Rajiv Gandhi Proudhyogiki Vishwavidyalaya, Bhopal
Computer Application (MCA- Dual Degree) VII Semester

Subject Code	Subject Name	Periods per week			Credits	Maximum Marks (Theory Slot)			Maximum Marks (Practical Slot)		Total Marks
		L	T	P		End Sem. Marks	Test (Two)	Assign. /Quiz	End Semester Practical/Viva	Practical Record /Assign./Quiz/ Presentation	
MCA DD -701	Cloud Computing	5		-	5	70	20	10	-	-	100

MCADD-701 Cloud Computing

Unit-I

Introduction: Historical development ,Vision of Cloud Computing, Characteristics of cloud computing as per NIST , Cloud computing reference model ,Cloud computing environments, Cloud services requirements, Cloud and dynamic infrastructure, Cloud Adoption and rudiments .Overview of cloud applications: ECG Analysis in the cloud, Protein structure prediction, Gene Expression Data Analysis ,Satellite Image Processing ,CRM and ERP ,Social networking .

Unit-II

Cloud Computing Architecture: Cloud Reference Model, Types of Clouds, Cloud Interoperability & Standards, Scalability and Fault Tolerance, Cloud Solutions: Cloud Ecosystem, Cloud Business Process Management, Cloud Service Management. Cloud Offerings: Cloud Analytics, Testing Under Control, Virtual Desktop Infrastructure.

Unit –III

Cloud Management & Virtualization Technology: Resiliency, Provisioning, Asset management,Conceps of Map reduce , Cloud Governance, High Availability and Disaster Recovery. Virtualization: Fundamental concepts of compute ,storage, networking, desktop and application virtualization .Virtualization benefits, server virtualization, Block and file level storage virtualization Hypervisor management software, Infrastructure Requirements , Virtual LAN(VLAN) and Virtual SAN(VSAN) and their benefits .

Unit-IV

Cloud Security: Cloud Information security fundamentals, Cloud security services, Design principles, Secure Cloud Software Requirements, Policy Implementation, Cloud Computing Security Challenges, Virtualization security Management, Cloud Computing Secutity Architecture .

Unit-V

Market Based Management of Clouds , Federated Clouds/Inter Cloud: Characterization & Definition ,Cloud Federation Stack , Third Party Cloud Services . Case study : Google App Engine, Microsoft Azure , Hadoop , Amazon , Aneka

List of Experiments:

1. Installation and configuration of Hadoop/Euceliptus etc.
2. Service deployment & Usage over cloud.

3. Management of cloud resources.
4. Using existing cloud characteristics & Service models .
5. Cloud Security Management.
6. Performance evaluation of services over cloud .

Recommended Text:

1. Buyya, Selvi ," Mastering Cloud Computing ",TMH Pub
2. Kumar Saurabh, "Cloud Computing" , Wiley Pub
3. Krutz , Vines, "Cloud Security " , Wiley Pub
4. Velte, "Cloud Computing- A Practical Approach" ,TMH Pub
5. Sosinsky, " Cloud Computing" , Wiley Pub

Rajiv Gandhi Proudhyogiki Vishwavidyalaya, Bhopal
Computer Application (MCA- Dual Degree) VII Semester

Subject Code	Subject Name	Periods per week			Credits	Maximum Marks (Theory Slot)			Maximum Marks (Practical Slot)		Total Marks
		L	T	P		End Sem. Marks	Test (Two)	Assign. /Quiz	End Semester Practical/Viva	Practical Record /Assign./Quiz/ Presentation	
MCA DD -702	Data Science in Mining	5		-	5	70	20	10	-	-	100

MCADD-702 Data Sciences in Mining

UNIT-I

Introduction: What is Data Science? - Big Data and Data Science hype – and getting past the hype,Why now? – Datafication, Current landscape of perspectives, Skill sets needed. Statistical Inference - Populations and samples, Statistical modeling, probability distributions, fitting a model. Intro to R. Exploratory Data Analysis and the Data Science Process, Basic tools (plots, graphs and summary statistics) of EDA, Philosophy of EDA, The Data Science Process,Case Study: RealDirect (online real estate firm).

