Dhanpal Rai & sons New
Dr. S.C. Saksena	Business Administration & Management	Sahitya Bhavan Agra
W.H. Newman E.Kirby Warren Andrew R. McGill	The process of Management	Prentice- Hall
Rustom S. Davar	Industrial Management	Khanna Publication
Banga & Sharma	Industrial Organisation & Management	Khanna Publication
Jhamb & Bokil	Industrial Management	Everest Publication , Pune

SYSTEM SOFTWARE

Subject Code 1618602	Theory			No of Period in one session : 50			Credits
	No. of Periods Per Week			Full Marks	:	100	
	L	T	P/S	ESE	:	70	03
	03	—	—	TA	:	10	
				CT	:	20	

Rationale & Objective:

This course will enable the students to have understanding and knowledge of various System Software's like assembler, compiler, macro-processor, linker and loader

	Contents : Theory	Hrs/week	Marks
UNIT-1	**INTRODUCTION:**	**[06]**	
	01.01 What is System Software?		
	01.02 Components of System Software		
	01.03 Evolution of System Software		
	01.04 The model of a computer system		
UNIT-2	**LANGUAGE PROCESSORS:**	**[04]**	
	02.01 Introduction		
	02.02 Language Processing activities.		
	02.03 Fundamental of Language Processing.		
	02.04 Fundamentals of Language Specification.		
UNIT-3	**ASSEMBLERS:**	**[08]**	
	03.01 Elements of Assembly Language Programming.		
	03.02 A Simple Assembly Scheme.		
	03.03 Pass Structure of Assemblers.		
UNIT-4	**MACROS AND MACRO PROCESSORS:**	**[06]**	
	04.01 Macro Instructions		
	04.02 Macro Instruction argument		
	04.03 Conditional Macro expansion		
	04.04 Macro calls with macros		
UNIT-5	**COMPILERS AND INTERPRETERS:**	**[10]**	
	05.01 Aspects of compilation		
	05.02 Memory Allocation		
	05.03 Memory Allocation		
	05.04 Various phases of a compiler and their functions		
	Code Optimization		
	05.05 Interpreters		
UNIT-6	**LINKERS:**	**[08]**	
	06.01 Relocation and Linking Concepts		
	06.02 Design of a Linker		
	06.03 Loaders		
	06.04 Various types of linking and loading schemes		

UNIT-7	**SOFTWARE TOOLS:**	[08]	
	07.01 Software Tools for Program Development		
	07.02 Editors		
	07.03 Debug Monitors		
	07.04 Programming Environments		
	07.05 User Interfaces		
	Total	**50**	

Books Recommended:-

1.	System Programming	-	J.J. Donovan McGraw Hill, New Delhi
2.	System Programming and Operating Systems	-	Dhamdhere Tata McGraw Hill, New Delhi
3.	Assemblers, Compilers and Program Translation	-	P. Calingaert Computer Science Press, Meryland
4.	System Software - An Introduction to System Programming	-	Leland L. Beck, Addison Wesley

VISUAL BASIC

Subject Code 1618603		Theory		No of Period in one session : 60			Credits
		No. of Periods Per Week		Full Marks	:	100	03
		L	T	P/S	ESE	:	70
		04	—	—	TA	:	10
					CT	:	20

Rationale & Objective:-

	Contents : Theory	Hrs/week	Marks
UNIT-1	**VISUAL BASIC 6.0:** 01.01 Data Access: - Developing for the Internet - Controls and Application Design Capabilities - VB's Control Set - Building Controls in Visual Basic 01.02 Integrating Development Environment with Wizards	**[08]**	

UNIT-2	**VISUAL BASIC DEVELOPMENT:**
	
	 02.01 The Development Interface
	
	 02.02 Development Windows:
	
	 - Event-Driven Programming
	 - Working with Objects and Controls
	    - Toolbox controls
	    - Working with objects
	    - Visual Basic Modules
	    - Building Event-Driven Code
		[10]	

