Name Of the Teacher: Amita Vakil Class: FY Subject: Soft Skills

Semester: I

Semester Planning of Teaching

Month	Class	Assigned Lecture	Lectures Taken	Topic to be covered	Key Points of Tools
July	PX.	95	14	Introduction to Soft Stills Personality Development Emotional Intelligence	Soft Skills: An introduction - Definition and Significance of Soft Skills; Process, Importance and Measurement of Soft Skill Development. Personality Development: Knowing Yourself, Pesitive Thinking, Johart's Window, Physical Fitness Emotional Intelligence; Meaning and Definition, Need for Emotional Intelligence, Intelligence Quotient, Components of Emotional Intelligence Quotient, Components of Emotional Intelligence Positivity and Motivation: Developing Positive Thinking and Attitude; Driving our Negativity, Meaning and Theories of Notivation; Enhancing Motivation Levels Edupatte and Mannerism: Introduction, Profissional Edipates, Technology Etiquette Ethical Values: Ethics and Society, Theories of Ethics, Correlation between Values and Behavior, Hurturing Ethics, Importance of Work Ethics, Problems in the Absence of Work Ethics
Aug	FY	15	13	Basic Skills in Communication	Components of effective communication Communication Skills Job Interview Group Discussion:
5 *2	ry	15	15	Academic and Professional Skills	Professional Presentation Creativity at Workplace:
Oct	R	15		Relational data model Relational Algebra Functions	omains, attributes, Tupias and Relations, Relational Model Hotation, Characteristics of Relations, Relational Constraints - primary key, referential integrity, unique constraint, Null constraint, Chrok cenetraint Relational Algebra operations (selection, projection, set operations union, intersection, difference, cross prisduct, Julias - conditional, equi join and natural join, division) Functions - String Functions (concat, inext, lett, right, mid, length, Ictaedlower, Jusae/lupper, replace, strong, tim, itrim, strim), Math Functions sibs, cell, floor, mod, pow, self, round, truncately Date Functions (adddate, date-dirft, day, month, year, haur, mits, scr., now, reverse) Julining Tables - inner join, outer join (left outer, right outer, full outer) Subqueries - subqueries with IN, EMSTS, subqueries restrictions, Nested subqueries. ANY/ALL classe, correlated subqueries 1
Nov	FY	15		Exam & Papar evaluation	

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Jogeshwari (Edst), Mumbai - 400 050.

Month	Cless	Assigned Lecture	Loretures Taban	Topic to be envered	Key Points of Equir
July	50	18+18	22	Introduction to Community-deserves Operating-Systems Statemers Processes Threads Threads Process Synchroplassion	Definition of Operating Systems, Operating Ayears's time, Verentiting Systems Objections, Functions of Operating Ayears's Concepting for incontension Operating Ayears, Surv. know, Over start Operating-Systems Surv. know, Over start Operating-Systems Surv. know, Over start Operating-Systems Structure Operating-Systems Structure Operating-Systems Structure
				HTALS CHI	Fundamental Elements of MEMA, formatting form in MEMA, Cognition, but in MEMA, Lindo and Elements in MEMA, Today to of Elements are not in finish integer devices. In large several, the large several formatting and a large several formatting and all of Mema and analytic formatting of Elements (Memory of Elements (Memory of Elements), Memory of Elements (Memory of
Aug	sv	i3ets:	20	Process Synchronization Schoduling: Deadhacket	Consenta articulum of a hypital process, total condition, The Chilici-Section Psychian, Parasetar's Solution, Syndrodization and Syndrodization and Syndrodization and Syndrodization, Monitor Business, Children and Syndrodization, Monitor Business, Control State Britishman (Children Business), State Children State State Business, Sta
				Doubly Linked IIIL Trees Priority Queues & Hoops Graph	ADT of draftly braind list. Activirsages is this draftages, transition and deletion of acides at various positions Trans. ADT for The Structure. Advantages is disabstrages. Busy Terdinages (fall, subjects and Termina), there's feared three, indiseased STXT/Terminal Entering Trace, ACT trace, Applications of The Bia hullinan Coding, Priority Queens is Research Priority Queens. Priority Queens in Trace, ACT, Trace, Applications of The Bia hullinan Coding, Priority Queens in Research Priority Queens.
Sep. SV	226	15+18	16	Main Memory Virtual Memory Mass-Storage Structure File-System Interface	tiatisprund, Legical address onese; Physical address space. 3/NU, Surepring, Coringtona Monory Alocasius, Segmenation, Paging, 3/NU, Surepring, Coringtona Monory Alocasius, Segmenation, Paging, tastispranid, Oseonad Paging, Copy-on-Write, Pagi- Beglostrome, Allocation of Pramer, Prashing Overview, Disk Statesture, Disk Scheduling, Disk Muniquinon
				AJAX PHP Introduction to JQuery	AJAX: AJAX Web Application Model, How AJAX Works, XHL1ttsRequest Object - Properties and Nethods, handling asynchronus requests using AJAX PIPs Variables and Operators, Program Fline, Arrays, working with Fifth and Distorators, working with Database, Northing with Colkins, Sections and Headers Introduction to Squery: Fundamentals, Selectors, methods to access HTML attributes, methods for traversing, manipulato.
. 0	SY	15+15	15	File-System Implementation	File Careage, August Medicals, Directory and Died Strates, New System Mounting, File Sharing The System Strates, File System The System Strates, File System Implicatorisation, Directory Implementation, Allocation Methods, 1904-Space Management

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Name Of the Teacher: Amita Vakil

Class: FY Subject: Database System

Semester: II

Semester Planning of Teaching

Month	Class	Assigned Lecture	Lectures Taken	Tupic to be covered	Key Points of Topic
Jan	PY .	15	15	Entity Relationship Model ER to Table DDL Statements DML Statements	Viewing the structure of a table insert, update, delete, Select all columns, specific columns, unique records, conditional select, in claste, between clause, limit, aggregate functions (caumf, min, max, avg, sum), group by clause, having clause Entitles, attributes, entity sets, relations, relationship sets, Additional constraints (key constraints, participation constraints, weak entities, aggregation of generalization, Conceptual Design using IR (entities VS attributes, Entity Vs relationship, binary Vs ternary; constraints beyond ER) Creating Databases, Using Databases, data types, Creating Tables (with integrity constraints primary key, default, check, not null), Altering Tables, Renaming Tables, Dropping Tables, Truncating Tables.
Feb	ry.	15	10	Relational date model Relational Algebra Functions	Domains, attributes, Tuples and Relations, Perlational Model Notation, Characteristics of Relations, Relational Constraints - perimary key, referential Integrity, unique constraint, Null constraint, Check constraint Relational Algebra operations (selection, projection, set operations union, intersection, difference, cross product, Joins - conditional, equi join and natural joins, diritaton) Functions - String Functions (concal, instr, left, right, mid, length, icasen/ener, uncare/upper, replace, stromp, trim, ltrim, rtrim), Matthe Functions isbs, cell, floor, mod, pow, sort, round, cruncate) Date Functions (addades, datedff, day, month, yer, houst, mis, ec, now, reverse) Joining Tables - Inner psin, outer join (left outer, right outer, full outer) Subqueries - undpoeries with IN, DSTSTs, subqueries restrictions, Hested subqueries, ANY/ALL classe, correlated subqueries.
March	FY	15	14	Schema refinement and Normal forms: Functional dependencies, first,	Database Protection: Security Issues, Threats to Databases, Security Mechanisms, Role of DBA, Discretionary Access Control, Backing Up and Restering databases. Views (creating, altering dropping, renaming and manipulating views) DCL Statements (creating/dropping users, privileges introduction, granting/revoling privileges, viewing privileges), Transaction control commands—Commit, Balloack, Index Structures of Files: Introduction, Primary Index, Clustering Index, Multiverel indexes



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Artimadrilepartment
Jogeshwari (East), Mumbai - 400 060.

Ches : TY

Messile	Clen	Anigned Lecture	Lectures Taken	Topic to be covered	Key Points of Topic
dan	TY	15	15 :	Introduction to Data Science Data Management	What is Data? Different kinds of data, 15L Introduction to high feet programming language - Enloyated Development Environment (DRL Explorator) Data Analysis (ED-1) - Data Visasification, Different types of data sources, Data Management: Data Cofferent, Data ricanfugiversection, Data analysis & Medicing
Feh	TY	15	16	Data Curudian	Query languages and Operation to specify and transform data, forcement below based systems is over and acquirers of data Semi-structured systems as merit and acquirers of data. Semi-structured systems as merit and acquirers of data, Semi-structured systems as merit and acquirers of data. Semi-structured systems as data for the semi-structured systems as data of the semi-structured systems and semi-structured systems. Semi-structured sections of the Semi-structured systems, Assures Web Services (AWS)
March	ту	15	05	Statistical Modelling and Machine Learnings	Introduction to model reinetion: Regularization, bian/variance trudentle e.g. parainnen; AIC, BIC, Crans validation, Bidge represents and possible degrenation e.g. LASSO has transferonations: Bitmension relaxation, availables, Bidge represents and agreemable specific production. Smoothing and agreemable specific produced Learning Regulation. Biomer models, Regrenation tree, Timesected Analysis, Forecasting, Carolifornion circulification trees, Logistic regression, separating hyperplanes, NeW Lemportonal Learning; Principal Compositions, Analysis (PCA), Loncares distorting, Historichical distorting, Ensemble methods.
March &b April	sy		Practical Lann, Theory coasts, Paper Assessment and Rosult		

Signature Of Teacher

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			Semest	er Planning of Teaching	
Month	Class	Assigned Letters	Lectures liston	Supic to be invered	Kay Pulate of Yepit
July .	sy	35.	5	Web services hashsalium Prucikal 1-3	What Are Web Services? Types of Web Services Discributed companing influenceurs, exercises of NML, SDAP, throllog Web Services with ANNA N. Registering and Discribing Neb Services, Service Discribing Architecture, Web Services Development Life Cycle, Developing and concurring visible Neb Services across platform.
A. (C)	NV.	13	13	The REST Architectural style Practical from 3-6	Irenducing HTTP, The tain problectural elements of a RESTM system, Decryption and altervary of RESTM was surface, first tools and laterorists in helding RESTM see services, SROM message filters and reds and surface and an element of the services around 2000, Billion RESTM seeds on the ANARS APIC. The Decryptions and Discovery of RESTMs was services. Services, Serv
Ser .	sv	15	*	Developing Service-Oriented Applications with WCF	What is Westow Communication Fundation, Findermal Windows Communication Fundation Concepts, Windows Communication Fundation Architecture, WCF and NET Francework Client Prefile, Have WCF Pragmanuag, WCF
Orr.4: New House	n & Paper Assessment				

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Government of Maharashtra ISMAIL YUSUF COLLEGE OF ARTS, SCIENCE & COMMERCE

Jogeshwari (East), Mumbai – 400060

Teaching Plan

Subject: Design & Analysis of Algorithms USCS201

Class :F Y C S

Sem: II

2022-23

Faculty Name:

Dr Ashwin I Mehta

Month	Topics to be covered	Assigned Lecture	Lectur es Undert aken
January	Introduction to algorithms - What is algorithm, analysis of algorithm, Types of complexity, Running time analysis, How to Compare Algorithms, Rate of Growth, Types of Analysis, Asymptotic Notation, Big-O Notation, Omega-Ω Notation, Theta-Θ Notation, Asymptotic Analysis, Performance characteristics of algorithms, Estimating running time / number of steps of executions on paper, Idea of Computability.	12	
February	Introduction to Data Structures - What is data structure, types, Introduction to Array(1-d & 2-d), Stack and List data structures, operations on these data structures, advantages disadvantages and applications of these data structures like solving linear equations, Polynomial Representation, Infix-to-Postfix conversion	15	
March	Recursion - What is recursion, Recursion vs Iteration, recursion applications like Factorial of a number, Fibonacci series & their comparative analysis with respect to iterative version, Tower of Hanoi problem. Basic Sorting Techniques - Bubble, Selection and Insertion		
	Sort & their comparative analysis Searching Techniques - Linear Search and its types, Binary Search and their comparative analysis	2)	
	Selection Techniques - Selection by Sorting, Partition-based Selection Algorithm, Finding the Kth Smallest Elements in Sorted Order & their comparative analysis	× ×	



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	String Algorithms - Pattern matching in strings, Brute Force Method & their comparative analysis	
April	Algorithm Design Techniques - Introduction to various types of classifications/design criteria and design techniques	
	Greedy Technique - Concept, Advantages & Disadvantages, Applications, Implementation using problems like - file merging problem	= F ₂
	Divide-n-Conquer - Concept, Advantages & Disadvantages, Applications, Implementation using problems like - merge sort, Strassen's Matrix Multiplication	
	Dynamic Programming - Concept, Advantages & Disadvantages, Applications, Implementation using problems like - Fibonacci series, Factorial of a number, Longest Common subsequence	
	Backtracking Programming - Concept, Advantages & Disadvantages, Applications, Implementation using problems like N-Queen Problem	Detelate

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Corente of Bei Department Gent dinator Government of Materashtra's Ismail Yusuf College of Arts, Science & Commerce, Jogeshwari (East), Mumbai - 400 060.



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Teaching Plan

Subject: Design & Analysis of Algorithms USCS201

Class: FYCS

Sem: II 2022-23

Faculty Name:

Dr Ashwin I Mehta

Month	Topics to be covered	Assigned Lecture	Lectur es Undert aken	
January	Introduction to algorithms - What is algorithm, analysis of algorithm, Types of complexity, Running time analysis, How to Compare Algorithms, Rate of Growth, Types of Analysis, Asymptotic Notation, Big-O Notation, Omega-Ω Notation, Theta-Θ Notation, Asymptotic Analysis, Performance characteristics of algorithms, Estimating running time / number of steps of executions on paper, Idea of Computability.	12	- 1	
February	Introduction to Data Structures - What is data structure, types, Introduction to Array(1-d & 2-d), Stack and List data structures, operations on these data structures, advantages disadvantages and applications of these data structures like solving linear equations, Polynomial Representation, Infive to-Postfix conversion	15		
March	Recursion - What is recursion, Recursion vs Iteration, recursion applications like Factorial of a number, Fibonacci series & their comparative analysis, with respect to iterative version, Tower of Hanoi problem. Basic Sorting Techniques - Bubble, Selection and Insertion Sort & their comparative analysis			
	Searching Techniques - Linear Search and its types, Binary Search and their comparative analysis			
	Selection Techniques - Selection by Sorting, Partition-based Selection Algorithm, Finding the Kth Smallest Elements in Sorted Order & their comparative analysis			
	String Algorithms - Pattern matching in strings, Brute Force Method & their comparative analysis	2		



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April	Algorithm Design Techniques - Introduction to various types of classifications/design criteria and design techniques	-	
	Greedy Technique - Concept, Advantages & Disadvantages, Applications, Implementation using problems like - file merging problem		
	Divide-n-Conquer - Concept, Advantages & Disadvantages, Applications, Implementation using problems like - merge sort, Strassen's Matrix Multiplication		
	Dynamic Programming - Concept, Advantages & Disadvantages, Applications, Implementation using problems like - Fibonacci series, Factorial of a number, Longest Common subsequence		
	Backtracking Programming - Concept, Advantages & Disadvantages, Applications, Implementation using problems like N-Queen Problem	= =	

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Computer Science Department
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Arts, Science Department/ Coordinator
Jogeshwari (East), Mumbai - 100 060.

Name Of the Teacher: Charul Singh

Class: FY

Semester: I,II.

Subject : DSA, E-Comm.

Month	Class	No. Of Lectu res As Per Syllab us	Title Of Topic to be covered	No. Of Lectures as per TimeTable	Key Points of Topic
July	FY	15	Fundamentals of Digital Logic	07	Fundamentals of Digital Logic: Boolean algebra, Logic Gates, Simplification of Logic Circuits: Algebraic Simplification, Karnaugh Maps. Combinational Circuits: Adders, Mux, De-Mux, Sequential
Aug	FY	15	Circuits	08	Circuits: Flip Flops (SR, JK & D), Counters: synchronous and asynchronous Counter Computer System: Comparison of Computer Organization & Architecture, Computer Components and Functions, Interconnection Structures. Bus Interconnections, Input / Output: I/O Module, Programmed I/O, Interrupt Driven I/O, Direct Memory Access
Sep	FY	15	Memory System Organization	08	Memory System Organization: Classification and design parameters, Memory Hierarchy, Internal Memory: RAM, SRAM and DRAM, Interleaved and Associative Memory. Cache Memory: Design Principles, Memory mappings, Replacement Algorithms, Cache performance, Cache Coherence. Virtual Memory, External Memory: Magnetic Discs, Optical Memory, Flash Memories RAID Levels Processor Organization: Instruction Formats, Instruction Sets, Addressing Modes, Addressing Modes Examples with Assembly Language [8085/8086 CPU], Processor Organization, Structure and Function. Register 15 Page 8 of 49 Organization, Basic Microprocessor operations: Data Transfer (Register / Memory) Operations, Arithmetic & Logical Operations, Instruction Cycle, Instruction Pipelining. Introduction to RISC and CISC Architecture, Instruction Level Parallelism and Superscalar Processors: Design Issues
Oct	FY	15	Control Unit		Control Unit: Micro-Operations, Functional Requirements, Processor Control, Hardwired Implementation, Micro-programmed Control. Fundamentals of Advanced Computer Architecture: Parallel Architecture: Classification of Parallel Systems, Flynn's Taxonomy, Array Processors, Clusters, and NUMA Computers. Multiprocessor Systems: Structure & Interconnection Networks, Multi-Core Computers: Introduction, Organization and Performance.
Jan	FY	15	Introduction to E-Commerce and E- Business.		Introduction to E-Commerce and E- Business: Definition and competing in the digital economy, Impact of E-Commerce on Business Models, FactorsDriving e-commerce and e-Business Models, Economics and social impact of c-Business, opportunities and Challenges, e-Commerce vs m Commerce, Different e-Commerce Models (B2B, B2C, C2B, C2C, B2E), e-Commerce Applications: e-Trading, e-Learning, e-Shopping, Virtual Reality & Consumer

Feb	FY	15	Social Media Marketing, Content Marketing	Experience, Legal and Ethical issues in e-Commerce, Overview Payment systems: Types of Electronic payment schemes (Credit cards, Smartcards, Internet banking), E checks, E-Cash Concept applications of EDI and Limitation Introduction & origin of Digital Marketing applications of EDI and Limitation Introduction & origin of Digital Marketing. Digital Marketing Strategy, The p-Country of Editional V/s Digital Marketing. Digital Marketing Strategy, The p-Country of Editional V/s Digital Marketing. Digital Marketing Messages, The Digital Industry of Digital Marketing Marketing Plan. Social Media Marketing: Meaning, Purpose, types of social media websites, Social Media Engagement, Target audience, Facebook Marketing: Business Social Media Engagement, Target audience, Facebook Marketing: Business Social Media Engagement, Target audience, Facebook Marketing: Importance of through Facebook Marketing Tools, LinkedIn Marketing: Importance of LinkedIn Marketing, Framing LinkedIn Strategy, Lead Generation through LinkedIn, Content Strategy, Analytics and Targeting, Twitter Marketing: Framing content strategy, Analytics and Targeting, Twitter Marketing: Video optimization, Promoting on YouTube, Monetization, YouTube Analytics Email Marketing: Types of Emails, Mailing List, Email Marketing tools, Email Deliverability & Email Marketing automation Mobile Marketing: Introd. An. Mobile Usage, Mobile Advertising, Mobile Marketing Types, Mobile Marketing Features, Mobile Campaign Development, Mobile Advertising Analytics Content Marketing: Introduction, Content marketing statistics, Types of Content, Types of Blog posts, Content Creation, Content optimization, Content Management & Distribution, Content Marketing Strategy, Content creation tools and apps, Challenges of Content Marketing.
March	FY	15	Search Engine Optimization,marketing, Buying Models.	Scarch Engine Optimization: Meaning, Common SEO techniques, Understanding Search Engines, basics of Keyword search, Google rankings, Link Building, Steps to optimize website, On-page and off-page optimization Search Engine Marketing: Introduction to SEM, Introduction to Ad Words - Google Ad Words, Ad-Words fundamentals, Ad Placement, Ad Ranks, Creating Ad Campaigns, Campaign Report Generation, Display marketing, Buying Models: Cost per Click (CPC), Cost per Milli (CPM), Cost per Lead (CPL), Cost per Acquisition (CPA). Web Analytics: Purpose, History, Goals & objectives, Web Analytic tools & Methods. Web Analytics Mistakes and Pitfalls. Google Analytics: Basics of Google Analytics, Installing Goo Analytics in website, Parameters of Google Analytics, Reporting and Analysis

Signature Of Teacher

Computer Science Department
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Arts, Science & Commerce,
Jogeshwari (East), Mumbai - 400 060

Lash Concepts and Very Concepts and Porte Name Of the Teacher: Charul Singh

Class: SY

D.O.E.M

Semester: III,IV

Subject : DS,GT,TOC,CN.

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Month	Class	No. Of Lecture s As Per Syllabu s	Title Of Topic to be covered	No. Of Lectures as per TimeTable	Key Points of Topic
Jun ((fr.	sv	15	Abstract Data Type:	5	Abstract Data Type: Different Data Types, different types of data structures & their classifications. Introduction to ADT, Creating user-specific ADT Linked Structures: ADT for linked list, Advantages & Disadvantages, Singly Linked List-Traversing, Searching, Prepending and Removing Nodes, applications of linked list like polynomial equation Stacks: Stack ADT for Stack, Advantages & Disadvantages, Applications of stack like balanced delimiter, prefix to postfix notation Queues: Queue ADT, Advantages & Disadvantages, linked representations. Circular Queue operations. Dequeues, applications of queue like job scheduling queues
July	sv	15	Doubly Linked list:	10	Doubly Linked list: ADT of doubly linked list, Advantages & Disadvantages, Insertion and deletion of nodes at various positions Trees: ADT for Tree Structure. Advantages & disadvantages, Binary Tree-Properties, Implementation and Traversals, Binary Search Tree, Balanced BST, Threaded Binary Trees. AVL Trees, Applications of Tree like Huffman Coding, Priority Queues & Heaps: Priority Queue ADT, Advantages and Disadvantages, Applications, Heaps, types of heaps, Heapifying the element.
Aug	SV	15	Graph	15	Graph: Introduction, Graph ADT, Advantages and Disadvantages, Graph Representation using adjacency matrix and adjacency list, Graph operations like insertion and deletion of nodes, Graph Traversals using BFS & DFS, Applications of Graphs like shortest path algorithms, Hashing: Hash Table ADT, Advantages & Disadvantages, Concept of hashing, hash table, hash functions, collision, collision avoidance techniques. Applications of hashing
un((6	SY	15	Green IT Fundamentals	05	Green IT Fundamentals: Information Technology and Environment, Business, Environment, and Green Enterprise Characteristics, Green Vision and Strategic Points, Green Value, Green IT Opportunity, Challenges of a Carbon Economy, Environmental Intelligence, Envisioning the Green Future.
uly	SY	6	Green IT Strategies	10	Green IT Strategies: Green strategic alignment, Green IT Drivers-Cost, Regulatory and Legal. Sociocultural and Political, Business ecosystem, New market opportunities, Green IT Business Dimensions, KPIs in Green Strategies Environmentally Responsible Business: Developing ERBS. Policies, Practices, and Metrics, Mobility and Environment, Green It Metrics and Measurements. Green IT Readiness and CMM, Context Sensitivity and Automation in Green IT Measures Green Assets. Introduction, Green Assets. Green IT Hardware, Green Data Centers and ICT Equipment, Server and Data Strategy.
ē.	SY	15	Green Assets and emerging Trends	15	Green Assets and emerging Trends: Data Servers Optimization and Virtualization, Physical Data Server Organization and Cooling, Cloud Computing and Data Centers, Networking and CommunicationsInfrastructure, End-User Devices, Smart Meters in Real-Time, Managing Devices for Central Green Services, Devices and Organizational Boundaries for Measurements, Mobile Devices, and Sustainability Green Business Process Management: Introduction, Green Reengineering, Green Process, Green BPM and standards, Green Business Analysis, Green Requirements Modelling, Green IT Governance, Green Business Process and Applications, QoS, Achieving green BPM, Green Mobile Business Process. Digital Library Green Enterprise Architecture: Green IT and organizational Systems, Aspects of Green Solutions Architecture, Contents and Integration with Service-Oriented Architecture, Green Supply Chain Management, Green Portals in Green Enterprise Architecture, Environmental Intelligence.
	SY	15	Green Information Systems(GIS)	15	Green Information Systems(GIS). Design and Development Models. Describing GIS, GIS Requirements Sociocultural Aspects of Green IT: Green IT's Social Impact, Learning Organization, Green Social Stakeholders, Role-Based View of Green IT, Green User Practices, Artitude and Subjectivity in Green IT.