UNIT-II

Three Basic Machine Learning Algorithms - Linear Regression, k-Nearest Neighbors (k-NN) ,k-means. One More Machine Learning Algorithm and Usage in Applications - Motivating application: Filtering Spam, Why Linear Regression and k-NN are poor choices for Filtering Spam ,Naive Bayes and why it works for Filtering Spam, Data Wrangling: APIs and other tools for scrapping the Web

UNIT-III

Feature Generation and Feature Selection (Extracting Meaning From Data) - Motivating application: user (customer) retention,Feature Generation (brainstorming, role of domain expertise, and place for imagination), Feature Selection algorithms – Filters, Wrappers, Decision Trees,Random Forests. Recommendation Systems: Building a User-Facing Data Product - Algorithmic ingredients of a Recommendation Engine,Dimensionality Reduction ,Singular Value Decomposition ,Principal Component Analysis ,Exercise: build your own recommendation system.

UNIT-IV

Mining Social-Network Graphs -Social networks as graphs,Clustering of graphs,Direct discovery of communities in graphs,Partitioning of graphs,Neighborhood properties in graphs. Data Visualization - Basic principles, ideas and tools for data visualization.

Rajiv Gandhi Proudhyogiki Vishwavidyalaya, Bhopal
Computer Application (MCA- Dual Degree) VII Semester

UNIT-V

Data Science and Ethical Issues - Discussions on privacy, security, ethics - A look back at Data Science - Next-generation data scientists.

Books:

1. Cathy O'Neil and Rachel Schutt. Doing Data Science, Straight Talk From The Frontline. O'Reilly. 2014.
2. Jure Leskovek, Anand Rajaraman and Jeffrey Ullman. Mining of Massive Datasets. v2.1, Cambridge University Press. 2014. (free online)
3. Kevin P. Murphy. Machine Learning: A Probabilistic Perspective. ISBN 0262018020. 2013.
4. Foster Provost and Tom Fawcett. Data Science for Business: What You Need to Know about Data Mining and Data-analytic Thinking. ISBN 1449361323. 2013.
5. Trevor Hastie, Robert Tibshirani and Jerome Friedman. Elements of Statistical Learning, Second Edition. ISBN 0387952845. 2009. (free online)
6. Avrim Blum, John Hopcroft and Ravindran Kannan. Foundations of Data Science.

Rajiv Gandhi Proudhyogiki Vishwavidyalaya, Bhopal
Computer Application (MCA- Dual Degree) VII Semester

Subject Code	Subject Name	Periods per week			Credits	Maximum Marks (Theory Slot)			Maximum Marks (Practical Slot)		Total Marks
		L	T	P		End Sem. Marks	Test (Two)	Assign. /Quiz	End Semester Practical/Viva	Practical Record /Assign./Quiz/ Presentation	
MCA DD -703	File Structures	5		-	5	70	20	10	-	-	100

MCADD-703 File Structure

UNIT 1

File Processing Operations: Physical and logical files, opening, reading & writing and closing files in C, seeking and special characters in files, physical devices and logical files, file -related header files in C Secondary Storage Disks – organization, tracks, sectors, blocks, capacity, non-data overhead, cost of a disk access, Magnetic Tape – types, performance, organization estimation of tape length and data transmission times, disk vs tape, CD-ROM– CD-ROM as a file structure, physical organization, strengths and weakness of CD-ROMS, storage hierarchy

UNIT 2

Byte Journey and buffer Management: File manager, I/O buffer, I/O processing, buffer strategies and bottlenecks File Structure Concepts A stream file, field structures, reading a stream of fields, record structures and that uses a length indicator, Mixing numbers and characters – use of a hex dump, reading the variable length records from the files

UNIT 3

Managing records in C files: Retrieving records by keys, sequential search, direct access, choosing a record structure and record length, header records, file access and file organization Organizing files for performance Data compression, reclaiming space – record deletion and storage compaction, deleting fixed length records for reclaiming space dynamically, deleting variable- length records, space fragmentation, replacement strategies.

