RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL
Diploma in Computer Science and Engineering

SEMESTER: **Sixth**   SCHEME: **Jul.09**
COURSE CODE: **622**   PAPER CODE: 6385
NAME OF COURSE: **ARTIFICIAL INTELLIGENCE AND EXPERT SYSTEM**
COMMON WITH PROGRAM (S):

<p style="text-align:center">RATIONALE</p>

<p style="text-align:center">**********</p>

Artificial Intelligence and Expert System subject is essential for providing knowledge of Artificial Intelligence working problems .This subject provides a general introduction to Artificial Intelligence, its techniques and main sub field as Expert System and Neural Network .The principle focus of the subject will be on the common underlying ideas as problem solving, control strategies, searching strategies, knowledge representation, rule based systems and learning process. The objective of the subject Artificial Intelligence and Expert System is to impart essential knowledge about AI Technique, Natural Language Processing, and its application as Game Playing. By studying and doing practical exercises student will able to work in related areas of Artificial Intelligence and Expert System .Now a days it is expected that a computer professional must have an optimum knowledge of Robotics designing and other related area of Artificial Intelligence. It will provide a foundation for further study of specific areas of Artificial Intelligence and Expert System.

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SEMESTER: **Sixth**   SCHEME: **Jul.09**
COURSE CODE: **622**   PAPER CODE:6385
NAME OF COURSE: **ARTIFICIAL INTELLIGENCE AND EXPERT SYSTEM**
COMMON WITH PROGRAM (S):

SCHEME OF STUDIES AND SPECIFICATION TABLE

Lectures: 5 Hrs. per week
Practical: 2 Hrs. per week

SCHEME OF STUDIES

Sr. No.	TOPICS	THEORY (HRS)	PRACTICAL (HRS)	TOTAL (HRS)
1.	INTRODUCTION TO AI	06	02	08
2.	PROBLEM SOLVING AND CONTROL STRATEGIES	08	04	12
3.	HEURISTIC SEARCH TECHNIQUES	10	04	14
4.	KNOWLEDGE REPRESENTATION	20	06	26
5.	LEARNING AND NATURAL LANGUAGE PROCESSING	15	06	21
6.	GAME PLAYING	08	04	12
7.	EXPERT SYSTEM	08	04	12
	TOTAL	75	30	105

SEMESTER: **Sixth**   SCHEME: **Jul.09**
COURSE CODE: **622**   PAPER CODE: 6385
NAME OF COURSE: **ARTIFICIAL INTELLIGENCE AND EXPERT SYSTEM**
COMMON WITH PROGRAM (S):

Lectures: 5 Hrs. per week

1.	**INTRODUCTION TO AI** • Meaning and definition of Artificial Intelligence • Characteristics of AI Problems • Scope and Future Expectation of AI • Application of AI	06
2.	**PROBLEM SOLVING AND CONTROL STRATEGIES** • State Space Representation • Problem Characteristics • Production System and its type • Characteristics of Production System • Breadth First Search and Depth First Search • Forward and Backward Chaining • Control Strategies and its Type	08
3.	**HEURISTIC SEARCH TECHNIQUES** • Hill Climbing • Branch and Bound Technique • Best First Search Technique and algorithm • A* Algorithm and AO* Algorithm • Constraints Satisfaction and related numeric problems	10
4.	**KNOWLEDGE REPRESENTATION** • Representation and Mapping • Approaches to Knowledge Representation • Issues in Knowledge Representation • Knowledge Representation using Predicate Logic and Prepositional Logic • Resolution and Refutation • Deduction, Theorem Proving • Procedural Knowledge and Declarative Knowledge • Introduction to Reasoning • Various types of Reasoning methods like Forward, Backward, monotonic, non-monotonic, probabilistic Reasoning • Baye's Theorem, Bayesian Network • Semantic Networks, Frames • Conceptual Dependency, Scripts	20

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SEMESTER: **Sixth**   SCHEME: **Jul.09**
COURSE CODE: **622**   PAPER CODE:6385
NAME OF COURSE: **ARTIFICIAL INTELLIGENCE AND EXPERT SYSTEM**
COMMON WITH PROGRAM (S):

Lectures: 5 Hrs. per week

5.	**LEARNING AND NATURAL LANGUAGE PROCESSING** • Introduction to Learning • Types of Learning • Learning in neural network • Learning Processes :- Error Correction Learning, Memory based Learning, Hebbian Learning, Competitive Learning • Learning with teacher, Learning without teacher • Introduction to NLP and its different Phases • Parsing Techniques, Context Free Grammar • Recursive Transition nets (RTN), Augmented Transition nets (ATN) • CSE and Logic Grammars, Semantic Analysis	15
6.	**GAME PLAYING** • Introduction to Game Playing • Mini max Search Procedure • Alpha-Beta Cut offs	08
7.	**EXPERT SYSTEM** • Definition and Characteristics of Expert System • Rule Based System Architecture • Non- Production System Architecture • Knowledge Acquisition and Validation • Expert System Life Cycle and Expert System Tools • MYCIN and DENDRAL examples of Expert System	08

SEMESTER: **Sixth**   SCHEME: **Jul.09**
COURSE CODE: **622**   PAPER CODE:6385
NAME OF COURSE: **ARTIFICIAL INTELLIGENCE AND EXPERT SYSTEM**
COMMON WITH PROGRAM (S):

Practical: 2 Hrs. per week   **Total Lab Hours: 30**

LIST OF PRACTICALS

1. Study about Cut and Fail situation in Artificial Intelligence
2. Develop system in Prolog to demonstrate the use if domain, predicate and clause.
3. Develop system in prolog to demonstrate the use of reading and write.
4. Develop system in prolog to demonstrate the use of facts and rules.
5. Develop system in prolog to demonstrate the use of controls.
6. Develop system in prolog to implement the water jug problem
7. Develop system in prolog for medical diagnosis model/chemical syntheses.
8. Implementation of Min-Max search procedure for Game Playing.

