Structure for M.Sc. IT – CBCS Programme

Semester-I

COURSE	COURSE TYPE	SUBJECT	CREDIT
M.Sc.IT 101	CORE	Enterprise Data Management & ERP	06
M.Sc.IT 102	CORE	Advance Java Programming	06
M.Sc.IT 103	CORE	Web Technology Tools	06
M.Sc.IT 104	CORE	Practical Based On 102 and 103	12
		TOTAL	30

M.Sc IT **Course: Enterprise Data Management & ERP** Course No: M.Sc IT-101
Semester: 01 Type of Course : Core Course
Marking Scheme: External Examination: 70 + Internal Evaluation: 30 = 100
Credits: 06 Teaching Hours Per Week: 06

Unit	Detailed Syllabus	Teaching Hours	Marks/ Weight
Unit-1	**Introduction to ERP**	**23**	**18**
	• Enterprise: introduction, business modeling, integrated data model, integrated management information. • Enterprise Resource Planning (ERP): introduction, history, Basic concept of ERP. Risks (All type of risks in brief).		
Unit-2	**ERP & Related Technologies**	**23**	**18**
	• Benefits of ERP, Business Process Reengineering (BPR). • Data Warehousing, Data Mining and Online Analytical Processing (OLAP). • Product Life Cycle Management (PLM). • Supply Chain Management (SCM). • Customer Relationship Management (CRM).		
Unit-3	**ERP Manufacturing Perspective**	**22**	**17**
	• MRP- Material Requirement Planning. • BOM- Bill Of Material. • MRP – Manufacturing Resource Planning. • DRP- Distributed Requirement Planning. • PDM- Product Data Management. • ERP Products and Modules • Introduction to ERP Products and modules • Finance, Plant Maintenance, Quality Management, Materials Management.		
Unit-4	**ERP- Selection, Implementation, Maintenance & Evaluation**	**22**	**17**
	• ERP Package Selection ,ERP Implementation life Cycle • Introduction, Objective, Phase of implementation. • Why do ERP implementation Fail? • Operation of the ERP system. • ERP Maintenance Phase. • Measuring performance of ERP. • Functional modules of ERP software.		

INTERNAL:
Test=15 Marks, Assignment/Presentation=10 Marks, Seminar/Attendance=05 Marks

Reference Books

1. Enterprise Resource Planning – Alexis Leion - McGraw Hill Education (India)
2. Enterprise Resource Planning : Concepts & Practice – Garg, Vinodkumar, Venkitakrashnan – PHI Learning (Eastern Economy Edition)

M.Sc IT **Course: Advanced Java Programming** Course No: M.Sc IT-102
Semester: 01 Type of Course : Core Course
Marking Scheme: External Examination: 70 + Internal Evaluation: 30 = 100
Credits: 06 Teaching Hours Per Week: 06

Unit	Detailed Syllabus	Teaching Hours	Marks/ Weight
Unit-1	**Active Window Toolkit**	**23**	**18**
	• Fundamental of Window ,Frame Windows • Frame Window in AWT • Graphics, color, Font Metrics • Controls – Labels, Button, Check Box, Scroll bar, Text area and TextField		
Unit-2	**Multithreading and Applet Programming**	**23**	**18**
	• Threading-Main Thread, Creation, isAlive(),join(),sleep(),Synchronization • Life cycle of Applet , Passing Parameters to Applet • Event Delegation Model or Technique • Event Classes		
Unit-3	**Swing And Its Components**	**22**	**17**
	• Introduction, Features of Swing • Difference between AWT and Swing • JApplet • JFrame and JPanel • Layout Managers: FlowLayout, SpringLayout, BoxLayout • JLabel, JButton, JTextField • JCheckBox, JRadioButton • JComboBox, JList • JMenu, JDialog		
Unit-4	**JDBC Connectivity using MS-Access**	**22**	**17**
	• JDBC Architecture • Steps Of Database Connectivity and Database operation: insert,update,delete • Statement and ResultSet object • Display Records using JTable component		