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Uniteast Routing: Introduction, routing algorithms, uniteast routing protocole, Next generation IP: IPv6 addressing, IPv6 protocol, ICMPv6 protocol, uniteast routing protocole, Next generation IP: IPv6 Layer: Transport Layer Protocol, Deer Dalagram Protocol, Transmission Control Protocol, SCTP, Introduction to Application Layer: Client Server Programming, Iterative Programming, Standard Client-Server Protocols: WWW, HTTP, FTP, Effectionic Mail, TELNET, Secure Cell, DNS, SNMP Quality of Service Data Flow to improve QoS, Flow control to improve QoS, Integrated service (Intectv). Differentiated Service(Diffserv).	sī	Crephics, Animations, and Integrating Modis in Android Modis in Android Interacting With Camera Cathering Location Data: 1) Managing Background Torke. 2) Deploying Android applications on Coogle Play	st	AS	dəl
Introduction to Data Link Layer. Link layer addressing, Data Link Layer Design Jasues, Fittor detection and correction: -Block coding, cyclic codes, checksum, forward error correction, error correcting codes, error detecting codes, error detecting codes, error detecting codes, or an expension and control DLC services, data link layer protocols, IIDLC, Point-to-point protocol. Media Access Control: Bandom access, controlled access, chamolization. Wired LAMs – Ethermet: EthermetProtocol, standard Ethermet, faarEthermet, gigabit Ethermet, 10 grgabit EthermetWired Actwork: Johnstein Retronck, Virac LAMs: Introduction, IEEE 802.11 project, Relucion Network, Satellite networks, SONET, ATAIWiteless LAMs: Introduction, IEEE 802.11 project, Cellular telephone Network. Satellite networks. Introduction to Network Luyer. Network Juyer Actwork Layer services, packet actwork layer performance. IPv4 addressing, forwarding of IP packets, Network Layer Protocols: Internet Protocol, ICMPv4, Mobile IP	L	1375c.l Ani l. aleCl	\$1	AS	шү
Introduction: Networking standards and Administrations, networks, metwork types – LAN, MAN, WAN. Network Models: The OSI model, TCP/IP protocol suite, Introduction to Physical layer: Data and signals, periodic analog signals, digital signals, transmission, impairment data rate limits, performance. Digital transmissions: Digital-to-digital conversion, analog-to-digital conversion, transmission modes Analog transmissions: digital-to-analog conversion, analog-to-analog conversion, naramission modes Analog transmissions: digital-to-analog conversion, analog-to-analog conversion, Bandwidth Utilization – Multiplexing and Spectrum spreading: Multiplexing, Spread Spectrum Spectrum Transmission media: Guided Media. Unguided Media Transmission media: Guided Media. Unguided Media	8	υστροπα	SI	AS	DEC
The Church-Turing thesis, Universal Turing Machine, Ilaling Problem, Introduction to Unsolvable Problems.		Undeerdability		AS	45ml/
Definitions, Acceptunce by PDA, PDA and CFG-The Linear Bound Automata Model, Linear Bound Automata Model, Linear Bound Automata Machine Definition, Representations, Acceptability by Turing Machines. Designing and Description of Turing Machines, Turing Machine Constructions, Variants of Turing Machine,	L	1)Coniext Free Languages 2) Pushdown Automata 3) Linear Bound Automata 4) Tunng Machines	sτ	AS	زدب
Pumping Lemma and its Applications, Closuse Properties, Regular Sets and Regular Generalion, Normal Grammar Context-free Languages, Derivation Tree, Ambiguity of Grammar, CFG simplification, Normal Forms, Pumping Lemma for CFG.	9) प्रदर्हणाज ५८६२ ब्राप्ते प्रदर्हणाब प्राच्याप्तवर	\$1	.\\$	or _i
Minimis Granmar, Derivations, Languages generated by Grammar, Chomsky Classification of Grammar Defining Granmar, Derivations, Languages, and Automata Regular and Languages, Recursive Enumerable Sers. Operations on Languages, Recursive Enumerable Sers, Operations and Regular Expressions. Grammar, Regular Expressions, Finite automata and Regular Expressions.	80	Automata Theory (1) Formul Languages		AS	3%
Defining Automaton, Finite Automaton. Transitions and Its properties, Acceptability by Finite Automaton. Transitions, DFA and MDFA equivalence. Mealy and Machines Machines Machines. Minimizing Automata. Minimizing Automata.	£0	Automata Theory	s1	is .	
Circar IT Ethics and Code of Conduct, Privacy and Security of Green Information Projects, Green HR and Changing Characteristics of the Changing Characteristics of the Changing Characteristics of the Changing Characteristics of the Changing Characteristics of Changing Characteristics of Characteris					

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Circei II Ethics and Code of Conduct, Privacy and Security of Circen Information

Name Of the Teacher: Charul Singh

Semester: V&VI

Class: TY

Subject : INS,EH.

Month	Class	No. Of Lectu res As Per Sylla bus	Title Of Topic to be covered	No. Of Lectures as per TimeTable	Key Points of Topic
June	TY	15	Introduction	05	Introduction: Security Trends, The OSI Security Architecture, Security Attacks, Security Services,
July	TY		Cryptography and RSA.	10	Security Mechanisms Classical Encryption Techniques: Symmetric Cipher Model, Substitution Techniques, Transposition Techniques, Steganography, Block Cipher Principles, The Data Encryption Standard, The Strength of DES, AES (round 15 Page 10 of 63 details not expected), Multiple Encryption and Triple DES, Block Cipher Modes of Operation, Stream Ciphers Public-Key Cryptography and RSA: Principles of Public-Key Cryptosystems, The RSA Algorithm
Aug	TY	15	Key Management	15	Key Management: Public-Key Cryptosystems, Key Management, Diffic Hellman Key Exchange Message Authentication and Hash Functions: Authentication Requirements, Authentication Functions, Message Authentication Codes, Hash Functions, Security of Hash Functions and Macs, Secure Hash Algorithm, HMAC Digital Signatures and Authentication: Digital Signatures, Authentication Protocols, Digital Signature Standard Authentication Applications: Kerberos, X.509 Authentication, Public-Key Infrastructure
Sep	TY	15	Electronic Mail Security	15	Electronic Mail Security: Pretty Good Privacy, S/MIME IP Security: Overview, Architecture, Authentication Header, Encapsulating Security Payload, Combining Security Associations, Key Management Web Security: Web Security Considerations, Secure Socket Layer and Transport Layer Security, Secure Electronic Transaction Intrusion: Intruders, Intrusion Techniques, Intrusion Detection Malicious Software: Viruses and Related Threats, Virus Countermeasures, DDOS Firewalls: Firewall Design Principles, Types of Firewalls

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Jan	TY	15	Introduction, Scanning and Enumeration.	15	Introduction: Terminology, Hacking Technology Types, Eth. Phases, Hacktivism, Hacker Classes, Skills Required for an I Phases, Hacktivism, Hacker Classes, Skills Required for an I Phases, Hacktivism, Hacker Classes, Skills Required for an I Phases, Hacker, Vulnerability Research, Ways to Conduct Ethical Hacker, Vulnerability Research, Ways to Conduct Ethical Hacker, Footprinting: Definition, Information Gathering Methodolog, Competitive Intelligence, DNS Enumeration, Whois and ARIN Local Types of DNS Records, Traceroute in Footprinting, E-Mail Tracking, Types of DNS Records, Traceroute in Footprinting, E-Mail Tracking, Social Engineering: Common Types Of Attacks Scanning and Social Engineering: Common Types Of Attacks Scanning and Enumeration: Port Scanning, Network Scanning, Vulnerability Scanning CEH Scanning Methodology, Ping Sweep Techniques, Nmap Comman CEH Scanning Methodology, Ping Sweep Techniques, Nmap Comman Switches, SYN, Stealth, XMAS, NULL, 15 Page 48 of 63 IDLE, FIN Scans, Anonymizers, HTTP Tunneling Techniques, IP Spoofing Techniques, SNMP Enumeration, Steps Involved in Enumeration
Feb	TY	15	System Hacking, Hacking Web Servers.	15	System Hacking: Password-Cracking Techniques, Types of Password Keyloggers and Other Spyware Technologies, Escalating Privileges, Rootkits Sniffers: Protocols Susceptible to Sniffing, Active and Passiv Sniffing, ARP Poisoning, MAC Flooding, DNS Spoofing Techniq Sniffing Countermeasures Denial of Service: Types of DoS Attacks, Working of DoS Attacks, BOTs/BOTNETs, "Smurf" Attack, "SYN" Flooding, DoS/DDoS Countermeasures Session Hijacking: Spoofing vehijacking, Types, Sequence Prediction, Steps, Prevention Hacking Wel Servers: Web Server Vulnerabilities, Attacks against Web Servers, Patc Management Techniques, Web Server Hardening
March	TY	15	Web Application Vulnerabilities, Penetra tion Testing Methodologies.	15	Web Application Vulnerabilities: Web Application Hacking, Web Application Threats, Google Hacking, Countermeasures Web-Based Password Cracking Techniques: Authentication Types, Password Cracker Countermeasures SQL Injection: Steps, SQL Server Vulnerabilities, Countermeasures Buffer Overflows: Types, Stack-Based Buffer Overflows, Mutation Techniques Wireless Hacking: WEP, WPA Authentication Mechanisms, and Cracking Techniques, Wireless Snill, S. Rogue Access Points, Wireless Hacking Techniques, Securing Wireless Networks Penetration Testing Methodologies: Methodologies, Steps, Automated Tools, Pen Test R. III
	chaeul.	1			Automated Tools, Pen-Test Deliverables

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Signature Of Teacher

Computer Specification

Government of Maharishtra's
Ismarrightator College of

Arts, Science & Commerce,

Jogeshwari (East), Mumbai - 400 060.

Name Of the Teacher: Snehlata Agarwal

Semester: V,VI

Class: TY

to Tuble Clorates.

Subject: Artificial intelligent, Information retrieval

Month	Class	Assigned Lecture	Lectures Taken	Topic to be covered	Key Points of Topic
June	TY	15	1	Introduction to Al and Intelligent Agents What Is AI	Foundations, History and State of the Art of Al
Juli O	ту		9	1) Intelligent Agents 2) Problem Solving by searching 3) Practical from 1 to 2 4)Knowledge Representation	Agents and Environments, Nature of Environments, Structure of Agents. Problem-Solving Agents, Uninformed Search Strategies, Informed (Heuristic) Search Strategies Knowledge Representation and different forms,
Ang	TY	15	8	Reasoning, and Machine Learning 1)Knowledge Representation	1)Reasoning, Planning, Uncertainty in Knowledge Fuzzy Logic & Fuzzification
Sep			12	and Reasoning 2) Practical from 3 to 5	
od	TY	15	8	Machine Learning Probabilistic Models, Unsupervised Learning, and Reinforcement Learning	Forms of Learning, Parametric & Non-Parametric Models, Classification, Regression, Regularization, Decision Trees, SVM, Artificial Neural Networks, Ensemble Learning, Boosting, K-NN, Gradient Descent UNIT 2 Statistical Learning, Learning with Complete Data, Naive Bayes Classifier, Learning with Hidden Variables: The EM Algorithm

			- 1	2) Practical from 6 to 8	
30V	TY	15	3	Learning 2)Reinforcement	1)Concept of Unsupervised learning,, Association Rule Mining 2)Concept of Reinforcement learning, Q-Learning, Hidden Markov Model
ec	TY			Revision for Lect and Practical	- 67
Jam	TY	15	2	1) Introduction to Information Retrieval (IR) systems 2) Docume nt Indexin g, Storage, and Compre	Definition and goals of information retrieval, Components of an IR system, Challenges and applications of IR 1)Inverted index construction and compression techniques, Document representation and term weighting, Storage and retrieval of indexed documents,
Fob			15	1)Retrieval Models Spelling 2) Correction in	2) Boolean model: Boolean operators, query processing, Vector space model: TF-IDF, cosine similarity, query- document matching, Probabilistic model: Bayesian retrieval, relevance feedback
weaket	TY	15 	9	IR Systems 3) Performance Evaluation 4) Practical from 1 to 4	3)Challenges of spelling errors in queries and documents, Edit distance and string similarity measures, Techniques for 15 Page 42 of 63 spelling correction in IR systems 4)Evaluation metrics: precision, recall, F-measure, averag precision, Test collections and relevance judgments, Experimental design and significance testing
tal	TY	15	15	1)Text Categorization and Filtering 2)Text Clustering	1)Text classification algorithms: Naive Bayes, Support Vector Machines, Feature selection and dimensionality reduction, Applications of text categorization and filtering 2) Clustering techniques: Kmeans, hierarchical clustering

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		9	for Information Retrieval 3)Web Information Retrieval 4)Learning to Rank 5)Link Analysis and its Role in IR Systems 6)Crawling and Near-Duplicate Page Detection 1) Practical from 5 to 7	expansion and result grouping 3)Web search architecture and challenges, Crawling and indexing web pages, Link analysis and PageRank algorithm 4)Algorithms and Techniques, Supervised learning for ranking: RankSVM, RankBoost, Pairwise and listwise learning to rank approaches Evaluation metrics for learning to rank 5)Web graph representation and link analysis algorithms, HITS and PageRank algorithms, Applications of link analysis in IR systems 6)Web page crawling techniques: breadth-first, depth-first, focused crawling, Near-duplicate page detection algorithms, Handling dynamic web content during crawling
eil TY	15	15	1)Advanced Topics in IR 2)Cross-Lingual and Multilingual Retrieval 3) User-based evaluation 4) Practical from 8 to 10	1) 2)Text Summarization: extractive and abstractive methods, Question Answering: approaches for finding precise answers, Recommender Systems: collaborative filtering, content-based filtering 3) Challenges and techniques for cross-lingual retrieval, Machine translation for IR, Multilingual document representations and query translation, Evaluation Techniques for IR Systems 4)user studies, surveys, Test collections and benchmarking, Online evaluation methods: A/B testing, interleaving experiments
ТУ			Revision, Practical Exam, Theory exam, Paper Assessment and Result	

Signature of Teacher

Coordinator
Signature
Computer Science Department
Government of Maharashtra's
Head Prist Prest Period of
Arts, Science & Commerce,
Jogeshwari (East), Mumbai - 400 060.

Department of Computer Science A.Y. 2022-23

Semester wise Plan

Class: SY

Name Of the Teacher: Snehlata Agarwal

Semester: III,IV

Subject: Advanced Database Program, Advanced Application Development

S &	A up	ying	June	th Mon
s	S	ä	SY	Class
5	74	75	75.	Assigne d Lecture
9 15	ъ	9 I	1	Lectur es Taken
I)Collections and Records 2)Error Handling 3)Cursors 4)Static and Dynamic SQL 1) Practical from 9 to 12	1)Packages 2)Transaction Management 3)Crash Recovery	1) Fundamentals of PL/SQL 2) Control Statements 3) Sequences 4) Stored Procedures and Functions 5) Practical from 1 to 4	Overview of PL/SQL	Topic to be covered
I)Associative Arrays, Varrays (Variable-Size Arrays), Nested Tables, Collection Constructors, Assigning Values to Collection Variables, Multidimensional Collections, Collection Comparisons, Collection Methods, Collection Types Defined in Package Specifications, Record Variables, Assigning Values to Record Variables 2)Compile-Time Warraings, Overview of Exception Handling, Internally Defined Exceptions, Predefined Exceptions, UserDefined Exceptions, Redeclared Predefined Exceptions, Raising Exceptions Explicitly, Exception Propagation, Unhandled Exceptions 3) Overview of Cursor, Types of cursors, Invalid cursor Exception.	1)Overview of a Package. Need of Packages, Package Specification, Package Body. Package Instantiation and Initialization 2)ACLD Properties, Serializability, Two-phase Commit Protocol, Concurrency Control, Lock Management, Lost Update Problem, Inconsistent Read Problem, Read-Write Locks, Deadlocks Handling, Two-Phase Locking protocol 3)ARIES algorithm. The log-based recovery, recovery related structures like transaction and dirty page table, Write-ahead log protocol, check points, recovery from a system crash, Redo and Undo phases	I)Character Sets, Lexical Units, Declarations, References to Identifiers, Scope and Viability of Identifiers, Assigning Values to Variables, Expressions, Error-Reporting Functions, Data Types 2) Conditional Selection Statements, LOOP Statements, Sequential Control Statements, GOTO, and NULL Statements. 3) creating sequences, referencing, altering, and dropping a sequence. 4) Procedures: Types and benefits of stored procedures, creating stored procedures, executing stored procedures, altering stored procedures, serving stored procedures. Functions: Calling function and recursion function. 5) Overview of Triggers, implementing triggers - creating triggers, Insert, delete, and update triggers, nested triggers, viewing, deleting, and modifying triggers, and enforcing data integrity through triggers.	What is PL/SQL, Advantages of PL/SQL, Features of PL/SQL, Architecture of PL/SQL etc.	Key Points of Topic

Feb	<u>.</u>	Dec	Nov Oct	
SY	S	9.	SY SY	
55 55 15	3	5 5	5	
9 3 2 8	9 12	6 W ~	2	
1) Internal Exam 2) Understanding Angular JS(A) 3) Understanding Flutter 4) Dart Programming 5) Practical from 8 to 11	1) Server-Sid c Developm ent with Express 2) Practical from 3 to 7	1) Node.js 2) MongoDB 3) Server-Side e Developm ent with Express 4) Practical from I to 2	Node.js	12
Getting Started with Angular. Creating an Angular Application. Angular Project File Structure. Anatomy of an Angular Component. One-way Data Binding. Two-way Data Binding. Using Nglf Directive. Using NgForOf Directive. Angular Modules. Creating NgNodules Using Angular Router. Configuring Templates. Creating Navigations. Working with Template-driven Forms. Working with Reactive Forms. Validating Form Data. Services Dependency Injection (DI). Reading Data from Database. Inserting Data into Database. Updating Data in the Database. Delete Data from Database. Inserting Data into Database. Updating Data in the Database. Delete Data from Database. Inserting Data into Database. Updating Data in the Database. Delete Data from Database. Configuring Flutter SDK. Importance of Flutter, Flutter Framework, Android Studio, Flutter SDK, Installing and Configuring Flutter SDK. main() function, Dart Variables, Dart Data Types, Dart Conditional Operators, Control Flow & Loops. Dart Functions - Functions, Function Structure, creating a Function, Function Returning Expression. Object-Oriented Programming (OOP) - Creating a Class, Adding Methods to Classes, Class - Getters and Setters, Class Inheritance, Abstract Class.	Testing REST APIs. Refactoring APIs.	Creating Node Modules, Exploring the Node. Js. HTTP Module, Creating an HTTP Webserver with Node. Js. Responding to HTTP Requests, Routing in Node. Js. Creating a Sample Node. Js. Application Introduction to MongoDB. Installing MongoDB. Using MongoDB Compass, Using Mongo Shell Interface, Connecting to MongoDB. Creating Schemas and Models, Querying Documents Using find(), Inserting Documents Using create(), Updating Documents Using findOneAndUpdate(), Deleting Documents Using findOneAndUpdate(), Deleting Documents Using findOneAndDelet(). & deleteMany() Introduction to the Express Framework, Installing and Testing Express, Creating a Node, js Express App. Restructuring an Express App. Creating Templates, Using Express Middleware Functions, Creating the List Page, Creating the Details Page, Creating the Edit Page, Creating the Add Page, Deleting Data, REST API Basics	Introduction to Node.js. Installing Node.js. The package.json File. The Node.js Event Loop. The I/O Cycle. The Anatomy of a Node.js Module.	4) Description of Static SQL. Care Variables, CURSOR Expressions, Transaction Processing and Control. Autonomonal Variables, CURSOR Expressions, Transactions. Native Dynamic SQL, DBMS_SQL Package, SQL Injection.

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Arts, Science
Jogeshwari (East), Manager new York

Name Of the Teacher: Snehlata Agarwal

lata Agarwal Semester: I,II

Class: FY

Subject: Programming with Python-I, Advanced Python Programming

	Month	Class	Assigned Lecture	Lectures Taken	Topic to be covered	Key Points of Topic
	June	FY				
6	July	FY	15	7	1)Overview of Python 2)Data Types, Variables and Other Basic Elements	History & Versions, Features of Python, Execution of a Python Program, Flavours of Python, Innards of Python, Python Interpreter, Memory Management in Python, Garbage Collection in Python, Comparison of Python with C and Java, Installing Python, Writing and Executing First Python Program, Getting Help, IDLE Comments, Docstrings, Data types- Numeric Data type, Compound Data Type, Boolean Data type, Dictionary, Sets, Mapping, Basic Elements of Python, Variables
6	Aug	FY		4 4 9	1) Input and Output Operations 2) Control Statements 3) Practical from 1 to 4 4) Operators 5) Practical from 5 to 7	Input Function, Output Statements, The print() function, The print("string") function, The print(variables list) function, , The print(object) function, The print(formatted string) function, Command Line Arguments The if statement, The if else Statement, The 'if elif else' Statement, Loop Statement- while loop, for loop, Infinite loop, Nested loop, The else suite, break statement, continue statement, pass statement, assert statement, return statement Arithmetic operators, Assignment operators, Unary minus operator, Relational operators, Logical operators, Bitwise operators, Membership operators, Identity operators, Precedence of Operators, Associativity of Operators
	Sep	FY	15	15	1)Arrays 2)Functions 3)Modules 4)Practical from 5 to 8	1)Creating Arrays, Indexing and Slicing of Arrays, Basic Array Operations, Arrays Processing, Mathematical Operations on Array, Aliasing Arrays, Slicing and Indexing in NumPy Arrays, Basic slicing, Advanced Indexing, Dimensions of Arrays, Attributes of an Array, The ndim Attribute, The shape Attribute, The size Attribute, The itemsize Attribute 2): Function definition and call, Returning Results, Returning Multiple Values from a Function, Built-in Functions, Difference between a Function and a Method, Pass Value by Object Reference, Parameters and Arguments, Formal and Actual Arguments, Positional Arguments, Keyword Arguments, Default Arguments, Arbitrary

		0			Arguments, Recursive Functions, Anonymous or Lambda Functions, Using Lambda with the filtery Function, Using Lambda with the map() Function Using Lambda with the reduce() Function 3)Introduction to Modules in Python
Oct	FY	15	15 9	1)Strings 2)List and Tuples 3)Dictionaries 4)Practical from 8 to 10	Creating Strings, Functions of Strings, Working with Strings, Length of a String, Indexing and Slicing, Repeating and Concatenating Strings, Checking Membership, Comparing Strings, Removing Spaces, Finding Substrings, Counting Substrings, Immutability, Splitting and Joining Strings, Changing Case, Checking Starting and Ending of a String, Sorting Strings, Searching in the Strings, Testing Methods, Formatting Strings, Finding the Number of Characters and Words, Inserting Substrings into a String 2) Lists, List Functions and Methods, List Operations, List Slices, Nested Lists, Tuples, Functions in Tuple 3) Creating a Dictionary, Operators in Dictionary, Dictionary Methods, Using for Loop with Dictionaries, Operations on Dictionaries, Converting Lists into Dictionary, Converting Strings into Dictionary, Passing Dictionaries to Functions, Sorting the Elements of a Dictionary using Lambda, Ordered Dictionaries
Nov	FY			Practical Exam	
Dec	FY	15	4	Working with files	Files, opening and closing a file, working with text files containing strings, knowing whether a file exists or not, working with binary files, the 'with' statement, the seek() and tell() methods, random accessing of binary files, zipping and unzipping files, working with directories, running other programs from python program
Jan	FY		9	1)Regular expressions 2)Threads in python 3)Date and time in python 4)Practical from 1 to 4	1)What is a regular expression?, sequence characters in regular expressions, quantifiers in regular expressions, special characters in regular expressions, using regular expression on files, retrieving information from an html file, 2)Difference between process and thread, types of threads, benefits of threads, creating threads, single tasking and multitasking, thread synchronization, deadlock in threads, daemon threads 3) Date and time now, combining date and time, 15 Page 32 of 49 formatting dates and times, finding durations using "time delta", comparing two dates, sorting dates, stopping execution temporarily, knowing the time taken by a program, calendar module
Feb	FY	15	15	1)Database in python 2)Exceptions in python 3)Networking 4)Graphical user interface 5) OOPs in python 6)Practical from 5 to 7	table, inserting rows into a table, deleting rows from a table, updating rows in a table, creating database tables through python.

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		13.			4)Creating a GUI in python, Widget classes, Working with Fonts and Colours, working with Frames, Layout manager, Event handling 5)Features of Object Oriented Programming system (oops)-classes and objects, encapsulation, abstraction, inheritance, polymorphism, constructors and destructors
March	FY	15	15 9	1)Classes and objects 2)Inheritance and polymorphis m 3)Abstract classes and interfaces 4) Practical from 8 to 10	2)Creating a class, the self-variable, types of variables, namespaces, types of methods, instance methods, class methods, static methods, passing members of one class to another class, inner classes 3)Inheritance in python, types of inheritancesingle inheritance, multilevel inheritance, hierarchical inheritance, multiple inheritance, constructors in inheritance, overriding super class constructors and methods, the super() method, method resolution order (mro), polymorphism, duck typing, operator overloading, method overloading, method overloading, method overriding, 4)Abstract class, abstract method, interfaces in python, abstract classes vs. Interfaces
April	FY			Practical Exam, Theory exam , Paper Assessment and Result	

Signature Of Teacher

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Name Of the Teacher: Sybal Dias

Semester: V,VI

Class: TY

Subject: Linux Administration system, Cloud computing

Month	Class	Assigned Lecture	Lectures Taken	Topic to be covered	Key Points of Topic
June					
July	FY	15	5 9	Introduction Single-Host Administration Networking and Security Practical 1-3	Technical Summary of Linux Distributions, Managing Software Managing Users and Groups, Booting and shutting down processes. File Systems, Core System Services, Process of configuring, compiling, Linux Kernel TCP/IP for System Administrators, basic network Configuration, Linux Firewall (Netfilter), System and network security
Aug	FY	15	9	Internet Services Practical 4-6	Domain Name System (DNS), File Transfer Protocol (FTP), Apache web server, Simple Mail Transfer Protoco (SMPT), Post Office Protocol and Internet Mail Access Protocol (POP and IMAP), Secure Shell (SSH), Network authentication system (Kerberos), Domain Name Service (DNS), Security
Sep	FY	15	9	Internet Services Practical 7-8	Network File System (NFS), Samba, Distributed File Systems (DFS), Network Information Service (NIS
Oct	FY	15	9		Lightweight Directory Access Protocol (LDAP), Dynamic Host configuration Protocol (DHCP), MySQL, LAMP Applications, File Services, Email Services, Chat applications, Virtual Private Networking.
Nov	FY			Practical Exam	
Dec				Exams	
Jan		15	15 9	Cloud Computing Basics Web Services – Virtulization:- Practical 1-2.	Distributed Computing, Parallel Computing, WSDL structure, SOAP- Structure of SOAP Message (In JAX-WS), SOAP Messaging Architecture, SOAP Header, Client-side SOAP Handler, REST What is REST? HTTP methods, Java API for RESTful Web Services (JAXRS) Characteristics of Virtualized Environments Pros and Cons of Virtualization. Virtualization using KVM, Creating virtual machines, oVirt - management toolforvirtualization environment

Feb	15	15 9	Introduction to Cloud Computing: Cloud Computing Software Security fundamentals Practical 3-4	Definition, Types of Clouds, Deployment of software solutions and web applications, Types of Cloud Platforms, Essential characteristics — On demand self-service, Broad network access, Location independent resource pooling, Rapid elasticity, Measured service, Comparing cloud providers with traditional IT service providers Cloud Information Security Objectives, Confidentiality, Integrity, Availability, Cloud Security Services, Relevant Cloud Security Design Principles, Secure Cloud Software Requirements, Secure Development practices, Approaches to Cloud Software Requirement Engineering, Cloud Security Policy Implementation.
March	15	15 9	Cloud Applications CloudSim: AWS; Practical 6-8	Introduction to Simulator, understanding CloudSim simulator, CloudSim Architecture(User code, CloudSim, GridSim, SimJava) Understanding Working platform for CloudSim, OpenStack: Introduction to OpenStack, OpenStack test-drive, Basic OpenStack operations, OpenStack CLI and APIs, Tenant model operations, Quotas, Private cloud building blocks, Controller deployment, Networking deployment, Block Storage deployment, Compute deployment, deploying and utilizing OpenStack in production environments, Building a production environment, Application orchestration using OpenStack Heat Architecting on AWS, Building complex solutions with Amazon Virtual Private Cloud (Amazon VPC).
April		Practical Exam, Theory exam, Paper Assessment and Result		

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Department of Computer Science A.Y. 2022-23 Semester wise Plan

Name Of the Teacher: Sybal Dias

Class : FY

Subject : Linux Operating System ,Introduction to OOPs using C++

Semester Planning of Teaching

Semester: I,II

Month	Class	Assigned Lecture	Lectures Taken	Topic to be covered	Key Points of Topic
June					
July	FY	15	5 9	1)Linux operating system and Basics 2)Basic Bash shell commands 3)Practical from 1 to 3	History, GNU Info and Utilities, Various Linux Distributions, The Unix/Linux architecture, Features of Unix/Linux, Starting the shell, Shell prompt, Command structure, File Systems and Directory Structure, man pages, more documentation pages General purpose utility Commands, basic commands, Various file types, attributes and File handling Commands, Handling Ordinary Files. More file attributes
Aug	γą	15	9	1)Advanced Bash shell commands 2)The Linux environment variable 3)Understanding Linux file permission 4)Linux Security 5)Practical from 4 to 6	Simple Filters, Filters using regular expressions. Setting, Locating and removing environment variables like PATH etc, Default shell environment variables, Using command aliase Linux security, Using Linux groups, Decoding file permissions, Changing security setting, Sharing files. Understanding Linux Security, uses of root, sudo command, working with passwords, Understanding ssh.
Sep	FY	15	9	1)Networking 2)Working withEditors 3)Basic script building 4) Practical from 6 to 9	TCP/IP Basics, TCP/IP Model, Resolving IP addresses, Applications, ping, telnet, ftp, DNS awk, sed and Introduction to vi.Using multiple commands, Creating script files, Displaying messages, Using variables, Redirecting Input and Output, Pipes performing math, Exiting the script.
Oct	FY	15	9	Using structured commands Script and Process control	Working with if-then, if-then-else and nested if statements, test command, Compound condition testing, while command, until command, case command. Handling signals, Running scripts in background mode, Running scripts without a console, Job control, Job scheduling commands: ps, nice, renice, at, batch, cron table, Running the script at boot
Nov	FY	-		Practical Exam	11
Dec			-	1)Introduction to Programming Concepts	Object oriented programming paradigm, basic concepts of object oriented programming, benefits of object oriented programming, object oriented languages, applications of object oriented programming.
Jan		15	15 9	1) Data Types, Data Input Output and Operators 2)Unified Modeling Language (UML)	Tokens-keywords, identifiers, constants-integer, real, character and string constants, backslash constants, features of C++ and its basic structure, simple C++ program without class, compiling and running C++ program.