UNIT 4

Indexing: Index, A simple index with an entry sequenced file, basic operations on an indexed, entry sequenced file, indexes that are too large to hold in memory, indexing to provide access by multiple keys, retrieval using combination of secondary keys, improving the secondary index structure – inverted lists Indexed sequential file access and prefix B+ Trees Indexed sequential access, maintaining a sequence set, adding a simple index to the sequence set, the content of the index: separators instead of keys, the simple prefix B+ tree, simple prefix B+ tree maintenance, index set block size, internal set block size, and internal structure of index set blocks: a variable order B-tree, loading a simple prefix B+ tree

Rajiv Gandhi Proudhyogiki Vishwavidyalaya, Bhopal
Computer Application (MCA- Dual Degree) VII Semester

UNIT 5

Hashing: Collisions in hashing, a simple hashing algorithms, hashing functions and record distributions, memory requirements, collision resolution by progressive overflow, buckets, deletions Extendable hashing Working of extendable hashing, implementation, deletion, extendable hashing performance Designing file structure for CD-ROM Tree structure on CD-ROM, hashing files on CD-ROM, CD-ROM file structure

Book:

1. File Structures – An Object Oriented Approach with C++ , Michael J. Folk, Bill Zoellick and Greg Riccardi, Pearson Education

Note : Paper is to be set unit wise with internal choice.

Rajiv Gandhi Proudhyogiki Vishwavidyalaya, Bhopal
Computer Application (MCA- Dual Degree) VII Semester

Subject Code	Subject Name	Periods per week			Credits	Maximum Marks (Theory Slot)			Maximum Marks (Practical Slot)		Total Marks
		L	T	P		End Sem. Marks	Test (Two)	Assign. /Quiz	End Semester Practical/Viva	Practical Record /Assign./Quiz/ Presentation	
MCA DD -704 (1)	Programming in Java -1	5		-	5	70	20	10	-	-	100

MCADD-704 (1) Elective-I Programming in Java-1

UNIT-I

Java Fundamentals: History of java, Features of Java, OOP's concepts, Java virtual machine, Reflection byte codes, Byte code interpretation, How to get Java., A First java program, Compiling and interpreting Applications. The JDK Directory Structure., Identifiers, Variables, Constants, Primitive Data Types, arrays, expressions, operators., Conditional and looping constructs., Numeric literals, Character literals String, String literals

UNIT II:

Object-oriented programming with Java Classes and Objects Fields and Methods: Constructors, Overloading methods, Garbage collection Inheritance: Overriding methods, Polymorphism, Making methods and classes final, Abstract classes and methods, Use of SUPER. Using Java objects: Printing to the ,Console, Printf Format Strings, String Builder and String Buffer Classes, Methods and ,Messages, Parameter passing, Comparing and identifying objects, Interfaces and Abstract Classes: Separating interface and implementation, UML interfaces and realization, Defining interfaces and implementing interfaces, Extending interfaces Abstract class

UNIT-III

Packages, Exception handling and Multithreading The import Statement: Static Imports, Casting, Class path and import, Defining package Package scopes, Exception Handling: Exceptions overview, Catching exception, Finally block, Exception methods, Declaring exceptions, Defining and throw exceptions, Errors and runtime exceptions, Assertions. Introduction to Threads: Non Threaded Applications Threaded Applications, Creating Applications, Thread States, Runnable threads, Coordinating threads, Interrupting Threads, Runnable interface, Thread Groups, Serialization: Object Serialization, Serializable interface, Serialization API, The Serialization Engine, Transient Fields

UNIT IV:

Applets, AWT and Java Event handling Model Applets: Applet security restrictions, the class hierarchy for applets, Life cycle of applet HTML Tags for applet, The AWT: The class hierarchy of window fundamentals, The basic user interface components Label,

Button ,Check Box, Radio Button, Choice menu Text area, Scroll list, Scroll bar ,Frame, Layout managers- flow layout, Grid layout, Border layout, Card layout. The Java Event Handling Model: Ignoring the event, Self contained events, Delegating events ,The event class hierarchy; The relationship between interface, methods called, parameters and event source Adapter classes, Event classes action Event, Adjustment Event, Container Event, Focus Event, Item Event, key Event, Mouse Event ,Text Event, Window Event

UNIT-V

Streams, JDBC and Collection Framework Input/output stream classes: Overview of streams, Bytes Vs Characters, Converting Byte ,treams to Character Streams, File Object, Binary Input and Output, Print writer Class, Reading and Writing Objects, Basic and Filtered Streams, Collection Framework: The Collection Framework, The Set Interface ,Set Implementation Classes, The List Interface, List Implementation Classes, The Map Interface, Map Implementation Classes JDBC: JDBC-ODBC bridge, The connectivity model, The driver manager, Navigating the resultset object contents, java.sql Package, The JDBC exception classes, Connecting to Remote database, Networking & RMI: Java Networking ,Networking Basics : Socket, Client server, reserved sockets, proxy servers, Inet address, TCP sockets, UDP sockets. RMI for distributed computing: RMI registry services; Steps of creating RMI Application and an example