INTERNAL:
Test=15 Marks, Assignment/Presentation=10 Marks, Seminar/Attendance=05 Marks

Reference Books

1. The Complete Reference Java By Herbert Schildt Publisher: TMH
2. Programming in Java By Sachin Malhotra & Saurabh Choudhary Publisher:OXFORD University Press
3. PROGRAMMING WITH JAVA A PRIMER By E-Balaguruswami

M.Sc IT **Course: Web Technology & Tools** Course No: M.Sc IT-103
Semester: 01 Type of Course : Core Course
Marking Scheme: External Examination: 70 + Internal Evaluation: 30 = 100
Credits: 06 Teaching Hours Per Week: 06

Unit	Detailed Syllabus	Teaching Hours	Marks/ Weight
Unit-1	**Basics of CSS**	**23**	**18**
	• What is CSS?, Advantages of CSS, CSS Structure and Syntax. • Types of CSS: Internal, External, Inline. • CSS Color, Background and Border. • CSS Margin, Padding , height and Width. • CSS Text, Fonts. CSS Icons and Links. • CSS List and Tables. • CSS Pseudo class and CSS Pseudo Elements.		
Unit-2	**Introduction to JQuery**	**23**	**18**
	• What is Jqury?, Use of Jquery in Web Designing, Adding Jquery in your page. • Jquery Syntax, Events in Jquery • JQuery Functions:hide(), show(), toggle(),fadeIn(), fadeOut(), fadeToggle(), fadeTo(). • JQuery Sliding Method: slideDown(), slideUp(), slideToggle(),animate(), Stop(). • Add Element, Remove Element, Add Class and Remove Class.		
Unit-3	**Introduction to Boostrap**	**22**	**17**
	• What is Boostrap, History of Boostrap, Benefits of Boostrap, how to add Boostrap in to the page. • Boostrap properties for Text/Typography • <h1>…<h6>, <small>, <mark>, <kbd>, <code>,<dl>, <abbr> • Boostrap for Table , Boostrap for Image • Boostrap for Alerts,		
Unit-4	**Bootstrap 2**	**22**	**17**
	• Boostrap Buttons, Boostrap Buttons Group. • Boostrap Glyphicons, Boostrap Progress bar. • Boostrap Pagination, Pager. • Boostrap Form.		

INTERNAL:
Test=15 Marks, Assignment/Presentation=10 Marks, Seminar/Attendance=05 Marks

Reference Books

1. Mastering HTML, CSS & JavaScript Web Publishing by Laura, Rafe & Jennifer, BPB Publication
2. Bootstrap – by Jake Spurlock, O'Reilly Publication
3. www.w3schools.com

M.Sc IT	**Course: Practical Based on 102 and 103**		Course No: M.Sc IT-104
Semester: 01	Type of Course : Core Course		
Marking Scheme: External Examination: 100 + Internal Evaluation : 0 =100			
Credits: 12		Teaching Hours Per Week: 12	
	Detailed Syllabus	**Teaching Hours**	**Marks/ Weight**
1	**Paper 102:Advance Java Programming**	**90**	**50**
2	**Paper 103: Web Technology & Tools**	**90**	**50**

Structure for M.Sc. IT – CBCS Programme

Semester-II

COURSE	COURSE TYPE	SUBJECT	CREDIT
M.Sc.IT 201	CORE	Web Application Development Using PHP	06
M.Sc.IT 202	CORE	Mobile Application Development Using Android	06
M.Sc.IT 203	CORE	Linux Operating System And Shell	06
M.Sc.IT 204	CORE	Practical Based On 201, 202 and 203	12
		TOTAL	30

M.Sc IT **Course: Web Application Development Using PHP** Course No: M.Sc IT-201
Semester: 02 Type of Course : Core Course
Marking Scheme: External Examination: 70 + Internal Evaluation: 30 = 100
Credits: 06 Teaching Hours Per Week: 06