UNIT-3	**BUILDING OBJECTS IN VISUAL BASIC:** 03.01 Object Basics 03.02 Building Object Models	**[08]**	
UNIT-4	**CONNECTING TO DATABASES:** 04.01 Date Access Objects, Remote Data Objects, ActiveX Data Objects, OLE DB, Data Bound Controls. 04.02 Using DAO to build a simple database interface 04.03 Working with the Visual Basic Report Designer	**[12]**	
UNIT-5	**INTRODUCTION TO BUILDING INTERNET APPLICATIONS:** 05.01 HTML basics 05.02 IIS and Active Server Pages 05.03 Building IIS Applications: - Web Class Designer - IIS Object Model - Building the interface - Building the functionality	**[12]**	
UNIT-6	**DESIGNING USER INTERFACES:** 06.01 Visual Elements of a Visual Basic Application: - Menus, Toolbars and Tab Strips - ActiveX and Other Controls	**[10]**	
	Total	**60**	

COMPUTER GRAPHICS

Subject Code 1618604	Theory			No of Period in one session : 50			Credits
	No. of Periods Per Week			Full Marks	:	100	
	L	T	P/S	ESE	:	70	03
	03	—	—	TA	:	10	
				CT	:	20	

Rationale:

This course will provide an introduction to fundamental concepts in Computer Graphics from a practical perspective. It aims to cover mathematical concepts essential for computer graphics, graphic devices, various algorithms and multimedia systems. Ideally, a student who successfully completed these courses will be familiar with modern methods in computer graphics, with the use of commonly used tools in this area and having knowledge to write algorithms for generating images.

Objective:

This course is an introduction to computer graphics and provides familiarity with graphics software and hardware systems. The course covers the following concepts:

- Understanding of graphics and its applications
- The fundamentals of input, display and hardcopy devices, scan conversion of geometric primitives
- Output primitives
- Geometric representations
- Two and Three-dimensional Transformations
- Windowing and clipping methods
- Segments
- Three-dimensional concepts
- Hidden-element removal
- Multimedia hardware and applications

	Contents : Theory	Hrs/week	Marks
UNIT-1	**INTRODUCTION AND APPLICATIONS:** What is CG, Characteristics & Classification of CG Applications: Presentation graphics, painting and drawing, scientific visualization, image processing, digital art, entertainment, CAD in architecture, animation.	**[03]**	
UNIT-2	Display devices: Random-scan and raster scan monitors, Color CRT, Plasma panel displays, LCD Panels Input/ Output Devices.	**[05]**	
UNIT-3	**2 D DRAWING GEOMETRY:** 2 D transformation: Use of homogeneous coordinate systems, translation, scaling, rotation, mirror reflection, rotation about an arbitrary point. Interactive techniques: Constraints, Grids, Gravity field, Rubber-band, Dragging, Painting & drawing.	**[08]**	
UNIT-4	**CONICS AND CURVES:** DDA lines circle drawing algorithm, Bresenham's lines circle drawing algorithm, Generation of ellipses, Curve drawing, Parametric representation, need of cubic curves, Drawing cubic Bezier and B-spline curves & their properties. (No derivations needed)	**[08]**	

UNIT-5	**Windowport and viewport:**	[12]	
	- Elimination of totally visible and totally invisible lines with respect to a rectangular window using line end point codes		
	- Explicit line clipping algorithm		
	- Sutherland cohen algorithm		
	- Mid point sub-division algorithm		
	- Polygon Clipping : Sutherland- Hodgman algo		
	- Polygon representation, Inside & outside test of Polygon		
	Filling:		
	- Stack based and queue based seed fill algorithms		
	- Scan line fill algorithm		
	Character generation		
UNIT-6	**3 D GRAPHICS:**	[10]	
	Transformations:		
	- Transformation matrices for translation, scaling and rotation around axis		
	Parallel Projection: Orthographic, Axonometric, Oblique projection with multi views		
	Perspective Projection:		
	- Vanishing point : Single – point, Two- point & Three point		
	Hidden Surface Removal:		
	Back face removal		
UNIT-7	**ANIMATION:**	[04]	
	Basics of animation, Types of animation, Types of animation system. Tweaking and Morphing		
	Total	50	