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SEMESTER: **Sixth**   SCHEME: **Jul.09**
COURSE CODE: **622**   PAPER CODE:6385
NAME OF COURSE: **ARTIFICIAL INTELLIGENCE AND EXPERT SYSTEM**
COMMON WITH PROGRAM (S):

RECOMMENDED TEXT BOOKS

- Artificial Intelligence by Elaine Rich and Kerin Knight, Tata McGraw Hill Edition

REFERENCE BOOKS

- Introduction to AI & ES by DAN W. Patterson, PHI learning
- Introduction to Artificial Intelligence by Eugene Charniak and Drew McDermott, Addison Wesley.
- Principles of Artificial Intelligence by Nils J. Nilson.

Semester: Sixth   **Scheme: Jul. 09**

Course Code: 601   **Paper Code: 6380**

Name Of Course: Computer Graphics Multimedia and Animation

Common With Program (S):

Rationale

Computer Graphics, multimedia and Animation have gained rapid popularity among engineers, technologists, software and hardware developers and end users. Due to the growing use of graphical interfaces, multimedia applications and web based applications these area of computer science also occupy an important position in diploma level studies.

The course deals with the revolution owning to the developments in PC Technology, audio and video compression, animations etc.

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN COMPUTER SCIENCE AND ENGINEERING

Semester: Sixth   **Scheme: Jul. 09**
Course Code: 601   **Paper Code: 6380**
Name Of Course: Computer Graphics Multimedia and Animation
Common With Program (S):

SCHEME OF STUDIES AND SPECIFICATION TABLE

Lectures: **5** Hrs. per week
Practical: **2** Hrs. per week

SCHEME OF STUDIES

S.No.	TOPICS	THEORY (HRS.)	PRACTICAL (HRS)	TOTAL (HRS)
8.	**Introduction to Computer Graphics**	8	1	9
9.	**Graphics Primitives:**	8	2	10
10.	**Transformation, 2-D Viewing and Clipping**	15	5	20
11.	**Projection**	6	2	8
5.	**Shading, Colour model and Illumination**	8	5	13
6	**Basics of Multimedia Technology**	8	2	10
7	**Graphics Image File Formats**	7	3	10
8	**Computer Animation**	15	10	25

	TOTAL	**75**	**30**	**105**

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN COMPUTER SCIENCE AND ENGINEERING

Semester: Sixth   **Scheme: Jul. 09**
Course Code: 601   **Paper Code: 6380**
Name Of Course: Computer Graphics Multimedia and Animation
Common With Program (S):

COURSE CONTENT

Lectures: **5** Hrs. per week

S. No.	Course Content	Hours of study

1.	**Introduction to Computer Graphics**
	   o Definition of Computer Graphics
	   o Application of Computer Graphics
	   o Graphics Hardware
	   o Input and Output Devices
	   o Display Devices
	   o Refreshing Display Devices
	        • Raster-Scan
	        • Random-Scan
		8

2.	**Graphics Primitives:**
	
	   o Points and Lines
	   o Line-drawing Algorithms
	        ▪ DDA Algorithm
	        ▪ Bresenham's line Algorithm
	   o Circle-generating Algorithm
	        ▪ Midpoint Circle of Algorithm
	   o Polygon Filling Algorithm: Scan-Line
		8

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN COMPUTER SCIENCE AND ENGINEERING

Semester: Sixth   Scheme: Jul. 09
Course Code: 601   Paper Code: 6380
Name Of Course: Computer Graphics Multimedia and Animation
Common With Program (S):

Lectures: **5** Hrs. per week

3.	**Transformation, 2-D Viewing and Clipping**
	
	  • **Basic Transformations (2D and 3D)**
	     o Translation
	     o Rotation
	     o Scaling
	     o Shear
	     o Reflection
	  • **Composite Transformations**
	     o Rotations about a point
	     o Reflection about a line
	     o Homogeneous Coordinate Systems
	
	  • **Clipping**
	       Point Clipping
	       Line Clipping -Cohen-Sutherland Clipping algorithm.
	       Polygon Clipping: Sutherland Hodgeman Algorithm
		15

	Windowing Transformation	
4.	**Projection** • Parallel Projection: Orthographic, Axonometric, Oblique • Perspective Projection: Standard Perspective Projection General Perspective Projection, Vanishing Points	6
5.	**Shading, Colour model and Illumination** • Chromaticity diagram-RGB, CMY, HSV, HLS, CIE models- • Realism in rendering, • Image manipulation: Illumination models, shading models for polygons, Gouraud and Phong shading , shadows, Transparency, Image Filtering, image processing, geometric Transformation of images.	8

th e:
J u l . 0 9

Course Code: 601 **Paper Code: 63800**

Name Of Course: Computer Graphics Multimedia and Animation Common With Program (S):

Lectures: **5** Hrs. per week

6.	**Basics of Multimedia Technology**	
	• Concepts of Multimedia: Types, Data Streams, Hardware and Software Requirements and Applications, Multimedia Authoring.	
	• Digital Audio: Audio Sampling, Recording Digital Audio, Audio Standards for Multimedia Applications,	
	• MIDI File Formats, MIDI Hardware and Software.	
	• Image Compression Standards: Types.	
	• Video Compression and Standards: Compression Standards, MPEG Compression Basics, MPEG-1, MPEG-2, and MPEG-4	
	• Hypertext and Hypermedia	
7.	**Graphics Image File Formats**	7
	• Raster Format,	
	• Bitmap (BMP) Format,	
	• Graphics Interchange Format (GIF),	
	• Joint Photographic Experts Group (JPEG),	
	• Tagged Image File Format (TIFF),	
	• Portable Network Graphics (PNG) and their differences.	
8.	**Computer Animation**	15
	• Development of Animations: Non Computer and Computer Based Animations, Different Types of Animations.	
	• Flash Basics: Flash Work Flow, Animation Using Flash.	
	• The Flash Work Environment: The Stage and the Time Line, Symbols and Instances, Symbols and Interactive Movies, Using the Tool Box, Using	
	• Panels, Using Context Menus, Moving the Play Head,	
	• Working the Frames using time line.	
	• Drawing Overview: Flash Drawing and Painting Tools, Working With Color, Using Imported Art Work, Adding Sound, Representation of Animation.	
	• Using Layers: Adding and Deleting Layers, Viewing Layers.	
	• Creating Text Boxes for User input.	
	• Creating Animations: Creating Key Frames, Layers in Animations, Frame Rates, Frame Rates, and Steps for creating animations. Frame by Frame Animations.	
	• Publishing and Exporting.	
	Total	75

