

MASTER OF COMPUTER APPLICATION

Syllabus w.e.f. the Academic Session 2021-2022





MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY WEST BENGAL

First Year: Semester-I

Contracts Hours / Week: 4 Total Contact Hours: 40 Credit: 4 Course Outcome: Learn, undextand and comprehend the concept of programming. V Design algorithm to solve simple programming problem. V Learn, undextand and comprehend the concept of Programming. V Cotate application using secondary storage. V Apply Python to implement different solutions for the same problem and analyze why one solution is better than the other. V To write program for real life problem. (Cull History of Computers, Basic Anatomy of Computer System, Primary & Secondary Memory, Processing Unit, Input & Output devices. Basic Concepts of Assembly language, High level language, Compiler and Assembler. 1 Number systems (decimal, octal and hexadecimal) with signed and unsigned numbers (using 1's and 2's computers) static statement. (CL) 2 Problem analysis. (CL) Problem analysis. (CL) 2 Problem analysis. (CL) Problem analysis. (CL) 3 Variables as names for values; expressions (arithmetic and logical) and their evaluation (uperators, associativity, preceduce). Assignment operation; difference between helt hand side and right hand side of assignment, Consolv inputroutput: taking	Code: MG	°AN-101	Paner: Programn	ing Concept with Pyth	on		
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Code: MCAN-102 Paper: Relational Database Management System Credit: 4 Course Outcome: After successful completion of this course, students will be able to: ////////////////////////////////////
Contacts Hours / Week: 4 Total Contact Hours: 40 Credit: 4 Course Outcome: After successful completion of this course, students will be able to: Identify the need for a database over the file system. Understand and analyze the functional dependencies among attributes of the entity set and normalization between the relations. Understand and Implement the process of data insertion, retrieval, and manipulation. Understand and Implement the process of data insertion, retrieval, and manipulation. V Understand and Implement the Transaction control and concurrency control management. Fvaluate the relational tables, PL/SQL programs, triggers, database files, indexing of RDBMS. UNITS Basic Concept (7L Database Management System , File based system, Advantages of DBMS over file based system, Database Approach, Logical DBMS Architecture, Three level architecture of DBMS or logical DBMS architecture, Need for three level architecture, Database Administrator (DBA) Functions & Role, Data files indices and Data Dictionary (7L Types of Database, Relational and ER Models: Data Models, Relational Model, Domains, Tuple and Relation, Super keys, Candidate keys, Primary keys and foreign key for the Relational Constraint, Super and Constraint, Integrity Constraint, Update Operations and Dealing with Constraint Violations, Relational Database Integrity, Model: Entities, Attributes, Relationships,More about Entities and Relationships, Conversion of E-R Diagram to Relational Database. (8L Problems, Single Valued Dependencies, Normalization, Ruee Anomalization, The First Normal Form, The Sevend Normal
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& Recovery Techniques, Security & Integrity, Database Security Authorization. PL/SQL (6L)
PL/SQL (6L
6 Introduction to PL/SQL, Variables & Data types, Basic blocks, Conditional & branching statement, Handling
of Cursor, Trigger, Function, Procedure, Package and Exception.
Reference Books:
 Silverchatz, Korth&Sudarshan-Data Base System Concepts, MH. Elmasri, Navathe- Fundamentals of Database Systems, Pearson
 Elimasri, Navatie- Fundamentals of Database Systems, Pearson C J date-An Introduction to Database, Addison-Wesley Publishing Company
 Majumder& Bhattacharyya-Data Base Management Systems, TMH
 Feuerstein-Oracle PL/SQL Programming,SPD/O'REILLY
Leon-Data Base Management Systems, VIKAS
Kroenke-Data Base Processing: Fundamentals, Design & Implementation, PHI
• P.S Deshpande-SQL PL/SQL for Oracle 8 & 8i, Wiley Dreamtech
P. Bhatia, S. Bhatia, G. Singh- Concepts of Database Management System, Kalyani Publishers
R.P. Mahapatra, Database Management Systems, Khanna Publishing House (AICTE Recommended)