Unit	Detailed Syllabus	Teaching Hours	Marks/ Weight
Unit-1	Introduction	**23**	**18**
	• Fundamental of APACHE Server. • Concept of Wamp & Xampp Server. • History & Versions of PHP • Features of PHP • Introduction to PHP And PHP Programming. • PHP Variables • Operators in PHP • Conditional Statements & looping Statements in PHP • Array , Types of Array • Functions – UDF and Built in Functions.		
Unit-2	Introduction to Java Script	**23**	**18**
	• Variable and Data Type Types of Operators Conditional Statements, looping Statements • Array, Functions ,Events ,Message Box ,Objects Based Programming • Validation of form using JavaScript ,Different types of effects in designing using JavaScript		
Unit-3	Form Handling	**22**	**17**
	• Handling form with GET & POST, Cookies, Session, Server variable • Regular Expressions in PHP, Functions used in Regular Expressions, Symbols used in Regular Expressions • Exception Handling • Object Oriented concept in PHP		
Unit-4	**Interaction between PHP & MySQL**	**22**	**17**
	• PHP-MySQL Architecture • PHP API • Creating & Connecting Database using Wamp Server • Executing DML Commands. • Overview of CMS-WordPress		

INTERNAL:
Test=15 Marks, Assignment/Presentation=10 Marks, Seminar/Attendance=05 Marks

Reference Books

1. Ivan Bayross,Sharanam Shah:PHP 5.1 For Beginners,Sh off Publishers & Distributors(SPD)
2. Janet Valade: PHP5 & MYSQL Projects,Wiley Dreamtech
3. Dave W. Mercer: Beginning PHP5,Wiley India Edition
4. Steven Holzer:The Complete Reference PHP,Tata McGRAW-HiLL,New Delhi.

M.Sc IT **Course: Mobile Application Development Using Android** Course No: M.Sc IT-202
Semester: 02 Type of Course : Core Course
Marking Scheme: External Examination: 70 + Internal Evaluation: 30 = 100
Credits: 06 Teaching Hours Per Week: 06

Unit	Detailed Syllabus	Teaching Hours	Marks/ Weight
Unit-1	**Introduction to Android**	**23**	**18**
	• History of Mobile Software Development • The Android Platform and Android SDK • Anatomy of an Android applications • Android terminologies		
Unit-2	**Android User Interface And Design Essential**	**23**	**18**
	•Application Context, Activities, Services, Intents •Component of Android Manifest File and Application Resources • Receiving and Broadcasting Intents Configuring android manifest file, registering activities and other application components, working with permissions, working with resources. •Introducing android views and layouts, displaying text with Text-view, •Retrieving data from users, using buttons, check boxes and radio groups, • Getting dates and times from users, using list view to display data to Users, adjusting progress with Seek bar, handling user events, working with dialogs, working with styles and themes.		
Unit-3	**Animation and Content Provider**	**22**	**17**
	•Introduction of animations and types in Android. •Drawing and Working with Animation •Working with bitmaps •Sharing Data Between Applications with Content Providers		
Unit-4	**Using Common Android APIs**	**22**	**17**
	•Managing data using SQLite •Using Android Networking APIs •Using Android Web APIs using web view •Using Android Telephony APIs using SMS, making and receiving phone calls		

INTERNAL:
Test=15 Marks, Assignment/Presentation=10 Marks, Seminar/Attendance=05 Marks

Reference Books

1. Android Wireless Application Development By Lauren Darcey and Shane Conder, Pearson Education, 2nd ed. (2011)
2. Beginning Android Application Development By Wei-Meng Lee, Wrox Publication
3. Mark L Murphy, "Beginning Android", Wiley India Pvt Ltd(2009)

M.Sc IT **Course: Linux Operating system and Shell Programming** Course No: M.Sc IT-203
Semester: 02 Type of Course : Core Course
Marking Scheme: External Examination: 70 + Internal Evaluation: 30 = 100
Credits: 06 Teaching Hours Per Week: 06