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DIPLOMA IN COMPUTER SCIENCE AND ENGINEERING

Semester: Sixth   **Scheme: Jul. 09**
Course Code: 601   **Paper Code: 6380**
Name Of Course: Computer Graphics Multimedia and Animation
Common With Program (S):

LIST OF EXPERIMENTS

Practical: 2 Hrs. per Week

S.NO.	Name of experiments	Hours of Study
1.	Write a program for 2D line drawing as Raster Graphics Display.	
2	Write a program for circle drawing as Raster Graphics Display.	
3	Write a program for polygon filling as Raster Graphics Display	
4	Write a program for line clipping.	
5	Write a program for polygon clipping.	
6	Write a program for displaying 3D objects as display using perspective transformation.	
7	Devise a routine to produce the animation effect of a square transforming to a triangle and then to a circle	
8	Write a program to show a bitmap image on your computer screen.	
9	Write a program to play "wave" or "midi" format sound files.	
10	Create animations using Adobe FLASH. Flash Drawing and Painting Tools. Flash Drawing Modes. Pencil Tools Importing artwork into Flash (Working with Photoshop PSD files (PSD file import preferences)	
	TOTAL	30

Semester: Sixth   **Scheme: Jul. 09**
Course Code: 601   **Paper Code: 6380**
Name Of Course: Computer Graphics Multimedia and Animation
Common With Program (S):

BOOKS RECOMMANDED.

- Computer Graphics, Multimedia and Animations by Malay K. Pakhira, PHI Learning.
- Computer Graphics by Donald Hearn and M.Pauline Baker, PHI

- Computer Graphics Principles and Practices second edition by James D. Foley, Andeies van Dam, Stevan K. Feiner and Johb F. Hughes, 2000, Addition Wesley.

- Introduction to Computer Graphics By N. Krishnamurthy T.M.H

- Graphics, GUI, Games & Multimedia Projects in C by Pilania & Mahendra, Standard Pub

- Newman W.M. and Sproull R.F., " Principles of Interactive Computer Graphics ", Second Edition, *Tata McGraw Hill Publishing Company Limited, New Delhi,*

- Multimedia on the PC, Sinclair,BPB

- Multimedia in Practice by Jeff coate Judith, 1, PHI.
- •Multimedia Systems by Koegel, AWL
- Multimedia Making it Work by Vaughar, etl
- Principles of Multimedia by Ranjan Parekh, *Tata McGraw Hill Education Private Limited, New Delhi.*

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN COMPUTER SCIENCE AND ENGINEERING

Semester: Sixth   **Scheme: Jul. 09**
Course Code: 613   **Paper Code: 6383**
Name Of Course: Advanced Web Technology
Common With Program (S):

RATIONALE

In this era of world, web technology is pervading in every business owing to its inherent virtues, therefore an advanced course has been included in this category for student to have a great career in the field of Web designing and development using PHP(Hypertext Preprocessor)and MySQL. PHP scripting language with a MySQL back-end database offers an effective way to design sites. This course will

- Enable students to design websites that combines effective navigation with the use of graphics, text & colour
- Student will learn to create dynamic database-driven Web sites that allow users to access desired information regardless of different software configuration say browser type, speed etc.

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN COMPUTER SCIENCE AND ENGINEERING

Semester: Sixth	**Scheme: Jul. 09**
Course Code: 613	**Paper Code: 6383**
Name Of Course: Advanced Web Technology	
Common With Program (S):	

SCHEME OF STUDIES AND SPECIFICATION TABLE

Lectures: Hrs. 6 per week
Practical: Hrs. 2 per week

SCHEME OF STUDIES

S.No.	TOPICS	THEORY (HRS.)	PRACTICAL (HRS)	TOTAL (HRS)
1	INTRODUCTION	12	04	16
2	BASIC WORKING	24	08	32
3	MYSQL BASICS	30	10	40
4	PHP WITH MYSQL	24	08	32
	TOTAL	90	30	120

Semester: Sixth   **Scheme: Jul. 09**
Course Code: 613   **Paper Code: 6383**
Name Of Course: Advanced Web Technology
Common With Program (S):

COURSE CONTENT

Lectures: 6 Hrs. per week

S.No.	Course Content	Hours of study
1	**INTRODUCTION** History, Current and Future Versions of MySQl and PHP, How to Get MySQL, Installing MySQL on Windows, Trouble Shooting your Installation, Basic Security Guidelines, Building PHP on Windows with Apache, Windows, php.ini. Basics, The Basics of PHP scripts. The Building blocks of PHP: Variables, Data Types, Operators and Expressions, Constants. Flow Control Functions in PHP: Switching Flow, Loops, Code Blocks and Browser Output.	12
2	**BASIC WORKING** Working with Functions: What is function?, Calling functions, Defining Functions, Returning the values from User-Defined Functions, Variable Scope, Saving state between Function calls with the static statement, more about arguments. Working with Arrays: What are Arrays, Creating Arrays, Some Array-Related Functions. Working with Objects: Creating Objects, Object Instance Working with Strings, Dates and Time: Formatting strings with PHP, Investigating Strings with PHP, Manipulating Strings with PHP, Using Date and Time Functions in PHP. Working with Forms: Creating Forms, Accessing Form Input with User defined Arrays, Combining HTML and PHP code on a single Page, Using Hidden Fields to save state, Redirecting the user, Sending Mail on Form Submission, Working with File Uploads.	24