Code: MC		Paper: Computer Organization and Architecture	
	Hours / Week: 4	Total Contact Hours: 40	Credit: 4
Course Or	utcome:		
		his course, students will be able to:	
		pitfalls in computer performance measurements and analyze the impact of	instruction set
		ormance of computer design	
		rcuits, Data Representation, Register and Processor level Design and Instr	uction Set
	chitecture		
		o computer arithmetic and Determine which hardware blocks and control l	ines are used for
	ecific instructions		
		nsistent execution of instructions with minimum hazards	
✓ Ex	plain memory organiz	ation, I/O organization and its impact on computer cost/performance.	
UNITS		COURSE CONTENT	
	INTRODUCTION		(8L)
	Digital Logic Desi	gn: Axioms and laws of Boolean algebra, Reduction of Boolean exp	ressions, conversio
1		forms, Karnaugh map (4 variable), Half Adder, full adder, 4-bitparallel	
	checker circuit, Dec	oder, Encoder, Multiplexer, IC RAM, ROM, Memory Organization, Sequ	ential Circuits, Stat
	transistors, Flip-flop	o, RS, JK, D-Latch, Master-slave.	
	INSTRUCTION S	ET ARCHITECTURE:	(8L)
	Memory Locati	ons and Addresses: Byte Addressability, Big-Endian	and Little-Endia
2	Assignments, We	ord Alignment, Instructions and Instruction Sequencing, A	ddressing Modes
	Assembly Langu	age, Subroutines, Additional Instructions, dealing with	32-Bit Immediat
	Values.		
		ING UNIT & PIPELINING	(8L)
	Basic Processing U	Init: Some Fundamental Concepts, Instruction Execution, Hardware Com	
3		cution Steps, Control Signals, Hardwired Control, CISC	
		Concept, Pipeline Organization, Pipelining Issues, Data Dependencie	s, Memory Delays
		eline Performance Evaluation.	
	MEMORY ORGA		(8L)
4		emiconductor RAM Memories, Read-only Memories, Direct Memor	
т		lemories, Performance Considerations, Virtual Memory, Memory Manage	ement Requirements
	Secondary Storage.		
		& PARALLEL PROCESSING	(8L)
_		ut: Accessing I/O Devices, Interrupts, Input Output Organization:	
5		ion, Interface, Interconnection Standards. Parallel Processing: Hardw	
		Processing, Shared-Memory Multiprocessors, Cache Coherence,	, Message-Passin
		rallel Programming for Multiprocessors, Performance Modeling.	
eference l			
		on and Embedded Systems, 6 th Edition, Hamacher Carl, et. al, Tata McGrav	N
	Hill, New Delhi, 2011	on and Design: The Hardware Software / Interface, 5 th Edition, 1994, Patter	con David A
•	Computer Organizatio	chitecture, Revised 3 rd Edition, Mano M. Morris, Pearson Education,	Ison David A.
•	Computer System Ard	mation, Revised 5 Edition, Mano M. Montis, reason Education,	