Books:

1. Naughton & Schildt “The Complete Reference Java 2”, Tata McGraw Hill
2. Deitel “Java- How to Program:” Pearson Education, Asia
3. Horstmann & Cornell “Core Java 2” (Vol I & II) , Sun Microsystems
4. lvan Bayross “Java 2.0” : BPB publications
5. Ivor Horton’s “Beginning Java 2, JDK 5 Ed., Wiley India

Rajiv Gandhi Proudhyogiki Vishwavidyalaya, Bhopal
Computer Application (MCA- Dual Degree) VII Semester

Subject Code	Subject Name	Periods per week			Credits	Maximum Marks (Theory Slot)			Maximum Marks (Practical Slot)		Total Marks
		L	T	P		End Sem. Marks	Test (Two)	Assign. /Quiz	End Semester Practical/Viva	Practical Record /Assign./Quiz/ Presentation	
MCA DD -704 (2)	Compiler Design	5		-	5	70	20	10	-	-	100

MCADD-704 (2) Elective-I Compiler Design

UNIT-I

Introduction to Compiling and one pass compiler : Compilers and translators, phases of compilers, Structure of a compiler, compiler writing tools, bootstrapping, overview of one pass compiler, Error handling. Finite Automata & Lexical Analysis : Role of lexical analyzer, specification of tokens, recognition of tokens, regular expression, finite automata, form regular expression to finite automata, DFA and NFA, implementation of lexical analyzer, tools for lexical analyzer, only introduction to LEX.

UNIT-II

Syntax Analysis & Parsing Techniques : Context free grammars, Phase tree, ambiguity of parse tree, bottom up parsing and top down parsing, shift reduce parsing, operator precedence parsing, elimination of left recursion, recursive descent parsing, predictive parser construction, Transition diagram.

UNIT-III

LR parsers, constructing SLR and canonical LR parsing tables, using ambiguous grammar, Introduction to YACC, LR(1) & LALR Parsers.
Syntax Directed Translation: Syntax directed translation scheme, construction of syntax trees, SDT with inherited and synthesized attributes, symbol tables.

UNIT-IV

Intermediate code generation : Intermediate languages, prefix notation, three address code, quadruples and triples, translation of assignment statements, Boolean expression, procedural calls and iterative statements. Run time Environment: Source language issues, storage organization and allocation strategies, parameter passing, implementation of block structured languages.

UNIT-V

Error Detection and Recovery: Errors, sources of errors, Lexical & syntactic phase error, semantic errors: panic mode error recovery & phrase level error recovery mechanisms.
Code Optimization: Optimization of basic blocks, loop optimization, global data flow analysis, loop invariant computations and other related optimization techniques

Code Generation : Issues in design of code generation, simple code generation techniques.

BOOKS

1. Alfred V. Aho, Ravi Sethi and J.D. Ullman "Compilers- Principles, Techniques and tools" Addison Wesley. A
2. Alfred V.Aho and J.D. Ullman "Principles of Compiler Design" Narosa Publishing House.
3. Tremblay, "Theory and Practice of compiler writing", Mc Graw Hill.
4. Holuv, "Compiler Design in C", PHI.
5. Dhamdhare D.M., "Compiler Construction Principles and Practice", Macmillan India.

Note : Paper is to be set unit wise with internal choice.

Rajiv Gandhi Proudhyogiki Vishwavidyalaya, Bhopal
Computer Application (MCA- Dual Degree) VII Semester

Subject Code	Subject Name	Periods per week			Credits	Maximum Marks (Theory Slot)			Maximum Marks (Practical Slot)		Total Marks
		L	T	P		End Sem. Marks	Test (Two)	Assign. /Quiz	End Semester Practical/Viva	Practical Record /Assign./Quiz/ Presentation	
MCA DD -704(3)	Web Technlogies	5		-	5	70	20	10	-	-	100

MCADD-704 (3) Elective-I Web Technologies

UNIT-1

Web Engineering: Introduction, History, Evolution and Need, Time line, Motivation, Categories & Characteristics of Web Applications, Web Engineering Models, Software Engineering v/s Web Engineering. World Wide Web: Introduction to TCP/IP and WAP, DNS, Email, TelNet, HTTP and FTP. Browser and search engines: Introduction, Search fundamentals, Search strategies, Directories search engines and Meta search engines, Working of the search engines. Web Servers: Introduction, Features, caching, case study-IIS, Apache.