Books Recommended:

<u>**Text Books**</u>

1.	Computer Graphics, 2nd Edition 2010	-	Udit Agarwal, Katson Publications
2.	Computer Graphics, Second Edition, 1995.	-	D. Hearn & P.M. Baker Prentice Hall of India
3.	OpenGL Programming Guide, Third Edition, 2000	-	Woo, Nelder, Davis, Shreiner Pearson Education Asia
4.	Multimedia, Making It Working, Fifth Edition, 2001	-	T. Vaughan McGraw Hill

<u>**Reference Books**</u>

1.	Fundamentals of Interactive Computer Graphics, Second Edition	-	J.D. Foley & A. Van Dam Addison Wesley
2.	Computer Graphics - A Programming	-	S. Harringion McGraw Hill Approach International Ed.
3.	Multimedia Systems, 2000	-	Rajneesh Agrawal & Bharat Bhushan Tiwari, Excel Publications

ELECTIVE - (ANY ONE) - (i) ARTIFICIAL INTELLIGENCE & EXPERT SYSTEMS

Subject Code 1618605A	Theory			No of Period in one session : 60			Credits
	No. of Periods Per Week			Full Marks	:	100	03
	L	T	P/S	ESE	:	70	
	04	—	—	TA	:	10	
				CT	:	20	

Rationale & Objective:

For effective teaching / learning of "Artificial Intelligence & Expert System", it is necessary that the list of assignment should be prepared by the subject teacher based on the topic covered in related theory papers and given to the students based on present day professional scenario. The assignment should cover problems related to "Artificial Intelligence & Expert System" based on wide requirement in Information technology / Computer science. These should strive to inculcate the skills necessary for a student to effectively use the tools & techniques as per the present day industry requirement.

The teacher should prepare the students to cover minimum ten problems.

	Contents : Theory	**Hrs/week**	**Marks**
UNIT-1	Meaning of artificial intelligence, artificial intelligence and the world, representation in artificial intelligence, state space search.	**[12]**	
UNIT-2	Architecture of artificial intelligence system, production system design, implementation and limitation, Intervence & control, logic, uncertainty, Fuzzy logic.	**[12]**	
UNIT-3	Knowledge representation, prdicates calculus, logic & deductions using predicates calculus, syntax & semanties, qualifiers and anioms, encoding facts as predicate calculus , deduction as search-forward chaining & unification, sholeneisation, backward chaining, goal trees for backward chaining.	**[14]**	
UNIT-4	Natural language processing, Introduction. Overview of linguistics, grammars and languages, Basic parsing techniques, Natural language generations and systems.	**[10]**	
UNIT-5	Vision expert system, defining the problems, overview of the solution, phylosophical issues, human versus machine, MYCIN & DENDRAL.	**[12]**	
	Total	**60**	

Books Recommended:-

1.	Artificial Intelligence, Tata McGraw Hill	-	Rowe & Rich
2.	Artificial Intelligence – An Engineering Approach, McGraw Hill	-	Robert Sehalhott
3.	Artificial Intelligence & Expert System, PHI	-	W. Patterson

ELECTIVE - (ANY ONE) - (ii) E- COMMERCE

Subject Code 1618605B	Theory			No of Period in one session : 60			Credits
	No. of Periods Per Week			Full Marks	:	100	03
	L	T	P/S	ESE	:	70	
	04	—	—	TA	:	10	
				CT	:	20	

Rationale & Objective:

"Electronic Commerce" or "Doing, business online" is becoming critical in three interrelated dimensions. Customer-to-business interactions, customer-to-customer, intra-business interactions. Electronic Commerce facilitates the network form of organization where small flexible firms rely on other partner companies for component supplies and product distribution to meet changing customer demand more effectively. The transaction management aspect of electronic commerce enables firms to reduce costs by enabling better coordination in sales, production and distribution processes and automated supply chain network. Electronic Data Interchange (EDI), Electronic Mail and Electronic Fund Transfer (EFT), streamline business process, reduces paperwork and increase automation. The course will enable the students to understand e-commerce, its applications, the processes and the security issues.