Code: MC	CAN-104 Paper: Discrete Mathematics Hours / Week: 4 Total Contact Hours: 40	Credit: 4
Course O		
	essful completion of this course, students will be able to:	
	nterpret the problems that can be formulated in terms of graphs and trees.	
✓ E	Explain network phenomena by using the concepts of connectivity, independent sets, clique	es, matching, graph coloring
	tc.	
	Achieve the ability to think and reason abstract mathematical definitions and ideas r	
	oncepts of well-ordering principle, division algorithm, greatest common divisors and cong	
	Apply counting techniques and the crucial concept of recurrence to comprehend the	e combinatorial aspects of
	lgorithms. Analyze the logical fundamentals of basic computational concepts.	
	Compare the notions of converse, contrapositive, inverse etc. in order to consolidate the c	omprehension of the logical
	ubtleties involved in computational mathematics.	omprenension of the logical
UNITS	COURSE CONTENT	
	Logic and Proofs	(3L)
1	Propositional logic, Propositional equivalences, Predicates and quantifiers, Nested quant	
	Principles of Mathematical Induction	(5L)
2	The Well-Ordering Principle, Recursive definition, The Division algorithm: Prime Nur	
	Divisor: Euclidean Algorithm, The Fundamental Theorem of Arithmetic.	
	Sets and Sequence	(8L)
	Sets, Relation and Function: Operations and Laws of Sets, Cartesian Products, Bina	
3	Relation, Equivalence Relation, Image of a Set, Sum and Product of Functions, Bij	
	Composite Function, Size of a Set, Finite and infinite Sets, Countable and uncoun	
	argument and The Power Set theorem, Schroeder-Bernstein theorem. Fuzzy set, Basic Counting and Combinatorics	(8L)
	Counting, Sum and product rule, Principle of Inclusion Exclusion. Pigeon Hole Princ	
4	Double Counting. Linear Recurrence relations - methods of solutions. Generating	Functions. Permutations ar
	Combination.	
	Algebraic Structure	(9L)
	Algebraic Structures with one Binary Operation, Semi Groups, Monoids, Group	
5	Quotient Structures, Free and Cyclic Monoids and Groups, Permutation Groups, Subs	tructures, Normal Subgroup
-	Algebraic Structures with two Binary Operation, Rings, Integral Domain and Fields. F	
	Ring, Identities of Boolean Algebra, Duality, Representation of Boolean Function, Normal Form	Disjunctive and Conjunctiv
	Graph and Tree	(7L
	Graphs and their properties, Degree, Connectivity, Path, Cycle, Sub Graph, Isomorphis	
6	Walks, Graph Colouring, Colouring maps and Planar Graphs, Colouring Vertices, Colouring	
	Perfect Graph, definition properties and Example, rooted trees, trees and sorting, wei	
	Bi-connected component and Articulation Points, Shortest distances.	
eference		
	B. Singh, Discrete Structures, Khanna Book Publishing, Delhi	
	undel& Baker- Discrete Mathematics for Comp. Scientists & Mathematicians, Mott, PHI L.Liu- Discrete Mathematical Structure, C.L.Liu,TMH	
	S.RAO- Discrete Mathematical Structure, New Age International	

- G.S.RAO- Discrete Mathematical Structure, New Age International DeoNarsingh Graph Theory With Applications To Engineering And Computer Science, PHI Learning Arumugam, Ramachandran- Invitation to Graph Theory, Scitech Publications (India)

Contacts Hours / Week: 3 Total Context Hours: 30 Credit: 3 Contacts Hourse Outcome: After successful completion of this course, students will be able to: ✓ Be able to understand the natural environment and its relationships with human activities. ✓ Be able to understand environment and its relationships with human activities. ✓ Be able to understand environmental laws and regulations to develop guidelines and procedures for health and safety issues ✓ Be able to solve scientific problem-solving to air, water, noise and land pollutions. UNITS COURSE CONTENT 1 Basic ideas of environment and interrelationship among man society and environment. Environmental problems and issues, Segments of environments, Natural Cycles of environments Mathematics of population growth and its associated problems, Logistic population growth (3L) 2 Open and closed system ecology, species, population, community, definition of ecosystem-components type and functions, Environmental perspectives, Montreal protocol (3L) 3 Pollutants and Contaminants (3L) (3L) (3L) 3 Definition of primary and secondary pollutants and contaminants. Source and effects of different air pollutant suspended particulate matter, oxide		Computer Application
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After successful completion of this course, students will be able to: Be able to understand the natural environment and its relationships with human activities. Be able to understand environmental knowledge of science and engineering to assess environmental and health risk. Be able to understand environmental laws and regulations to develop guidelines and procedures for health and safety issues We able to solve scientific problem-solving to air, water, noise and land pollutions. UNITS COURSE CONTENT (41.) Basic icleas of environment and interrelationship among man society and environment. Environmental problems and issues, Segments of environments, Natural Cycles of environments Mathematics of population growth and its associated problems, Logistic population growth Elements of Ecology (31.) Open and closed system ecology, species, population, community, definition of ecosystem-components type and functions, Environmental perspectives, Montreal protocol Pollutants and Contaminants (31.) Definition of primary and secondary pollutants and contaminants. Source and effects of different air pollutant suspended particulate matter, oxides of carbon, nitrogen, sulphur particulate Air Pollution Structures of the atmosphere, global temperature models, Greenhouse effect, global warming; acid rain: causes effects and control. Lapse rate and atmospheric stability; pollutants and contaminants; smog; depletion of ozon layer; standards and control; solid waste: classification: source, effect and control. Water quality parameters: DO, BOD, COD. Water treatment: surface water and waste		
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 Environmental Chemistry with Green Chemistry, A. K. Das, Books and Allied P. Ltd. 		