3	**MYSQL BASICS** Understanding the database design process: The Importance of Good Database Design, Types of Table Relationships, Understanding Normalization. Learning basic SQL Commands: Learning the MySQL Data types, Learning the Table Creation Syntax, Using Insert Command, Using SELECT Command, Using WHERE in your Queries, Selecting from Multiple Tables, Using the UPDATE command to modify records, Using the DELETE Command, Frequently used string functions in MySQL, Using Date and Time Functions in MySQL.	**30**
4	**PHP WITH MYSQL** Interacting with MySQL using PHP: MySQL Versus MySQLi Functions, Connecting to MySQL with PHP, Working with MySQL Data. Creating an Online Address Book: Planning and Creating Database Tables, Creating Menu, Creating Record Addition Mechanism, Viewing Records, Creating the Record Deletion Mechanism, Adding Sub-entities to a Record.	**24**
	TOTAL	**90**

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DIPLOMA IN COMPUTER SCIENCE AND ENGINEERING

Semester: Sixth   **Scheme: Jul. 09**

Course Code: 613   **Paper Code: 6383**

Name Of Course: Advanced Web Technology

Common With Program (S):

LIST OF EXPERIMENTS

Practical: 2 Hrs. per Week

S.NO.	TOPICS	Hours of Study
	- Write a program to print PHP information. - Create a web page HTML and execute a PHP file on submission of the HTML form and display the information using PHP. - Write a program to find the factorial of a number and display. - Write a program to implement the concept of if-else and while loop. - Write a program to show that array is received on server side during multiple options in SELECT. - Write a program to show the concept of cookie. - Write a program to redirect the browser. - Write a PHP script showing function call. - Write a program in PHP to create a file and write the data into it. - Create a database of an employee in MySql. - Write a program to connect to the database already created in MySql. - Write a program to read, write, update and delete the database using PHP.	30
	Total	**30**

Semester: Sixth   **Scheme: Jul. 09**

Course Code: 613   **Paper Code: 6383**

Name Of Course: Advanced Web Technology

Common With Program (S):

BOOKS RECOMMANDED

- Sams Teach Yourself PHP in 24 Hours, Third Edition
- Wrox, Beginning PHP, Apache, MySQL Web Development
- Web enabled commercial application development using HTML,DHTML, JavaScript, Perl CGI, Ivan Bayross, BPB.
- Learning PHP & MySQL: Step-by-Step Guide to Creating Database-Driven Web Sites by Michele Davis and Jon Phillips.
- Web Technologies by Godbole, Tata Mc Graw .
- Html: Css/ Javascript/ Dhtml (I Performance Series) by Steven E. Callihan
- Web programming Building Internet Applications, Chris Bates, Wiley

WEBPAGE RECOMMENDED

- http://www.w3schools.com/php/

Semester: Sixth   **Scheme: Jul. 09**

Course Code: 621   **Paper Code: 6384**

Name Of Course: Data Mining and Data Warehousing

Common With Program (S):

RATIONALE

The objective of the course is to make students aware of Data Mining and warehousing. This course will serve as a foundation for data mining application. The students are expected to learn the different data mining techniques. After completion of the course students will be able to:

- Understand Data Mining concepts.
- Use different data mining technique to extract the useful information.
- Use WEKA an attractive Data Mining Toll.

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DIPLOMA IN COMPUTER SCIENCE AND ENGINEERING

Semester: Sixth　　　　　　　　　　　　　　　**Scheme: Jul. 09**
Course Code: 621　　　　　　　　　　　　　**Paper Code: 6384**
Name Of Course: Data Mining and Data Warehousing
Common With Program (S):

Lectures: **5** Hrs. per week
Practical: **2** Hrs. per week

SCHEME OF STUDIES

Unit	Topic	Theory Hrs.	Practical Hrs.	Total Hrs.
I	**FUNDAMENTALS OF DATA MINING**	08	02	10
II	**DATA PROCESSING AND DATA WAREHOUSES**	12	04	16
III	**WEKA AN ATTRACTIVE DATA MINING TOOL**	10	08	18
IV	**ASSOCTIATION RULE MINING**	15	06	21
V	**THE CLUSTERING TASK**	15	04	19

VI	**THE ESTIMATION TASK**	07	04	11
VII	**MINING OF TIME SERIES**	08	02	10
	Total Hrs.	**75**	**30**	**105**

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DIPLOMA IN COMPUTER SCIENCE AND ENGINEERING

Semester: Sixth **Scheme: Jul. 09**

Course Code: 621 **Paper Code: 6384**

Name Of Course: Data Mining and Data Warehousing

Common With Program (S):

Content Details

S.No.	Course Content	Hours of Study
1.	**FUNDAMENALS OF DATA MINING** 1.1 Data mining 1.2 The history of the data mining 1.3 Data Mining strategies 1.4 Popular data mining techniques 1.5 Data mining applications 1.6 Challenges of data mining 1.7 The future of data mining	08
2.	**DATA PROCESSING AND DATA WAREHOUSING** 2.1 Data, information and knowledge 2.2 Types of data 2.3 Data warehouses 2.4 Data cleaning 2.5 Data de-normalization 2.6 Data transformation 2.7 Data quality measure 2.8 OLAP(Online Analytical Processing) 2.9 Data Sampling	12
3.	**WEKA AN ATTRACTIVE DATA MINING TOOL** 3.1 Introduction 3.2 Installing Weka 3.3 Weka data file format 3.4 Starting Weka	10

	3.5 Data Visualization	
	3.5 Data filtering	
	3.6 Selecting Attributes	
	3.7 Data Mining with Weka	

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DIPLOMA IN COMPUTER SCIENCE AND ENGINEERING

Semester: Sixth   **Scheme: Jul. 09**
Course Code: 621   **Paper Code: 6384**
Name Of Course: Data Mining and Data Warehousing
Common With Program (S):

S.No.	Course Content	Hours of Study
4.	**ASSOCTIATION RULE MINING**	15
	4.1 Transaction data	
	4.2 Concepts of association rules	
	4.3 Relevance of association rule mining	
	4.4 Functions of association rule mining	
	4.5 Improvement and share	
	4.6 The problem of large datasets	
	4.7 Apriority algorithm	
	4.8 Strengthens and weakness of Association Rule Mining	
	4.9 Application of Association Rule Mining	
5.	**THE CLUSTERING TASK**	15
	5.1 Introduction	
	5.2 Distance Measure	
	5.3 Types of clustering	
	5.4 Clustering through Weka: K-Means algorithms	
	5.5 Clustering Validation	
	5.6 Strengthens and weakness of Clustering algorithms	
	5.6 Applications of Clustering algorithms	
6.	**THE ESTIMATION TASK**	07
	6.1 Introduction	
	6.2 Scatter plots and correlation	
	6.3 Linear regression Models	
	6.4 Logistic regression	
	6.5 Regression analysis	
	6.6 Strengthens and weakness of estimation	
	6.7 Application of estimation	