Unit	Detailed Syllabus	Teaching Hours	Marks/ Weight
Unit-1	**Introduction**	**23**	**18**
	• History of Unix Operating System Definition of Kernel, Shell, File, Process, System Calls. • Linux Operating System, Features of Unix and Linux Operating System, • Concept of Open source software, Application area of Linux Operating System • Various Linux Flavors • Desktop Environment : (a) X Window Basics (b) KDE Basics (c) GNOME Basics • Terms and condition of Copying, Distribution, and Modifications (Linux & GNU) • Advantages and Disadvantages of Linux		
Unit-2	**File Structure and Linux Shells , Bash Shell Programming**	**23**	**18**
	• Understanding File system hierarchy standard. • Directory Commands, File and Directory commands: • Understanding Job (process). • Process Commands , User commands, Misc Commands • Introduction to Vi Editors, Introduction to Shell : Korn, Bash, and C Shell with their difference • Variables in shell, how to print or access values in shell, echo command.,Shell arithmetic, commands and command line arguments, I/O redirection • Structured language construct: if, else, else – if, case statement, loops in shell, • Arrays, Command line argument.		
Unit-3	**User Management**	**22**	**17**
	• GUI user management tools: User admin and KUser • Password file, Managing user environment • Adding and removing users with useradd, usermod and userdel • Managing groups, Controlling access to directories and file using chmod		
Unit-4	**Networking concepts & Server configuration**	**22**	**17**
	• Basics of network system, Basics of TCP/IP Networking, IP address, IP address • class and mask, port number, DNS, NFS server configuration • Telnet and FTP server fundamentals • Basics of Samba server: Installation and configuration		

INTERNAL: **Test=15 Marks, Assignment/Presentation=10 Marks, Seminar/Attendance=05 Marks**
Reference Books 1. Richard Petersen: The complete reference – 6th edition – McGraw Hill 2. Sumitabha Das: Concepts and Application of UNIX 4th edition – Tata McGraw Hill 3. Peter Nortons's: Complete Guide to Linux, Techmedia 4. Yashwant Kanitkar: Unix Shell Programing, BPB Publication

M.Sc IT **Course: Practical Based on 201, 202 and 203** Course No: M.Sc IT-204
Semester: 02 Type of Course : Core Course
Marking Scheme: External Examination: 100 + Internal Examination : 0 = 100
Credits: 12 Teaching Hours Per Week: 12

	Detailed Syllabus	**Teaching Hours**	**Marks/ Weight**
1	Paper 201: Web Application Development Using PHP	**60**	**40**
2	Paper 202: Mobile Application Development Using Android	**60**	**30**
3	Paper 203: Linux Operating system and Shell Programming	**60**	**30**

Structure for M.Sc. IT – CBCS Programme

Semester-III

COURSE	COURSE TYPE	SUBJECT	CREDIT
M.Sc.IT 301	CORE	Data Warehousing and Data Mining	06
M.Sc.IT 302	CORE	Programming in Python	06
M.Sc.IT 303	CORE	NoSQL Database : MongoDB	06
M.Sc.IT 304	CORE	Practical Based On 302 and 303	12
		TOTAL	30

M.Sc IT **Course: Data Warehousing and Data Mining** Course No: M.Sc IT-301
Semester: 03 Type of Course : Core Course
Marking Scheme: External Examination: 70 + Internal Examination: 30 = 100
Credits: 06 Teaching Hours Per Week: 06