	CAN-E105B Hours / Week: 3	Paper: Management Accounting Total Contact Hours: 30	Credit: 3
Course Or		Total Contact Hours. 50	Creat. 5
		ourse, students will be able to:	
	derstand the basic concept		
		and functions of different discipline of business management.	
		nong the students inculcate with theoretical structures about banking system	
		actions and prepare annual financial statements; and analyse, interpret and o	communicate
	information contained in l		
	alyse and provide recomm nagement accounting tech	endations to improve the operations of Organisations through the application niques	n of Cost and
		and expert knowledge of Tally ERP with GST.	
UNITS		COURSE CONTENT	
	Introduction		(3L)
1	Basics of management;	Planning, scheduling, organizing, staffing, directing, controlling	
	Management		(3L)
2	Marketing Management	, Financial management, Operation management,	
	Human resource manag	ement, Management information System	
	Strategy		(3L)
3		ent, strategies and resources, industry structure and analysis, corporate s	strategies and it
		r growth and diversification, strategic planning	
	Business Trade and Ba	inking iness, Sole Proprietorship, Partnership, Limited company and cooperativ	(3L)
	characteristics.	mess, sole Frophetorship, Farmership, Emitted company and cooperativ	e society – the
4		nercial banks; credit creation and its importance in industrial functioning	. Role of centra
	bank: Reserve Bank of		
	International Business of	r Trade Environment.	
	Financial Accounting		(7L)
5		Balance, Profit & amp; Loss Account, Balance Sheet, Financial Reporting	
		alysis and Interpretation (Financial Ratio and Cash Flow analysis)	
6	Cost Accounting	tion of costs, Cost Sheet	(7L)
0		ariance Analysis, Cost-volume profit (CVP) relationship, Cash Budgeting	
	Packages	analice Analysis, Cost-volume pront (CVI) relationship, Cash Budgeting	(4L)
7		mputer package (Tally ERP with GST)	(HL)
Reference I			
		Managerial Perspective, R. Narayanswami, Prentice-Hall of India Private	Limited. New
	Delhi		
		Management, Horne, James C Van, Prentice-Hall of India Private Limited,	New Delhi
		, H. L. Ahuja., S. Chand. New Delhi.	
	Management Accounting,	Knan & Jain, 191 H	