UNIT- 2

Information Architecture: Role, Collaboration and Communication, Organizing Information, Organizational Challenges, Organizing Web sites parameters and Intranets Website Design: Development, Development phases, Design issues, Conceptual Design, HighLevel Design, Indexing the Right Stuff, Grouping Content. Architectural Page Mockups, Design Sketches, Navigation Systems. Searching Systems, Good & bad web design, Process of Web Publishing. Web-site enhancement, submission of website to search engines.

UNIT- 3

Technologies for Web Applications I: HTML and DHTML: Introduction, Structure of documents, Elements, Linking, Anchor Attributes, Image Maps, Meta Information, Image Preliminaries, Layouts, Backgrounds, Colors and Text, Fonts, Tables, Frames and layers, Audio and Video Support with HTML Database integration, CSS, Positioning with Style sheets, Forms Control, Form Elements. Introduction to CGI, PERL, JAVA SCRIPT, JSP, PHP, ASP & AJAX. Cookies: Creating and Reading

UNIT-4

Technologies for Web Applications II: XML: Introduction, HTML Vs XML, Validation of documents, DTD, Ways to use, XML for data files, Embedding XML into HTML documents, Converting XML to HTML for Display, Displaying XML using CSS and XSL, Rewriting HTML as XML, Relationship between HTML, SGML and XML, web personalization , Semantic web, Semantic Web Services, Ontology.

Rajiv Gandhi Proudhyogiki Vishwavidyalaya, Bhopal
Computer Application (MCA- Dual Degree) VII Semester

UNIT- 5

E- Commerce: Business Models, Infrastructure, Creating an E-commerce Web Site, Environment and Opportunities. Modes & Approaches, Marketing & Advertising Concepts. Electronic Publishing issues, approaches, legalities and technologies, Secure Web document. Electronic Payment Systems: Electronic Cash, RTGS, NEFT, Internet Banking, Credit/Debit Card. Security: Firewalls, Digital Certificates & Signatures, SSL, SET, 3D Secure Protocol.

Recommended Books:

1. Roger S.Pressman, David Lowe, "Web Engineering", Tata Mc Graw Hill Publication, 2007
2. Achyut S Godbole and Atul Kahate, "Web Technologies", Tata McGraw Hill
3. Gopalan N P , Akilandeswari, "Web Technology: A Developer s Perspective" , PHI
4. Neil Gray, "Web server Programming" Wiley
5. Chris Bates, "Web Programming: Building Internet applications" Wiley
6. Moller, "An Introduction to XML and Web Technologies", Pearson Education New Delhi, 2009
7. "Web Technologies: Black Book", Kogent, Dreamtech
8. Internet & World Wide Web How to Program, Pearson education, 3rd edition, by: H.M. Deitel, P.J. Deitel, A.B. Goldberg.
9. C. Xavier, "Web Technology & Design ", Tata McGraw Hill.
10 Ivan Bay Ross, "HTML,DHTML,Java script,Perl CGI" , BPB

Rajiv Gandhi Proudhyogiki Vishwavidyalaya, Bhopal
Computer Application (MCA- Dual Degree) VII Semester

Subject Code	Subject Name	Periods per week			Credits	Maximum Marks (Theory Slot)			Maximum Marks (Practical Slot)		Total Marks
		L	T	P		End Sem. Marks	Test (Two)	Assign. /Quiz	End Semester Practical/Viva	Practical Record /Assign./Quiz/ Presentation	
MCA DD -705(1)	Unix and Shell Programming	5		-	5	70	20	10	-	-	100

MCADD-705 (1) Elective-II Unix and Shell Programming

UNIT–I

General Overview of the System: System structure, user perspective, O/S services assumption about Hardware The Kernel and buffer cache architecture of Unix O/S, System concepts, Kernel data Structure, System administration, Buffer headers, Structure of the buffer pool, Scenarios for retrieval of the buffer, Reading and writing disk block, Advantage and disadvantage of buffer cache.

UNIT–II

Internal Representation of Files: INODES, Structure of regular, Directories conversions of a path name to an inode, Super block, Inode assignment to a new file, Allocation of disk blocks. System Calls for the System: Open read write file and record close, File creation, Operation of special files change directory and change root, change owner and change mode, STAT and FSTAT, PIPES Mounting and unmounting files system, Link Unlink.