Unit	Detailed Syllabus	Teaching Hours	Marks/ Weight
Unit-1	**INTRODUCTION OF DATAWAREHOUSE AND DATA MART**	**23**	**18**
	• Operational and Informational systems. • Concept of Data warehouse ,Characteristics of Data Warehouse • DBMS vs. data warehouse • Data warehouse system architecture (Two and Three-Tiered) • Concept of Data Mart , Usage of Data Mart • Security in Data Mart • Data warehouse and Data Mart		
Unit-2	**ONLINE ANALYTYCAL PROCESSING**	**23**	**18**
	• OLTP AND OLAP SYSTEM • OLTP VS OLAP • TYPES OF OLAP: ROLAP, MOLAP,HOLAP • Comparison of ROLAP,MOLAP,HOLAP		
Unit-3	**ETL and Data Mining**	**22**	**17**
	• Concept of ETL(Extracton,Transformation and Loading of Data) • Comparison and contradiction of various ETL tools • Data Mining-Definition and Functionalities • Classification of DM Systems • DM task primitives • Integration of a Data Mining system with a Database or a Data Warehouse • Issues in DM • KDD Process		
Unit-4	**Data Mining Techniques and Advance Data Mining**	**22**	**17**
	• Data Mining techniques • Data Processing (Data Cleaning, Integration and Transformation, Reduction) • Data mining Primitives and DMQL • Designing GUI based on a DMQL • Architecture of Data Mining System • Mining Text Data,Mining Spatial Databases,Mining WWW • Mining sequence Data: Time-Series, Symbolic Sequences, and Biological Sequences • Mining graphs and Network • Data Mining application and trends		

INTERNAL:
Test=15 Marks, Assignment/Presentation=10 Marks, Seminar/Attendance=05 Marks

Reference Books

1. Data Mining – Concepts & Techniques; Jiawei Han & Micheline Kamber – First Indian Reprint 2002, Morgan Kaufmann publication.
2. Data Warehousing in the Real World; Sam Anahory & Dennis Murray; 1997, Pearson
3. Data Mining Techniques; Arun Pujar; 2001, University Press; Hyderbad.
4. Data Mining; Pieter Adriaans & Dolf Zantinge; 1997, Pearson
5. Data Warehousing, Data Miniing and OLTP; Alex Berson, 1997, McGraw Hill.
6. Data warehousing System; Mallach; 2000, McGraw

M.Sc IT **Course: Programming in Python** Course No: M.Sc IT-302
Semester: 03 Type of Course : Core Course
Marking Scheme: External Examination: 70 + Internal Examination: 30 = 100
Credits: 06 Teaching Hours Per Week: 06

Unit	Detailed Syllabus	Teaching Hours	Marks/ Weight
Unit-1	**Introduction**	**23**	**18**
	• The Process of Computational Problem Solving, Python Programming Language • Python Data Types: Expressions, Variables and Assignments, Strings, List, Objects and Classes, Python Standard Library. • Imperative Programming: Python programs, Execution Control Structures, User-Defined Functions, Python Variables and Assignments, Parameter Passing.		
Unit-2	**Text Files**	**23**	**18**
	• Strings, Formatted Output. • Files, Errors and Exception Handling. • Execution and Control Structures: if Statement, for Loop, Two Dimensional Lists, while Loop, More Loop Patterns, Additional Iteration Control Statements. • Containers and Randomness: Dictionaries, Other Built-in Container Types, Character Encoding and Strings, Module random, Set Data Type.		
Unit-3	**Object Oriented Programming, Objects and Their Use**	**22**	**17**
	• Fundamental Concepts, Defining a New Python Class • User-Defined Classes, Designing New Container Classes Overloaded Operators, Inheritance, User-Defined Exceptions. • Namespaces: Encapsulation in Functions, Global versus Local Namespaces, Exception Control Flow, Modules and Namespaces. • Software Objects, Turtle Graphics. • Modular Design: Modules, Top-Down Design, Python Modules.		
Unit-4	**Python GUI Programming (Tkinter)**	**22**	**17**
	• Recursion: Introduction to Recursion, Examples of Recursion. • Run Time Analysis, Searching, Iteration Vs Recursion, Recursive Problem Solving, Functional Language Approach. • Graphical User Interfaces: Basics of tkinter GUI Development. Event-Based tkinter Widgets, Designing GUIs, OOP for GUI. • The Web and Search: The World Wide Web, Python WWW API. • String Pattern Matching, Database Programming in Python.		