	Contents : Theory	Hrs/week	Marks
UNIT-1	**ELECTRONIC COMMERCE FRAMEWORK:** Defining electronic commerce; technology of digital convergence; convergence of content and transmission types of electronic commerce – inter-organizational E-commerce, EDI over WAN, Extranets, Electronic Fund Transfer, e-mail, Fax, Intra-organizational e-mail, Customer to Business e-mail (B2B, B2C, C2C). Components of E-Commerce - Institutions – Government, Merchants, Manufacturers, Suppliers, consumers, banks, - financial institutions - Processes – Marketing, Sales, Payments, Fulfillment, Support Networks – Corporate, Internet, Commercial	[08]	
UNIT-2	**ARCHITECTURAL FRAME WORK OF E-COMMERCE:** - Web Architecture - web browser, HTTP, TCP/IP, Web server, HTML, CGI Scripts	[08]	
UNIT-3	**E-BUSINESS ACTIVITIES:** Supply-chain management, selling-chain management, operating resource management, ERP, CRM, customer asset management.	[06]	
UNIT-4	**SECURITY ISSUES:** Firewalls and proxy application gateways, Secure Electronic Transaction (SET), public and private key encryption, digital signatures and digital certificates, Secure Socket Layer (SSL)	[10]	
UNIT-5	**ELECTRONIC PAYMENT SYSTEMS:** Digital cash, electronic to ATM, Debit cards at Point of Sale (POS), Smart Cards, Online Credit Card based Systems, Electronic Fund Transfer (EFT), Payment gateways.	[08]	
UNIT-6	**ELECTRONIC COMMERCE APPLICATIONS:** E-commerce Banking, Online Shopping, Business Models and Revenue Models, On-line publishing, E-commerce in retailing industry, Digital Copyrights, Electronic Data Interchange, Electronic Fund Transfer, Electronic Bulletin Boards, Electronic Cataloguing.	[12]	

UNIT-7	**IMPLEMENTATION OF E-COMMERCE:** Visit and analyse various popular sites. Developing E-commerce Enabled Application - getting an internet, merchant bank account, web hosting, obtaining digital certificate, finding a provider of online transactions, creating of purchasing a shopping cart software	[08]	
	Total	**60**	

Books Recommended:-

1.	Electronic Commerce - A Manager's Guide	-	Ravi Kalakota and Andrew B. Whinston Addison Wesley (Singapore) Pvt. Ltd., New Delhi
2.	E-Business - Roadmap for Success	-	Ravi Kalakota and Maxia Robinson Addison Wesley (Singapore) Pvt. Ltd., New Delhi
3.	E-Business (R) Evolution	-	Amor Addison Wesley (Singapore) Pvt. Ltd., New Delhi
4.	Frontiers of Electronic Commerce	-	Ravi Kalakota and Andrew B. Whinston Addison Wesley (Singapore) Pvt. Ltd., New Delhi
5.	E-Business with Net Commerce (with CD)	-	Shurety Addison Wesley (Singapore) Pvt. Ltd., New Delhi

ELECTIVE - (ANY ONE) - (iii) MULTIMEDIA

Subject Code 1618605C	Theory			No of Period in one session : 60			Credits
	No. of Periods Per Week			Full Marks	:	100	03
	L	T	P/S	ESE	:	70	
	04	—	—	TA	:	10	
				CT	:	20	

Rationale & Objective:

This course will enable the students to understand the basic concepts of graphics and multimedia, familiarize with multimedia input, output and storage devices and appreciate features of multimedia software and develop small applications.