Management Accounting, M.E. ThukaramRao, New Age International

	CAN-E105CPaper: Constitution of IndiaHours / Week: 3Total Contact Hours: 30	Credit: 3
Course O	Outcome:	
After succ	cessful completion of this course, students will be able to:	
	Understand the premises informing the twin themes of liberty and free	dom from a civil rights perspective.
✓ T	Fo address the growth of Indian opinion regarding modern Indian int	ellectuals' constitutional role and entitlement t
	civil and economic rights as well as the emergence of nationhood in the	
	Fo address the role of socialism in India after the commencement of t	
	on the initial drafting of the Indian Constitution.	1
UNITS	COURSE CONTEN	Т
	History of Making of the Indian Constitution	
1	History Drafting Committee, (Composition & Working)	
	Philosophy of the Indian Constitution	(5L)
2	Preamble Salient Features	()
	Contours of Constitutional Rights & Duties	(5L)
	Fundamental Rights, Right to Equality, Right to Freedom ,Rig	
3	Religion, Cultural and Educational Rights, Right to Constitutional	
	Fundamental Duties.	
	Organs of Governance	(5L
4	Parliament, Composition, Qualifications and Disqualifications,	
4	Governor, Council of Ministers, Judiciary, Appointment and T	
	Functions	
	Local Administration	(5L)
	District's Administration head: Role and Importance, Municipal	ities: Introduction, Mayor and role of Elected
5	Representative, CEO of Municipal Corporation. Pachayati raj: Int	
	and their roles, CEO ZilaPachayat: Position and role. Block	
	departments), Village level: Role of Elected and Appointed official	
	Election Commission	(5L
6	Role and Functioning. Chief Election Commissioner and Election Commissioners. State Election Commission:	
	Role and Functioning. Institute and Bodies for the welfare of SC/S	Γ/OBC and women.
eference		
	The Constitution of India, 1950 (Bare Act), Government Publication.	
	Dr. S. N. Busi, Dr. B. R. Ambedkar framing of Indian Constitution, 1	st Edition, 2015.
	M. P. Jain, Indian Constitution Law, 7th Edn., Lexis Nexis, 2014.	15

• D.D. Basu, Introduction to the Constitution of India, Lexis Nexis, 2015.

Code: MO	CAN-E105D	Paper: Stress Management through Yoga	
Contacts	Hours / Week: 3	Total Contact Hours: 30	Credit: 3
Course O	outcome:		
After succ	cessful completion of this	course, students will be able to:	
✓ T	To achieve overall health	of body and mind	
√ T	To overcome stress		
UNITS		COURSE CONTENT	
1	Astanga		(8L)
1	Definitions of Eight pa	urts of Yoga (Ashtanga)	
	Yam and Niyam		(8L)
2	Do's and Don't's in life. i) Ahinsa, satya, astheya, bramhacharya and aparigraha ii) Shaucha, santosh, tapa,		
	swadhyay, ishwarprani	Idhan	-
	Asan and Pranayam		(8L)
3		and their benefits for mind & body ii)Regularization of breathing te	
	Typesof pranayama		1
4	Meditation Techniqu	es	(6L)
Reference	Books:		`````````````````````````````````
•	Janardan Swami Yogabh	yasi Mandal- Yogic Asanas for Group Tarining-Part-I, Nagpur	
•	Swami Vivekananda- Ra	ajayoga or conquering the Internal Nature, AdvaitaAshrama (Public	cation Department),
	Kolkata		- //

	CAN-E105E	Paper: Ethics in Business Profession	
	Hours / Week: 3	Total Contact Hours: 30	Credit: 3
Course O			
		ourse, students will be able to:	
		work ethics, Learn to respect others and develop civic virtue.	1 1 1 T
		ponsibilities of the engineers, create awareness about the customs a	nd religions, Install
		d Loyalty and to appreciate the rights of others.	0.1 11 1
	e	become a social experimenter, Provide depth knowledge on framing	of the problem and
	etermining the facts.		. D. 1.
		ty, risk & risk benefit analysis, Provide knowledge on Intellectual Prop	
		lobal issues, Create awareness on computer and environmental ethics,	Analyze ethical
	roblems in research.		
UNITS		COURSE CONTENT	
	Human Values		(6L)
1		thics-Integrity-Work Ethic-Service learning, Civic Virtue, Respect	
		ing, Honesty, Courage-Cooperation, Commitment, Empathy, Self Cor	
	Professional Ethics		(6L)
2 Senses of 'Professional Ethics-Variety of moral issued, Types of inquiry, Moral dilemmas, M			
		gan's theory, Consensus and controversy, Models of professional ro	oles, Theories about
	right action, Self-interes		
	Professional As Social		(6L)
3		sperimentation, Framing the problem, Determining the facts, Codes of	
		ssues, Common Ground, General Principles, Utilitarian thinking respec	
		And Rights in Profession	(6L)
4		essment of Safety and Risk – Risk Benefit Analysis and Reducing	
		Bargaining – Confidentiality – Conflicts of Interest – Occupational C	rime – Professional
	Global Issues	tts – Intellectual Property Rights (IPR) – Discrimination	(6L)
Globalization, Cross culture issues-Environmental Ethics, Compu		ulture issues Environmental Ethics, Computer Ethics, Computers as	
5		mputers as the object of Unethical acts, Autonomous Computers,	
5		ip, Code of Conduct, Corporate Social Responsibility. Ethics and R	
	Ethical Problems in rese		cocuron, rmaryzing
Reference		** ***	
		n S, Senthil Kumar V. S, "Engineering Ethics", Prentice Hall of India,	New Delhi.
•	A. R. Aryasri, Dharanik	otaSuyodhana "Professional Ethics and Morals" Maruthi Publica	ations.
•	Mike W. Martin and Rola	nd Schinzinger, "Ethics in Engineering", Tata McGraw Hill, New Delh	i.
•	John R Boatright, "Ethi	cs and the Conduct of Business", Pearson Education, New Delhi	