			3)Arrays and Strings 4)Classes, Abstraction & Encapsulation 5)Practical from 1 to 6	Basic data types, variables, rules for naming variables, programming constants, the type cast operator, implicit and explicit type casting, cout and cin statements, operators, precedence of operators. Decision Making, Loops, Conditional statements-if, ifelse, switch loops- while, dowhile, for, types of arrays and string and string manipulations Introduction to UML & class diagrams. Classes and objects, Dot Operator, data members, member functions, passing data to functions, scope and visibility of variables in function.
Feb	15	15 9	1)Constructors and Destructors 2)Working with objects 3)Modeling Relationships in Class Diagrams 4)Practical from 6 to	Constructors and Destructors: Default constructor, parameterized constructor, copy constructor, private constructor, destructors. Accessor - mutator methods, static data and static function, access specifiers, array of objects. Polymorphism - Binding-static binding & overloading, constructor overloading function overloading, operator overloading, overloading unary and binary operators. Association, Aggregation-Composition and examples covering these principles
March	15	15 9	1)Inheritance 2)Modelling 3)Relationships 4)Pointers 5)File Handling 6)Applying OOP to solve real life applications 7)Practical from 10 to14	Defining base class and its derived class, access specifiers, types of inheritance-single, multiple, hierarchical, multilevel, hybrid inheritance, friend function and friend class, constructors in derived classes. Generalization-Specialization and examples covering these principles Run time Polymorphism - Dynamic Binding, Function overriding, virtual function, pure virtual function, virtual base class, abstract class. Introduction to pointers, * and & operators, assigning addresses to pointer variables, accessing values using pointers, pointers to objects & this pointer, pointers to derived classes File Stream classes, opening and closing file-file opening modes text file handling, binary file handling. Applying OOP to solve real life applications: To cover case studilike library management, order management etc. to design classes covering all relationships
April		Practical Exam, Theory exam , Paper Assessment and Result		

Coordinator Computer Science Department Government of Maharashtra's Ismail Yusuf College of

Name Of the Teacher: Sybal Dias Semester: III,IV

Class: SY Subject: Java, Android.

Semester Planning of Teaching

Month	Class	No. Of Lectures As Per Syllabus	Title Of Topic to be covered	No. Of Lectures as per TimeTable	Key Points of Topic
June	SY	15	Introduction,Java Tokens, OOPS	5	Introduction: History, Features of Java, Java Development Kit, Java Application Programming Interface, Java Virtual Machine Java Program Structure, Java Tokens. OOPS: Introduction, Class, Object, Static Keywords, Constructors, this keyword, Inheritance.
July	SY		Access specifiers Exception Handling.	10	Inner class, Anonymous Inner class, super keyword, Polymorphism (overloading and overriding), Abstraction, Encapsulation, Abstract Classes, Interfaces Packages: Introduction to predefined packages, User Defined Packages, Access specifiers Exception Handling: Introduction, Pre-Defined Exceptions, try-catch finally, throws, throw, User Defined Exceptions Multithreading: Thread Creations, Thread Life Cycle, Life Cycle Methods, Synchronization, wait() notify() notify all() methods
Aug	SY	15	Collection Framework	15	Collection Framework: Introduction, java.util Package interfaces, List, Set, Map, List interface & its classes, Set interface & its classes, Map interface & its classes. 15 Page 18 of 51 Introduction to JFC and Swing- Features of the Java Foundation Classes, Swing API Components, JComponent Class, Windows, Dialog Boxes, and Panels, Labels, Buttons, Check Boxes, Menus, Toolbars, Implementing Action interface, Pane, JScrollPane, Desktop pane, Scrollbars, Lists and Combo Boxes, Text-Entry Components, Colors and File Choosers, Tables and Trees, Printing with 2D API and Java Print Service API. Event Handling: Delegation Event Model, Events, Event classes, Event listener interfaces, Using delegation event model, adapter classes. JDBC: Introduction, JDBC Architecture, JDBC Drivers, JDBC Connectivity Model, java.sql package, Using Statement, PreparedStatement, CallableStatement, ResultSet, Scrollable and Updatable ResultSet, Navigating and manipulating data, ResultSetMetaData, Managing Transactions in JDBC, JDBC Exception classes, BLOB & CLOB
Sep	SY	15	Servlets	15	Servlets: Introduction, Servlet Life Cycle, Types of Servlet, Servlet Configuration with Deployment Descriptor, Working with ServletContext and ServletConfig Object, Attributes in Servelt., Response and Redirection using Request Dispacher and using sendRedirect Method, Filter API, Manipulating Responses using Filter API, Session Tracking: using Cookies, HTTPSession, Hidden Form Fields and URL Rewriting, Types of Servlet Event: ContextLevel and SessionLevel. Java Server Pages (JSP): Introduction to JSP, Comparison with Servlet, JSP Architecture, JSP Life Cycle, JSP Scripting Elements, JSP Directives, JSP Action, JSP Implicit Objects, JSP Expression Language, JSP Standard Tag Libraries, JSP Custom Tag, JSP Session Management, JSP Exception Handling, JSP CRUD Applications JSON: Overview, Syntax, DataTypes, Objects, Schema, Comparison with XML, JSON with Java
DEC	SY	15	Introduction to Kotlin Advanced Concepts in Kotlin App Development with Android Studio:	8	Collections in Kotlin, Mutable and Immutable Collections, Ranges, type Checks, easting concept, this expression, Null safety, exception handling, annotations. Android Architecture, Android Application Framework, Android Virtual Device, Creating and running First Android Application, working with Physical Android Device, Adding Kotlin Files in Android Studio.
Jan	SY	15	Basics Of Android Designing Android	7	Application Components: Activities, Intent, and Broadcast Receiver, Services, Fragment, Activity Life Cycle, Content Provider, Widgets, and Notifications.

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			3) UlHandle Images, ListviewAnd Menu 4) Data binding in Android 5) Implementing Data Persistence		User Interface (UI), Layout and Its Types, Layout Attribute, working with Views, Android UI Controls, Styles and Themes, Event Handler, setting up themes in Manifest and from the application, dialog in activity, using intents, fragments.ImageView, ImageSwitcher, ListView, Menu, and its types,Designing menu in XML, Option menu, Context menu, popup menu, Screen Navigation, RecyclerView, Interaction of Views.AdapterView, Spinner, Gallery view, AutotextCompleteView, screen orientation, Design The View Dynamically. Data Storage-Shared Preference, Internal And External Storage Storing Data Using SQLite Databases, Content Provider, Firebase Real-Time Data.
Feb	SY	15	1) Graphics, Animations, and Integrating Media in Android. 2) Interactin g With Camera. 3) Gathering Location Data: 1) Managing Background Tasks. 2) Deploying Android applications on Google Play	15	Drawable Class, Animation in Android, MediaPlayer API and in Android, Mediaplayer and AudioManger Class. Android Camera, Input gestures-multiple touch, swipe, drag, scroll, zoom, Recording. Broadcast Receivers, Services, Threads and Process, AsyncTask, JobScheduler, Manage device Awake State. Publishing/Deploy the application, Versioning, signing Application.
March	SY	15	Search Engine Optimization,marketi ng, Buying Models.	15	Search Engine Optimization: Meaning, Common SEO techniques, Understanding Search Engines, basics of Keyword search, Google rankings, Link Building, Steps to optimize website, On-page and off-page optimization Search Engine Marketing: Introduction to SEM, Introduction to Ad Words - Google Ad Words, Ad Words fundamentals, Ad Placement, Ad Ranks, Creating Ad Campaigns, Campaign Report Generation, Display marketing, Buying Models: Cost per Click (CPC), Cost per Milli (CPM), Cost per Lead (CPL), Cost per Acquisition (CPA). Web Analytics: Purpose, History, Goals & objectives, Web Analytic tools & Methods. Web Analytics Mistakes and Pitfalls. Google Analytics: Basics of Google Analytics, Installing Google Analytics in website, Parameters of Google Analytics, Reporting and Analysis

Signature Of Teacher

Signature Head Of Department

Coordinator
Computer Science Department
Government of Maharashtra's
Ismail Yusuf College of
Arts, Science & Commerce,
Jogeshwari (East), Mumbai - 400 060

Name Of the Teacher: Sybal Dias Semester: I,II

Subject: Linux Operating System ,Introduction to OOPs using C++

Month	Class	Assigned Lecture	Lectures Taken	Topic to be covered	Key Points of Topic
June					
July	FY	15	5	1)Linux operating system and Basics 2)Basic Bash shell commands 3)Practical from 1 to 3	History, GNU Info and Utilities, Various Linux Distributions, The Unit/Linux architecture, Features of Unit/Linux, Starting the shell, Shell prompt, Command structure, File Systems and Directory Structure, man pages, more documentation pages General purpose utility Commands, basic commands, Various file types, attributes and File handling Commands, Handling Ordinary Files, More file attributes
Aug	FY	15	9	1)Advanced Bash shell commands 2)The Linux environment variable 3)Understanding Linux file permission 4)Linux Security 5)Practical from 4 to 6	Simple Filters, Filters using regular expressions. Setting, Locating and removing environment variables like PATH etc, Default shell environment variables, Using command aliase Linux security, Using Linux groups, Decoding file permissions, Changing security setting, Sharing files. Understanding Linux Security, uses of root, sudo command, working with passwords, Understanding ssh.
Sep	FY	15	,	1)Networking 2)Working withEditors 3)Basic script building 4) Practical from 6 to 9	TCP/IP Basics, TCP/IP Model, Resolving IP addresses, Applications, ping, teinet, ftp, DNS awk, sed and introduction to vi. Using multiple commands, Creating script files, Displaying messages, Using variables, Redirecting input and Output, Pipes performing math, Exiting the script.
Oct	FY	15	9	Using structured commands Script and Process control	Working with if-then, if-then-else and nested if statements, test command, Compound condition testing, while command, until command, case command. Handting signals, Running scripts in background mode, Running scripts without a console, Job control, Job scheduling commands: ps, nice, renice, at, batch, cron table, Running the script at boot
Nov	FY			Practical Exam	
Dec				1)Introduction to Programming Concepts	Object oriented programming paradigm, basic concepts of object oriented programming, benefits of object oriented programming, object oriented languages, applications of object oriented programming.
Jan		15	15 9	1) Data Types, Data Input Output and Operators 2)Unified Modeling Language (UML) 3)Arrays and Strings 4)Classes, Abstraction & Encapsulation 5)Practical from 1 to 6	Tokens-keywords, identifiers, constants-integer, real, character and string constants, backslash constants, features of C++ and its basic structure, simple C++ program without class, compiling and running C++ program. Basic data types, variables, rules for naming variables, programming constants, the type cast operator, implicit and explicit type casting, cout and cin statements, operators, precedence of operators.

				Decision Making, Loops, Conditional statements-III. ifeise, switch loops, while, dowhile, for, types of arrays and string and string manipulations introduction to UML & class diagrams. Classes and objects, Dot Operator, data members, member functions, passing data to functions, scope and visibility of variables in function.
Feb	15	15	1)Constructors and Destructors 2)Working with objects 3)Modeling Relationships in Class Diagrams 4)Practical from 6 to 10	Constructors and Destructors: Default constructor, parameterized constructor, copy constructor, private constructor, destructors. Accessor - mutator methods, static data and static function, access specifiers, array of objects. Polymorphism - Binding-static binding & overloading, constructor overloading function overloading, operator overloading, overloading unary and binary operators. Association, Aggregation-Composition and examples covering these principles
March	15	15	1)Inheritance 2)Modelling 3)Relationships 4)Pointers 5)File Handling 6)Applying OOP to solve real life applications 7)Practical from 10 to14	Defining base class and its derived class, access specifiers, types of inheritance-single, multiple, hierarchical, multilevel, hybrid inheritance, friend function and friend class, constructors in derived classes. Generalization-Specialization and examples covering these principles Run time Polymorphism - Dynamic Binding, Function overriding, virtual function, pure virtual function, virtual base class, abstract class. Introduction to pointers, " and fit operators, assigning addresses to pointer variables, accessing values using pointers, pointers to objects & this pointer, pointers to derived classes File Stream classes, opening and closing file-file opening modes, text file handling, binary file handling. Applying OOP to solve real life applications: To cover case studies like library management, order management etc. to design classes covering all relationships
April		Practical Exam, Theory exam , Paper Assessment and Result		

Department of Computer Science A.Y. 2021-22

Semester wise Plan

Name Of the Teacher: Sybal Dias

Semester: III,IV

Class: SY

Subject : Core java ,Advanced java

Month	Class	No. Of Lectur es As Per Syllab us	Title Of Topic to be covered	No. Of Lectures as per TimeTable	Key Points of Topic
June	SY	15	The Java Language	5	Features of Java, Java programming format, Java Tokens, Java Statements, Java Data Types, Typecasting, Arrays Introduction, Class, Object, Static Keywords, Constructors, this Key Word, Inheritance, super Key Word, Polymorphism (overloading and overriding), Abstraction, Encapsulation, Abstract Classes, Interfaces String,
July	SY		String Manipulations .	10	String Buffer, String Tokenizer Packages: Introduction to predefined packages (java.lang, java.util, java.io, java.sql, java.swing), User Defined Packages, Access specifiers.
Aug	SY	15	Exception Handling: I/O Streams:	15	Introduction, Pre-Defined Exceptions, Try-Catch-Finally, Throws, throw, User Defined Exception examples Multithreading: Thread Creations, Thread Life Cycle, Life Cycle Methods, Synchronization, Wait() notify() notify all() methods ResultSet, Navigating and manipulating data, ResultSetMetaData, Managing Transactions in JDBC, JDBC Exception classes, BLOB & CLOB Introduction, Byte-oriented streams, Character-oriented streams, File, Random access File, Serialization Networking: Introduction, Socket, Server socket, Client —Server Communication
Sep	SY	15	Wrapper Classes AWT	15	: Introduction, Byte, Short, Integer, Long, Float, Double, Character, Boolean classes Collection Framework: Introduction, util Package interfaces, List, Set, Map, List interface & its classes, Set interface & its classes, Map interface & its Inner Classes: Introduction, Member inner class, Static inner class, Local inner class, Anonymous inner class AWT: Introduction, Components, Event-Delegation-Model, Listeners, Layouts, Individual components Label, Button, CheckBox, Radio Button, Choice, List, Menu, Text Field, Text Area
DEC	SY	15	Swing Swing components	8	Need for swing components, Difference between AWT and swing, Components hierarchy, Panes, Jlabel, JTextField and JPasswordField, JTextAres, JButton, JCheckBox, JRadioButton, JComboBox and JList JDBC: Introduction, JDBC Architecture, Types of Drivers, Statement, ResultSet, Read Only ResultSet, Updatable ResultSet, Forward Only ResultSet, Scrollable ResultSet, PreparedStatement, Connection Modes, SavePoint, Batch Updations, CallableStatement, BLOB & CLOB
Jan	SY	15	Servlets: Session Tracking Mechanisms JSP:	7	Servlets: Introduction, Web application Architecture, Http Protocol & Http Methods, Web Server & Web Container, Servlet Interface, GenericServlet, HttpServlet, Servlet Life Cycle, ServletConfig, ServletContext, Servlet Communication, Session Tracking Mechanisms JSP: Introduction, JSP LifeCycle, JSP Implicit Objects & Scopes, JSP Directives, JSP Scripting Elements, JSP Actions: Standard actions and customized actions,

Feb	SY	15	Java Beans	15	Introduction, JavaBeans Properties, Examples Struts 2: Basic MVC Architecture, Struts 2 framework features, Struts 2 MVC pattern, Request life cycle, Examples, Configuration Files, Actions, Interceptors, Results & Result Types, Value
March	SY	15	Stack/OGNL JSON:	15	Overview, Syntax, DataTypes, Objects, Schema, Comparison with XML, JSON with Java.

sic MVC Architecture,

Department of Computer Science A.Y. 2021-22 Semester wise Plan

Name Of the Teacher: Sybal Dias

Class: TY

Subject: Linux Administration system, Cloud computing

Semester Planning of Teaching

Semester: V,VI

Month	Class	Assigned Lecture	Lectures Taken	Topic to be covered	Key Points of Topic
June					
July	FY	15	5 9	Introduction Single-Host Administration Networking and Security Practical 1-3	Technical Summary of Linux Distributions. Managing Software Managing Users and Groups, Booting and shutting down processes. File Systems, Core System Services, Process of configuring, compiling, Linux Kernel TCP/IP for System Administrators, basic network Configuration, Linux Firewall (Netfilter), System and network security
Aug	FY	15	13	Internet Services Practical 4-6	Domain Name System (DNS), File Transfer Protocol (FTP), Apache web server, Simple Mail Transfer Protocol (SMPT), Post Office Protocol (GMPT), Post Office Protocol (POP and IMAP), Secure Shell (SSH), Network authentication system (Kerberos), Domain Name Service (DNS), Security
Sep	FY	15	9	Internet Services Practical 7-8	Network File System (NFS), Samba, Distributed File Systems (DFS), Network Information Service (NIS
Oct	FY	15	9		Lightweight Directory Access Protocol (LDAP), Dynamic Host configuration Protocol (DHCP), MySQL, LAMP Applications, File Services, Email Services, Chat applications, Virtual Private Networking.
Nov	FY			Practical Exam	
Dec				Exams	
Jan		15	15 9	Cloud Computing Basics Web Services – Virtulization:- Practical 1-2.	Distributed Computing, Parallel Computing, WSDL structure, SOAP- Structure of SOAP Message (In JAX-WS), SOAP Messaging Architecture, SOAP Header, Client-side SOAP Handler, REST What is REST? HTTP methods, Java API for RESTful Web Services (JAXRS) Characteristics of Virtualized Environments. Pros and Cons of Virtualization. Virtualization using KVM, Creating virtual machines, oVirt - management toolforvirtualization environment.

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Feb	15	15 9	Introduction to Cloud Computing: Cloud Computing Software Security fundamentals Practical 3-4	Definition, Types of Clouds, Deployment of software solutions and web applications, Types of Cloud Platforms, Essential characteristica — On demand self-service, Broad network access, Location independent resource pooling, Rapid elasticity, Measured service, Comparing cloud providers with traditional IT service providers Cloud Information Security Objectives, Confidentiality, Integrity, Availability, Cloud Security Design Principles, Secure Cloud Software Requirements, Secure Development practices, Approaches to Cloud Software Requirement Engineering, Cloud Security Policy Implementation.
March	15	15 9	Cloud Applications CloudSim: AWS: Practical 6-8	Introduction to Simulator, understanding CloudSim simulator, CloudSim simulator, CloudSim Architecture(User code, CloudSim, GridSim, SimJava) Understanding Working platform for CloudSim, OpenStack: Introduction to OpenStack, OpenStack test-drive, Basic OpenStack operations, OpenStack CLI and APIs, Tenant model operations, Cuotas, Private cloud building blocks, Controller deployment, Networking deployment, Block Storage deployment, Compute deployment, deploying and utilizing OpenStack in production environments, Building a production environment, Application orchestration using OpenStack Heat Architecting on AWS, Building complex solutions with Amazon Virtual Private Cloud (Amazon VPC).
April		Practical Exam, Theory exam, Paper Assessment and Result		,

Name Of the Teacher: Charul Singh

Class: FY

Semester: 1,II.

Subject : DSA,E-Comm.

Month	No. Of Lectu res As Per Syllab us		No. Of Lectures as per TimeTable	Key Points of Topic	
July	FY	15	Fundamentals of Digital Logic	07	Fundamentals of Digital Logic: Boolean algebra, Logic Gates, Simplification of Logic Circuits: Algebraic Simplification, Karnaugh Maps. Combinational Circuits: Adders, Mux. De-Mux. Sequential
Aug	FY	15	Circuits	08	Circuits: Flip Flops (SR, JK & D), Counters: synchronous and asynchronous Counter Computer System: Comparison of Computer Organization & Architecture, Computer Components and Functions, Interconnection Structures, Bus Interconnections, Input / Output: I/O Module, Programmed I/O, Interrupt Driven I/O, Direct Memory Access
S	FY 15 Memory System Organization		08	Memory System Organization: Classification and design parameters, Memory Hierarchy, Internal Memory: RAM, SRAM and DRAM, Interleaved and Associative Memory. Cache Memory: Design Principles, Memory mappings. Replacement Algorithms, Cache performance, Cache Coherence Virtual Memory, External Memory: Magnetic Discs, Optical Memory, Flash Memories, RAID Levels Processor Organization: Instruction Formats, Instruction Sets. Addressing Modes, Addressing Modes Examples with Assembly Language [8085/8086 CPU], Processor Organization, Structure and Function Register 15 Page 8 of 49 Organization, Basic Microprocessor operations. Data Transfer (Register / Memory) Operations, Arithmetic & Logical Operations, Instruction Cycle, Instruction Pipelining, Introduction to RISC and CISC Architecture, Instruction Level Parallelism and Superscalar Processors: Design Issues	
Oct	FY	15	Control Unit		Control Unit: Micro-Operations, Functional Requirements, Processor Control, Hardwired Implementation, Micro-programmed Control. Fundamentals of Advanced Computer Architecture: Parallel Architecture: Classification of Parallel Systems, Flynn's Taxonomy, Array Processors, Clusters, and NUMA Computers: Multiprocessor Systems: Structure & Interconnection Networks, Multi-Core Computers: Introduction, Organization and Performance
Jan	ГУ	Introduction to E-Commerce and E- Business.			Introduction to E-Commerce and E-Business: Definition and competing in the digital economy, Impact of E-Commerce on Business Models, Factors/Driving e-commerce and e-Business Models, Economics and social impact of c-Business, opportunities and Challenges, c-Commerce vs in Commerce. Different e-Commerce Models (B2B, B2C, C2B, C2C, B2E), e-Commerce Applications: e-Trading, e-Learning, e-Shopping, Virtual Reality & Consumer

				Experience, Legal and Ethical issues in e-Commerce Overview of Electronic Payment systems: Types of Electronic payment schemes (Credit cards, Debit cards, Smartcards, Internet banking), E checks. E-Cash Concepts and applications of EDI and Limitation Introduction & origin of Digital Marketing. Traditional v/s Digital Marketing. Digital Marketing Strategy. The P-O-E-M Framework, Segmenting & Customizing Messages, The Digital landscape. Digital Advertising Market in India. Skills required in Digital Marketing. Digital Marketing Plan.
Feb	FY	15	Social Media Marketing, Content Marketing	Social Media Marketing: Meaning, Purpose, types of social media websites. Social Media Engagement, Target audience, Facebook Marketing. Business through Facebook Marketing, Creating Advertising Campaigns, 15 Page 48 of 49 Adverts, Facebook Marketing Tools, LinkedIn Marketing: Importance of LinkedIn Marketing, Framing LinkedIn Strategy, Lead Generation through LinkedIn, Content Strategy. Analytics and Targeting, Twitter Marketing: Framing content strategy. Twitter Advertising Campaigns. YouTube Marketing Video optimization, Promoting on YouTube, Monetization, YouTube Analytics Email Marketing: Types of Emails, Mailing List, Email Marketing tools, F Deliverability & Email Marketing automation Mobile Marketing. Introduction. Mobile Usage, Mobile Advertising, Mobile Marketing Types, Mobile Marketing Features, Mobile Campaign Development, Mobile Advertising Analytics Content Marketing: Introduction, Content marketing statistics, Types of Content, Types of Blog posts, Content Creation, Content optimization, Content Management & Distribution, Content Marketing Strategy, Content creation tools and apps, Challenges of Content Marketing.
March	FY	15	Search Engine Optimization,marketing, Buying Models.	Search Engine Optimization: Meaning, Common SEO techniques, Understanding Search Engines, basics of Keyword search, Google rankings, Link Building, Steps to optimize website, On-page and off-page optimization Search Engine Marketing: Introduction to SEM, Introduction to Ad Words - Google Ad Words, Ad Words fundamentals, Ad Placement, Ad Ranks, Creating Ad Campaigns, Campaign Report Generation, Display marketing. Buying Models: Cost per Click (CPC), Cost per Milli (CPM), Cost per Lead (CPL), Cost per Acquisition (CPA). Web Analytics: Purpose, History, Goals & objectives, Web Analytic tools & Methods. Web Analytics Mistakes and Pitfalls. Google Analytics: Basics of Google Analytics, Installing Goog. Analytics in website, Parameters of Google Analytics, Reporting and Analysis

Signature Of Teacher

CompuSignature

Head of Department

Mail Yes Louige of Arts, Science & Commerce.

Jogeshwari (Engl.), Mumbai - 400 050.

Name Of the Teacher: Charul Singh

Semester: III,IV

Class: SY

Subject: IOT,TOC,CN,Android.