Contents : Theory		Hrs/week	Marks
UNIT-1	**INTRODUCTION TO COMPUTER GRAPHICS AND MULTIMEDIA:** Introduction to multimedia, concepts of animation and simulation, various applications of multimedia in education, research and development, business and games, training, entertainment.	[10]	
UNIT-2	**MULTIMEDIA HARDWARE:** Sound and Video cards, compression techniques, Memory & Storage devices, Input devices, Output hardware, Communication device. Introduction of Multimedia authoring tools & its types.	[14]	
UNIT-3	**MULTIMEDIA SOFTWARE:** Features of any one of authoring tools such as Macro-media/ Adobe Photo-shop/ 3-D studio/ Paint-Shop Pro/ Animator Pro/ Director and Harvard graphics	[08]	
UNIT-4	**BASIC CONCEPTS OF VIRTUAL REALITY:**	[02]	
UNIT-5	**MULTIMEDIA SYSTEM AND ITS APPLICATIONS:** Music & Sound: Audio basic concepts, Analog and Digital concepts, MIDI hardware, MIDI file. Sound- editing process. Audio file format, MIDI versus digital Audio, Video: Basic concepts, Analog Video & Digital Video, Video capture & editing, Video file format. Text & Images: Introduction, file format	[26]	
	Total	**60**	

Books Recommended:-

1.	Multimedia	-	Villam Casanove and Molina Prentice Hall of India, New Delhi
2.	Multimedia Bible	-	Win Rosch
3.	Multimedia Making IT work, Osborne McGraw Hill	-	Tay Vaughan
4.	Multimedia System, Addison Wesley	-	Buford
5.	Multimedia System, Excel	-	Agrwal & Tiwari
6.	Multimedia in Action, Vikas	-	James E. Skuman
7.	Multimedia Technology and Its Application, Galgotia Publications	-	David Hillman
8.	Multimedia Systems, Addison Wesley	-	Sleinritz

VISUAL BASIC LAB

Subject Code 1618606	Practical			No of Period in one session :			Credits
	No. of Periods Per Week			Full Marks	:	50	03
	L	T	P/S	ESE	:	50	
	—	—	06	Internal	:	15	
				External	:	35	

Rationale & Objective:-

List of Experiments:-

Contents : Practical	Hrs/week	Marks

UNIT-1 Create a form with one textbox and two command buttons having caption "Font" and "Exit". The user types text in the textbox and clicks on Fonts. The current form gets enlarged and now in addition to above controls, the form contains frame on which following control are placed.
 	
   (a) Combo box, which will contain list of fonts.
   (b) Combo box, which will contain font style (bold, italic).
   (c) Combo box, which will contain font size.
   (d) Check box with caption "Underline".
   (e) Checkbox with caption "Strikethrough".
   (f) Label with caption "Sample" for showing preview.
   (g) Two command buttons with caption "OK" and "Cancel" respectively.
	[ ]	

The user should now be able to do the following:
 	
   (i)   Choose an option from each combo box for Font, Style & Size.
   (ii)   Select effect as Underline or Strikethrough.
   (iii) While performing a & b, the user should be able to see the preview as label.
   (iv) To complete the task, the user has to click on OK. The form should shrink back to its original size and display, and the text should be displayed according to the attribute set.
   (v) Exit is used to terminate the application.		

UNIT-2 Develop an application, which will contain numbers of images using control array. Using scrollbar increase or decrease numbers of images.	[ ]	
UNIT-3 Develop a program that will cut, copy and paste text of text box.	[ ]	
UNIT-4 Create a project that will open & save contents of file using menu editor.	[ ]	
UNIT-5 Create a project with a file list, picture box & command button. Write appropriate code in appropriate event of controls so that upon startup, the list box should display the list of all *.bmp & *.ice in the current directory. After the user selection of file from the list box, the selected file should be displayed in the picture box control on clicking a command button.	[ ]	

UNIT-6 Write a user-defined procedure that:
 	
   (a) Takes a name of text file as arguments, opens that file, reads it & then displays its contents in a textbox.
   (b)   Open a text file & retrieve the contents of the first line in the text file. Put first 3 text words into three string variables.
	[ ]	

UNIT-7 Write a simple animation application using timer control. Your project should contain an image, which moves around the form and changes its direction when it hits, the sides of the form.	[ ]	