Widder	of Computer Application		
	AN-E105F	Paper: Managerial Economics	
	Hours / Week: 3	Total Contact Hours: 30	Credit: 3
Course Ou			
	essful completion of this cour		
	o understand applications of a		
	o understand and interpret de	ween short-run and long-run costs.	
		ve markets including substitution.	
		how it relates to price discrimination and total revenue.	
		sequences of different market conditions.	
		ce and output decisions of firms under various market structur	re.
UNITS		COURSE CONTENT	
	Introduction (2L)		
1		l Economics, Basic problems of an economic system; G	oals of managerial decision
	making; Resource allocatio		6
	Demand Analysis (6L)		
		w of Demand, Explaining the law of demand, Violations of t	theLaw of Demand, Shifts in
	Demand; Elasticity of Den	nand: Price Elasticity (at a point andover and interval), Fact	ors affecting price elasticity,
2		e in TotalRevenue, AR, MR and Price elasticity, Range of	
2		Superior and Normal goods, Income Elasticity and Share	in TotalExpenditure; Cross-
	Price Elasticity, Substitutes		
		t line and consumer equilibrium	
		demand estimation (concepts only)	
	Production and Cost Ana		
		rt Run and Long Run, Production with One Variable Input,	, I otal Product, Average and
	Marginal Products, Law of	Variable proportions, Relationship between TP, AP and MP.	
	Short Run Costs of Prod	luction, Fixed and Variable Costs, Short Run Total, Ave	rage andMarginal Cost and
		, Short Run Cost Curves, Relationshipbetween AVC, MC,	
3		en LAC and SAC, Economies of Scale and Scope.	The unit that, Doing ture cost
		, 1	
	Production with Two Varia	ble Inputs, Isoquants – Characteristics, Marginal Rate of	
		vs of Returns to Scale, Isocost Curves, * # Finding the Optim	al
		duction of a given output at Minimum Cost, Production of	
		ven level of Cost, Expansion Path, Finding the Long Run	
	Cost Schedules from the Pr		
4	Alternate Goals of Manag		
		nue maximization; Managerial utility maximization	
		king under Alternative Market Structures (6 L) Competition, #Profit Maximization in Competitive Markets,	Output Decision in the Short
		ort Run Supply for the Firm and Industry; Output Decision i	
5		r the Perfectly Competitive Industry.	, 210001 21000
		· · ·	
		under different market structure – Monopoly, Monopolistic	
	Competition, Oligopoly – c	cartel, price leadership.	
	Pricing Decisions [4 L]		
6		Monopoly, Transfer Pricing.	
	Market Failure Game theory &Asymmetric	cinformation	
Reference I	, ,	, mormation	
		Engineers, Khanna Publishing, Delhi,	
		rial Economics – Oxford University Press	
•	Lipsey & Chrystal - Econom	nics – Oxford University Press	
•	Peterson & Lewis - Manager	rial Economics – Pearson Education.	
		cro Economics – Pearson Education	
	H.L. Ahuza- Managerial Eco		
٠	D.N. Dwivedi- Managerial E	conomics, Prentice Hall.	