Month	Class	No. Of Lect ures As Per Syll abus	Title Of Topic to be covered	No. Of Lectures as per TimeTabl e	Key Points of Topic
June	SY	15	SoC and Raspberry Pi	5	System on Chip: What is System on chip? Structure of System on Chip. SoC products: FPGA, GPU, APU, Compute Units. ARM 8 Architecture: SoC on ARM 8. ARM 8 Architecture Introduction Introduction to Raspberry Pi: Introduction to Raspberry Pi, Raspberry Pi Hardware, Preparing your raspberry Pi. Raspberry Pi Boot: Learn how this small SoC boots without BIOS. Configuring boot sequences and hardware.
July	SY		Programming Raspberry Pi	10	Raspberry Pi and Linux: About Raspbian, Linux Commands, Configuring Raspberry Pi with Linux Commands Programing interfaces: Introduction to Node.js, Python.
Aug	SY	15	Raspberry Pi Interfaces	15	Raspberry Pi Interfaces: UART, GPIO, I2C, SPI Useful Implementations: Cross Compilation, Pulse Width Modulation, SPI for Camera.
Sep	SY	15	IoT and Protocols	15	Introduction to IoT: What is IoT? IoT examples, Simple IoT LED Program. IoT and Protocols IoT Security: HTTP, UPnp, CoAP, MQTI, XMPP.

					loT Service as a Platform. Clayster. Thinger io. Senselo] carriots and Node RED. IoT Security and Interoperability Risks. Modes of Attacks, Tools for Security and Interoperability.
Dec	SY	15	Introduction Network Models:	05	Introduction to data communication, Components, Data Representation, Data Flow, Networks, Network Criteria. Physical Structures, Network types, Local Area Network, Wide Area Network, Switching, The Internet, Accessing the Internet, standards and administration Internet Standards. Network Models, Protocol layering, Scenarios, Principles of Protocol Layering, Logical Connections, TCP/IP Protocol Suite, Layered Architecture, Layers in the TCP/IP Protocol Suite, Encapsulation and Decapsulation, Addressing, Multiplexing and Demultiplexing. Detailed introduction to Physical Layer, Detailed introduction to Network Layer, Detailed introduction to Transport Layer, Detailed introduction to Application Layer. Data and Signals, Analog and Digital Data, Analog and Digital Signals, Sine Wave Phase, Wavelength, Time and Frequency Domains, Composite Signals, Bandwidth, Digital Signal, Bit Rate, Bit Length, Transmission of Digital Signals, Transmission Impairments, Attenuation, Distortion, Noise, Data Rate Limits, Performance, Bandwidth, Throughput, Latenc (Delay)
Jan	SY		Introduction to Physical Layer and Data-Link Layer:	10	Digital Transmission digital Coding, Line Coding Schemes, analog-to-digital conversion, Pulse Code Modulation (PCM), Transmission Modes, Parallel Transmission, Serial Transmission. Analog Transmission, digital-to-analog Conversion, Analog Transmission, digital-to-analog Conversion, Amplitude Aspects of Digital-to-Analog Conversion, Amplitude Shift Keying, Frequency Shift Keying, Phase Shift Keying, analog-to-analog Conversion, Amplitude Keying, analog-to-analog Conversion, Amplitude Modulation (AM), Frequency Modulation (FM), Phase Modulation (PM), Multiplexing, Frequency-Division Modulation (PM), Multiplexing, Frequency-Division

July	SY		Automata Theory 1) Formal Languages	08	Minimizing Automata, Mealy and Moore Machines, Minimizing Automata. Defining Grammar, Derivations, Languages generated by Grammar, Chomsky Classification of Grammar and Languages, Recursive Enumerable Sets, Operations on
June	SY	15	Automata Theory	07	Defining Automaton, Finite Automaton, Transitions and Its properties, Acceptability by Finite Automaton. Nondeterministic Finite State Machines, DFA and NDFA equivalence, Mealy and Moore Machines
Feb Feb	SY	15	Network layer, Transport Layer	15	Media Access Control (MAC), random access, CSMA, CSMA/CD, CSMA/CA, controlled access, Reservation. Polling, Token Passing, channelization, FDMA. TDMA, CDMA. Connecting Devices and Virtual LANs. connecting devices, Hubs, Link-Layer Switches. Routers. Introduction to Network Layer, network layer services. Packetizing, Routing and Forwarding, Other Services. IPv4 addresses, Address Space, Classful Addressing. Unicast Routing, General Idea, Least-Cost Routing. Routing Algorithms, Distance-Vector Routing. Link-State Routing, Path-Vector Routing, Introduction to Transport Layer, Transport-Layer Services, Connectionless and Connection-Oriented Protocols. Transport-Layer Protocols, Service, Port Numbers, User Datagram Protocol, User Datagram, UDP Services, UDP Applications, Transmission Control Protocol, TCP Services, TCP Features, Segment.
					Multiplexing, Wavelength-Division Multiplexing. Time-Division Multiplexing. Transmission Media. Guided Media. Twisted-Pair Cable, Coaxial Cable, Fiber-Optic Cable. Switching, Three Methods of Switching, Circuit Switched Networks, Packet Switching, Introduction to Data-Link Layer, Nodes and Links, Services, Two Sub-layers, Three Types of addresses, Address Resolution Protocol (ARP). Error Detection and Correction, introduction, Types of Errors. Redundancy, Detection versus Correction,

					Languages, Languages and Automata, Regular Gramma Regular Expressions, Finite automata and Regular Expressions.
Aug	SY	15	Regular Sets and Regular Grammar	6	Pumping Lemma and its Applications, Closure Properties, Regular Sets and Regular Grammar.Context-free Languages, Derivation Tree, Ambiguity of Grammar, CFG simplification, Normal Forms, Pumping Lemma for CFG.
Sep	SY 15 1)Context Free Languages 2) Pushdown Automata 3) Linear Bound Automata 4) Turing Machines, Undecidability		7	Definitions, Acceptance by PDA, PDA and CFG.The Linear Bound Automata Model, Linear Bound Automata and Languages. Turing Machine Definition, Representations, Acceptability by Turing Machines, Designing and Description of Turing Machines, Turing Machine Construction, Variants of Turing Machine, The Church-Turing thesis, Universal Turing Machine, Halting Problem, Introduction to Unsolvable Problems.	
DEC	SY	15	1) Introduction to Kotlin Advanced Concepts in Kotlin 2) App Development with Android Studio:	8	Collections in Kotlin, Mutable and Immutable Collections, Ranges, type Checks, casting concept, the expression, Null safety, exception handling, annotations. Android Architecture, Android Application Framework, Android Virtual Device, Creating and running First Android Application, working with Physical Android Device, Adding Kotlin Files in Android Studio.
lan	SY	1) Basics Of Android 2) Designing Android 3) UIHandle Images, ListviewAnd Menu 4) Data binding in Android 5) Implementing Data Persistence		7	Application Components: Activities, Intent, and Broadcast Receiver, Services, Fragment, Activity Life Cycle, Content Provider, Widgets, and Notifications. User Interface (UI), Layout and Its Types, Layout Attribute, working with Views, Android UI Controls. Styles and Themes, Event Handler, setting up themes in Manifest and from the application, dialog in activity, using intents, fragments.ImageView, ImageSwitcher,

					ListView, Menu, and its types, Designing menu in XML. Option menu, Context menu, popup menu, Screen Navigation, RecyclerView, Interaction of Views. AdapterView, Spinner, Gallery view, AutotextCompleteView, screen orientation, Design The View Dynamically. Data Storage-Shared Preference, Internal And External Storage Storing Data Using SQLite Databases, Content Provider, Firebase Real-Time Data.
Feb	SY	15	1) Graphics, Animations, and Integrating Media in Android. 2) Interacting With Camera. 3) Gathering Location Data: 1) Managing Background Tasks. 2) Deploying Android applications on Google Play	15	Drawable Class, Animation in Android, MediaPlayer API and in Android, Mediaplayer and AudioManger Class. Android Camera, Input gestures-multiple touch, swipe, drag, scroll, zoom, Recording. Broadcast Receivers, Services, Threads and Process, AsyncTask, JobScheduler, Manage device Awake State. Publishing/Deploy the application, Versioning, signing Application.
March	SY	15	Search Engine Optimization,marketi ng, Buying Models.	15	Search Engine Optimization: Meaning, Common SEO techniques. Understanding Search Engines, basics of Keyword search, Google rankings, Link Building, Steps to optimize website, On-page and off-page optimization Search Engine Marketing: Introduction to SEM. Introduction to Ad Words - Google Ad Words, Ad Words fundamentals, Ad Placement, Ad Ranks, Creating Ad Campaigns, Campaign Report Generation, Display marketing, Buying Models: Cost per Click (CPC), Cost per Milli (CPM), Cost per Lead (CPL), Cost per Acquisition (CPA). Web Analytics: Purpose, History, Goals & objectives, Web Analytic tools & Methods. Web Analytics Mistakes and Pitfalls. Google Analytics: Basics of Google Analytics, Installing Google Analytics in website, Parameters of Google Analytics, Reporting and Analysis

Signature Of Teacher

Computer Science of Department Ismail Yusuf College Arts, Science & Communication (East), Manual College Arts (Eas

18,

Name Of the Teacher: Charul Singh

Semester: V&VI

Class: TY

Subject : INS,EH.

Month	Class	No. Of Lectu res As Per Sylla bus	Title Of Topic to be covered	No. Of Lectures as per TimeTable	Key Points of Topic
June	TY	15	Introduction	05	Introduction: Security Trends, The OSI Security Architecture, Security Attacks, Security Services,
July	TY		Cryptography and RSA.	10	Security Mechanisms Classical Encryption Techniques. Symmetric Cipher Model, Substitution Techniques, Transposition Techniques, Steganography, Block Cipher Principles, The Data Encryption Standard, The Strength of DES, AES (round 15 Page 10 of 63 details not expected). Multiple Encryption and Triple DES, Block Cipher Modes of Operation. Stream Ciphers Public-Key Cryptography and RSA: Principles of Public-Key Cryptosystems. The RSA Algorithm
Aug	TY	15	Key Management	15	Key Management: Public-Key Cryptosystems, Key Management, Diffice Hellman Key Exchange Message Authentication and Hash Functions: Authentication Requirements, Authentication Functions, Message Authentication Codes, Hash Functions, Security of Hash Functions and Macs, Secure Hash Algorithm, HMAC Digital Signatures and Authentication: Digital Signatures, Authentication Protocols, Digital Signature Standard Authentication Applications: Kerberos, X.509 Authentication, Public-Key Infrastructure
Sep	TY	15	Electronic Mail Security	15	Electronic Mail Security: Pretty Good Privacy. S/MIME IP Security Overview, Architecture, Authentication Header, Encapsulating Security Payload, Combining Security Associations. Key Management Web Security: Web Security Considerations. Secure Socket Layer and Transport Layer Security, Secure Electronic Transaction Intrusion: Intruders. Intrusion Techniques, Intrusion Detection Malicious Software: Viruses and Related Threats, Virus Countermeasures, DDOS Firewalls. Firewall Design Principles, Types of Firewalls

Jan	ТҮ	15	Introduction, Scanning and Enumeration.	15	Introduction: Terminology, Hacking Technology Types, Ethical Hacking Phases, Hacktivism, Hacker Classes, Skills Required for an Ethical Hacker, Vulnerability Research, Ways to Conduct Ethical Hacking Footprinting: Definition, Information Gathering Methodology. Competitive Intelligence, DNS Enumeration, Whois and ARIN Lookups, Types of DNS Records, Traceroute in Footprinting, E-Mail Tracking Social Engineering: Common Types Of Attacks Scanning and Enumeration: Port Scanning, Network Scanning, Vulnerability Scanning, CEH Scanning Methodology, Ping Sweep Techniques, Nmap Command Switches, SYN, Stealth, XMAS, NULL, 15 Page 48 of 63 IDLE, FIN Scans, Anonymizers, HTTP Tunneling Techniques, IP Spoofing Techniques, SNMP Enumeration, Steps Involved in Enumeration
Feb	TY	15	System Hacking,Hacking Web Servers.	15	System Hacking: Password-Cracking Techniques, Types of Passwords. Keyloggers and Other Spyware Technologies, Escalating Privileges, Rootkits Sniffers: Protocols Susceptible to Sniffing, Active and Passes. Sniffing, ARP Poisoning, MAC Flooding, DNS Spoofing Techniques, Sniffing Countermeasures Denial of Service: Types of DoS Attacks, Working of DoS Attacks, BOTs/BOTNETs, "Smurf" Attack, "SYN" Flooding, DoS/DDoS Countermeasures Session Hijacking: Spoofing vs. Hijacking, Types, Sequence Prediction, Steps, Prevention Hacking Web Servers: Web Server Vulnerabilities, Attacks against Web Servers, Patch Management Techniques, Web Server Hardening
March	TY	15	Web Application Vulnerabilities,Penetra tion Testing Methodologies.	15	Web Application Vulnerabilities: Web Application Hacking, Web Application Threats, Google Hacking, Countermeasures Web-Based Password Cracking Techniques: Authentication Types, Password Crackers, Countermeasures SQL Injection: Steps, SQL Server Vulnerabilities, Countermeasures Buffer Overflows: Types, Stack-Based Buffer Overflows, Mutation Techniques Wireless Hacking: WEP, WPAng. Authentication Mechanisms, and Cracking Techniques, Wireless Sniffers, Rogue Access Points. Wireless Hacking Techniques, Securing Wireless Networks Penetration Testing Methodologies: Methodologies, Steps. Automated Tools, Pen-Test Deliverables

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Signature Of Teacher

Consulation Consulation Consulation Consulation Consulation Department Governor Consulation College of Arts, Johanne & Commerce, Jogeshwari (East), Mumbai - 400 060.

Name Of the Teacher: Snehlata Agarwal

Class: SY

Subject: Advanced Database Program, Asp.Net

Semester: III,IV

				Semester Plani	ning of Teaching
Mont h	Class	Assigned Lecture	Lecture s Taken	Topic to be covered	Key Points of Topic
June	SY		1	1) What is Stored Procedure with adv. And dis adv.	Stored Procedures: Types and benefits of stored procedures, creating stored
July	SY	15	9	1) Creation, Deletion and updateion of procedure with in and out parameters 2) Practical 1 and 2	procedures, executing stored procedures, altering stored procedures, viewing stored procedures. Triggers: Concept of triggers, Implementing triggers – creating triggers, Insert, delete, and update triggers, nested triggers, viewing, deleting and modifying triggers, and enforcing data integrity through triggers. Sequences: creating sequences, referencing, altering and dropping a sequence. File Organization and Indexing: Cluster, Primary and secondary indexing, Index data structure: hash and Tree based indexing, Comparison of file organization: cost model, Heap files, sorted files, clustered files. Creating, dropping and maintaining indexes.
Aug	sy	15	8	1) Variables, datatypes and operators 2) Conditional statements, loop statements Etc. 3) Practical 3 to 6	Fundamentals of PL/SQL: Defining variables and constants, PL/SQL expressions and comparisons: Logical Operators, Boolean Expressions, CASE Expressions Handling, Null Values in Comparisons and Conditional Statements, PL/SQL Datatypes: Number Types, Character Types, Boolean Type, Datetime and Interval Types. Overview of PL/SQL Control Structures: Conditional Control: IF and CASE Statements, IF-THEN Statement, IF-THEN-ELSE Statement, IFTHEN-ELSIF Statement, CASE Statement, Iterative Control: LOOP and EXIT Statements, WHILE-LOOP, FOR-LOOP, Sequential Control: GOTO and NULL Statements
Sep	SY	15	15	1) All Properties, recovery of the databases etc. 2) Practical 7 to 10	Transaction Management: ACID Properties, Serializability, Two-phase Commit Protocol, Concurrency Control, Lock Management, Lost Update Problem, Inconsistent Read Problem, Read-Write Locks, Deadlocks Handling, Two Phase Locking protocol. DCL Statements: Defining a transaction, Making Changes Permanent with COMMIT, Undoing Changes with ROLLBACK, Undoing Partial Changes with SAVEPOINT and ROLLBACK Crash Recovery: ARIES algorithm. The log based recovery, recovery related structures like transaction and dirty page table, Write-ahead log protocol, check points, recovery from a system crash, Redo and Undo phases.
Oct	SY			Theory and Practical exams	

Ne	y si	15	1	1) Overview with life cycle 2) Different types of page with extensions 3) Practical I to	Operations, Object-Based Manipulation, Conditional Logic, Loops, Methoc Classes, Value Types and Reference Types, Namespaces and Assemblies, Inheritance, Static Members, Casting Objects, Partial Classes ASP.NET: Creating Websites, Anatomy of a Web Form - Page Directive, Doctype, Writing Code - Code-Behind Class, Adding Event Handlers, An of an ASP.NET Application - ASP.NET File Types, ASP.NET Web Folder HTML Server Controls - View State, HTML Control Classes, HTML Co
				2	Events, HtmlControl Base Class, HtmlContainerControl Class, HtmlInputControl Class, Page Class, global.asax File, web.config File
Dec	SY	15	4	1) Different types of controls 2) Validations 3) How to create website with consistent layouts 4) Practicals from 3 to 7	Web Controls: Web Control Classes, WebControl Base Class, List Controls Table Controls, Web Control Events and AutoPostBack, Page Life Cycle State Management: ViewState, Cross-Page Posting, Query String, Cookies Session State, Configuring Session State, Application State Validation: Validation Controls, Server-Side Validation, Client-Side Validation, HTML5 Validation, Manual Validation, Validation with Regular Expressions Rich Controls: Calendar Control, AdRotator Control, MultiView Control Themes and Master Pages: How Themes Work, Applying a Simple Theme, Handling Theme Conflicts, Simple Master Page and Content Page, Connecting Master Pages and Content Pages, Master Page with Multiple Content Regions, Master Pages and Relative Paths Website Navigation: Site Maps, URL Mapping and Routing, SiteMapPath Control, TreeView Control, Menu Control
Jan	SY	15	5 8	3) Ajaxon	ADO.NET: Data Provider Model, Direct Data Access - Creating a Connection, Select Command, DataReader, Disconnected Data Access Data Binding: Introduction, Single-Value Data Binding, Repeated-Value Data Binding, Data Source Controls - SqlDataSource Data Controls: GridView, DetailsView, FormView Working with XML: XML Classes - XMLTextWriter, XMLTextReader Caching: When to Use Caching, Output Caching, Data Caching LINQ: Understanding LINQ, LINQ Basics, ASP.NET AJAX: ScriptManager, Partial Refreshes, Progress Notification, Timed Refreshes
April	SY	. (1	Theory exam , Paper Assessment and Result	

Signature Of Teacher

Computer Science Department
Government of Maharashtra's
Istham Vishtraduese of
Arts, Science & Commerce,
Jogeshwari (East), Mumbai - 400 060.

Se Rantine . Asia

Department of Computer Science A.Y. 2021-22 Semester wise Plan

Name Of the Teacher: Snehlata Agarwal

Semester: V,VI

Class: TY

Subject: Artificial intelligent, Information retrieval

Cla	ass	Assigned Lecture	Lectures Taken	Topic to be covered	Key Points of Topic
T	Y	15	1	Introduction to AI and Intelligent Agents What Is AI	Foundations, History and State of the Art of AI
Т	Y		9	1) Intelligent Agents 2) Problem Solving by searching 3) Practical from 1 to 2 4)Knowledge Representation	 Agents and Environments, Nature of Environments, Structure of Agents. Problem-Solving Agents, Uninformed Search Strategies, Informed (Heuristic) Search Strategies Knowledge Representation and different forms,
T	Y	15	8	Reasoning, and Machine Learning 1)Knowledge Representation and Reasoning 2) Practical from	1)Reasoning, Planning, Uncertainty in Knowledge Fuzzy Logic & Fuzzification
T	Y	15	7 8	Machine Learning Probabilistic Models, Unsupervised Learning, and Reinforcement	Forms of Learning, Parametric & Non-Parametric Models, Classification, Regression, Regularization, Decision Trees, SVM, Artificial Neural Networks, Ensemble Learning, Boosting, K-NN, Gradient Descent UNIT 2 Statistical Learning, Learning with Complete Data, Naive Bayes Classifier, Learning with Hidden Variables: The EM Algorithm

			2) Practical fro 6 to 8	m
TY	15	3	1)Unsupervised Learning 2)Reinforcemen learning 3)Practical 9 and	Mining 2)Concept of Reinforcement learning, Q-Learning, Hidden Markov Model
TY			Revision for Lect and Practical	t
TY	15	2	1) Introduction to Information Retrieval (IR) systems 2) Docume nt Indexin g, Storage, and Compression	Definition and goals of information retrieval, Components of an IR system, Challenges and applications of IR 1)Inverted index construction and compression techniques, Document representation and term weighting, Storage and retrieval of indexed documents,
TY	15	15	2) Correction in IR Systems 3) Performance Evaluation 4) Practical from 1 to 4	2) Boolean model: Boolean operators, query processing, Vector space model: TF-IDF, cosine similarity, query- document matching, Probabilistic model: Bayesian retrieval, relevance feedback 3) Challenges of spelling errors in queries and documents, Edit distance and string similarity measures, Techniques for 15 Page 42 of 63 spelling correction in IR systems 4) Evaluation metrics: precision, recall, F-measure, average precision, Test collections and relevance judgments, Experimental design and significance testing
TY	15	15	and Filtering re	Text classification algorithms: Naive Bayes, Support fector Machines, Feature selection and dimensionality eduction, Applications of text categorization and filtering Clustering techniques: Kmeans, hierarchical clustering,

	A .			80 REV 0 PAG 1	
		15. ** ₂ .		for Information Retrieval 3)Web Information Retrieval 4)Learning to Rank 5)Link Analysis and its Role in IR Systems	Evaluation of clustering results, Clustering for query expansion and result grouping 3)Web search architecture and challenges, Crawling and indexing web pages, Link analysis and PageRank algorithm 4)Algorithms and Techniques, Supervised learning for ranking: RankSVM, RankBoost, Pairwise and listwise learning to rank approaches Evaluation metrics for learning to rank 5)Web graph representation and link analysis algorithms,
			y	6)Crawling and Near-Duplicate Page Detection 1) Practical from 5 to 7	HITS and PageRank algorithms, Applications of link analysis in IR systems 6)Web page crawling techniques: breadth-first, depth-first, focused crawling, Near-duplicate page detection algorithms, Handling dynamic web content during crawling
	TY	15	15	1)Advanced Topics in IR 2)Cross-Lingual and Multilingual Retrieval 3) User-based evaluation 4) Practical from 8 to 10	1) 2)Text Summarization: extractive and abstractive methods, Question Answering: approaches for finding precise answers, Recommender Systems: collaborative filtering, content-based filtering 3) Challenges and techniques for cross-lingual retrieval, Machine translation for IR, Multilingual document representations and query translation, Evaluation Techniques for IR Systems 4)user studies, surveys, Test collections and benchmarking, Online evaluation methods: A/B testing, interleaving experiments
Co	TY			Revision, Practical Exam, Theory exam, Paper Assessment and Result	2d Note

Signature Of Reacher



Department of Computer Science A.Y. 2021-22

Class !

Subject : Web Service

Semester Planning of Teaching

Month	Class	Assigned Lecture	Lectures linkers	Topic to be covered	Key Points of Taple
Juḥ	sv	15	5	Web services basicsation Practical 1-3	What Are Web Servicer? Types of Web Services Distributed computing infraemacture, overview of NML, 8GAP, Building Web Services with JAX-WS, Registering and Discovering Web Services, Service Oriented Architecture. Web Services Development Life Cycle, Developing and consuming simple Web Services across platform
lug.	8	15	IV.	The REST Architectural attyle Practical from 3-6	Introducing HTTP, The core architectural elements of a RESTful system, Description and discovery of RESTful web- services, Java tools and frameworks for building RESTful web services, JSUN message formst and tools and frameworks around JSUN. Build RESTful web services with JAN-RES APIE. The Description and Discovery of RESTful Web Services, Design guidelines for building RESTful web services, Secure RESTful web services
-1-	SV	15	,	Developing Service-Oriented Applications with WCF	What Is Windows Communication Foundation, Fundamental Windows Communication Foundation Concepts, Windows Constructions Foundation Architecture, WCF and JNET Francework Cherc Profile, Blasic WCF Programming, WCF Feature Details. Web Service QuS

Signature Of Teach

Coordinator Compcoordinacience Department

Government of Meharashtra's Department of Computer Science of Arts, Science & Commercia Jogeshwari (East), mumbai - 400 600.