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DIPLOMA IN COMPUTER SCIENCE AND ENGINEERING

Semester: Sixth   **Scheme: Jul. 09**
Course Code: 621   **Paper Code: 6384**
Name Of Course: Data Mining and Data Warehousing
Common With Program (S):

S.No.	Course Content	Hours of Study
7.	**MINING OF TIME SERIES** 7.1 Introduction 7.2 Fundamental of times series analysis 7.3 Time Series models 7.4 Regression Model 7.5 Periodic Model 7.6 Strengthens and weakness of times series analysis 7.7 Application of times series analysis	08

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DIPLOMA IN COMPUTER SCIENCE AND ENGINEERING

Semester: Sixth   **Scheme: Jul. 09**
Course Code: 621   **Paper Code: 6384**
Name Of Course: Data Mining and Data Warehousing
Common With Program (S):

PRACTICALS: - 2 Hrs. per week

S.No.	Practical	Hrs.
1	**Write a program for storing the transaction data (like item no. , price, date, quantity etc.) of shopping mall**	

	duration of one month and find out (A) The total amount (B) The day in which maximum transaction occur. (C) The item that are purchased maximum times (D) The item that are purchased minimum times	
2	Use of WEKA tool.	
3	Apply the association mining rule on problem no. 1	
4	Apply the clustering technique on problem no. 1	
	Total Hrs.	**30**

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DIPLOMA IN COMPUTER SCIENCE AND ENGINEERING

Semester: Sixth   Scheme: Jul. 09
Course Code: 621   Paper Code: 6384
Name Of Course: Data Mining and Data Warehousing
Common With Program (S):

RECOMMENDED BOOKS

1. Data Mining and Data Warehousing by **Bharat Bhushan Agarwal**

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DIPLOMA IN COMPUTER SCIENCE AND ENGINEERING

Semester: Sixth　　　　　　　　　　　　　　　　　　**Scheme: Jul. 09**
Course Code: 611　　　　　　　　　　　　　　　　　　**Paper Code: 6381**
Name Of Course: Dot Net Technology
Common With Program (S):

Rationale

This is technology subject; the prerequisite subject for this subject is knowledge of Fundamentals of Web Page Design. Creating dynamic web pages in a website is challenging task today. To fulfill this task, .NET platform is used. ASP.NET Technology is used to configure, build, debug, deploy and secure enterprise-wide applications including collecting end user data from the Internet, integrating multiple data sources, creating new Web Services, and integrating existing Web Services.

Semester: Sixth   **Scheme: Jul. 09**
Course Code: 611   **Paper Code: 6381**
Name Of Course: Dot Net Technology
Common With Program (S):

SCHEME OF STUDIES

Lectures: 6 Hrs. per week
Practical: 2 Hrs. per week

S.No.	TOPICS	THEORY (HRS.)	PRATICAL (HRS.)	TOTAL (HRS.)
1	**Introduction to .NET**	20	02	22
2	**ASP.Net Objects and components**	25	03	28
3	**ADO.Net**	25	10	35
4	**ASP Transactions and e-mail**	10	10	20
5	**Working with XML in ASP.NET**	10	05	15
	TOTAL	**90**	**30**	**120**

Semester: Sixth   **Scheme: Jul. 09**
Course Code: 611   **Paper Code:6381**
Name Of Course: Dot Net Technology
Common With Program (S):

Course Content

Lectures: 6 Hrs. per week

Sr. No.	Course Content	Hours of Study
1.	**Introduction to .NET** Introduction to Microsoft.Net Framework, Building blocks in .Net, Drawback of previous languages, Understand .Net, Common language runtime (CLR), Common type system (CTS), Difference between ASP and ASP. Net, Introduction to IIS, web application and it's usage, ASP.Net IDE Visual studio .Net, Creation of web forms, Using web form controls.	20
2.	**ASP.Net Objects and components** Response object, Server object, Application object, Session object, ASP.Net scope, state, view state, post back and configuration, Object Creation: Scripting, Drive, Folder, File, Use of object, Server Components: Ad Rotator, Content Linker, Browser Capabilities Use and Creation of global.asa file, Application object: Events, Methods and collections, Example, Session object: Enabling and disabling of session, Event, Properties, Method, Collection.	25
3	**ADO.Net** ADO.Net in ASP. Net: Connection, Dataset and data reader, Data table and data row, Web.config introduction, Binding data with data grid, Accessing and manipulating data, ADO .Net: Server control templates and data binding techniques, Data access in .Net using ADO.Net, Server control templates available for data binding like repeater, data list and data grid controls.	25
4	**ASP Transactions and e-mail** Transactions, Transaction db design, CDONTS object, Email sending web page creation	10

Sr. No.	Course Content	Hours of Study
5	**Working with XML in ASP.NET** Basics of XML, XML support in .NET, XML Validation Overview, XML Parsing API's in .NET, Parsing XML with the XmlTextReader, Parsing XML using DOM Objects, Generating XML with the XmlTextWriter, Introduction to XSLT, Transforming XML using. NET's XSLT classes, Viewing relational data as XML, Dataset XML Properties and Methods, Using the XmlDataDocument Class Syncing between DataSets and XmlDataDocuments.	10

Semester: Sixth   **Scheme: Jul. 09**

Course Code: 611   **Paper Code: 6381**

Name Of Course: Dot Net Technology

Common With Program (S):