UNIT-8	Create a form with two command button having caption "Display Windows Directory" and "Exit". Make use of windows API DLL GetWindowDirectory ( ) to display the directory in which Microsoft Window is installed when command button named "Display Window Directory" is clicked. "Exit" button is used to exit the application.	[ ]	
UNIT-9	Develop an application that will take the name of sound file (e.g. file with extension.wav) as an argument and will play the file. Use API function for playing the file.	[ ]	
UNIT-10	Create a Employee database named emp.mdb. Select six fields at minimum such as empno, empname, salary, destination etc. Design a form so that senior manager of the company can navigate through the records using (a) Data control (b) DAO	[ ]	
UNIT-11	Design a control, by extending textbox by offering the following features: (a) The textbox will support all the regular properties values that the standard textbox control supports, but it will not accept numeric letters. (b) The textbox will also contain two new properties called Autosize that supply four possible values -> NA, 2-small, 3-medium, 4-large. These values will appear as an enumeration in dropdown list box inside a properties window. When set to 1-NA, the textbox font size will not change. When set to 2-small the text box will be sized to 25% of the textbox height value. When set to 4-large the text box will be sized to 75% of the textbox height value. (c) The textbox will also contain two new properties called Ucase & Lcase. These will be boolean properties. When Ucase is set to true, the text in the textbox will be converted to uppercase letters. When Lcas is set to true, the text in the textbox will be converted to lowercase letters. Both Ucase & Lcase are said to be false by default. Your control must make sure when one of the case property is set to true, the other is set to false.	[ ]	
	(a) The textbox will also have a event called Badkey for, when the user tries to type something like numeric letter in the textbox.		
UNIT-12	The home page of AdWorld should contain a list of all the stores containing "Toys, Flowers, Books and Confectionery". Write a code for the following. (a) The caption of the web page "AdWorld" should be in blue colour and centered. (b) The scrolling text displaying "A shop at your fingertips" should be in green. (c) The list of stores on the web page should be displayed in red colour and the font size should be 30. (d) The home page should have the pink colour as background. (e) When the user moves the mouse pointer or click on any of the stores, the corresponding image associated with the store should appear along with the description of the store. (f) Whenever the mouse moves over the item, flowers from the list of stores the item colour should change to green and the size should change to 60.	[ ]	
	Total		

COMPUTER GRAPHICS - TW

Subject Code 1618607	Term Work			No of Period in one session :			Credits
	No. of Periods Per Week			Full Marks	:	50	
	L	T	P/S	Internal	:	15	02
	—	—	04	External	:	35	

	Contents : Term Work	Hrs/week	Marks
UNIT-1	Study of basic graphics functions defined in "graphics. h".		
UNIT-2	Study of graphics standards like CORE, GKS (Graphics Kernel System), GKS- 3D (Graphics Kernel System -3 Dimensions), PHIGS (Programmer's Hierarchical Interactive Graphics Systems), CGM (Computer Graphics Metafile), CGI (Computer Graphics Interface).		
UNIT-3	Program to implement basic graphics primitives in OpenGL.		
UNIT-4	Program for Line Drawing using DDA algorithm using C and OpenGL.		
UNIT-5	Program for Line Drawing using Bresenham's algorithm using C and OpenGL.		
UNIT-6	Programs using 2-D transformations in C.		
UNIT-7	Implement Polygon filling algorithms [Flood-Fill Algorithm] in C.		
UNIT-8	Programs to study window to viewport transformations in C.		
UNIT-9	Program for Cohen Sutherland Line clipping algorithm in C.		
UNIT-10	Programs to study 3-D transformations in C.		
	Total		

ELECTIVE - (ANY ONE) - (i) ARTIFICIAL INTELLIGENCE & EXPERT SYSTEMS - TW

Subject Code 1618608A	Term Work			No of Period in one session : 60			Credits
	No. of Periods Per Week			Full Marks	:	50	02
	L	T	P/S	Internal	:	15	
	—	—	06	External	:	35	

Rationale & Objective:

For effective teaching / learning of "Artificial Intelligence & Expert System", it is necessary that the list of assignment should be prepared by the subject teacher based on the topic covered in related theory papers and given to the students based on present day professional scenario. The assignment should cover problems related to "Artificial Intelligence & Expert System" based on wide requirement in Information technology / Computer science. These should strive to inculcate the skills necessary for a student to effectively use the tools & techniques as per the present day industry requirement.