INTERNAL:
Test=15 Marks, Assignment/Presentation=10 Marks, Seminar/Attendance=05 Marks

Reference Books

1. John V Guttag. "Introduction to Computation and Programming Using Python", Prentice Hall of India
2. Ljubomir Perkovic, "Introduction to Computing Using Python: An Application Development Focus", Wiley, 2012.
3. Charles Dierbach, "Introduction to Computer Science Using Python: A Computational Problem-Solving Focus", Wiley, 2013

M.Sc IT **Course: NoSQL Database:MongoDB** Course No: M.Sc IT-303
Semester: 03 Type of Course : Core Course
Marking Scheme: External Examination: 70 + Internal Examination: 30 = 100
Credits: 06 Teaching Hours Per Week: 06

Unit	Detailed Syllabus	Teaching Hours	Marks/ Weight
Unit-1	**NoSQL Database**	**23**	**18**
	• Concept of NoSQL Database. • History of NoSQL Database • Benefits of NoSQL Database • Types of Nosql Database:CouchDB,MongoDB,Cassandra,Hbase • NoSQL V/S SQL Database • Uses of NoSQL in Industry		
Unit-2	**MongoDB Basic-I**	**23**	**18**
	• Introduction of MongoDB. • Data Modeling in MongoDB • Basic terms :Database,Collection,Document. • MongoDB Datatypes • Create and Drop Database • Create and drop collection • Insert,Update and delete Document • Querying Document • MongoDB v/s RDBMS		
Unit-3	**Advance MongoDB and MongoDB Connectivity Using PHP**	**22**	**17**
	• Projection,Limiting ,Sorting Records • Indexing,Aggregation. • Concept of GridFS • Storing files in GridFS • Serving files from GridFS • Reading files in chunks •Connect and Select Database. •Create Collection •Insert Document •Find Document •Update Document • Delete Document		
Unit-4	**Database Management**	**22**	**17**
	• Database Administration • Security and authentication::Authentication Basic,How Authentication works • Replication and Sharding • Backup and Restore Database • Deployment		

INTERNAL: **Test=15 Marks, Assignment/Presentation=10 Marks, Seminar/Attendance=05 Marks**
Reference Books 1. MongoDB the definitive guide - O'Reilly Kristina Chodorow & Michal Dirolf 2. MongoDB in Action - Kyle Banker Manning Sheltar Island. 3. The definitive guide to MongoDB - NoSQL Database for cloud and desktop computing. - 4. Apress - Eelco Plugge, Peter membrey and Tim Hawkins **5.** PHP and MongoDB Web Development Beginers guide - Rubayeet Islam - Open Source

M.Sc IT **Course: Practical Based on 302 and 303** Course No: M.Sc IT-304
Semester: 03 Type of Course : Core Course
Marking Scheme: External Examination: 100 + Internal Examination: 0 = 100
Credits: 12 Teaching Hours Per Week: 12

	Detailed Syllabus	Teaching Hours	Marks/ Weight
1	**Paper 302: Programming in Python**	**90**	**50**
2	**Paper 303: NoSQL Database:MongoDB**	**90**	**50**

Structure for M.Sc. IT – CBCS Programme

Semester-IV

COURSE	COURSE TYPE	SUBJECT	CREDIT
M.Sc.IT 401	CORE	Cryptography And Network Security	06
M.Sc.IT 402	CORE	Artificial Intelligence	06
M.Sc.IT 403	CORE	Project	18
		TOTAL	30

M.Sc IT Course: Cryptography and Network Security Course No: M.Sc IT-401
Semester: 04 Type of Course : Core Course
Marking Scheme: External Examination: 70 + Internal Evaluation: 30 = 100
Credits: 06 Teaching Hours Per Week: 06