Practical: 2 Hrs. per week

Sr. No.	List of Practicals	Hours of Study
1.	Design registration form of polytechnic college using text box, text area, radio list, check list, button etc. using Autopostback property.	
2.	Design 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 demonstrate enabling and disabling of session).	
3	Creation of file, entry, reading data from a file.	
4	Create following using components: (1) Advertisement (using Adrotator) (2) Book example (using Next function) (3) Find capabilities of browser (Browser object capabilities)	
5	Online application (student, employee, product, shoping mall) (a)Using dataset, datareader (b)Using datatable and datarow (use datagrid to display data) (c)Bind data to datagrid using properties/templates (d)Display details (student, employee, product, etc.) using data list (4 cols per line)	
6	Application to send email.	
7	Using the Xml Text Reader to Parse XML	
8	Creating XML Documents with the Xml Text Writer	
9	Examining the Web. config File	
	TOTAL	30

REFERENCES

1) G. Andrew Duthie Microsoft ASP.Net ,Step, Microsoft .Net
2) Programming with C# .NET by J.G. R. Sathiaseelan and N. Sasikaladevi ,PHI Learning
3) Stephen Walther, ASP.Net Unleashed, SAMS
4) Microsoft ASP.NET 4.0 Step by Step by Shepherd, PHI Learning
5) Jesse Liberty, Dan Hurwitz-Programming ASP.Net
6) Dave Mercer-ASP.Net,TMH

RATIONALE

In a network, the hosts most vulnerable to attack are those that provide services to users outside of the local area network, such as e-mail, web and DNS servers. Managing a network is impossible without proper tools and guidance. Today it is very basic need for every enterprise to maintain the network in a proper functioning. A network management system provides the collection of tools for network monitoring and control. Every organization want that his network with proper secure and having good performance.

The course will enable students to protect the host from the unauthorized access using antivirus, secrete communication and applying the security option.

This subject provides the basics of secrete communication and applying the security option, network management, fault management and configuration of the TCP/IP, DHCP and DNS. Student may able to design a small network and manage this network with effectively.

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN COMPUTER SCIENCE AND ENGINEERING

Semester: Sixth   **Scheme: Jul. 09**
Course Code: 612   **Paper Code: 6382**
Name Of Course: Network Security And Management
Common With Program (S):

Lectures: **6** Hrs. per week
Practical: **2** Hrs. per week

SCHEME OF STUDIES

Unit	Topic	Theory Hrs .	Practical Hrs .	Total Hrs.
I	**Introduction**	08	02	10
II	**Information System Security Management**	08	02	10
III	**Secrete Communication**	15	02	17
IV	**Network management overview**	15	02	17
V	**Network Services: Enterprise Level**	12	02	14
VI	**SNMP(Simple Network Management Protocol)**	12	10	22
VII	**Troubleshooting Tools and Strategies**	20	10	30
	Total Hrs.	**90**	**30**	**120**

Semester: Sixth   **Scheme: Jul. 09**
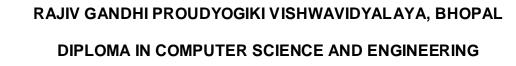**Course Code: 612**   **Paper Code: 6382**
Name Of Course: Network Security And Management
Common With Program (S):

COURSE CONTENT

Lectures: **6** Hrs. per week

Unit	Network security	Min. Hrs
1	**Introduction** 1.1 Security overview, Computer security, network security, Key principles of Network security-Confidently, Integrity, Availability. 1.2 Threats to security need of security, types of security, Security issues.	08
2	**Information System Security Management** 2.1 Security Polices, Security Awareness, security control - Physical Controls, Procedural Controls, Technical Controls and Legal and liability. 2.2 Identification and Authentication - Password, Biometrics, Single Sign On.	08
3	**Secrete Communication** 3.1 Introduction to secrete communication, Basics of Cryptography – Substitution cipher, Cryptographic primitives. 3.2 Encryption, Symmetric Encryption- Stream cipher, Block cipher, Sharing Keys. 3.3 Asymmetric Encryption- Using Certificate Authority, Digital signature, SSL (Secure Socket Layer), TLS (Transport Secure Layer), Hashing algorithms	15

Name Of Course: Network Security And Management

Common With Program (S):

Lectures: **6** Hrs. per week

Unit	Network security	Min. Hrs
4	**Network management**	15
	4.1 Definition need and advantages.	
	4.2 Windows NT Networking Architecture, Windows NT Operating System Design and Basics, Open Systems and Industry Standards,	
	4.3 Client/Server Computing, Interoperating with Other Networks, Remote Access Service-Point to point protocol,	
	4.4 Network Security and Domain Planning- Security Model Architecture, Controlling Access- User Accounts, User Rights.	
5	*Network Services*	12
	5.1 Enterprise Level- Installing and Configuring TCP/IP, Configuring TCP/IP Clients,	
	5.2 Dynamic IP Addressing Configuring DHCP, Accessing the DHCP Manager, Managing DHCP Scopes	
	5.3 Reserving IP addresses	
	5.4 Installing and Configuring WINS, Installing DNS Service	
6	**Simple Network Management Protocol (SNMP) for Network Management**-	12
	6.1 Overview of SNMP, SNMP Registry, Management Information Base, Object Identifiers,	
	6.2 SNMP Installation, Starting and Stopping the SNMP Service	
	6.3 Troubleshooting SNMP	

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Name Of Course: Network Security And Management

Common With Program (S):

7	**Troubleshooting Tools and Strategies**-	20
	7.1 Overview of TCP/IP Troubleshooting Tools, Identify the TCP/IP Configuration by Using IPConfig ,Test Connection to the TCP/IP Network by Using Ping, Understanding Address and Name Resolution Test IP - address-to- MAC-address Resolution by Using ARP 7.2 Understanding IP Routing for Windows NT - The Route Table, Display Current TCP/IP Connections and Statistics by Using Netstat, Using Performance Monitor,Troubleshooting Other Connection Problems – Error *53, Cannot Connect to a Specific Server ,Troubleshooting Telnet.*	

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Name Of Course: Network Security And Management
Common With Program (S):

List of Practical

S.No	Practical	Time (Hrs.)
1	Implement the password and identify the valid and invalid user.	
2	Implement the Substitution cipher method of cryptography	
3	Implement the Block cipher method of cryptography	