Semester: I,II

Name Of the Teacher: Amita Vakil

Class : FY

Subject: Soft Skills, Programming with C, Database System, Green Technologies

	Month	Class	Assigned Lecture	Lectures Taken	Topic to be covered	Key Points of Topic
	June	FY	15+15	15 14	Introduction to Soft Skills Personality Development Emotional Intelligence	Soft Skills: An Introduction - Definition and Significance of Soft Skills; Process, Importance and Measurement of Soft Skill Development. Personality Development: Knowing Yourself, Positive Thinking, Johari's Window, Physical Fitness Emotional Intelligence: Meaning and Definition, Meed for Emotional Intelligence, Intelligence Quotient versus Emotional Intelligence Quotient, Components of Emotional Intelligence Positivity and Motivation: Developing Positive Thinking and Attitude; Driving out Negativity; Meaning and Theories of Motivation; Enhancing Motivation Levels Etiquette and Mannerism: Introduction, Professional Etiquette, Technology Etiquette Ethical Values: Ethics and Society, Theories of Ethics, Correlation between Values and Behavior, Nurturing Ethics, Importance of Work Ethics, Problems In the Absence of Work Ethics.
	July	rr	15000000		Capacity Building, Elements of Capacity Building, Zones of Learning, Ideas for Learning, Strategies for Capacity Building Leadership and Team Building: Leader and Leadership, Leadership Traits, Culture and Leadership	Capacity Building: Learn, Unlearn and Relearn Creathrity at Workplace: Introduction, Current Workplaces, Creatfrity, Motivation, Nurturing Hobbies at Work, The Six Thinking Hat Method. Capacity Building: Learn, Unlearn and Relearn: Capacity Building, Elements of Capacity Building, Zones of Learning, Ideas for Learning, Strategies for Capacity Building Leadership and Tearn Building: Leader and Leadership, Leadership Traits, Culture and Leadership, Leadership Styles and Trends, Tearn Building: Types of Tearns. Decision Making and Negotiation: Introduction to Decision Making, Steps for Decision Making, Decision Making Techniques, Negotiation Fundamentals, Negotiation Styles, Major Negotiation Concepts Stress and Time Management: Stress, Sources of Stress, Ways to Cope with Stress
		FY	15+15	13	Basic Skills in Communication	Components of effective communication Communication Skills Job Interviews Group Discussion:
Au	Aug				Introduction to DBMS Data models	Database, DBMS - Definition, Overview of DBMS, Advantages of DBMS, Levels of abstraction, Data Independence, DBMS Architecture Data models - Client/Server Architecture, Object Based Logical Model, Record Based Logical Model, Record Based Logical Model, Record Based Logical Model, Rec
1			FY 15+15	20	Academic and Professional Skills	Professional Presentation Creativity at Workplace:
	5 89	*			Entity Relationship Model ER to Table DDL Statements DML Statements	Viewing the structure of a table insert, update, delete, Select all columns, specific columns, unique records, conditional select, in clause, between clause, limit, aggregate functions (count, min, max, avg. sum), group by clause, having clause Entities, attributes, entity sets, relations, relationship sets, Additional constraints (key constraints, perticipation constraints, weak entities, aggregation / generalization, Conceptual Design using ER (entities VS attributes, Entity Vs relationship, binary Vs terrary, constraints beyond ER) Creating Databases, Using Databases, data types, Creating Tables (with integrity constraints-primary key, default, check, not null), Altering Tables, Renaming Tables, Drupping Tables, Truncating Tables
	Oct	r	15+15		Relational data model Relational Algebra Functions	omains, astributes, Tuples and Relations, Relational Model Notation, Characteristics of Relations, Relational Constraints - primary key, referential integrity, unique constraint, Null constraint, Check Constraint Relational Algebra operations (selection, projection, set operations union, intersection, difference, cross product, Joins -conditional, equi join and natural joins, division) Functions - String Functions (concat, Instr., left, right, mid., length, lease/lower, ucase/upper, replace, stremp, trim, ftrim, rtrim), Math Functions (abs, cell, floor, mod, pow, sort, round, truncate) Date Functions (adddate, datediff, day, month, year, hour, min, sec, now, reverse) Joining Tables - inner join, outer join (left outer, right outer, full outer)

					Subqueries - subqueries with IN, EDSTS, subqueries restrictions, Nested subqueries, ANY/ALL clause, correlated subqueries
	Fr .	15		Exam & Papar evaluation	
*	r	15+15	12-05	Structure of C program Data Variables Types of operators	Header and body, Use of comments, Interpreters vs. compilers, Python vs. C. Compilation of a program. Formatted I/O; printf(), scanf(). Data: Variables; Constants, data types like: inst, float program. Formatted I/O; printf(), scanf(). Data: Variables; Constants, data types like: inst, float data. When the compare with chart, double and vold, short and long size qualiflers, signed and unsigned qualiflers. Compare with datatypes in Python. Compare static typing in C vs. dynamic typing in Python variables; Declaring datatypes in Python. Spend of the variables sccording to block, hierarchy of data types. Compare explicit declarations in C with implicit declarations in Python. Types of operators: Arithmetic, relational, declarations in C with implicit declarations in Python. Types of operators: Arithmetic, relational of declarations. Automatic comma operators. Precedence and order of evaluation, statements and Expressions. Automatic and explicit type conversion.
				Green II Frandamentals	Greet IT Fundamentale: Information Technology and Les monnent, Brussess, Lovimonnest, and Green Letterprise. Characteristics, Green Vision and Strategic Points, Green Value, Green IT Opportunity, Chailenges of a Carbon Economy, Universemental Intelligence, Levisioning the Green Feture.
				Iterations Arrays Data Input and Output functions Manipulating Strings	Control statements for decision making: (i) Branching: if statement, else if statement, (does the writer mean lifelse or nested lisjawitch statement. (ii) Looping: while loop, do while, for loop. (iii) Jump statements: break, continue and goto. declaring array variables, initialization of arrays, accessing array elements. Compare array types of cwith list and tuple types of Python. Character VO format: getch(), getche(), getchar(), getc(), gets(), putchar(), putc(), putc() Declaring and initializing String variables, Character and string handling functions. Compare with Python strings.
Jan .	.Pr	15+15	12	Green Assets and emerging Trends	Green Assets and emerging Trends: Data Servers Optimization and Virtualization, Physical Data Server Organization and Cooling, Cloud Competing and Data Centra. Networking and Communications-Infrastructure, Led-User Devices, Smart Meters in Real-Time, Managing Devices for Central Green Services, Devices and Organizational Boundaries for Measurements, Mobile Devices, and Stottainability Green Besiness-Process Managament: Introduction, Green Recognization Green Process Green II Governance, Green Business Process and Applications, Oct. Archiveing green RPM. Green Mobile Business Process, Digital Library Green Esterpase Archivester Green II and organizational Systems. Aspects of Green Solutions Architecture, Contents and Intelligence.
				Functions Recursion Pointer	Functions: Function declaration, function definition, Global and local variables, return statement, Calling a function by passing values. Recursion: Definition, Recursive functions. 1SL 20 Unit III Pointer: Fundamentals, Pointer variables, Referencing and de-referencing, Pointer Arithmetic, Using Pointers with Arrays, Using Pointers with Strings, Array of Pointers, Pointers as function arguments, Functions returning pointers
fee.	FY.	15-15	11	Grees Information Systemic GIS)	Green Information Systems(GIS): Design and Development Models. Describing GIS, GIS Requirements. Stocknethar al Aspects of Green IT: Green IT's Social Impact. Learning Organization, Green Social Stakeholders. Role-Based View of Green IT: Green IT: Social Impact. Learning Organization, Green Social Stakeholders. Role-Based View of Green IT: Green III: Practices, Artitude and Subjectivity in Green IT. Green IT. Letters and Code of Conduct. Privacy and Security of Green Information. Green Washing, Constitutions in Green Franchismation Projects, Green III: and Changing Organizational Statutions, Green-Culia. Wasters, Roles and Statutions, Green Warnat Continuousliks Green Compliance. Protocols, Standards, 180 14660-2004 Standard, Various maturities by stackholders, Green Audits and types, Audit and use; Carbon omission management software Emerging Carbon Issues. Technologies and Feature Fouce Carbon. Landwape, Orien ICT and Technology. Trends, Cloud Computing, Nanoschoology, Quantum computing, Renewable correstes, eco-design. Collaborative environmental mediagence.
March		15+15	06	Pointer Memory Allocation	Dynamic Memory Allocation: malloc(), calloc(), realloc(), free() and size of operator. Compare with automatic garbage collection in Python. Structure: Declaration of structure, reading and assignment of structure variables, array of structures, arrays within structures, structures with Python tuples. Unions: Defining and working with unions. Structures. Compare C structures with Python tuples. Unions: Defining and working with unions. File handling: Different types of files like text and plansy. Different types of functions: fopen(), file handling: Different types of files like text and plansy. Different types of functions: fopen(), file files(), fputc(), fgets(), fputs(), fputs(), fread(), fwrite(), fseek().
	Fr			Exam & paper assessment	Delulate

Signature Of Teacher

Computer Shature of Department
Gover Maid of Department Head of Department Head of Department Head of Lismail Vosan Arts, Science & Commerce, Arts, Science & Commerce, Jogeshwarl (East): Mumbai - 400 060.

Name Of the Teacher: Amita Vakil

Sei, ester: V. VI

Class : T)

Subject : Web Service. Datata science

Semester Planning of Teaching

			Semester	Planning of Teaching	
Menth	Class	Assigned Lecture	Lectures laken	Topic to be covered	Key Points of Sopie
July	sv	15	5	Web services basicuation Practical 1-3	What Are Web Service? Types of Web Services Distributed computing infrastructure, eventient of SML, SUAP, Building Web Services with JAN-WS, Registering and Discovering Web Services, Service Oriented Architecture, Web Services Development Life Cycle, Developing and connuming simple Web Services across platform
Aug	9	15	.13.	The REST Architectural style Practical frum 3-6	Introducing HTTP, The core architectural elements of a PESTful system. Description and discovery of RESTful web services, Jana looks and francovorks for building RESTful web services, StoN message format and note and francovorks arranda JSON. Sull RESTful web revices with JANES APIE. The Description and Disservery of RESTful Web Services, Design guidelines for building RESTful web services, Secure RESTful web services.
Sep	51	15	•	Developing Service-defented Applications with WCF	What Is Windows Communication Foundation, Fundamental Windows Communication Foundation Concepts, Windows Communication Foundation Architecture, WCF and .NET Framework Cherc Profile, Basic WCF Programming, WCF Feature Littalia. Web Service QsS
Oct & Nev Essen	& Paper Assessment	of SY	I.,		
Dec	SY	15	11	Introduction to Data Science	What is Data* Different kinds of data, 151. Introduction to high level programming language + Integrated Development Environment (10E), Exploratory Data Analysis (EDA) + Data Vissalization, Different types of data sources, Data Management: Data Collection, Data cleaning/extraction, Data analysis & Modeling
Jac.	5)	15	15	Data Curation Practical from 5-7	Query languages and Operations to specify and transform data. Structured schema based systems as users and acquirers of data Semi-structured systems as users and acquirers of data. Unstructured systems in the acquisition and structuring of data. Security and whical considerations in relation to authoritioning and authorizing access to data on remote systems. Software development trads, Large scale data systems, Amazon Web Services (AWS)
Fet S	et.	15	15	Statistical Modelling and Machine Learning Practical 7-9	Historduction to model velection: Regularization, bias/variance tradeoff e.g. parsimony. Aif., Bif., Cross validation, Ridge regressions and penalized regression e.g. 1.A SSO Data transformations: Dimension reduction, Feature extraction, Smoothing and aggregating Supervised Learning: Regression, benar models, Regression trees, Time-series Analysis, Ferecasting, Chastification trees, Legislic regression, separating Synchuse, Set NV Ususperved, Learning: Principal Components Analysis (PCA), k-means clustering. H-erarchical clustering, Engenthle methods
Murch áth April	sv		Practical Exam. Theory exam , Paper Assessment and Kesuit		

Signature Of Teacher

Compute Spine Co Departs of Mahara:

Government of Mahara:

Spining Version Computer Science

Is a Computer Science & Computer

Name Of the Teacher: Amits Vakil

Semester: III.i

Class: SY

Subject :Operating System.Fundamentals of Algorithms

Semester Planning of Teaching

7	Semester Planning of Tracking							
Munth	Cless	Assigned Lecture	Lectures faken	Tuple to be covered	Key Fulats of Supir			
Jah	"	15	3	Introduction to Operating-Systems Operating-System Structures Process Hitsuls Process Synchrotization Practical 1-3	Deficition of Operating System. (Placeting System): role, Operating-System Operating System): role, Operating System Compiling For inconnecte Operating System Services. Here and. Operating-System Services. Here and. Operating-System Interface, System Calls, Types of System Calls, Operating-System Sitecture			
, i	8	15	13	Process Synchronization Scheduling: Deadlecks: Practical from 3-6	General structure of a typical process, race conduinn, The Critical-Section Problem. Preservor's Solution. Synchromization Horitaire, Mater Locks, Semaphones, Classes, Problems of Synchromization Horitaire. Basic Consepts, Selectating Criteria, Scheduling Basic Consepts, Selectating Criteria, Scheduling Algorithms (ECS, SIF, SRT, Provincy, PR, Muldished Cranae Sebeshing, Multilevel Feedback Queue Scheduling, Thread Scheduling System Model, Deallock Characterization Methods for Handling Deallock Characterization Methods for Handling Deallock Characterization Methods for Handling Deallock Provention, Deallock Avoidance, Deallock Detection, Recovery from Deallock			
Ser	si '	15	,	Main Memory Virtual Memory Mass-Storage Structure File-System Interface File-System Implementation	Background, Logical address space, Physical address space, MRU Swappung, Contiguous Memory Allocation, Segmentation, Paging, Structure of the Page Hable Background, Demand Paging, Copyson-Write, Page Replacement, Allocation of Frames, Trankling, Owerview, Disk Structure, Disk Schoduling, Dask Management File Concept, Accuss Methods, Directory and Disk Saturture, File-System Mounting, File Sharing Utio-System Structure, File-System Mounting, File Starting Utioskystem Structure, File-System Implementation, Directory Implementation, Allocation Methods, Free-Space Management			
Oct & Nor France	& Paper Amesonesi i	d SV						
Dec	sv	15	и	Introduction to algorithm	Introduction to algorithm, Why to analysis algorithm. Running time analysis. How to Compute Algorithms, Run of Growth, Commonly Used Retes of Growth, Types of Analysis, Asympton Notation, There-D Notation, Computed Notation, Asymptonic Analysis, Properies of Notations, Commenting used I against offers and Sommations, Performance characteristics of algorithms, Master Theorem for Device and Conquer Devide and Conquer Master Theorem: Problems & Solutions, Master Theorem for Subtract and Conquer Recurrences, Method of Guessing and Confirming			
w 🤏	sv	15	15	True algorithms Graph Algorithms Practical from 5-7	Tree algorithms: What is a Tree? Glossary, Binary Trees, Types of Binary Trees, Proporties of Binary Trees, Proposition of Binary Trees, Proposition Trees, Proposition Trees, Proposition Trees, Rimary Search Trees (BSTs), Bulanced Binary Search Trees, ATL (Addison-Verka) and Landiso Trees Graph Algorithms, Eurochemina, Glossary, Applications of Graph Representation, Graph Transcrats, Topological Seri, Science Path Algorithms, Minimal Spanning Tree Introduction, Glossary, Applications of Graphs, Graph Representation, Graph Traversals, Topological Seri, Science Path Algorithms, Minimal Spanning Tree			
fe:	5 ¥	15	15.	Dynamic Programming Practical 7-9	Histoduction, What is a Dynamic Programming Strategy? Properties of Dynamic Programming Strategy. Problems which can be solved using Dynamic Programming, Dynamic Programming Agroundes, Examples of Dynamic Programming, Longest Common Subsequency.			
Murci dili April	59		Fractical Exam. Theory exam.					

Signature Of Teacher

Coordinator
Computes Saintinge Department
Government of Maharashtra's
Partment of Maharashtra's
Arts, Science & Commerce,
Jogeshwari (East), Mumbai - 400 060.

Semester: I,II

Name Of the Teacher: Snehlata Agarwal Class: FY Subject: Programming with Python-I, Advanced Python Programming

	Class	Assigned Lecture	Lectures	Topic to be	Key Points of Topic
Month	Class	A33,8112	Taken	covered	
July	FΥ	15	7	1)Overview of Python 2)Data Types, Variables and Other Basic Elements	Reasons for Python as the learner's first programming language. Introduction to the IDLE interpreter (shell) and its documentation. Expression evaluation: similarities and differences compared to a calculator; expressions and operators of types int, float, boolean. Built-in function type. Operator precedence. Enumeration of simple and compound statements. The expression statement. The assert statement, whose operand is a boolean expression (values true or false). The assignment statement, dynamic binding of names to values, (type is associated with data and not with names); automatic and implicit declaration of variable names with the assignment statement; assigning the valueNone to a name. The del (delete) statement. Input/output with print and input functions. A statement list (semicolon separated list of simple statements on a single line) as a single interpreter command. The import statement for already-defined functions and constants. The augmented assignment statement. The built-inhelp() function.
Aug	FY	121	4 4 9	1) Input and Output Operations 2) Control Statements 3) Practical from 1 to 4 4) Operators 5) Practical from 5 to 7	Interactive and script modes of IDLE, running a script, restarting the shell. The compound statement def to define functions; the role of indentation for delimiting the body of a compound statement; calling a previously defined function. Compound data types str, tuple and list (enclosed in quotes, parentheses and brackets, respectively). Indexing individual elements within these types. Strings and tuples are immutable, lists are mutable. Built-in functions min, max, sum. Interactive solution of model problems, (e.g., finding the square root of a number or zero of a function), by repeatedly executing the body of a loop (where the body is a statement list).
Sep	FY	15	9	1)Function 2) if else 3) Loops 4) Dictionary Concept 5)Practicals from 5 to 8	Advantages of functions, function parameters, formal parameters, actual parameters, global and local variables. The range function, the iterative for statement. The conditional statements if, if-elie, if-elif-else. The iterative statements while, while-else, for-else. The continue statement to skip over one iteration of a loop, the break statement to exit the loop. Nested compound statements. Dictionaries: concept of key-value pairs, techniques to create, update and delete dictionary items. Problem-solving using compound types and statements.
Oct	FY	15	15	1)Strings 2)List and Tuples 3)Dictionaries 4)Practical from 8 to 10	Anonymous functions. List comprehensions. Gentle introduction to object-oriented programming; using the built-in dir() function, enumerate the methods of strings, tuples, lists, dictionaries. Using these methods for problem-solving with compound types.
Nov	FY			Practical Exam	

Dec	FY	15	4	1)Working wil files and Exce handling	
Jan	FY		9	1)Regular expressions 2)GUI BASED Concepts 3)Practical from to 4	1) Regular Expressions: Concept of regular expression, various typ regular expressions, using match function. 2) GUI Programming in Python (using Tkinter/wxPython/Qt) What is GUI, Advantages of GUI, Introduction to GUI library. Layout management, events and bindings, fonts, colours, drawing on canvas (line, oval, rectetc.) Widgets such as: frame, label, button, checkbutton, entry, listbox, mes radiobutton, text, spinbox etc
Feb	FY	15	9	1)Database in python 2)Practical from 5 to 7	1) Database connectivity in Python: Installing mysql connector, accessing connector module module, using connect, cursor, execute & close functions, reading single & multiple results of query execution, executing different types of statements executing transactions, understanding exceptions in database connectivity.
March	FY	15	9	1)Sokets and Creation of Sockets 4) Practical from 8 to 10	Network connectivity: Socket module, creating server-client programs, sending email, reading from URL
pril	FY 1			Practical Exam, Theory exam , Paper Assessment and Result	

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Department of Computer Science A.V. 2020-21 Semester wise Plan

Name Of the Teacher: Snehlata Agarwal

Class: SV

Subject: Advanced Database Program, Asp.Net

Semester: III,IV

Mont h	Class	Assigned Lecture	Lecture s Taken	Topic to be covered	Key Points of Topic		
June	SY		1	1) What is Stored Procedure with adv. And dis adv.	Stored Procedures: Types and benefits of stored procedures, creating stored		
July	SY	15	9 P 2) P	Deletion and updateion of procedure with in and out parameters	procedures, executing stored procedures, altering stored procedures, viewing stored procedures. Triggers: Concept of triggers, Implementing triggers – creating triggers, Insert, delete, and update triggers, nested triggers, viewing, deleting and modifying triggers, and enforcing data integrity through triggers. Sequences: creating sequences, referencing, altering and dropping a sequence. File Organization and Indexing: Cluster, Primary and secondary indexing, Index data structure: hash and Tree based indexing, Comparison of file organization: cost model, Heap files, sorted files, clustered files. Creating, dropping and maintaining indexes.		
Aug	SY	15	7	1) Variables, datatypes and operators 2) Conditional statements, loop statements Etc. 3) Practical 3 to 6	Fundamentals of PL/SQL: Defining variables and constants, PL/SQL expressions and comparisons: Logical Operators, Boolean Expressions, CASE Expressions Handling, Null Values in Comparisons and Conditional Statements, PL/SQL Datatypes: Number Types, Character Types, Boolean Type, Datetime and Interval Types. Overview of PL/SQL Control Structures: Conditional Control: IF and CASE Statements, IF-THEN Statement, IF-THEN-ELSE Statement, IFTHEN-ELSIF Statement, CASE Statement, Iterative Control: LOOP and EXIT Statements, WHILE-LOOP, FOR-LOOP, Sequential Control: GOTO and NULL Statements		
Sep	SY	15	9	1) All Properties, recovery of the databases etc. 2) Practical 7 to 10	Transaction Management: ACID Properties, Serializability, Two-phase Commit Protocol, Concurrency Control, Lock Management, Lost Update Problem, Inconsistent Read Problem, Read-Write Locks, Deadlocks Handling, Two Phase Locking protocol. DCL Statements: Defining a transaction, Making Changes Permanent with COMMIT, Undoing Changes with ROLLBACK, Undoing Partial Changes with SAVEPOINT and ROLLBACK Crash Recovery: ARIES algorithm. The log based recovery, recovery related structures like transaction and dirty page table, Write-ahead log protocol, check points, recovery from a system crash, Redo and Undo phases.		
Oct	SY			Theory and Practical exams			

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1) Overview with life cycle. 2) Different types of pages with extensions 2 3) Practical 1 to 2	The .NET Framework:.NET Languages, Common Language Runtime, Net Class Library C# Language Basics: Comments, Variables and Data Types, Variable Operations, Object-Based Manipulation, Conditional Logic, Loops, Methods, Object-Based Manipulation, Conditional Logic, Loops, Methods, Classes, Value Types and Reference Types, Namespaces and Assemblies, Classes, Value Types and Reference Types, Namespaces and Assemblies, Classes, Inheritance, Static Members, Casting Objects, Partial Classes Inheritance, Static Members, Casting Object
7 1) Different types of controls 2) Validations 4 3) How to create website with consistent layouts 4) Practicals from 3 to 7	Web Controls: Web Control Classes, WebControl Base Class, List Controls, Table Controls, Web Control Events and AutoPostBack, Page Life Cycle State Management: ViewState, Cross-Page Posting, Query String, Cookies, Session State, Configuring Session State, Application State Validation: Validation Controls, Server-Side Validation, Client-Side Validation, HTML5 Validation, Manual Validation, Validation with Regular Expressions Rich Controls: Calendar Control, AdRotator Control, MultiView Control Themes and Master Pages: How Themes Work, Applying a Simple Theme, Handling Theme Conflicts, Simple Master Page and Content Page, Connecting Master pages and Content Pages, Master Page with Multiple Content Regions, Master Pages and Relative Paths Website Navigation: Site Maps, URL Mapping and Routing, SiteMapPath Control, TreeView Control, Menu Control
2 1) Database binding 5 2) Different data 8 controls 3) Ajax on pages 4) Practicals 8 to 10	ADO.NET: Data Provider Model, Direct Data Access - Creating a Connection, Select Command, DataReader, Disconnected Data Access Data Binding: Introduction, Single-Value Data Binding, Repeated-Value Data Binding, Data Source Controls - SqlDataSource Data Controls: GridView, DetailsView, FormView Working with XML: XML Classes - XMLTextWriter, XMLTextReader Caching: When to Use Caching, Output Caching, Data Caching LINQ: Understanding LINQ, LINQ Basics, ASP.NET AJAX: ScriptManager, Partial Refreshes, Progress Notification, Timed Refreshes
Theory exam, Paper Assessment and Result	
	8 with life cycle. 2) Different types of pages with extensions 2 3) Practical 1 to 2 7 1) Different types of controls 2) Validations 4 3) How to create website with consistent layouts 4) Practicals from 3 to 7 2 1) Database binding 5 2) Different data controls 3) Ajax on pages 4) Practicals 8 to 10 Theory exam, Paper Assessment

Signature of Teacher

Computer Science Department Government Maharashtra's Head of Repartment ge of Arts, Science & Commerce, Jogeshwari (East), Mumbai - 400 060.

Name Of the Teacher: Snehlata Agarwal

Semester: V,V1

Class: TY

Subject: Artificial intelligent, Information retrieval

Month	Class	Assigned Lecture	Lectures Taken	Topic to be covered	Key Points of Topic
lune	TY	15	1	Introduction to Al and Intelligent Agents What Is Al	What Is AI: Foundations, History and State of the Art of AI. Intelligent Agents: Agents and Environments, Nature of Environments, Structure of Agents.
July	TY		9	1) Intelligent Agents 2) Problem Solving by searching 3) Practical from 1 to 2 4)Knowledge Representation	Problem Solving by searching: Problem-Solving Agents, Example Problems, Searching for Solutions, Uninformed Search Strategies Informed (Heuristic) Search Strategies, Heuristic Functions.
Aug	TY	15	8 7	1) Supervised learning 2) NPM and SVM etc. 3) Practical from 3 to 7	Learning from Examples: Forms of Learning, Supervised Learning, Learning Decision Trees, Evaluating and Choosing the Best Hypothesis, Theory of Learning, Regression and Classification with Linear Models, Artificial Neural Networks, Nonparametric Models, Support Vector Machines, Ensemble Learning, Practical Machine Learning
Oct	TY	15	3	1)Unsupervised Learning 2)Reinforcement learning 3)Practical 8 to 10	Learning probabilistic models: Statistical Learning, Learning with Complete Data, Learning with Hidden Variables: The EM Algorithm. Reinforcement learning: Passive Reinforcement Learning, Active Reinforcement Learning, Generalization in Reinforcement Learning, Policy Search, Applications of Reinforcement Learning.
Nov	ту			Revision for Lect and	

Dec	ΤΥ	15	2	1) Introduction to Information Retrieval (IR) systems 2) Document Indexing, Storage, and Compression 3) Practical from 1 to 4	Introduction to information Retrieval: Introduction History of IR, Components of IR, and Issues related to IR, Boolean retrieval, Dictionaries and tolerant retrieval.
Jan	TY	15	9	1)Learning to Rank 2)Link Analysis and its Role in IR Systems 3)Crawling and Near-Duplicate Page Detection 4) Practical from 5 to 7	Link Analysis and Specialized Search: Link Analysis hubs and authorities, Page Rank and HITS algorithms, Similarity Hadoop & Map Reduce, Evaluation, Personalized search, Collaborative filtering and content-based recommendation of documents and products, handling "invisible" Web, Snippet generation, Summarization, Question Answering, Cross- Lingual Retrieval
March	TY	15	15	1)Web search engine with different techniques 2)retrival using XML 3) Practical from 8 to 10	Web Search Engine: Web search overview, web structure, the user, paid placement, search engine optimization/spam, Web size measurement, search engine optimization/spam, Web Search Architectures. XML retrieval: Basic XML concepts, Challenges in XML retrieval, A vector space model for XML retrieval, Evaluation of XML retrieval, Text-centric versus data-centric XML retrieval.
April	TY			Revision, Practical Exam, Theory exam, Paper Assessment and Result	Choialle ale