Unit	Detailed Syllabus	Teaching Hours	Marks/ Weight
Unit-1	**Introduction to encryption techniques**	**23**	**18**
	• Concept of Encryption and decryption, importance of encryption • Basic types of encryption – one-time pad, end-to end and link encryption, • advantages and disadvantages of all methods of encryption • Symmetric cipher model – Cryptography, cryptanalysis • Cryptographic keys –Private key and public key		
Unit-2	**Network Security Fundamental**	**23**	**18**
	• Concept of Security based on Network, OSI Security Architecture – • Security Attack, Security Mechanism and Security service • Types of Security Attacks – Active and Passive Attacks • Security Services - Authentication, Access Control, Data • Confidentiality and Data integrity • Security Mechanism –Specific Security mechanism		
Unit-3	**E-Mail, IP Security**	**22**	**17**
	• S/MIME. • Benefits of IP Security • IP Security Architecture • IP security Services • Application of IP Security.		
Unit-4	**Network Device Security, Firewall & Wireless Network**	**22**	**17**
	• Switch,Bridge, Router • Network Hardening • Administrative Practices • Centralizing Account Management • Introduction to firewall • Additional Firewall Function • Introduction to Virtual Private Network • VPN Protocol • Introduction to Wireless Network Security		

INTERNAL:
Test=15 Marks, Assignment/Presentation=10 Marks, Seminar/Attendance=05 Marks

Reference Books

1.Cryptography and Network Security, - William Stallings Person – Printice Hall Publication

M.Sc IT **Course: Artificial Intelligence** Course No: M.Sc IT-402
Semester: 04 Type of Course : Core Course
Marking Scheme: External Examination: 70 + Internal Evaluation: 30 = 100
Credits: 06 Teaching Hours Per Week: 06

Unit	Detailed Syllabus	Teaching Hours	Marks/ Weight
Unit-1	Introduction and **Symbolic Logic**	**23**	**18**
	• Introduction • History Of AI and Application Of AI • Objective of AI and Future Of AI • Introduction of Logic and Propositions • Normal Form in Propositional Logic • Logic Consequence and Resolution Principle • Predicate Calculus, WFF, Clausal Form (CNF, DNF, PNF) • Rules of inference • Unification and Resolution		
Unit-2	**Knowledge Acquisition and representation**	**23**	**18**
	• Introduction • Machine intelligence • Knowledge Engineering • Knowledge Acquisition and Representation • Logical ,Procedural, Network and Structured Representation Scheme		
Unit-3	**Searching Techniques**	**22**	**17**
	• Introduction • Problem Representation, Definitions, Representation Scheme • Problem solving using AI • Blind search Technique (BFS,UCS,DFS,DLS,IDS) • Heuristic Search Technique (Greedy Search, Hill Climbing Search, A* Search, Admissible Heuristics, The 8-Puzzle Problem, Brach and Bound) • Game Search (MINMAX Procedure, ALPHA-BETA Procedure)		
Unit-4	**Expert System**	**22**	**17**
	• Introduction (Definition , public Knowledge, Private Knowledge) • History of ES • Skill Versus Knowledge • Basic Characteristics of ES • Knowledge Engineering • Inferencing		

INTERNAL:
Test=15 Marks, Assignment/Presentation=10 Marks, Seminar/Attendance=05 Marks

Reference Books

1. Rajendra Akerkar : Introduction to Artificial Intelligence Published by PHI
2. Rich and knight : Artificial Intelligence Published by TMH
3. Stuart Russell and Peter Norving : Artificial Intelligence Published by Pearson

M.Sc IT	Course: Project	Course No: M.Sc IT-403
Semester: 04	Type of Course : Core Course	
Marking Scheme: External Examination: 200 [Project Report 100+ Project Presentation 100]		
Credits: 18		

Detailed Syllabus

OBJECTIVE

The objective of the project work is to develop quality software solution. During the development of the project, the student will be involved in all the stages of the software development life cycle like systems requirements specifications, systems analysis, systems design, software development, testing strategies and documentation with an overall emphasis on the development of reliable software systems. The primary emphasis of the project work is to understand and gain the knowledge of the principles of software engineering practices, so as to participate and manage a large software engineering projects in future.

General Instruction

It is expected to work on a real-life project preferably in some industry/Research and Development Laboratories/Educational Institution/Software Company. However, it is ***not mandatory*** for a student to work on a real-life project. The student can formulate a project problem with the help of her/his College Guide and work on it, and complete it. Use of the latest versions of the software packages for the development is desired.