4	Implement the Hashing algorithms	
5	Installing and Configuring TCP/IP	
6	Configuring DHCP	
7	Installing DNS Service	
8	Installing Simple Network Management Protocol	
9	Identify the TCP/IP Configuration by Using IPConfig	
10	Test Connection to the TCP/IP Network by Using Ping	
	Total Hrs.	**30**

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DIPLOMA IN COMPUTER SCIENCE AND ENGINEERING

Semester: Sixth   **Scheme: Jul. 09**
Course Code: 612   **Paper Code: 6382**
Name Of Course: Network Security And Management
Common With Program (S):

RECOMMENDED BOOKS :-

1. Fundamentals of Network Security by John E. Canavan

2. Network Security Bible by Dr. Eric Cole, Dr. Ronald Krutz, and James W. Conley

3. Network Management: A Practical Perspective by Allan Leinwand and Karen Fang

4. Forouzan, TCP/IP Protocol Suite 4th edition, TMH

5. J.Richard Burkey, Network Management Concept and Practice, PHI

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DIPLOMA IN COMPUTER SCIENCE AND ENGINEERING

Semester: Sixth   **Scheme: Jul. 09**
Course Code: 605   **Paper Code:**
Name Of Course: PROFESSIONAL ACTIVITIES (PA).
Common With Program (S):

<div align="center">

RATIONALE

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   In this rapidly changing technological world, engineers and technicians are expected to adapt to different situations and perform multiple roles. Hence, it is expected that students must be given ample opportunities to develop multiple skills to excel in the present day circumstances. As engineers, it is vitally important to be able to present/communicate thoughts and ideas effectively using a variety of tools and medium.

Job requirement of technicians also demand, confident and well groomed personality. Also due to stress on quality and time bound activities in the world of work, time management is also equally important. In the industry, the students have to work independently as well as in a group, therefore, apart from their subject knowledge, they are called upon to work as leader of a group of workers, be a team member of a task group. They are also to lead and participate in group discussions, speak extempore on some current subject or technology, present a paper on some project, solve problems and some times even counsel people working with/under him/her. In the polytechnic our student stays for almost three years or so, apart from developing professional/technical skills in the students, the students are also required to develop certain generic skills for total personality development.

Hence, this course has been designed to develop the skills such as presentation skills, learning to learn skills, time management, and personality development in the technician pass outs.

This course is therefore of a special nature. These generic skills need to be developed in integration with the technical subjects throughout the three years duration.

ENABLING OBJECTIVES:
The students after completing the course will be able to –
1.1	Present them Self effectively verbally and in writing.
1.2	Develop learning to learn skills.
1.3	Develop study skills.
1.4	Search the information from different sources on the given topic.
1.5	Manage time effectively.
1.6	Learn the different techniques of yoga, meditation, exercises etc.
1.7	Develop the well groomed personality.

Scheme of Studies

Practicals: 2 Hrs Per Week

S.No.	Topics	Total Hrs
1.	**PRESENTATION SKILLS:**	
2.	**LEARNING TO LEARN SKILLS:**	
3.	**STUDY SKILLS :**	
4.	**INFORMATION SEARCH:**	
5.	**TIME MANAGEMENT:**	
6.	**PERSONALITY:**	
7.	**PERSONAL GROOMING:**	
	Total Hrs.	**30**

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN COMPUTER SCIENCE AND ENGINEERING

Semester: Sixth **Scheme: Jul. 09**
Course Code: 605 **Paper Code:**

Name Of Course: PROFESSIONAL ACTIVITIES (PA).
Common With Program (S):

Content Details

S.No.	Course Contents	Hrs of Study
1.	PRESENTATION SKILLS: **1.1 Oral Presentation :** • Need of effective oral presentation. • Characteristics of good oral presentation. • Ways of Oral Presentation (Seminar, Viva-voce, Interview, Group Discussion, Lecturing, Power Point Presentations etc.) • Gestures/Mannerism during oral presentation Media, methods used for effective oral presentation. • Assessment of oral presentation. 1.2 Written Presentation: • Need and characteristics of written presentation. • Ways of written presentation (Report writing, manual, handout, notes etc.). • Grammar, Punctuation, referencing paragraphing during written presentation.	
2.	LEARNING TO LEARN SKILLS: Need of Learning to Learn Skills. Type of Learning Skills (Learning face to face, Individualized learning, Distance learning, Self-Learning). Developing Learning to Learn Skills.	
3.	**STUDY SKILLS :** Methods of Good Study Habits Note Taking Developing Reading Skills.	
4.	**INFORMATION SEARCH :** 4.1 Objectives of information search. 4.2 Ways of information search (Internet surfing,	

	Library search, Abstracts, Journals, books etc.) 4.3 Assimilation and presentation of information.		
5.	**TIME MANAGEMENT :** 5.1 Principles of Time Management. 5.2 Time Management matrix. 5.3 Criteria governing Time Management. 5.4 Possible time waster		
6.	**PERSONALITY :** 6.1 Concept and meaning of personality. 6.2 Characteristics of good personality. 6.3 Factors influencing personality. 6.4 Types of personality. 6.5 Need for desirable personality for success. 6.6 Qualities of complete personality.		
7.	PERSONAL GROOMING: 7.1 Posture and Health. 7.2 Types and importance of posture. 7.3 Importance of yoga and meditation. 7.4 Factors affecting good health-diet, exercise personal cleanliness, sleep and rest. 7.5 Use of cosmetics. 7.6 Dress Code 7.7 Physical Fitness and Inner Strength.		

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DIPLOMA IN COMPUTER SCIENCE AND ENGINEERING

Semester: Sixth   **Scheme: Jul. 09**
Course Code: 605   **Paper Code:**
Name Of Course: PROFESSIONAL ACTIVITIES (PA).
Common With Program (S):

A) SUGGESTED IMPLEMENTATION STRATEGIES :
     1.   Students should be made to listen to effective presentations of experts, comprehend that and then summarise that orally and in writing. Feedback should be given immediately after each task.

2. Also they should be given certain task/assignment on which they need to collect new information in specified time.
3. Students should be able to take decision that the particular information can be gathered from such and such sources and should be able to present that confidently in verbally or in writing.