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Semester: III,IV

Name Of the Teacher: Snehlata Agarwal

Class: SY

Subject: Advanced Database Program, Asp.Net

Mont h	Class	Assigned Lecture	Lecture s Taken	Topic to be covered	Key Points of Topic
June	SY		1	1) What is Stored Procedure with adv. And dis adv.	Stored Procedures: Types and benefits of stored procedures, creating stored
July	SY	15	9	1) Creation, Deletion and updateion of procedure with in and out parameters 2) Practical 1 and 2	procedures, executing stored procedures, altering stored procedures, viewing stored procedures. Triggers: Concept of triggers, Implementing triggers – creating triggers, Insert, delete, and update triggers, nested triggers, viewing, deleting and modifying triggers, and enforcing data integrity through triggers. Sequences: creating sequences, referencing, altering and dropping a sequence. File Organization and Indexing: Cluster, Primary and secondary indexing, Index data structure: hash and Tree based indexing, Comparison of file organization: cost model, Heap files, sorted files, clustered files. Creating, dropping and maintaining indexes.
Aug	SY	15	8	1) Variables, datatypes and operators 2) Conditional statements, loop statements Etc. 3) Practical 3 to 6	Fundamentals of PL/SQL: Defining variables and constants, PL/SQL expressions and comparisons: Logical Operators, Boolean Expressions, CASE Expressions Handling, Null Values in Comparisons and Conditional Statements, PL/SQL Datatypes: Number Types, Character Types, Boolean Type, Datetime and Interval Types. Overview of PL/SQL Control Structures: Conditional Control: IF and CASE Statements, IF-THEN Statement, IF-THEN-ELSE Statement, IFTHEN-ELSIF Statement, CASE Statement, Iterative Control: LOOP and EXIT Statements, WHILE-LOOP, FOR-LOOP, Sequential Control: GOTO and NULL Statements
Sep	SY	15	15	1) All Properties, recovery of the databases etc. 2) Practical 7 to	Transaction Management: ACID Properties, Serializability, Two-phase Commit Protocol, Concurrency Control, Lock Management, Lost Update Problem, Inconsistent Read Problem, Read-Write Locks, Deadlocks Handling, Two Phase Locking protocol. DCL Statements: Defining a transaction, Making Changes Permanent with COMMIT, Undoing Changes with ROLLBACK, Undoing Partial Changes with SAVEPOINT and ROLLBACK Crash Recovery: ARIES algorithm. The log based recovery, recovery related structures like transaction and dirty page table, Write-ahead log protocol, check points, recovery from a system crash, Redo and Undo phases.
Oct	SY	80	1.	Theory and Practical exams	

prij	SY		P	heory exam , aper Assessment nd Result	
Jan	SY	15	5 8	1) Database binding 2) Different data controls 3) Ajax on pages 4) Practicals 8 to 10	ADO.NET: Data Provider Model, Direct Data Access - Creating a Connection, Select Command, DataReader, Disconnected Data Access Data Binding: Introduction, Single-Value Data Binding, Repeated-Value Data Binding, Data Source Controls - SqlDataSource Data Controls: GridView, DetailsView, FormView Working with XML: XML Classes - XMLTextWriter, XMLTextReader Caching: When to Use Caching, Output Caching, Data Caching LINQ: Understanding LINQ, LINQ Basics, ASP.NET AJAX: ScriptManager, Partial Refreshes, Progress Notification,
Dec	SY	15	4	1) Different types of controls 2) Validations 3) How to create website with consistent layouts 4) Practicals from 3 to 7	Web Controls: Web Control Classes, WebControl Base Class, List Controls, Table Controls, Web Control Events and AutoPostBack, Page Life Cycle State Management: ViewState, Cross-Page Posting, Query String, Cookies, Session State, Configuring Session State, Application State Validation: Validation Controls, Server-Side Validation, Client-Side Validation, HTML5 Validation, Manual Validation, Validation with Regular Expressions Rich Controls: Calendar Control, AdRotator Control, MultiView Control Themes and Master Pages: How Themes Work, Applying a Simple Theme, Handling Theme Conflicts, Simple Master Page and Content Page, Connecting Master pages and Content Pages, Master Page with Multiple Content Regions, Master Pages and Relative Paths Website Navigation: Site Maps, URL Mapping and Routing, SiteMapPath Control, TreeView Control, Menu Control
Nov	SY	15	8 7 2	1) Overview with life cycle. 2) Different types of pages with extensions 3) Practical I to 2	The .NET Framework:.NET Languages, Common Language Running Class Library C# Language Basics: Comment:, Variables and Data Types, Variable Operations, Object-Based Manipulation, Conditional Logic, Loops, Method Operations, Object-Based Manipulation, Conditional Classes and Assemblies, Classes, Value Types and Reference Types, Namespaces and Assemblies, Classes, Value Types and Reference Types, Namespaces and Assemblies, Classes, Value Types and Reference Types, Namespaces and Assemblies, Classes, Asp.NET: Creating Websites, Anatomy of a Web Form - Page Directive, Asp.NET: Creating Websites, Anatomy of a Web Form - Page Directive, Asp.NET: Creating Websites, Anatomy of a Web Form - Page Directive, Asp.NET: Creating Websites, Anatomy of a Web Form - Page Directive, Asp.NET: Creating Websites, Anatomy of a Web Form - Page Directive, Asp.NET: Creating Websites, Anatomy of a Web Form - Page Directive, Asp.NET: Creating Websites, Anatomy of a Web Form - Page Directive, Asp.NET: Creating Websites, Anatomy of a Web Form - Page Directive, Asp.NET: Creating Websites, Anatomy of a Web Form - Page Directive, Asp.NET: Creating Websites, Anatomy of a Web Form - Page Directive, Asp.NET: Creating Websites, Anatomy of a Web Form - Page Directive, Asp.NET: Creating Websites, Anatomy of a Web Form - Page Directive, Asp.NET: Creating Websites, Anatomy of a Web Form - Page Directive, Asp.Net. Types, Asp.Net. Typ

Signature Of Teacher

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Arts. Science & Commerce,
Logeshwari (East), Mumbai - 400 060.

Semester: I,II

Name Of the Teacher: Snehlata Agarwal
Class: FY
Subject: Programming with Python-I, Advanced Python Programming

Month	Class	Assigned Lecture	Lectures Taken	Topic to be covered	Key Points of Topic
July	FY	15	7	1)Overview of Python 2)Data Types, Variables and Other Basic Elements	Reasons for Python as the learner's first programming language. Introduction to the IDLE interpreter (shell) and its documentation. Expression evaluation: similarities and differences compared to a calculator; expressions and operators of types int, float, boolean. Built-in function type. Operator precedence. Enumeration of simple and compound statements. The expression statement. The assert statement, whose operand is a boolean expression (values true or false). The assignment statement, dynamic binding of names to values, (type is associated with data and not with names); automatic and implicit declaration of variable names with the assignment statement; assigning the valueNone to a name. The del (delete) statement. Input/output with print and input functions. A statement list (semicolon separated list of simple statements on a single line) as a single interpreter command. The import statement for already-defined functions and constants. The augmented assignment statement. The built-inhelp() function.
Aug	FY		4 4 9	1) Input and Output Operations 2) Control Statements 3) Practical from 1 to 4 4) Operators 5) Practical from 5 to 7	Interactive and script modes of IDLE, running a script, restarting the shell. The compound statement def to define functions; the role of indentation for delimiting the body of a compound statement; calling a previously defined function. Compound data types str, tuple and list (enclosed in quotes, parentheses and brackets, respectively). Indexing individual elements within these types. Strings and tuples are immutable, lists are mutable. Built-in functions min, max, sum. Interactive solution of model problems, (e.g., finding the square root of a number or zero of a function), by repeatedly executing the body of a loop (where the body is a statement list).
Sep	FY	15	15	1)Function 2) if else 3) Loops 4) Dictionary Concept 5)Practicals from 5 to 8	Advantages of functions, function parameters, formal parameters, actual parameters, global and local variables. The range function, the iterative for statement. The conditional statements if, if-else, if-elif-else. The Iterative statements while, while-else, for-else. The continue statement to skip over one iteration of a loop, the break statement to exit the loop. Nested compound statements. Dictionaries: concept of key-value pairs, techniques to create, update and delete dictionary items. Problem-solving using compound types and statements.
Oct	FY	15	15	1)Strings 2)List and Tuples 3)Dictionaries 4)Practical from 8 to 10	Anonymous functions. List comprehensions. Gentle introduction to object-oriented programming; using the built-in dir() function, enumerate the methods of strings, tuples, lists, dictionaries. Using these methods for problem-solving with compound types.
Nov	FY			Practical Exam	

Dec	FY	15	4	1)Working with files and Exception handling	Python File Input-Output: Opening and closing files, various types, modes, reading and writing to files, manipulating directories. Iterables, Iterators and their problemsolving applications. Iterables, Iterators and their problemsolving applications. Exception handling: What is an exception, various keywords to handle exceptions such try, catch, except, else, finally, raise.
Jan	FY		11	1)Regular expressions 2)GUI BASED Concepts 3)Practical from 1 to 4	1) Regular Expressions: Concept of regular expression, various types of regular expressions, using match function. 2) GUI Programming in Python (using Tkinter/wxPython/Qt) What is GUI, Advantages of GUI, Introduction to GUI library. Layout management, events and bindings, fonts, colours, drawing on canvas (line, oval, rectangle, etc.) Widgets such as: frame, label, button, checkbutton, entry, listbox, message, radiobutton, text, spinbox etc
Feb	FY	15	15	1)Database in python 2)Practical from 5 to 7	1) Database connectivity in Python: Installing mysql connector, accessing connector module module, using connect, cursor, execute & close functions, reading single & multiple results of query execution, executing different types of statements, executing transactions, understanding exceptions in database connectivity.
March	FY	15	15	1)Sokets and Creation of Sockets 4) Practical from 8 to 10	Network connectivity: Socket module, creating server-client programs, sending email, reading from URL
A pril	FY			Practical Exam, Theory exam, Paper Assessment and Result	

Signature of Teacher

Computer Science Department
Government of Maharashtra's
Ismail Yusurenllege of
Arts, Science & Commerce,
Jogeshwari (East), Mumbai - 400 060.

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Name Of the Teacher: Sybal Dias

Semester: I,II

Class: FY

Subject: Free open source, Linux

Month	Class	Assigned Lecture	Lectures Taken	Topic to be covered	Key Points of Topic
July	FY	15	5	Introduction Practical 1-3 Practical 3-5	Open Source, Free Software, Free Software vs. Open Source software, Public Domain Software, FOSS does not mean no cost. History: BSD, The Free Software Foundation and the GNU Project. Methodologies Open Source History, Initiatives, Principle and methodologies. Philosophy: Software Freedom, Open Source Development Model Licenses and Patents: What Is A License, Important FOSS Licenses (Apache, BSD, GPL, LGPL), copyrights and copy lefts, Patents Economics of FOSS: Zero Marginal Cost, Income-generation opportunities, Problems with traditional commercial software, Internationalization Open source vs. closed source, Open source government, Open source ethics. Social and Financial impacts of open source technology, Shared software, Shared source, Open Source in Government Case Studies Example Projects: Apache web server, GNU/Linux, Android, Mozilla (Firefox), Wikipedia, Drupal, wordpress, GCC, GDB, github, Open Office. Study: Understanding the developmental models, licensings, mode of funding, commercial/non-commercial use. Open Source Hardware, Open Source Design, Open source Teaching. Open source media. Collaboration, Community and Communication Contributing to Open Source Projects Introduction to github, interacting with the community on github,
Aug				Practical	Communication and etiquette, testing open source code, reporting issues, contributing code. Introduction to wikipedia, contributing to Wikipedia Or contributing to any prominent open source project of student's choice. Starting and Maintaining own Open Source Project
Sep	FY	15	13		Understanding Open Source Ecosystem Open Source Operating Systems. GNU/Linux, Android, Free BSD, Open Solans. Open Source Hardware, Virtualization Technologies, Containerization Technologies: Docker, Development tools, IDEs, debuggers.

			9		Programming languages, LAMP, Open Source database technologies
Oct	FY	15	9	EXam	
Nov	FY			Exam	
Dec				1)Advanced Bash shell 1)Linux operating system and Basics 2)Basic Bash shell commands 3)Practical from 1 to 3 commands 2)The Linux environment variable 3)Understanding Linux file permission 4)Linux Security 5)Practical from 4 to 6	History, GNU Info and Utilities, Various Linux Distributions, The Unix/Linux architecture, Features of Unix/Linux, Starting the shell, Shell prompt, Comman structure, File Systems and Directory Structure, man pages, more documentati pages General purpose utility Commands, basi commands, Various file types, attribute and File handling Commands, Handling Ordinary Files. More file attributes
Jan		15	15 9	5)Practical from 1 to 6	Simple Filters, Filters using regular expressions. Setting, Locating and removing environmen variables like PATH etc, Default shell environment variables, Using command aliase Linux security, Using Linux groups, Decodir file permissions, Changing security setting Sharing files. Understanding Linux Security, uses of root sudo command, working with passwords, Understanding ssh.
Feb		15	15	1)Networking 2)Working withEditors 3)Basic script building 4) Practical from 6 to 9	TCP/IP Basics, TCP/IP Model, Resolving I addresses, Applications, ping, telnet, ftp DNS awk, sed and Introduction to vi. Using multiple commands, Creating script file Displaying messages, Using variables, Redirecting Input and Output, Pipes performing math, Exiting the script.
March		15	15		
April			Practical Exam, Theory exam, Paper Assessment and Result		

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Department of computer science AY 2020-21 Semester wise Plan

Name Of the Teacher: Sybal Dias

Semester: III,IV

Class: SY

Subject : Core java ,Advanced java

Month	Class	No. Of Lecture s As Per Syllabu s	Title Of Topic to be covered	No. Of Lectures as per TimeTable	Key Points of Topic
June	SY	15	The Java Language	5	Features of Java, Java programming format, Java Tokens, Java Statements, Java Data Types, Typecasting, Arrays Introduction, Class, Object, Static Keywords, Constructors, this Key Word, Inheritance, super Key Word, Polymorphism (overloading and overriding), Abstraction, Encapsulation, Abstract Classes, Interfaces String.
July	SY		String Manipulations .	10	String Buffer, String Tokenizer Packages: Introduction to predefined packages (java.lang. java.util, java.io, java.sql, java.swing), User Defined Packages, Access specifiers.
Aug	SY	15	Exception Handling: 1/O Streams:	15	Introduction, Pre-Defined Exceptions, Try-Catch-Finally, Throws, throw, User Defined Exception examples Multithreading: Thread Creations, Thread Life Cycle, Life Cycle Methods, Synchronization, Wait() notify() notify all() methods ResultSet, Navigating and manipulating data, ResultSetMetaData, Managing Transactions in JDBC, JDBC Exception classes, BLOB & CLOB Introduction, Byte-oriented streams, Character- oriented streams, File, Random access File, Serialization Networking: Introduction, Socket, Server socket, Client –Server Communication
Sep	SY	15	Wrapper Classes AWT	15	: Introduction, Byte, Short, Integer, Long, Float, Double, Character, Boolean classes Collection Framework: Introduction, util Package interfaces, List, Set, Map, List interface & its classes, Set interface & its classes, Map interface & its Inner Classes: Introduction, Member inner class, Static Inner class, Local Inner class, Anonymous inner class AWT: Introduction, Components, Event-Delegation-Model, Listeners, Layouts, Individual components Label, Button, CheckBox, Radio Button, Choice, List, Menu, Text Field, Text Area
DEC	SY	15	Swing Swing components	8	Need for swing components, Difference between AWT and swing, Components hierarchy, Panes, Jlabel, JTextField and JPasswordField, JTextAres, JButton, JCheckBox, JRadioButton, JComboBox and JList JDBC: Introduction, JDBC Architecture, Types of Drivers, Statement, ResultSet, Read Only ResultSet, Updatable ResultSet, Forward Only ResultSet, Scrollable ResultSet, PreparedStatement, Connection Modes, SavePoint, Batch Updations, CallableStatement, BLOB & CLOB
Jan	SY	15	Servlets: Session Tracking Mechanisms JSP:	7	Servlets: Introduction, Web application Architecture, Http Protocol & Http Methods, Web Server & Web Container, Servlet Interface, GenericServlet, HttpServlet, Servlet Life Cycle, ServletConfig, ServletContext, Servlet Communication, Session Tracking Mechanisms JSP: Introduction, JSP LifeCycle, JSP Implicit Objects & Scopes, JSP Directives, JSP Scripting Elements, JSP Actions: Standard actions and customized actions,
Feb	SY	15	Java Beans:	15	Introduction, JavaBeans Properties, Examples Struts 2: Basic MVC Architecture, Struts 2: framework features, Struts 2 MVC pattern, Request life cycle, Examples, Configuration Files, Actions, Interceptors, Results & Result Types, Value
March	SY	15	Stack/OGNL JSON:	15	Overview, Syntax, DataTypes, Objects, Schema, Comparison with XML, JSON with Java.

Name Of the Teacher: Sybal Dias

Semester: V,VI

Class: TY

Subject: Linux Administration system, Cloud computing

Month	Class	Assigned Lecture	Lectures Taken	Topic to be covered	Key Points of Topic
June					
July	FY	15	5 9	Introduction Single-Host Administration Networking and Security Practical 1-3	Technical Summary of Linux Distributions, Managing Software Managing Users and Groups, Booting and shutting down processes. File Systems, Core System Services, Process of configuring, compiling, Linux Kernel TCP/IP for System Administrators, basic network Configuration, Linux Firewall (Netfilter), System and network security
Aug	FY	15	13	Internet Services Practical 4-6	Domain Name System (DNS), File Transfer Protocol (FTP), Apache web server, Simple Mail Transfer Protocol (SMPT), Post Office Protocol and Internet Mail Access Protocol (POP and IMAP), Secure Shell (SSH), Network authentication system (Kerberos), Domain Name Service (DNS), Security
Sep	FY	15	9	Internet Services Practical 7-8	Network File System (NFS), Samba, Distributed File Systems (DFS), Network Information Service (NIS
0ct	FY	15	9		Lightweight Directory Access Protocol (LDAP), Dynamic Host configuration Protocol (DHCP), MySQL, LAMP Applications, File Services, Email Services, Chat applications, Virtual Private Networking,
Nov	FY			Practical Exam	
Dec				Exams	
Jan		15	15 9	Cloud Computing Basics Web Services – Virtulization:- Practical 1-2.	Distributed Computing, Parallel Computing, WSDL structure, SOAP-Structure of SOAP Message (In JAX-WS), SOAP Messaging Architecture, SOAP Header, Client-side SOAP Handler, REST What is REST? HTTP methods, Java API for RESTful Web Services (JAXRS) Characteristics of Virtualized Environments Pros and Cons of Virtualization. Virtualization using KVM, Creating virtual machines, oVirt - management toolforvirtualization environment

Feb	15	15 9	Introduction to Cloud Computing: Cloud Computing Software Security fundamentals Practical 3-4	Definition, Types of Clouds, Deployment of software solutions and web applications, Types of Cloud Platforms, Essential cheracteristics – On demand self-service, Broad network access, Location Independent resource pooling, Rapid elasticity, Measured service, Comparing cloud providers with traditional IT service providers Cloud Information Security Objectives, Confidentiality, Integrity, Availability, Cloud Security Services, Relevant Cloud Security Design Principles, Secure Cloud Software Requirements, Secure Development practices, Approaches to Cloud Software Requirement Engineering, Cloud Security Policy Implementation.
March	15	15 9	Cloud Applications CloudSim: AWS: Practical 6-8	Introduction to Simulator, understanding CloudSim simulator, CloudSim Architecture(User code, CloudSim, GridSim, SimJava) Understanding Working platform for CloudSim, OpenStack: Introduction to OpenStack, OpenStack test-drive, Basic OpenStack operations, OpenStack CLI and APIs, Tenant model operations, Quotas, Private cloud building blocks, Controller deployment, Networking deployment, Block Storage deployment, Compute deployment, deploying and utilizing OpenStack in production environments, Building a production environment, Application orchestration using OpenStack Heat Architecting on AWS, Building complex solutions with Amazon Virtual Private Cloud (Amazon VPC).
April		Practical Exam, Theory exam , Paper Assessment and Result		

Name Of the Teacher: Charul Singh

Class: FY

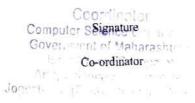
Semester: I,II.

Subject : COD,GT.

Month	Class	No. Of Lectu res As Per Sylla bus	Title Of Topic to be covered	No. Of Lectures as per TimeTable	Key Points of Topic
July	FY	15	Computer Abstractions and Technology:	07	Computer Abstractions and Technology: Basic structure and operation of a computer, functional units and their interaction. Representation of numbers and characters.
Aug	FY	15	Logic circuits and functions:	08	Combinational circuits and functions: Basic logic gates and functions, truth tables; logic circuits and functions. Minimization with Karnaugh maps. Synthesis of logic functions with and-or-not gates, nand gates, nor gates. Fan-in and fan-out requirements: tristate buffers. Half adder, full adder, ripple carry adder. (Flip flops) Gated S-R and D latches, edge-triggered D latch. Shift registers and registers. Decoders, multiplexers. Sequential circuits and functions: State diagram and state table; finite state machines and their synthesis.
Sep	FY	15	Instruction set architectures:	08	Memory organization, addressing and operations; word size, big-endian and little- endian arrangements. Instructions, sequencing Instruction sets for RISC and CISC (examples Altera NIOS II and Freescale ColdFire). Operand addressing modes: pointers; indexing for arrays. Machine language, assembly language, assembler directives Function calls, processor runtime stack, stack frame Types of machine instructions: arithmetic, logic, shift, etc. Instruction sets, RISC and CISC examples.
Oct	FY	15	Basic Processor Unit:		Main components of a processor: registers and register files, ALU, control unit, instruction fetch unit, interfaces to instruction and data memories. Datapath. Instruction fetch and execute; executing arithmetic/logic, memory access and branch instructions, hardwired and microprogrammed control for RISC and CISC. Basic I/O: Accessing I/O devices, data transfers between processor and I/O devices. Interrupts and exceptions: interrupt requests and processing.

Jan	FY	15	Green IT Overview;	Green IT Overview: Introduction, Environmental Concerns and Sustainable Development, Environmental Impacts of IT, Green I, Holistic Approach to Greening IT, Greening IT, Applying IT for Enhancing Environmental Sustainability, Green IT Standards and Eco-Labelling of IT, Enterprise Green IT Strategy, Green Washing, Green IT: Burden or Opportunity? Green Devices and Hardware: Introduction, Life Cycle of a Device or Hardware, Reuse, Recycle and Dispose Green Software: Introduction, Processor Power States, Energy-Saving Software Techniques, Evaluating and Measuring Software Impact to Platform Power Sustainable Software Development: Introduction, Current Practices, Sustainable Software, Software Sustainability Attributes, Software Sustainability Metrics, Sustainable Software Methodology, Defining Actions
Feb	FY	15	Green Data Centres:	Green Data Centres: Data Centres and Associated Energy Challenges, Data Centre IT Infrastructure, Data Centre Facility Infrastructure Implications for Energy Efficiency, IT Infrastructure Management, Green Data Centre Metrics Green Data Storage: Introduction, Storage Media Power Characteristics, Energy Management Techniques for Hard Disks, System-Level Energy Management Green Networks and Communications: Introduction, Objectives of Green Network Protocols, Green Network Protocols and Standardsm Enterprise Green IT Strategy: Introduction, Approaching Green IT Strategies, Business Drivers of Green IT Strategy, Business Dimensions for Green IT Transformation,, Organizational Considerations in a Green IT Strategy, Steps in Developing a Green IT Strategy, Metrics and Measurements in Green Strategies.
March	FY	15	Sustainable Information Systems and Green Metrics:	Sustainable Information Systems and Green Metrics: Introduction, Multilevel Sustainable Information, Sustainability Hierarchy Models, Product Level Information, Individual Level Information, Functional Level Information, Organizational Level Information, Measurings. See Maturity of Sustainable ICT Enterprise Green IT Readiness: Introduction, Readiness and Capability, Development of the G-Readiness Framework, Measuring an Organization's G-Readiness Sustainable IT Services: Creating a Framework for Service Innovation: Introduction, Factors Driving the Development of Sustainable IT, Sustainable IT Services (SITS), SITS Strategic Framework Green Enterprises and the Role of IT: Introduction, Organizational and Enterprise Greening, Information Systems in Greening Enterprises, Greening the Enterprise: IT Usage and Hardware, Inter-organizational Enterprise Activities and Green Issues

Signature Of Teacher



Name Of the Teacher: Charul Singh

Semester: III,IV

Class: SY

Subject : IOT, TOC, CN, Android.