UNIT–III

Structures of Processes and process control: Process states and transitions layout of system memory, the context of a process, manipulation of process address space, Sleep process creation/termination. The user Id of a process, changing the size of a process. The SHELL Interprocess Communication and multiprocessor system: Process tracing system V IPO network communication sockets problem of multiprocessors systems, solution with master and hare process, and solution with semaphores.

UNIT-IV

Introduction to shell scripts: shell Bourne shell, C shell, Unix commands, permissions, editors, filters sed, grep family, shell variables, scripts, metacharacters and environment, if and case statements, for while and until loops. Shell programming.

UNIT-V

Awk and perl Programming: Awk pattern scanning and processing language, BEGIN and END patterns, Awk arithmetic and variables, Awk built in variable names and operators, arrays, strings, functions, perl; the chop() function, variable and operators, $_ and $. , Lists, arrays, regular expression and substitution, file handling, subroutines, formatted printing. Linux: History & Features of Linux, Linux structure, various flavours of linux.

BOOKS

1. M.J. Bach “Design of UNIX O.S. “, Prentice Hall of India.
2. Y.Kanetkar “Unix shell programming”, BPB Pub.
3. B.W. Kernighan & R. Pike, “The UNIX Programming Environment”, Prentice Hall of India, 1995.
4. S. Prata “Advanced UNIX: A Programming's Guide”, BPB Publications, New Delhi.
5. Vikas/Thomsaon “Jack Dent Tony Gaddis “Guide to UNIX using LINUX” Pub. House Pvt. Ltd.
6. Linux complete, BPB Publications
7. Linux Kernel, Beck Pearson Education, Asia.
8. Sumitabha Das “ Unix concepts and Applications”.

Note : Paper is to be set unit wise with internal choice.

Rajiv Gandhi Proudhyogiki Vishwavidyalaya, Bhopal
Computer Application (MCA- Dual Degree) VII Semester

Subject Code	Subject Name	Periods per week			Credits	Maximum Marks (Theory Slot)			Maximum Marks (Practical Slot)		Total Marks
		L	T	P		End Sem. Marks	Test (Two)	Assign. /Quiz	End Semester Practical/Viva	Practical Record /Assign./Quiz/ Presentation	
MCA DD -705(2)	Data Analytics	5		-	5	70	20	10	-	-	100

MCADD-705 (2) Elective-II Data Analytics

UNIT-I

Descriptive Statistics, Probability Distributions, Inferential Statistics through hypothesis tests, Permutation & Randomization Test, Regression ANOVA(Analysis of Variance).

UNIT-II

Machine Learning: Introduction and Concepts Differentiating algorithmic and model based frameworks Regression : Ordinary Least Squares, Ridge Regression, Lasso Regression, K Nearest Neighbours Regression & Classification.

UNIT-III

Supervised Learning with Regression and Classification techniques -1 Bias-Variance Dichotomy, Model Validation Approaches Logistic Regression Linear DiscriminantAnalysis Quadratic DiscriminantAnalysis Regression and Classification Trees Support Vector Machines.

UNIT-IV

Unsupervised Learning and Challenges for Big Data Analytics Clustering Associative Rule Mining Challenges for big data anlalytics

UNIT-V

Prescriptive analytics Creating data for analytics through designed experiments Creating data for analytics through Active learning Creating data for analytics through Reinforcement learning

Books:

1. Hastie, Trevor, et al.,The elements of statistical learning. Vol. 2. No. 1. New York: springer, 2009.
2. Montgomery, Douglas C., and George C. Runger.,Applied statistics and probability for engineers. John Wiley & Sons, 2010

Rajiv Gandhi Proudhyogiki Vishwavidyalaya, Bhopal
Computer Application (MCA- Dual Degree) VII Semester

Subject Code	Subject Name	Periods per week			Credits	Maximum Marks (Theory Slot)			Maximum Marks (Practical Slot)		Total Marks
		L	T	P		End Sem. Marks	Test (Two)	Assign. /Quiz	End Semester Practical/Viva	Practical Record /Assign./Quiz/ Presentation	
MCA DD -705(3)	Computer Ethics	5		-	5	70	20	10	-	-	100

MCADD-705 (3) Elective-II Computer Ethics

UNIT-1

An Overview of Ethics: Ethics: Definition of Ethics, The Importance of Integrity, The Difference between Morals, Ethics, and Laws. Ethics in the Business World: Why Fostering Good Business Ethics Is Important, Improving Corporate Ethics, Creating an Ethical Work Environment, Including Ethical Considerations in Decision Making. Ethics in Information Technology

Ethics for IT Workers and IT Users: IT Technicians, IT Professionals: Are IT Workers Professionals, The Changing Professional Services Industry, Professional Relationships That Must Be Managed, Professional Codes of Ethics, Professional Organizations, Certification, Government Licensing, IT Professional Malpractice. IT Users, Common Ethical Issues for IT Users, Supporting the Ethical Practices of IT Users.