In this particular subject only practical hours are allotted, but, it may be essential to take up certain inputs followed by assignments this may include expert lectures, group discussion, plenary session etc.

B) SUGGESTED LIST OF EXPERIENCES/TUTORIALS :
1. Seminar Presentation on Specific topic for fixed time duration.
2. Information Collection on a particular topic followed by presentation in specified time duration.
3. Visit to multinational outlet for observing personality traits of officials and preparing detailed report.
4. Demonstration exercise by personality experts.
5. Arranging expert lecturers of well known personality like Shiv Khera etc.
6. Selected Book Review.

C) EVALUATION :
Following grade scale of evaluation of performance in PA has been established.

Grades	Level of performance
A	Excellent
B	Good
C	Fair
D	Average
E	Below Expectations

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DIPLOMA IN COMPUTER SCIENCE AND ENGINEERING

Semester: Sixth   **Scheme: Jul. 09**
Course Code: 605   **Paper Code:**
Name Of Course: PROFESSIONAL ACTIVITIES (PA).
Common With Program (S):

Reference Books

S. NO.	TITLE	AUTHOR, PUBLISHER, EDITION & YEAR	ISBN NUMBER
1	How to achieve success and happiness	Sultan Chand and Sons ,New Delhi	
2	How to develop effective	Dr Mittal and Agarwal CS	

	personality		
3	The Art of Public Speaking	Stephen E Lucas	
4	Public Speaking and Influencing Business	Dale Carnegie	

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DIPLOMA IN COMPUTER SCIENCE AND ENGINEERING

Semester: Sixth   **Scheme: Jul. 09**
Course Code: 604   **Paper Code:**
Name Of Course: Project
Common With Program (S):

RATIONALE

The objective of the course Project is

- **To provide students with a comprehensive experience for applying the knowledge gained so far by studying various courses.**

- **To develop an inquiring aptitude and build confidence among students by working on solutions of small industrial problems.**

- **To give students an opportunity to do something creative and to assimilate real life work situation in institution.**

- **To adapt students for latest developments and to handle independently new situations.**

- **To develop good expressions power and presentation abilities in students.**

The search for project work starts from the earlier semester itself when the students are sent for industrial training. This gives the students an occasion to observe the work on real life projects and select some application area in which he/she will be undertaking project. External guide from industry can also be selected for project work along with an internal guide to prepare innovative and real projects. Students also have the flexibility of extending the minor project work into Major project, if the area has a scope for that.

The Project guide is to orient the student's in-groups on the following objectives:

- **Provide general guidelines regarding execution of work.**

- **Impart instructions regarding write-up work and preparation of project documents.**

- **Sharing and solving common problems associated with execution of project work.**

- **Monitor and evaluate the progress of project work.**

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DIPLOMA IN COMPUTER SCIENCE AND ENGINEERING

Semester: Sixth   Scheme: Jul. 09
Course Code: 604   Paper Code:
Name Of Course: Project
Common With Program (S):
                                        COURSE GUIDELINES
Practical: **12** Hrs. per week

S. No.	Detailed Course Guidelines	STUDY HRS.

| 1 | **Project Guidelines**: The focus of the Project is on preparing a working system (e.g. software system/Interface, hardware/software interface design etc.), using system analysis tools and design techniques and submit it in the form of a write-up i.e. detail project report. The student should select some real life problems for their project and maintain proper documentation of different stages of project such as requirement specification, objectives, work plan, analysis, design, implementation and test plan. Each student is required to prepare a project report and present the same at the final examination with a demonstration of the system.

The faculty and student should work according to following schedule:

i) Each student undertakes substantial and individual project in an approved area of the subject and supervised by a member of staff.

ii) The student must submit outline and action plan for the project execution (time schedule) and the same be approved by the concerned faculty.

iii) The project development must be carried out according to following steps and final write-up should have the same sequence.

  ➢ Project objectives.
  ➢ Requirement gathering.
  ➢ Modelling of project should be done in any well-known modelling tools like Flow Chart, DFD, UML, E-R etc. | |

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

DIPLOMA IN COMPUTER SCIENCE AND ENGINEERING

Semester: Sixth   **Scheme: Jul. 09**

Course Code: 604   **Paper Code:**

Name Of Course: Project

Common With Program (S):

COURSE GUIDELINES

Practical: **12** Hrs. per week

S. No	Detailed Course Guidelines	STUDY HRS.

- ➤ Analysis of project.
- ➤ Design of project.
- ➤ Implementation of project.
- ➤ Testing of project.
- ➤ Quality consideration of software/interface.
- ➤ Designing a small user manual.
- ➤ System requirement for designed software/interface.
- ➤ Estimating the cost of the project.
- ➤ Future scope and suggestions.

iii) The above project should be implemented by using Languages, Visual tools, Graphic tools, DBMS, AI systems, Web Design supporting packages and tools etc.

iv) Suggested areas of project

- ➤ Web Technology based applications
- ➤ Database management systems
- ➤ Communication and Network
- ➤ Graphic based application
- ➤ System software
- ➤ Automation
- ➤ Embedded systems
- ➤ Data acquisition systems
- ➤ AI based systems
- ➤ Control systems etc.
- ➤ Net Working

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DIPLOMA IN COMPUTER SCIENCE AND ENGINEERING

Semester: Sixth   **Scheme: Jul. 09**
Course Code: 604   **Paper Code:**
Name Of Course: Project
Common With Program (S):

COURSE GUIDELINES

Practical: **12** Hrs. per week

ACTION PLAN FOR PROJECT WORK (SUGGESTIVE):

- Orientation of students by HOD/Project supervisor

- Literature survey and resource collection

- Selection and finalization of topic before a committee*

- Detailing and preparation of project

  (Modeling, Analysis and Design of

  Project work)

- Development stage

- Testing, improvements, quality control of project

- Acceptance testing

- Report writing

Presentation before a committee (including user manual)

*Committee comprises of HOD, all project supervisors including external guide from industry (if any).

NOTE: Marks for continuous evaluation (i.e. Lab work) to be awarded after II seminar.