Month	Clas	Lec	Title Of Topic to be cover	TimeTable	Key Points of Topic
June SY		15	SoC and Raspberry Pi	5	System on Chip: What is System on chip? Structure of System on Chip. SoC products. FPGA. GPU. APU, Compute Units. ARM 8 Architecture. SoC on ARM 8. ARM 8 Architecture Introduction. Introduction to Raspberry Pi. Introduction to Raspberry Pi, Raspberry Pi. Hardware. Preparing your raspberry Pi. Raspberry Pi Boot. Learn how this small SoC books without BIOS. Configuring hoot sequences and hardware.
July	SY		Programming Raspberry Pi	10	Raspherry Pi and Linux: About Rasphian, Linux Commands, Configuring Raspherry Pi with Linux Commands Programing interfaces: Introduction to Node, js, Python.
Aug	SY	15	Raspherry Pi Interfaces	15	Raspberry Pt Interfaces: UART, GPIO, 12C, SPI Useful Implementations: Cross Compilation, Pulse Width Modulation, SPI for Camera.
Sep	SY	SY 15 IoT and Protocols		15	Introduction to IoT: What is IoT? IoT examples, Simple IoT LED Program. IoT and Protocols IoT Security: HTTP, UPnp, CoAP, MQTT, XMPP. IoT Service as a Platform: Clayster, Thinger.io. SenseIoT, carriots and Node RED. IoT Security and Interoperability: Risks. Modes of Attacks, Tools for Security and Interoperability.
((SY	15	Introduction Network Models:	05	Introduction to data communication, Components, Data Representation, Data Flow, Networks, Network Criteria, Physical Structures, Network types, Local Area Network, Wide Area Network, Switching. The Internet, Accessing the Internet, standards and administration Internet Standards. Network Models. Protocol layering, Scenarios, Principles of Protocol Layering, Logical Connections, TCP/IP Protocol Suite, Layered Architecture, Layers in the TCP/IP Protocol Suite, Encapsulation and Decapsulation, Addressing, Multiplexing and Demultiplexing, Detailed introduction to Physical Layer, Detailed introduction to Nata-Link Layer, Detailed introduction to Network Layer, Detailed introduction to Transport Layer, Detailed introduction to Nata-Link Layer, Detailed introduction to Network Layer, Detailed introduction to Application Layer, Data and Signals, Analog and Digital Data, Analog and Digital Signals, Sinc Wave Phase, Wavelength, Time and Frequency Domains, Composite Signals, Bandwidth, Digital Signal, Bit Rate, Bit Leugth, Transmission of Digital Signals, Transmission Impairments, Attenuation, Distortion, Noise, Data Rate Limits, Performance, Bandwidth, Throughput, Latency (Delay)
	SY		Introduction to Physical Layer and Data-Link Loyer:	10	Digital Transmission digital-to-digital conversion, Line Coding, Line Coding Schemes, analog-to-digital conversion, Pulse Code Modulation (PCM), Transmission Modes, Parallel Transmission, Senal Transmission, Analog Transmission, digital-to-analog Conversion, Aspects of Digital-to-Analog Conversion, Amplitude Shift Keying, Prequency Shift Keying, Phase Shift Keying, Phase Shift Keying, analog-to-analog Conversion, Amplitude Modulation (AM), Frequency Modulation (FM), Phase Modulation (PM), Multiplexing, Frequency-Division Multiplexing, Wavelength-Division Multiplexing, Time-Division Multiplexing, Transmission Media, Guided Media, Twisted-Pair Cable, Conxial Cable, Guided Media, Twisted-Pair Cable, Conxial Cable, Fiber-Optic Cable, Switching, Three Methods of Switching, Circuit Switched Networks, Packet Switching, Introduction to Data-Link Luyer, Nodes and Links, Services, Two Sub-Jayers, Three Types of Stiddresses, Address Resolution Protocol (ARP), Error Detection and Correction, Introduction, Types of Errors, Redundancy, Detection versus Correction.
	SY	15	Network layer, Transport Layer	15 R	Media Access Control (MAC), random access, CSMA, CSMA/CD, CSMA/CA, controlled access, deservation, Polling, Token Passing, channelization, FDMA, CDMA, Connecting Devices and Virtual LANs, connecting devices, Hubs, Link-Layer Switches, DMA, CDMA, Connecting Devices and Virtual LANs, connecting devices, Hubs, Link-Layer Switches, DMA, CDMA, Connecting Devices and Virtual LANs, connecting devices, Hubs, Link-Layer Switches, DMA, CDMA, CD

					Unicast Routing, General Idea, Least-Cort Routing, Routing, Algorithms, Distance-Vector Routing, Link-State Routing, Path-Vector Routing, Introduction to Transport Layer Transport-Layer Screece, Connection-Connection-Oriented Protocols, Transport-Layer Protocols, Service, Port Numbers, User Datagram, Connection-Oriented Protocols, Transport-Layer Protocols, Service, Port Numbers, User Datagram, Protocol, User Datagram, UDP Services, UDP Applications, Transmission Control Princeol, TCP Services, TCP Features, Segment
June	sy	15	Automaia Theory	07	Defining Automaton, Finite Automaton, Transitions and Ita properties, Acceptability by Emile Automaton, Nondeterministic Finite State Machines, DFA and NDFA equivalence, Mealy and Moore Machines
July	SY		Automata Theory 1) Formal Languages	08	Minimizing Automata, Mealy and Moore Machines, Minimizing Automata. Defining Grammar, Derivations, Languages generated by Grammar, Chomsky Classification of Grammar and Languages, Recursive Enumerable Sets, Operations on Languages, Languages and Automata Regular Expressions, Finite automata and Regular Expressions
Aug	SY	15) Regular Sets and Regular Grummar	6	Pumping Lemma and its Applications, Closure Properties, Regular Sets and Regular Grammar.Context-free Languages, Derivation Tree, Ambiguity of Grammar, CFG simplification, Normal Forms, Pumping Lemma for CFG.
Scp	SY	15	1)Context Free Languages 2) Pushdown Automata 3) Linear Bound Automata 4) Turing Machines, Undecidability	7	Definitions, Acceptance by PDA, PDA and CFG.The Linear Bound Automata Model, Linear Bound Automata and Languages. Turing Machine Definition, Representations, Acceptability by Turing Machines, Designing and Description of Turing Machines, Turing Machine Construction, Variants of Turing Machine, The Church-Turing thesis, Universal Turing Machine, Halting Problem, Introduction to Unsolvable Problems.
					describe composes.
DEC	SY	15	What is Android?	8	What is Android? Obtaining the required tools, creating first android app, understanding the component of screen, adapting display orientation, action bar, Activities and Intents, Activity Lifecycle and Saving of screen, adapting display orientation, action bar, Activities and Intents, Activity Lifecycle and Saving State, Basic Views: TextView, Button, ImageButton, EditText, CheckBox, ToggleButton, RadioButton, and RadioGroup Views, ProgressBar View, AutoCompleteTextView, TimePicker View, DatePicker View, ListView View, Spinner View
Jan	SY	15	User Input Controls.	7	User Input Controls, Menus, Screen Navigation, RecyclerView, Drawables, Themes and Styles, Matedesign, Providing resources for adaptive layouts, AsyncTask and AsyncTaskLoader, Connecting to the Internet, Broadcast receivers, Services, Notifications, Alarm managers, Transferring data efficiently
					Data - saving, retrieving, and loading: Overview to storing data, Shared

Chaentr Signature Of Teacher

Companier Science Department
Government of Maharashtra's
ISLIEU Coordinator Continue 2 of Arts, Science & Commerce,
Jogeshwari (East), Mumbai - 400 050,

Name Of the Teacher: Charul Singh

Class: TY

Semester: V&VI

Subject : INS,EH.

					Teaching
Month	Class	No. Of Lectu res As Per Sylla bus	Title Of Topic to be covered	No. Of Lectures as per TimeTable	Key Points of Topic
June	TY	15	Introduction	05	Introduction: Security Trends, The OSI Security Architecture, Security Attacks, Security Services,
July	TY		Cryptography and RSA.	10	Security Mechanisms Classical Encryption Techniques: Symmetric Cipher Model, Substitution Techniques, Transposition Techniques, Steganography, Block Cipher Principles, The Data Encryption Standard, The Strength of DES, AES (round 15 Page 10 of 63 details not expected). Multiple Encryption and Triple DES, Block Cipher Modes of Operation. Stream Ciphers Public-Key Cryptography and RSA: Principles of Public-Key Cryptosystems, The RSA Algorithm
Aug	TY	15	Key Management	15	Key Management: Public-Key Cryptosystems, Key Management, Diffie Hellman Key Exchange Message Authentication and Hash Functions: Authentication Requirements, Authentication Functions, Message Authentication Codes, Hash Functions, Security of Hash Functions and Macs, Secure Hash Algorithm, HMAC Digital Signatures and Authentication: Digital Signatures, Authentication Protocols, Digital Signature Standard Authentication Applications: Kerberos, X.509 Authentication, Public-Key Infrastructure
Sep	TY	15	Electronic Mail Security	15	Electronic Mail Security: Pretty Good Privacy, S/MIME IP Security: Overview, Architecture, Authentication Header, Encapsulating Security Payload, Combining Security Associations, Key Management Web Security: Web Security Considerations, Secure Socket Layer and Transport Layer Security, Secure Electronic Transaction Intrusion: Intruders, Intrusion Techniques, Intrusion Detection Malicious Software: Viruses an Related Threats, Virus Countermeasures, DDOS Firewalls: Firewall Design Principles, Types of Firewalls

Jan	TY	15	Introduction, Scanning and Enumeration.	15	Introduction Terminology, Hacking Technology Types, Ethical Hacking Phases, Hacktivism, Hacker Classes, Skills Required for an Ethical Hacker, Vulnerability Research, Ways to Conduct Ethical Hacking Footprinting: Definition, Information Gathering Methodology. Competitive Intelligence, DNS Enumeration, Whois and ARIN Lookups. Types of DNS Records, Traceroute in Footprinting, E-Mail Tracking Social Engineering: Common Types Of Attacks Scanning and Enumeration: Port Scanning, Network Scanning, Vulnerability Scanning CEH Scanning Methodology, Ping Sweep Techniques, Nmap Command Switches, SYN, Stealth, XMAS, NULL, 15 Page 48 of 63 IDLE, FIN Scans, Anonymizers, HTTP Tunneling Techniques, IP Spoofing Techniques, SNMP Enumeration, Steps Involved in Enumeration System Hacking: Password-Cracking Techniques, Types of Passwords.
Feb	TY	15	System Hacking, Hacking Web Servers.	15	Keyloggers and Other Spyware Technologies. Escalating Privileges, Rootkits Sniffers: Protocols Susceptible to Sniffing. Active and Passive Sniffing, ARP Poisoning, MAC Flooding, DNS Spoofing Techniq Sniffing Countermeasures Denial of Service: Types of DoS Attacks, Working of DoS Attacks, BOTs/BOTNETs, "Smurf" Attack, "SYN" Flooding, DoS/DDoS Countermeasures Session Hijacking: Spoofing vs. Hijacking, Types, Sequence Prediction, Steps, Prevention Hacking Web Servers: Web Server Vulnerabilities, Attacks against Web Servers, Patch Management Techniques, Web Server Hardening
March	TY	15	Web Application Vulnerabilities,Penetra tion Testing Methodologies.	15	Web Application Vulnerabilities: Web Application Hacking. Web Application Threats, Google Hacking, Countermeasures Web-Based Password Cracking Techniques: Authentication Types, Password Crackers, Countermeasures SQL Injection: Steps, SQL Server Vulnerabilities, Countermeasures Buffer Overflows: Types, Stack-Based Buffer Overflows, Mutation Techniques Wireless Hacking: WEP, WPA Authentication Mechanisms, and Cracking Techniques, Wireless Snr. Rogue Access Points, Wireless Hacking Techniques, Securing Wireless Networks Penetration Testing Methodologies: Methodologies. Steps, Automated Tools, Pen-Test Deliverables

Signature Of Teacher

Compute Signature Department Signature Coordinator

Arts, Science Landing, Jogeshwari (East), Myrchig

Semester: I,II

Name Of the Teacher: Amita Vakil

Class : FY

Cher: Amita Vakit

Subject: Soft Skills, Programming with C, Database System, Green Technologies

Month	Class	Assigned Lecture	Lectures Taken	Topic to be covered	Key Points of Topic
June	FY	15+15	14	Introduction to Soft Skills Personality Development Emotional Intelligence	Soft Skills: An Introduction - Definition and Significance of Soft Skills; Process, Importance and Measurement of Soft Skill Development. Personality Development: Knowing Yourself, Positive Thinking, Johanf's Window, Physical Fitness Emotional Intelligence: Meaning and Definition, Heed for Emotional Intelligence, Intelligence Quotient versus Emotional Intelligence Quotient, Components of Emotional Intelligence Positivity and Mothration: Developing Positive Thinking and Attitude; Driving out Negativity; Meaning and Theories of Motivation; Enhancing Motivation Levels Etiquette and Mannerism: Introduction, Professional Etiquette, Technology Etiquette Ethical Values: Ethics and Society, Theories of Ethics, Correlation between Yalues and Behavior, Nurturing Ethics, Importance of Work Ethics, Problems in the Absence of Work Ethics.
July	r	7.		Capacity Building, Elements of Capacity Building, Zones of Learning, Ideas for Learning, Strategies for Capacity Building Leadership and Team Building Leadership Trats, Culture and Leadership	Capacity Building: Learn, Unlearn and Relearn Creativity at Workplace: Introduction, Current Workplaces, Creativity, Motivation, Nurturing Hobbies at Work, The Six Thinking Hat Method. Capacity Building: Learn, Unlearn and Relearn: Capacity Building, Elements of Capacity Building, Zones of Learning, Ideas for Learning, Scrategles for Capacity Building, Leadership and Team Building: Leader and Leadership, Leadership Traits, Culture and Leadership, Leadership Styles and Trends, Team Building, Types of Teams, Decision Making and Negotiation: Introduction to Decision Making, Steps for Decision Making, Decision Making Techniques, Negotiation Fundamentals, Negotiation Styles, Major Negotiation Concepts Stress and Time Management: Stress, Sources of Stress, Ways to Cope with Stress
Aug	Aug FY 15+15	n n	Basic Sidils in Communication	Components of effective communication Communication Skills Job Interviews Group Discussion:	
				Introduction to DBMS Data models	Database, DBMS - Definition, Overview of DBMS, Advantages of DBMS, Levels of abstraction, Data independence, DBMS Architecture Data models - Client/Server Architecture, Object Based Logical Model, Record Based Logical Model (relational, hierarchical, network)
				Academic and Professional Skills	Professional Presentation Creativity at Workplace:
5 e9		20	Entity Relationship Model ER to Table DDL Statements DML Statements	Viewing the structure of a table insert, update, delete, Select all columns, specific columns, unique records, conditional select, in clause, between clause, limit, aggregate functions (count, min, max, avg. sum), group by clause, having clause Entities, attributes, entity sets, relations, relationship sets, Additional constraints (key constraints, participation constraints, weak entities, aggregation / generalization, Canceptual Design using ER (entities VS attributes, Entity Vs relationship, binary Vs ternary, constraints beyond ER) Creating Databases, Using Databases, data types, Creating Tables (with integrity constraints primary key, default, check, not null), Attering Tables, Renaming Tables, Dropping Tables, Truncating Tables	
Oct	FY	15+15		Relational data model Relational Algebra Functions	omains, attributes, Tuples and Relations, Relational Model Notation, Characteristics of Relations, Relational Constraints - primary key, referential Integrity, unique constraint, Null constraint, Chack constraint Relational Algebra operations (selection, projection, set operations union, intersection, difference, cross product, Joins -conditional, equi join and natural joins, division) Functions - String Functions (concat, Instr. left, right, mid, length, Icase/lower, ucase/upper, replace, strcmp, trim, trim, rtrim), Math Functions (ab), cell, floor, mod, pow, sqrt, round, truncate) Date Functions (adddere, datediff, day, month, year, hour, min, sec, now, reverse) Joining Tables - Inner Join, outer Join (left outer, right outer, full outer)

					Subqueries - subqueries with IN, EXISTS, subqueries restrictions, Nested
					subqueries, AMY/ALL clause, correlated subqueries 1
Nov	FY	13		Exam & Papar evaluation	
Dec	2	15+15	12+05	Structure of C program Data Veriables Types of operators	Header and body, Use of comments. Interpreters vs compilers, Python vs C. Compilation of a program. Formatted I/O: printf(), scanf(). Data: Variables, Constants, data types like: int., float char, double and void, short and long size qualiflers, signed and unsigned qualifilers. Compare with datatypes in Python. Compare static typing in C vs dynamic typing in Python Variables: Declaring variables, scope of the variables according to block, hierarchy of data types. Compare explicit declarations in C with implicit declarations in Python. Types of operators: Archmetic, relational, logical, compound assignment, increment and decrement, conditional or ternary, bitwise and comma operators. Precedence and order of evaluation, statements and Expressions. Automatic and explicit type conversion.
		8		Green IT Fundamentals	Green F1 Fundamentals: Information Technology and Environment, Business, Environment, and Green Enterprise Characteristics, Green Vision and Strategic Points, Green Value, Green 17 Opportunity, Challenges of a Carbon Economy, Environmental Intelligence, Livisioning the Green Future.
				Iterations Arrays Data Input and Output functions Manipulating Strings	Control statements for decision making: (i) Branching: if statement, else if statement, (does the writer mean if-else or nested ifs)switch statement. (ii) Looping: while loop, do while, for loop. (iii) Jump statements: break, continue and goto. declaring array variables, initialization of arrays, accessing array elements. Compare array types of C with list and tuple types of Python. Character I/O format: getch(), getche(), getchar(), getc(), gets(), putchar(), putc(), puts()Oeclaring and initializing String variables, Character and string handling functions. Compare with Python strings.
Jan	FY 15+15 12	12	Green Assets and emerging Trends	Green Assets and emerging Trends: Data Servers Optimization and Virtualization, Physical Data Server Organization and Cooling, Cloud Computing and Data Centers, Networking and Communicationalinfrantructure. End-User Devices, Finant Meters in Real-Time, Managing Devices for Central Green Services, Devices and Organizational Boundaries for Measurements, Mobile Devices, and Stotatrability Green Business Process Management: Introduction, Green Reangineering, Green Process, Green BPM and standards, Green Business Analysis, Green Requirements Modelling, Green IT Governance, Green Bestiness Process and Applications, QoS, Achieving green BPM, Green Mobile Business Process, Digital Library Green Enterprise Architecture: Green IT and organizational Systems. Aspects of Green Solutions Architecture, Contents and Integration with Service-Oriented Architecture, Green Supply Chain Management, Green Portals in Green Enterprise Architecture. Environmental Intelligence.	
				Functions Recursion Pointer	Functions: Function declaration, function definition, Global and local variables, return statement, Calling a function by passing values. Recursion: Definition, Recursive functions. 15L 20 Unit III Pointer: Fundamentals, Pointer variables, Referencing and de-referencing, Pointer Arithmetic, Using Pointers with Arrays, Using Pointers with Strings, Array of Pointers, Pointers as function arguments, Functions returning pointers
Feb	Feb FY 15+15 11	Green Information Systems(GIS)	Green Information Systems(GIS): Design and Development Models: Describing GIS, GIS Requirements. Sociocultural Aspects of Green IT: Green IT's Social Impact, Learning Organization, Green Social Stackcholders, Rode-Based View of Green IT; Green IT between Attitude and Subjectivity in Green IT. Green IT Lettics and Code of Coaduct, Privacy and Security of Green Information, Green Washing, Communications in Green Transformation Projects, Green ITR and Changing Organizational Structures, Green-Collar Workers, Roles and Skill Sets, Green Various! Communities Green Compliance, Protocols, Standards, and Audite: Protocols and Standards, ISO 14606-2004 Standard, Various initiatives by stakeholders, Green Audits and Future: Future Collar use of Carbon emission management software Emerging Carbon Issues: Technologies and Future: Future Carbon Landscape, Green ICT and Technology Trends, Cloud Composting, Nanotechnology, Quantum computing, Renewable energies, eco-design, Collaborative environmental intelligence		
March	FY	15+15	06	Pointer Memory Allocation	Dynamic Memory Allocation: malloc(), calloc(), realloc(), free() and sizeof operator. Compare with automatic garbage collection in Python. Structure: Declaration of structure, reading and assignment of structure variables, Array of structures, arrays within structures, structures within structures. Compare C structures with Python tuples. Unions: Defining and working with unions. File handling: Different types of files like text and binary. Different types of functions: fopen(), fclose(), fgetc(), fputc(), fputs(), fputs(), fscanf(), fprintf(), getw(), putw(), fread(), fwrite(), fseek().
	FY			Exam & paper assessment	







Name Of the Teacher: Amits Vakii

Semester: HLIV

Subject (Operating System, Functions entails of Algorithms

	Semester Planning of Teaching									
Month	Class	Assigned Lectury	Lectures laken	Topic to by covered	Key Polats of Suple					
Juh	57	15	5.	Introduction to Operating-System Operating-System Structures Processes Threats Process Syreture/ration Practical 1-3	Definition of Operating Systems. Operating System's role: Operating-System Operations, Limitions of Operating System; Computing Per immende Operating-System Services. There and Operating-System Services. There and Operating-System Interface. System Calls, Types of System Calls, Operating-System Structure.					
ANG (S)	SY	15	9	Process Synchronization Scheduling: Dradlecks: Practical from 3-6	Gunral structure of a typical process, mee consisting, The Criticals Section Problem, Peterson's Solution. Synchronization Muslimer, Matter Locky, Semaphores, Classic Problems of Synchronization, Moniton Basic Concepts, Selectabiling Criteria, Selectabiling Algorithms (CCFS, SJF, SRFT, Promy, R.R., Mutolevel Caseae Scheduling, Mutolitivet Feedback Queee Scheduling, Therard Scheduling, System Wook, Deadlock Characteristina, Mctirish for Handling, Deadlock Characteristina, Mctirish for Handling, Deadlock Characteristina, Mctirish for Handling, Deadlock Scheduling, Deadlock Avoidance, Deadlock Deallock Deallock Deallock Deallock Deallock					
Sep	SY	15	,	Main Memory Virtual Memory Man-Storage Structure File-System Interface File-System Implementation	Blackground, Logical address space, Physical address space, blAU. Swapping, Contigenus Memory Allocation, Segmentation, Paging, Stateuter of the Page libbs. Background, Domand Paging, Copyson-Write, Page Repts.coment, Allocation of Fratuse, Tirestiding Occavicty, Dals Structure, Disk Schodoling, Disk Management File Concept, Access Methods, Directory and Disk Structure, File-System Mounting, File Sharing File-System Structure, File-System Structure, File-System Structure, File-System Structure, File-System Structure, File-System Structure, File-System Mounting, File Sharing Implementation, Directory Implementation, Allocation Methods, Fire-Space Management					
Oct & Nov Exam	& Paper Assessment	orsy	•	•						
Dec	SV	15	п	Introduction to algorithm	Introduction to algorithm, Why to analysis algorithm, Ronning time unalysis, How to Compute Algorithms, Rate of Growth, Commonly Used Rotes of Growth. Types of Analysis, Asymptotic Notation, Tech-D Notation, Asymptotic Analysis, Properties of Notations, Commonly used Logardons and Statutations, Performance characteristics of algorithms, Master Theorem for Divide and Conquer, Divide and Conquer Musics, Theorem: Frohlems & Solutions, Muster Theorem for Subtract and Conquer Recurrences, Misthod of Gaussian and Confirming					
Jan 🧠	SV	15	15	Tree algorithms Graph Algorithms Practical from 5-7	Tree algorithms: What is a Tree? Glosuny, Binary Trees, Types of Binary Trees, Proporties of Binary Trees, Binary Tree Traversals, Genetic Trees (N-ary Trees). Threedod Rinary Tree Traversals, Expression Trees, Binary Search Trees (BSTs), Bilanced Binary Search Trees, AVL (Adelsees-Velakir and Landis) Trees Grash Algorithms: Introduction, Glosuny, Applications of Grashs, Graph Representation, Graph Traversals, Topological Sort, Shortest Path Algorithms, Minimal Spanning Tree Interduction, Glowney, Applications of Graphs, Graph Representation, Graph Traversals, Topological Sort, Shortest Path Algorithms, Minimal Spanning Tree					
Fet	sv	15	15	Dynamic Programming Practical 7-9	Ilintroduction, What is a Dynamic Programming Strategy," Properties of Dynamic Programming Strategy, Problems which can be solved witing Dynamic Programming, Dynamic Programming, Approaches, Examples of Dynamic Programming Algorithms, Understanding Dynamic Programming, Longest Common Subsequence					
March &b April	sv		Practical Exam, Theory exam , Paper Assessment and Result							

Signature Of Teacher

- 1 - 100 mg

Computer Spience Department
Government
Department Contro Coordinator ashtra's

Covernment of Computer Science of Commercial

Arts, Science of Commercial

Joneshwari (Fast), Mumbai - 400 060.

Name Of the Teacher: Amits Vaka

Semester 1 V

Class: STY

Subject : Web Service. Dateta science

Semester Planning of Teaching

Month	Class	Assigned Lecture	Lectures laken	Tupic to be covered	Key Foints of Espic
Juḥ	55	15	s	Web services basecuation Practical 1-3	What Are Web Service? Types of Web Services Distributed computing infrastructure, overview of NML, SUAP, Huilding Web Services with IANAWS, Registering and Discovering Web Services, Service Oriented Architecture, Web Services Development Life Cycle, Developing and consuming simple Web Services across platform
Авқ	20	15	13	The RFST Architectural style Practical from 3-6	Introducing HTTP. The core architectural elements of a BESTful system, Description and discovery of BESTful web services. Jiv is tools and financiworks for building RESTful web services, Jiv is tools and financiworks are building RESTful web services. Section Resuper forms and tools and financiworks are marked JSON. Build RESTful web services with JANAS APIE. The Description and Discovery of RESTful Web services, Design guidelines for building RESTful web services, Section RESTful web services.
Sey .	sv	15	,	Developing Nervice-Oriented Applications with WCF	What is Windows Communication Foundation, Fundamental Windows Communication Foundation Concepts, Windows Communication Foundation Architecture, WCF and JNET Framework Client Profile, Blasic WCF Programming. WCF Feature Details. Web Service QuS
Oct & Nev Easts	& Paper Amessment	of SY			4
Dec	5¥	15	n	Introduction to Data Science	What is Data? Different kinds of data. 151. Introduction to high level programming language = Integrated Development Environment (IOE), Exploratory Data Analysis (EDA) + Data Visualization, Different types of data sources, Data Management: Data Collection, Data cleaning/extraction, Data analysis & Medeling
Nac.	51	15	15 9	Data Curation Practical from 5-7	Query languages and Operations to specify and transform data. Structured schema based systems at users and supporter of data Semi-structured systems to the acquisition and structuring of data. Security and othical coordistrations to relation to authorizening and authorizing excess to data on remote systems. Software development tools, Large scale data systems, Amazon Web Services (AWS)
Fet 💊	s.	15	15 9	Statistical Modelling and Machine Learning Practical 7-9	Historduction to model splection: Regularization bias/variance tradeoff e.g. parsimony. AIC. BIC, Cross validations, Ridge regressions and penalized repression e.g. LASSO Data transformations. Dimension reduction, Feature extractors, Showling and agregating Spectroste Learning. Regression, time models, Regression tero. Time-strict Analysis, Viricebring, Classification classification uses, Logistic regression, separating hyperplanes, IANN Lemporoused Learning: Principal Components Analysis (PCA), Remeans clustering. Hierarchical clustering, Ensemble methods
March &b April	sv		Practical Exam. Theory exam., Paper Assessment and Result		

Signature Of Teacher

Computer Science Popular Iment of Management of Management Science

Jugosawan (East), hardeless (44) 060.