The teacher should prepare the students to cover minimum ten problems.

Contents : Term Work		**Hrs/week**	**Marks**
UNIT-1	Meaning of artificial intelligence, artificial intelligence and the world, representation in artificial intelligence, state space search.	[12]	
UNIT-2	Architecture of artificial intelligence system, production system design, implementation and limitation, Intervence & control, logic, uncertainty, Fuzzy logic.	[12]	
UNIT-3	Knowledge representation, prdicates calculus, logic & deductions using predicates calculus, syntax & semanties, qualifiers and anioms, encoding facts as predicate calculus, deduction as search-forward chaining & unification, sholeneisation, backward chaining, goal trees for backward chaining.	[14]	
UNIT-4	Natural language processing, Introduction. Overview of linguistics, grammars and languages, Basic parsing techniques, Natural language generations and systems.	[10]	
UNIT-5	Vision expert system, defining the problems, overview of the solution, phylosophical issues, human versus machine, MYCIN & DENDRAL.	[12]	
	Total	60	

Books Recommended:-

1.	Artificial Intelligence, Tata McGraw Hill	-	Rowe & Rich
2.	Artificial Intelligence – An Engineering Approach, McGraw Hill	-	Robert Sehalhott
3.	Artificial Intelligence & Expert System, PHI	-	W. Patterson

ELECTIVE - (ANY ONE) - (ii) E-COMMERCE -TW

Subject Code 1618608B	Term Work			No of Period in one session : 60			Credits
	No. of Periods Per Week			Full Marks	:	50	
	L	T	P/S	Internal	:	15	02
	—	—	06	External	:	35	

Rationale & Objective:-

For effective teaching / learning of "Electronic Commerce" or "Doing, business online", it is necessary that the list of assignment should be prepared by the subject teacher based on the topic covered in related theory papers and given to the students because e-commerce is becoming critical in three interrelated dimensions. Customer-to-business interactions, customer-to-customer, intra-business interactions. Electronic Commerce facilitates the network form of organization where small flexible firms rely on other partner companies for component supplies and product distribution to meet changing customer demand more effectively. The assignment should cover present explosive problems related to e-commerce. These should strive to inculcate the skills necessary for a student to effectively use the tools & techniques as per the present day industry requirement.

Problems based on following topics:-

	Contents : Term Work	Hrs/week	Marks
UNIT-1	Electronic Commerce Framework	[ ]	
UNIT-2	Architectural Frame Work of E-Commerce	[ ]	
UNIT-3	E-Business Activities	[ ]	
UNIT-4	Security Issues	[ ]	
UNIT-5	Electronic Payment Systems	[ ]	
UNIT-6	Electronic Commerce Applications	[ ]	
UNIT-7	Implementation of E-commerce	[ ]	
UNIT-8	Banking system in e-commerce.	[ ]	
	Total		

ELECTIVE - (ANY ONE) - (iii) MULTIMEDIA - TW

Subject Code	Term Work			No of Period in one session : 60			Credits
	No. of Periods Per Week			Full Marks	:	50	
1618608C	L	T	P/S	Internal	:	15	**02**
	—	—	06	External	:	35	

Rationale & Objective:-

For effective teaching / learning of "Multimedia", it is necessary that the list of assignment should be prepared by the subject teacher based on the topic covered in related theory papers and given to the students based on present day professional requirement. Students will enable the students to understand the basic concepts of graphics and multimedia, familiarize with multimedia input, output and storage devices and appreciate features of multimedia software and develop small applications. These should strive to inculcate the skills necessary for a student to effectively use the tools & techniques as per the present day industry requirement.