Code: MCAN-190 Paper: Soft Skill and Interpersonal Communication Total Contact Hours / Week: 4 Credit: 2 Course Outcome: After successful completion of this course, students will be able to: Effectively communicate through verbal/oral communication and improve the listening skills Able to be self-confident with positive vibes Actively participate in group discussion / meetings / interviews and prepare & deliver presentations Become more effective individual through poal/araget setting, self-motivation and practicing creative thinking. Function effectively in multi-disciplinary and heterogeneous teams through the knowledge of team work, Interpersonal relationships, conflict management and leadership quality. UNITS Soft Skills& Interpersonal Communication An Introduction – Definition and Significance of Soft Skills; Process, Importance and Measurement of Soft Skill Development. 1 Inter personal relationships through effective communication; listening skills; essential formal writing skills; corporate communication styles –assertion, persuasion, negotiation. 2 Discovering the Self. Setting Goals; Beliefs, Values, Attitude, Virtue. Developing Positive Thinking and Attitude; Driving out Negativity; Meaning and Theories of Motivation; Enhancing Motivation Levels. 3 Corporate Communication Fublic Speaking; Skills. Methods, Strategies and Essential tips for effective public speaking. Group Discovering the Self. Setting Goals; Beliefs, Values, Attitude, Virtue. Developing Positive Thinking Group Discovel	Master of C	omputer Application			
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 Able to be self-confident with positive vibes Actively participate in group discussion / meetings / interviews and prepare & deliver presentations Become more effective individual through goal/target setting, self-motivation and practicing creative thinking. Function effective individual through goal/target setting, self-motivation and practicing creative thinking. Function effective individual through goal/target setting, self-motivation and practicing creative thinking. UNITS COURSE CONTENT Soft Skills & Interpersonal Communication An Introduction – Definition and Significance of Soft Skills; Process, Importance and Measurement of Soft Skill Development. Inter personal relations; communication models, process and barriers; team communication; developing interpersonal relationships through effective communication, listening skills; essential formal writing skills; corporate communication styles –asertion, persuasion, negotiation. SWOT & Creative Thinking Discovering the Self; Setting Goals; Beliefs, Values, Attitude, Virtue. Developing Positive Thinking and Attitude; Driving out Negativity; Meaning and Theories of Motivation; Enhancing Motivation Levels. Corporate Communication Public Speaking; Skills, Methods, Strategies and Essential tips for effective public speaking. Group Discussion: Importance, Planning, Elements, Skills assessed; Effectively disagreeing, Initiating, Summarizing and Attaining the Objective. Interview & Presentation Skills: Interviewer and Interviewee– in-depth perspectives. Before, During and After the Interview. Tips for Success: Types, Content, Audience Analysis, Essential Tips – Before, During and After, Overcoming Nervousness. Non-Verbal Communication & Personality Development Importance and Elements; Body Language. Concept	After succe	ssful completion of this course, students will be able to:			
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MCA Syllabus

Code: MC	AN-191	Paper: Python Programming Lab	
	Hours / Week: 4	Total Contact Hours: 40	Credit: 2
Course Ou	itcome:		
		urse, students will be able to:	
		ating to different logical problems.	
		stand and debug syntax errors reported by the compile	er.
		ne native data types (Python in this course)	
	o implement conditional brain		
	o decompose a problem inte		
		m and write into simple text files.	
	o understand the basic conc		
	o understand and implement	t Python NumpyArrray operations	
UNITS		COURSE CONTENT	
1	Python Basics: Installin Program	g Python, Setting up Path and Environment Varial	bles, Running Python, First Python
2	Python Data Types & Input/output: Keywords, Identifiers, Python Statement, Indentation, Documentation, Variables, Multiple Assignment, Understanding Data Type, Data Type Conversion, Python Input and Output Functions, Import command.		
3	Operators and Express Associative Operators.	ions: Operators in Python, Expressions, Precedenc	e, Associativity of Operators, Non
4	Control Structures: Dec	ision making statements, Python loops, Python contro	ol statements.
5	Python Native Data T	ypes: Numbers, Lists, Tuples, Sets, Dictionary, F r methods and operations).	
6	Python Functions: Built Reference, Recursion	-in Functions, User defined functions, Anonymous	functions, Pass by value, Pass by
7	Exception Handling: Ex	ceptions, Built-in exceptions, Exception handling, Use	er defined exceptions in Python.
8	File Management in Python: Operations on files (opening, modes, attributes, encoding, closing), read() & write() methods, tell() & seek() methods, renaming & deleting files in Python, directories in Python.		
9	Python OOPs Python OOPs Concepts, 0	Dbject Class, Constructors, Inheritance	
10	Python Numpy Numpy data types, Opera filter)	tions on Numpy Array (indexing,slicing, shape/resha	ppe, iteration, join, split, search, sort,