UNIT II

Computer and Internet Crime, IT Security Incidents: A Major Concern, Why Computer Incidents Are So Prevalent, Types of Exploits, Types of Perpetrators, Federal Laws for Prosecuting Computer Attacks, Implementing Trustworthy Computing: Risk Assessment, Establishing a Security Policy, Educating Employees, Contractors, and Part-Time Workers, Prevention, Detection, Response.

Privacy: Privacy Concerns Abound with New IRS Systems, Privacy Protection and the Law: Information Privacy, Privacy Laws, Applications, and Court Rulings. Key Privacy and Anonymity Issues: Identity Theft, Consumer Profiling, Treating Consumer Data Responsibly, Workplace Monitoring, Advanced Surveillance Technology.

UNIT III

Freedom of Expression: First Amendment Rights, Obscene Speech, Defamation, Freedom of Expression: Key Issues, Controlling Access to Information on the Internet, Anonymity on the Internet, Defamation and Hate Speech, Corporate Blogging, Pornography.

Intellectual Property: What Is Intellectual Property? Copyrights: Copyright Term, Eligible Works, Fair Use Doctrine, Software Copyright Protection, The Prioritizing

Resources and Organization for Intellectual Property (PRO-IP) Act of 2008, General Agreement on Tariffs and Trade (GATT), The WTO and the WTO TRIPS Agreement (1994), The World Intellectual Property Organization (WIPO) Copyright Treaty (1996), The Digital Millennium Copyright Act (1998), Patents: Software Patents, Software Cross-Licensing Agreements, Defensive Publishing and Patent Trolls, Submarine Patents and Patent Farming. Trade Secrets: Trade Secret Laws, Employees and Trade Secrets, Key Intellectual Property Issues: Plagiarism, Reverse Engineering, Open Source Code, Competitive Intelligence, Cybersquatting

UNIT IV

Software Development: Strategies for Engineering Quality Software,:The Importance of Software Quality, Software Product Liability, Software Development Process, Capability Maturity Model Integration. Key Issues in Software Development, Development of Safety-Critical Systems, Quality Management Standards

The Impact of Information Technology on Productivity and Quality of Life: The Impact of IT on the Standard of Living and Worker Productivity, IT Investment and Productivity, The Digital Divide, The Impact of IT on Healthcare Costs, Electronic Health Records, Use of Mobile and Wireless Technology in the Healthcare Industry, Telemedicine, Medical Information Web Sites for Laypeople

UNIT V

Social Networking: What Is a Social Networking Web Site? Business Applications of Online Social Networking, Social Network Advertising, The Use of Social Networks in the Hiring Process, Social Shopping Web Sites, Social Networking Ethical Issues, Cyberbullying, Cyberstalking, Encounters with Sexual Predators, Uploading of Inappropriate Material, Online Virtual Worlds, Crime in Virtual Worlds, Educational and Business Uses of Virtual Worlds.

Ethics of IT Organizations: Key Ethical Issues for Organizations, The Need for Nontraditional Workers, Contingent Workers, Advantages of Using Contingent Workers, Disadvantages of Using Contingent Workers, Deciding When to Use Contingent, Outsourcing, Offshore Outsourcing, Pros and Cons of Offshore Outsourcing, Strategies for Successful Offshore Outsourcing, Whistle-Blowing, Protection for Whistle-Blowers, Whistle-Blowing Protection for Private-Sector Workers, Dealing with a Whistle-Blowing Situation, Green Computing, ICT Industry Code of Conduct.

Books :

1. George W. Reynolds, ETHICS IN INFORMATION TECHNOLOGY, Third Edition, Course Technology, ISBN-13: 978-0-538-74622-9, Cengage Learning.
2. Deborah Johnson, *Computer Ethics, Fourth Edition*
3. Richard Spinello and Herman Tavani, *CyberEthics, 2nd Edition*