	Contents : Term Work	Hrs/week	Marks
UNIT-1	Introduction to Computer Graphics and Multimedia	[10]	
UNIT-2	Sound and Video cards,	[03]	
UNIT-3	CD ROM and DVD	[03]	
UNIT-4	sound file formats, compression techniques scanners, digital cameras, printers, plotters and other peripheral and storage devices.	[04]	
UNIT-5	Features of any one of authoring tools such as Macro-media/ Adobe Photo-shop/ 3-D studio/ Paint-Shop Pro/ Animator Pro/ Director and Harvard graphics	[10]	
UNIT-6	Education, Video Conferencing, training, Entertainment, electronic encyclopedia	[04]	
UNIT-7	Music & Sound: Audio basic concepts, Analog and Digital concepts, MIDI hardware, MIDI messages, MIDI file.	[06]	
UNIT-8	Video: Basic concepts.	[06]	
UNIT-9	Analog Video & Digital Video	[06]	
UNIT-10	Text, Sound MIDI, Digital Audio file format, MIDI under video environments, Audo & Video capture.	[08]	
	Total	**[60]**	

PROJECT WORK AND ITS PRESENTATION IN SEMINAR - TW

Subject Code	Term Work			No of Period in one session :			Credits
	No. of Periods Per Week			Full Marks	:	100	
1618609	L	T	P/S	Internal	:	30	02
	—	—	—	External	:	70	

Rationale :-

      The Project work and its presentation in seminar has impressed a lot to the professionals by giving tangible result in achieving the required competence in handling a project and finding out solutions to various problem and at the same time enhancing the knowledge by interactions and discussions in a seminar on the project. Therefore this subject has its unchallanged place in the curriculum.

Objective:-

      The objective to achieve by covering this curriculum are many fold :

- Innovative skills in the students.
- self confidence.
- Ability to select a problem.
- Ability to analyse the problem.
- Logical approach to solution of a problem.
- Skill in quality documentation and report writing.
- Ability to prepare Project Report (Computer Printed).
- Ability to participate in Seminar.
- Commercial Skill.
- Learning to learn the process in a student.

The project assignments may consist of :-

Contents : Term Work	Hrs/week	Marks
UNIT-1 **PROJECT WORK** 01.01 Installation of Computer Systems, peripherals & software. 01.02 Programminng customer based application. 01.03 Web page designing. 01.04 Data Base applications. 01.05 Networking. 01.06 Software Development. 01.07 Fabrication of Components / equipments. 01.08 Fault diagnosis & their rectification in computer systems / equipments. 01.09 Bringing improvements in the existing Systems / equipments.	[ ]	

The Project report should consists of :-

UNIT-2	**REPORT WRITING** 02.01 Introduction. 02.02 Problem statement. 02.03 Background. 02.04 Organisational Setup. 02.05 Plan Lay Out. 02.06 General Environment of Problem and problem identification. 02.07 Analysis of problem & Development of Algorithm. 02.08 Probable Solution. 02.09 Reasons. 02.10 Suggestions. 02.11 Others-as introduced by teacher.guide.	[ ]	
UNIT-3	**PRESENTATION IN SEMINAR** 03.01 Presentation of the project work. 03.02 Discussion by participation. 03.03 Suggestion of improvement in report to be recorded. 03.04 Incorporation of approved suggestions in the report.	[ ]	
UNIT-4	**FINAL REPORT** 04.01 Preparation of final project report incorporating all suggestions approved.	[ ]	
	Total		

NOTE:-

The students have various aptitudes and strengths. Project Work, therefore, should match the aptitudes of students. For this purpose, students should be asked to identify the type of Project Work, they would like to execute. It is also essential that the faculty of the respective department may have a brain storming to identify suitable project assignments.

The project work should be done individually. It is not possible, them it can not be done in group of more than 3 students.

The teachers are free to evolve other criteria, depending upon the type of project report.

It is advisable that two students or two projects which are related best be given merit certificate preferably at the annual day of the institute.