a i Mai	31.404		
Code: MCA	N-192 ours / Week: 4	Paper: Relational Database Management System Lab Total Contact Hours: 40	Credit: 2
Course Out		Total Contact Hours. 40	
		s course, students will be able to:	
		onship Diagram (ERD) model as a blueprint to develop the correspondin	g relational model in
	DBMS system like Or		8
		f Structured query language (SQL) to create a relational database from sc	ratch through
		s constraints in Oracle RDBMS system.	C
✓ App	ply DML component o	of Structured query language (SQL) for storing and modification of data i	n Oracle RDBMS
sys	tem.		
		f Structured query language (SQL) to construct complex queries for effic	ient retrieval of data
		per the user requirement specifications.	
		various P/L SQL concepts like cursor, trigger in creating database progra	
		latabase backend system using SQL and P/L SQL programming to establi	ish overall integrity
	he database system.		
	plement PL/SQL funct	ion, Procedure and Package and Apply Exception.	
UNITS	~	COURSE CONTENT	
1		ase based on given ERD Model:	
	SQL Data Definition		1
		ble structure, Apply (and Alter) constraints on columns/tables viz., prin	
		ck. Verify/ Review the table structure (along with applied constraints) to user_constraints, user_cons_columns, etc. Create view, materialized vi	
	table.	user_constraints, user_cons_columns, etc. Create view, materialized vi	ew using one or more
	SQL Data Manipulati	ion Language (DML)	
		e at a time/ and in bulk) from a table, Update existing rows of a table, De	elete rows (a few or all
	rows) from a table.	e a a anno, and in bank) nom a more, optage existing rows of a more, be	nete to wa (u tew of un
	Data Query Langua	ge (DOL)	
		here structure - Usage of Top, Distinct, Null keywords in query, Using	String and Arithmetic
		ing Where Clause with various Operators and logical combination of	
	Sorting data using Or	der By clause. Usage of IN, LIKE, ALL keywords.	
	Introduction to Joins,	Natural Joins, equi-join, non-equi-join, Self-Join, Inner Join, Outer (left,	right) Join.
	Set operations:		
2		nus set operations on table data using SQL.	
	Using single row fund		
		ndle ambiguity of null data), upper, lower, to_date, to_char functions, etc.	
		e row functions in Queries like Count, Sum, Min, Max, Avg, etc, using	Group By and Having
		By with Rollup and Cube.	
		with various nested structure of Sub Queries - use in from or where clau	se with more than one
		elated sub-query- Ranking table data using correlated sub-query.	
	PL/SQL Stored Procedures on	nd Functions- Basic programming constructs of PL / SQL like if, else, e	lea if loop while for
	structure	in Functions- basic programming constructs of TE7 SQL like II, else, e	ise-ii, ioop, wille, ioi
		edure variables with the data fetched from table using SQL command.	
		rs - Creating Cursors, parameterized cursor, Locks on cursors, Exploring a	advantages of cursors.
3		ers - Constraints Vs Triggers, Creating, Altering, Dropping triggers, use of	
		er to validate/ rollback a Transaction, Automatically populate integer da	
	columns (e.g., Id.) us		
		Procedure & Package – Create Function, Create Procedure and Create Pac	kage.
	Exception Handling.	-	