Name Of the Teacher: Sybal Dias Semester: I,II

Class: FY

Subject : Free open source, Linux

Month	Class	Assigned Lecture	Lectures Taken	Topic to be covered	Key Points of Topic
une					
W.					Open Source, Free Software, Free Software vs. Open Source software, Public Domain Software, FOSS does not mean no cost. History, BSD. The Free Software Foundation and the GNU Project. Methodologies Open Source History, Initiatives, Principle and methodologies. Philosophy: Software Freedom, Open Source Development Model Licenses and Patents: What is A License, Important FOSS Licenses (Apache, BSD, GPL, LGPL), copyrights and copy lefts, Patents Economics of FOSS. Zero Marginal Cost, Income-peneration opportunities. Problems with traditional commercial software, Internationalization
					Open source vs. closed source, Open source government, Open source ethics. Social and Financial impacts of open source technology, Shared software, Shared source. Open Source in Government
	3				Case Studies Example Projects. Apache web server, GNUL inux, Android, Mozilla (Firefox), Wikipedia, Drupal, wordpress, GCC, GDB, gilhub, Open Office. Study: Understanding the developmental models, licensings, mode of funding commerciatinon-commercial use. Open Source Hardware, Open Source Design, Open source Teaching: Open source media. Collaboration, Community and Communication Contributing to Open Source Projects Introduction to gilhub, interacting with the community on gilhub. Communication and ediquelts, testing open source code, reporting issues, contributing code, Introduction to wikipedia, contributing to Wikipedia Or contributing to any prominent open source project of student's choice. Starting and Maintaining own Open Source Project.
uly	FY	15	5	Introduction	
			,		
					Understanding Open Source Ecosystem Open Source Operating Systems. GNU/Linux, Android, Free BSD, Open Solaris, Open Source Hardware, Virtualization Technologies, Containerization Technologies. Docker, Development Iools, IDEs, debuggers, Programming languages, LAMP, Open Source database technologies.
	/				History, GNU Info and Utilities, Various Linux Distributions, The Unix/Linux architecture, Features of Unix/Linux, Starting the shell, Shell prompt, Command structure, File Systems and Directory Structure, man pages, more documentation pages General purpose utility Commands, basic commands, Various file types, attributes and File handling Commands, Handling Ordinary Files. More file attributes
	FY	15	13	1)Advanced Bash shell 1)Linux operating system and Basics	Simple Filters, Filters using regular expressions Setting, Locating and removing environment variables like PATH etc, Default shell environment variables, Using command aliase

			9	2)Basic Bash shell commands 3)Practical from 1 to 3 commands 2)The Linux environment variable 3)Understanding Linux file permission 4)Linux Security	Linux security, Using Linux groups, Decoding file permissions, Changing security setting, Sharing files. Understanding Linux Security, uses of root, sudo command, working with passwords, Understanding ssh.
	FY	15	,	5)Practical from 4 to 6 1)Networking 2)Working withEditors 3)Basic script building 4) Practical from 6 to 9	TCP/IP Basics, TCP/IP Model, Resolving IP addresses, Applications, ping, telnet, ftp, DNS awk, sed and introduction to vi. Using multiple commands, Creating script files, Displayin messages, Using variables, Redirecting Input and Output, Pipes performing math, Exiting the script.
Oct	FY	15	,	*	
Nov	FY			Practical Exam	
Jan		15	15	1 5)Practical from 1 to 6	
Feb		15	15 9		
March		15	15		
April			Practical Exam, Theory exam , Paper Assessment and Result		

Name Of the Teacher: Sybal Dias

Semester: III,IV

Class: SY

Subject : Core java ,Advanced java

Mont h	Clas	No. Of Lectures As Per Syllabus	Title Of Topic to be covered	No. Of Lectures as per TimeTable	Key Points of Topic
June	SY	15	The Java Language OOPS	5	Features of Java, Java programming format, Java Tokens, Java Statements, Java Data Types, Typecasting, Arrays Introduction, Class, Object, Static Keywords, Constructors, this Key Word, Inheritance, super Key Word, Polymorphism (overloading and overriding), Abstraction, Encapsulation, Abstract Classes, Interfaces String,
July	SY		String Manipulations	10	String Buffer, String Tokenizer Packages: Introduction to predefined packages (java.lang, java.util, java.io, java.sql, java.swing), User Defined Packages, Access specifiers.
Aug	SY	15	Exception Handling: I/O Streams:	15	Introduction, Pre-Defined Exceptions, Try-Catch-Finally, Throws, throw, User Defined Exception examples Multithreading: Thread Creations, Thread Life Cycle, Life Cycle Methods, Synchronization, Wait() notify() notify all() methods ResultSet, Navigating and manipulating data, ResultSetMetaData, Managing Transactions in JDBC, JDBC Exception classes, BLOB & CLOB Introduction, Byte-oriented streams, Character- oriented streams, File, Random access File, Serialization Networking: Introduction, Socket, Server socket, Client -Server Communication
Sep	SY	15	Wrapper Classes AWT	15	Introduction, Byte, Short, Integer, Long, Float, Double, Character, Boolean classes Collection Framework: Introduction, util Package interfaces, List, Set, Map, List interface & its classes, Set interface & its classes, Map interface & its Inner Classes; Introduction, Member inner class, Static inner class, Local inner class, Anonymous inner class AWT: Introduction, Components, Event-Delegation-Model, Listeners, Layouts, Individual components Label, Button, CheckBox, Radio Button, Choice, List, Menu, Text Field, Text Area
DEC	SY	15	Swing Swing components	к	Need for swing components, Difference between AWT and swing, Components hierarchy, Panes, Jlabel, JTextField and JPasswordField, JTextAres, JButton, JCheckBox, JRadioButton, JComboBox and JList JDBC: Introduction, JDBC Architecture, Types of Drivers, Statement, ResultSet, Read Only ResultSet, Updatable ResultSet, Forward Only ResultSet, Scrollable ResultSet, PreparedStatement Connection Modes, SavePoint, Batch Updations, CallableStatement, BLOB & CLOB

Name Of the Teacher: <u>Sybal Dias</u> Semester: III,IV

Class: SY

Subject : Core java ,Advanced java

Jan	SY	15	Servlets: Session Tracking Mechanisms JSP;	7	Servlets: Introduction, Web application Architecture, Http Protocol & Http Methods, Web Server & Web Container, Servlet Interface, GenericServlet, HttpServlet, Servlet Life Cycle, ServletConfig, ServletContext, Servlet Communication, Session Tracking Mechanisms JSP: Introduction, JSP LifeCycle, JSP Implicit Objects & Scopes, JSP Directives, JSP Scripting Elements, JSP Actions: Standard actions and customized actions,
Feb	SY	15	Java Beans:	15	Introduction, JavaBeans Properties, Examples Struts 2: Basic MVC Architecture, Struts 2 framework features, Struts 2 MVC pattern, Request life cycle, Examples, Configuration Files, Actions, Interceptors, Results & Result Types, Value
March	SY	15	Stack/OGNL JSON:	15	Overview, Syntax, DataTypes, Objects, Schema, Comparison with XML, JSON with Java.

Name Of the Teacher: Sybal Dias

Semester: V,VI

Class: TY

Subject: Linux Administration system, Cloud computing

Month	Class	Assigned Lecture	Lectures Taken	Topic to be covered	Key Points of Topic
June					
July	FY	15	5	Introduction Single-Host Administration Networking and Security Practical 1-3	Technical Summary of Linux Distributions, Managing Software Managing Users and Groups, Booting and shutting down processes. File Systems, Core System Services, Process of configuring, compiling, Linux Kernel TCP/IP for System Administrators, basic network Configuration, Linux Firewall (Netfilter), System and network security
					(DNO) Ella Tanada Bastand
Aug	FY	15	9	Internet Services Practical 4-6	Domain Name System (DNS), File Transfer Protocol (FTP), Apache web server, Simple Mail Transfer Protocol (SMPT), Post Office Protocol and Internet Mail Access Protocol (POP and IMAP), Secure Shell (SSH), Network authentication system (Kerberos), Domain Name Service (DNS), Security
Sep	FY	15	9	Internet Services Practical 7-8	Network File System (NFS), Samba, Distributed File Systems (DFS), Network Information Service (NIS
Oct	FY	15	9		Lightweight Directory Access Protocol (LDAP), Dynamic Host configuration Protocol (DHCP), MySQL, LAMP Applications, File Services, Email Services, Chat applications, Virtual Private Networking.
Nov	FY			Practical Exam	
Dec				Exams	

Jan	15	15 9	Cloud Computing Basics Web Services – Virtulization:- Practical 1-2.	Distributed Computing, Parallel Computing, WSDL structure, SOAP- Structure of SOAP Message (In JAX-WS), SOAP Messaging Architecture, SOAP Header, Client-side SOAP Handler, REST What is REST? HTTP methods, Java API for RESTful Web Services (JAXRS) Characteristics of Virtualized Environments Pros and Cons of Virtualization. Virtualization using KVM, Creating virtual machines, oVirt - management toolforvirtualization environment
Feb	15	15 9	Introduction to Cloud Computing: Cloud Computing Software Security fundamentals Practical 3-4	Definition, Types of Clouds, Deployment of software solutions and web applications, Types of Cloud Platforms, Essential characteristics — On demand self-service, Broad network access, Location independent resource pooling, Rapid elasticity, Measured service, Comparing cloud providers with traditional IT service providers Cloud Information Security Objectives, Confidentiality, Integrity, Availability, Cloud Security Services, Relevant Cloud Security Design Principles, Secure Cloud Software Requirements, Secure Development practices, Approaches to Cloud Software Requirement Engineering, Cloud Security Policy Implementation.
March	15	15 9	Cloud Applications CloudSim: AWS: Practical 6-8	Introduction to Simulator, understanding CloudSim simulator, CloudSim Architecture(User code, CloudSim, GridSim, SimJava) Understanding Working platform for CloudSim, OpenStack: Introduction to OpenStack, OpenStack test-drive, Basic OpenStack operations, OpenStack CLI and APIs, Tenant model operations, Quotas, Private cloud building blocks, Controller deployment, Networking deployment, Networking deployment, Block Storage deployment, Compute deployment, deploying and utilizing OpenStack in production environments, Building a production environment, Application orchestration using OpenStack Heat Architecting on AWS, Building complex solutions with Amazon Virtual Private Cloud (Amazon VPC).
April		Practical Exam, Theory exam, Paper Assessment and Result		V MAZON VI OJ.

Name Of the Teacher: Charul Singh

Class: FY

Semester: I,II.

Subject : COD,GT.

Month	Class	No. Of Lectu res As Per Sylla bus	Title Of Topic to be covered	No. Of Lectures as per TimeTable	Key Points of Topic
July	FY	15	Computer Abstractions and Technology:	07	Computer Abstractions and Technology: Basic structure and operation of a computer, functional units and their interaction. Representation of numbers and characters.
Aug	FY	15	Logic circuits and functions:	08	Combinational circuits and functions: Basic logic gates and functions, truth tables; logic circuits and functions. Minimization with Karnaugh maps. Synthesis of logic functions with and-or-not gates, nand gates, nor gates. Fan-in and fan-out requirements; tristate buffers. Half adder, full adder, ripple carry adder. (Flip flops) Gated S-R and D latches, edge-triggered D latch. Shift registers and registers. Decoders, multiplexers. Sequential circuits and functions: State diagram and state table; finite state machines and their synthesis.
Sep	FY	15	Instruction set architectures:	08	Memory organization, addressing and operations; word size, big-endian and little- endian arrangements. Instructions, sequencing. Instruction sets for RISC and CISC (examples Altera NIOS II and Freescale ColdFire). Operand addressing modes; pointers; indexing for arrays. Machine language, assembly language, assembler directives. Function calls, processor runtime stack, stack frame. Types of machine instructions: arithmetic, logic, shift, etc. Instruction sets, RISC and CISC examples.
Oct	FY	15	Basic Processor Unit:		Main components of a processor: registers and register files, ALU, control unit, instruction fetch unit, interfaces to instruction and data memories. Datapath. Instruction fetch and execute; executing arithmetic/logic, memory access and branch instructions; hardwired and microprogrammed control for RISC and CISC. Basic I/O: Accessing I/O devices, data transfers between processor and I/O devices. Interrupts and exceptions: interrupt requests and processing.

Jan	FY	15	Green IT Overview;	Green IT Overview. Introduction. Environmental Concerns and Sustainable Development, Environmental Impacts of IT. Green I Holistic Approach to Greening IT, Greening IT, Applying IT for Enhancing Environmental Sustainability. Green IT Standards and Eco-Labelling of IT., Enterprise Green IT Strategy, Green Washing, Green IT: Burden or Opportunity? Green Devices and Hardware: Introduction. Life Cycle of a Device or Hardware. Reuse Recycle and Dispose Green Software: Introduction. Processor Proser States., Energy-Saving Software Techniques, Evaluating and Measuring Software Impact to Platform Power Sustainable Software: Development: Introduction, Current Practices, Sustainable Software Sustainability Attributes, Software Sustainability Metrics, Sustainable Software Methodology, Defining Actions
Feb	FY	15	Green Data Centres:	Green Data Centres: Data Centres and Associated Energy Chailenges. Data Centre IT Infrastructure, Data Centre Facility Infrastructure Implications for Energy Efficiency, IT Infrastructure Management. Green Data Centre Metrics Green Data Storage: Introduction, Storage Media Power Characteristics. Energy Management Techniques for Hard Disks, System-Level Energy Management Green Networks and Communications: Introduction, Objectives of Green Network Protocols, Green Network Protocols and Standardsm Enterprise Green. IT Strategy: Introduction, Approaching Green IT Strategies. Business Drivers of Green IT Strategy, Business Dimensions for Green IT Transformation,, Organizational Considerations in a Green IT Strategy. Steps in Developing a Green IT Strategy, Metrics and Measurements in Green Strategies.
March	FY	15	Sustainable Information Systems and Green Metrics:	Sustainable Information Systems and Green Metrics: Introduction. Multilevel Sustainable Information, Sustainability Hierarchy Models, Product Level Information, Individual Level Information, Functional Level Information, Organizational Level Information, Measuring as Maturity of Sustainable ICT Enterprise Green IT Readiness. Introduction, Readiness and Capability, Development of the G-Readiness Framework, Measuring an Organization's G-Readiness Sustainable IT Services: Creating a Framework for Service Innovation: Introduction, Factors Driving the Development of Sustainable IT, Sustainable IT Services (SITS), SITS Strategic Framework Green Enterprises and the Role of IT Introduction, Organizational and Enterprise Greening, Information Systems in Greening Enterprises, Greening the Enterprise IT Usage and Hardware, Inter-organizational Enterprise Activities and Green Issues

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Signature Of Teacher

Computer Science Designant Signature,
from 1 Y near the east of Arther death Department

Jogoshwari (East Mumber 40, 66c.

Name Of the Teacher: Charul Singh

Semester: III,IV

Class: SY

Subject : IOT,TOC,CN,Android.

Month	Class	No. Of Lecture s As Per Syllabu s	Title Of Topic to be covered	No. Of Lectures as per TimeTable	Key Points of Topic
June	SY	15	SoC and Raspberry Pi	5	System on Clup. What is System on chip? Structure of System on Clup. SoC products. FPGA, GPU. APU, Compute Units. ARM 8 Architecture. SoC on ARM 8. ARM 8. Architecture. Introduction. Introduction to Raspherry. Pt. Introduction to Raspherry. Pt. Raspherry. Pt. Hardware, Preparing your raspherry. Pt. Raspherry. Pt. Boot. Learn how this small SoC books without. BIOS. Configuring boot sequences and hardware.
July	SY		Programming Raspberry Pi	10	Raspherry Pi and Linux: About Rasphian, Linux Commands, Configuring Raspherry Pi with Linux Commands Programing interfaces: Introduction to Node is, Python
Aug	SY	15	Raspberry Pi Interfaces	15	Raspherry Pt Interfaces: UART, GPIO, 12C, SPI Useful Implementations: Cross Compilation, Pulse Width Modulation, SPI for Camera
Sep	sv	15	ToT and Protecols	15	Introduction to IoT. What is IoT? IoT examples, Simple IoT LED Program. IoT and Protocols IoT. Security. HTTP, UPnp, CoAP, MQTT, XMPP. IoT Service as a Platform. Clayster, Thingerio, SenseloT, carnots and Node RED. IoT Security and Interoperability. Risks, Modes of Attacks, Tools for Security and Interoperability.
Dec	SY	15	Introduction Network Models:	US	Introduction to data communication. Components, Data Representation. Data Flow, Network. Network Criteria, Physical Structures, Network types, Local Area Network. Wide Area Network, Switching: The Internet, Accessing the Internet, Standards and administration Internet Standards. Network Models. Protocol Jayering. Scenarios, Principles of Protocol Layering. Logical Connections, TCP IP Protocol Suite, Layering Architecture. Layers in the TCP/IP Protocol Suite, Encapsulation and Decapsulation. Addressing, Multiplexing and Demultiplexing. Detailed introduction to Physical Layer. Detailed introduction to Network Layer, Detailed introduction to Transport Layer, Detailed introduction to Transport Layer, Detailed introduction to Application Layer, Data and Signals. Analog and Digital Data, Analog and Digital Signals. Sinc Wave Phase, Wavelength, Time and Frequency Domains, Composite Signals, Bandwidth, Digital Signal, Bin Rate, Bit Leugth, Transmission of Digital Signals, Transmission Importances. Adequation, Distantion, Distantion, Noise, Data Rate
Jan	SY		Introduction to Physical Layer and Data-Link Layer	10	Digital Transmission digital-to-digital conversion, Line Coding, Line Coding Schemes, analog-to-digital conversion, Pulse Code Modulation (PCM), Transmission Modes, Parallel Transmission, Senal Transmission, digital-te-handing Conversion, Aspects of Digital-to-Analog Conversion, Amplitude Shift Keying, Frequency Shift Keying, Phase Shift Keying, analog-to-analog Conversion, Amplitude Modulation (AM), Frequency Modulation (FM) Phase Modulation (PM), Multiplexing, Frequency-Division Multiplexing, Wavelength-Division Multiplexing, Time-Division Multiplexing Transmission Mesha Guided Media, Twisted-Pair Cable, Conxial Coble, Fiber-Optic Cable, Switching, Three Methods of Switching, Cucuit Switched Networks, Packet Switching, Introduction to Data-Link Layer, Nodes and Links, Services, Two Sub-layers, Three Fisper of addresses, Address Resolution Protocol (ARP), Error Detection and Correction, introduction, Types of Errors, Redundancy, Detection versus Correction,
feb	SV	150	Network Layer, Transport Layer	15	Media Access Control (MAC), random access, CSMA, CSMA/CD, CSMA/CA, controlled access. Reservation, Polling. Token Passing, channelization, FDMA, TDMA, CDMA: Connecting Devices and Virtual LANs, connecting devices. Hubs, Link-Layer Switches Routers. Introduction to Network Layer, network layer services, Packetizing, Routing and Forwarding, Other Services, IPod addresses, Address Space, Classful Addressing.

					Unicast Rosting, General Idea, Lesio-Cost Routing, Rosting Algorithms, Dintance-Verter Rosting, Link-State Rosting, Path-Vector Rosting, Introduction to Transport Layer, Transport-Layer Services, Connectionless and Connectionless and Connection-Oriented Protocols, Transport-Layer Protocols, Service, Port Numbers, User Outagram, Protocol, User Datagram, UDP Services, UDP Applications, Transmission Control Protocol. TCP Services, TCP Features, Segment
June	55	15	Automata Theory	07	Defining Automaton, Finite Automaton, Transitions and Its properties, Acceptability by Finite Automaton, Nondeterministic Finite State Machines, DFA and NDFA equivalence. Mealy and Moure Machines
July	sy		Automata Theory 1) Formal Languages	08	Minunuzing Automata, Mealy and Moore Machines. Minunuzing Automata Defining Grammar, Derivations. Languages generated by Grammar. Chomsky Classification of Gramma and Languages. Recursive Enumerable Sets. Operations on Languages. Languages and Automata. Regular Grammar, Regular Expressions. Finite automata and Regular Expressions
Aug	51	15) Regular Sets and Regular Grummar	6	Pumping Lemma and its Applications, Closur: Properties, Regular Sets and Regular Grammar Context-tree Languages, Derivation Tree, Ambiguity of Grammar, CFG simplification, Norma Forms, Pumping Lemma for CFG
Scp	SY	15	1)Context Free Languages 2) Pushdown Automata 3) Linear Bound Automata 4) Turing Machines, Undecidability	7	Definitions, Acceptance by PDA, PDA and CFG. The Linear Bound Automata Model, Linear Bound Automata and Languages. Turing Machine Definition, Representations, Acceptability by Turing Machines, Designing and Description of Turing Machines, Turing Machine, Construction, Variants of Turing Machine, The Church-Turing thesis, Universal Turing Machine, Halting Problems, Introduction to Unsolvable Problems.
DEC	SY	15	What is Android?	8	What is Android? Obtaining the required tools, creating first android app, understanding the components of screen, adapting display orientation, action bar, Activities and Intents, Activity Lifecycle and Saving State, Basic Views. TextView, Button, ImageButton, EditText, CheckBox, ToggleButton, RadioButton, and RadioGroup Views. ProgressBar View, AutoCompleteTextView, TimePicker View, DatePicker View, ListView View, Spinner View.
Jan	SY	15	User Laput Controls	7	User Input Controls, Menus, Screen Navigation, RecyclerView, Drawables, Themes and Styles, Material design, Providing resources for adaptive Liyouts. AsyncTask and AsyncTaskLoader, Connecting to the Internet, Broadcast receivers, Services, Notifications, Alarm managers, Transferring data efficiently.
Feb	SY	15	Duta	15	Data - saving, tetrieving, and loading. Overview to storing data, Shared preferences, SQLite primer, store data using SQLite database, ContentProviders, loaders to load and display data. Permissions, performance and security. Firebase and AdMob, Poblish your app.
	Signature Of Teach	l,			Signature Head Of Department

Name Of the Teacher: Charul Singh Semester: V&VI

Class: TY Subject: INS,EH.

Month	Class	No. Of Lectu res As Per Sylla bus	Title Of Topic to be covered	No. Of Lectures as per TimeTable	Key Points of Topic
June	TY	15	Introduction	05	Introduction: Security Trends, The OSI Security Architecture, Security Attacks, Security Services,
July	TY		Cryptography and RSA.	10	Security Mechanisms Classical Encryption Techniques: Symmetric Cipher Model, Substitution Techniques, Transposition Techniques, Steganography, Block Cipher Principles, The Data Encryption Standard, The Strength of DES, AES (round 15 Page 10 of 63 details not expected), Multiple Encryption and Triple DES, Block Cipher Modes of Operation. Stream Ciphers Public-Key Cryptography and RSA: Principles of Public-Key Cryptosystems, The RSA Algorithm
Aug	TY	15	Key Management	15	Key Management: Public-Key Cryptosystems, Key Management, Diffie Hellman Key Exchange Message Authentication and Hash Functions: Authentication Requirements, Authentication Functions, Message Authentication Codes, Hash Functions, Security of Hash Functions and Macs, Secure Hash Algorithm, HMAC Digital Signatures and Authentication: Digital Signatures, Authentication Protocols, Digital Signature Standard Authentication Applications: Kerberos, X.509 Authentication, Public-Key Infrastructure
Sep	TY	15	Electronic Mail Security	15	Electronic Mail Security: Pretty Good Privacy, S/MIME IP Security Overview, Architecture, Authentication Header, Encapsulating Security Payload, Combining Security Associations, Key Management Web Security: Web Security Considerations, Secure Socket Layer and Transport Layer Security, Secure Electronic Transaction Intrusion: Intruders. Intrusion Techniques, Intrusion Detection Malicious Software: Viruses and Related Threats, Virus Countermeasures, DDOS Firewalls: Firewall Design Principles, Types of Firewalls

Jan	TY	15	Introduction, Scanning and Enumeration.	15	Introduction: Terminology, Hacking Technology Types, Ethical Hacking Phases, Hacktivism, Hacker Classes, Skills Required for an Ethical Hacker, Vulnerability Research, Ways to Conduct Ethical Hacking Footprinting: Definition, Information Gathering Methodology. Competitive Intelligence, DNS Enumeration, Whois and ARIN Lookups, Types of DNS Records, Traceroute in Footprinting, E-Mail Tracking Social Engineering: Common Types Of Attacks Scanning and Enumeration: Port Scanning, Network Scanning, Vulnerability Scanning, CEH Scanning Methodology, Ping Sweep Techniques, Nmap Command Switches, SYN, Stealth, XMAS, NULL, 15 Page 48 of 63 IDLE, FIN Scans, Anonymizers, HTTP Tunneling Techniques, IP Spoofing Techniques, SNMP Enumeration, Steps Involved in Enumeration
Feb	TY	15	System Hacking,Hacking Web Servers.	15	System Hacking: Password-Cracking Techniques, Types of Passwords, Keyloggers and Other Spyware Technologies, Escalating Privileges, Rootkits Sniffers: Protocols Susceptible to Sniffing, Active and Passive Sniffing, ARP Poisoning, MAC Flooding, DNS Spoofing Techniqu Sniffing Countermeasures Denial of Service: Types of DoS Attacks, Working of DoS Attacks, BOTs/BOTNETs, "Smurf" Attack, "SYN" Flooding, DoS/DDoS Countermeasures Session Hijacking: Spoofing vs. Hijacking, Types, Sequence Prediction, Steps, Prevention Hacking Web Servers: Web Server Vulnerabilities, Attacks against Web Servers, Patch Management Techniques, Web Server Hardening
March	TY	15	Web Application Vulnerabilities,Penetra tion Testing Methodologies.	15	Web Application Vulnerabilities: Web Application Hacking, Web Application Threats, Google Hacking, Countermeasures Web-Based Password Cracking Techniques: Authentication Types, Password Crackers, Countermeasures SQL Injection: Steps, SQL Server Vulnerabilities, Countermeasures Buffer Overflows: Types, Stack-Based Buffer Overflows, Mutation Techniques Wireless Hacking: WEP, WPA Authentication Mechanisms, and Cracking Techniques, Wireless Sn ^{4nag} s, Rogue Access Points, Wireless Hacking Techniques, Securing Wireless Networks Penetration Testing Methodologies: Methodologies. Steps. Automated Tools, Pen-Test Deliverables

Chaeuls.
Signature Of Teacher

Congliant Science Department
Government of Maharashtra's
Ismail Yuani College of
Arts, Scien. — Comment.
Jogeshwari (East), Mumbai - 400 060.

Semester: I,II

Name Of the Teacher: Amita Vakil

Class : FY

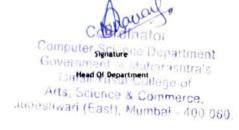
Subject: Soft Skills, Programming with C, Database System, Green Technologies

Month	Cless	Assigned Lecture	Lectures Taken	Topic to be covered	Key Points of Topic
June	r	15+15	14	Introduction to Soft Skills Personality Development Emotional Intelligence	Soft Skills: An Introduction - Definition and Significance of Soft Skills; Process, Importance and Measurement of Soft Skill Development. Personality Development: Knowing Yourself, Positive Thinking, Johari's Window, Physical Fitness Emotional Intelligence: Meaning and Definition, Need for Emotional Intelligence, Intelligence Quotient versus Emotional Intelligence Quotient, Components of Emotional Intelligence Positivity and Motivation: Developing Positive Thinking and Attitude; Driving out Negativity; Meaning and Theories of Motivation; Enhancing Motivation Levels Edquette and Mannerism: Introduction, Professional Etiquette, Technology Etiquette Ethical Values: Ethics and Society, Theories of Ethics, Correlation between Values and Behavior, Nurturing Ethics, Importance of Work Ethics, Problems In the Absence of Work Ethics.
July	FY	15+15	4	Capacity Building, Elements of Capacity Building, Zones of Learning, Ideas for Learning, Strategies for Capacity Building Leadership and Team Building: Leadership Tralts, Culture and Leadership	Capacity Building: Learn, Unlearn and Relearn Creativity at Workplace: Introduction, Current Workplaces, Creativity, Motivation, Nurturing, Hobbies at Work, The Six Thinking Hat Method. Capacity Building: Learn, Unlearn and Relearn: Capacity Building, Elements of Capacity Building, Zones of Learning, Ideas for Learning, Strategies for Capacity Building Leadership and Team Building: Leader and Leadership, Leadership Tratts, Culture and Leadership, Leadership Styles and Trends, Team Building: Types of Teams. Decision Making and Negotiation: Introduction to Decision Making, Steps for Decision Making, Decision Making Techniques, Negotiation Fundamentals, Negotiation Styles, Major Negotiation Concepts Stress and Time Management: Stress, Sources of Stress, Ways to Cope with Stress
	FY	15+15 13	13	Basic Sidils in Communication	Components of effective communication Communication Skills Job Interviews Group Discussion:
Aug				Introduction to DBMS Data models	Database, DBMS - Definition, Overview of DBMS, Advantages of DBMS, Levels of abstraction, Data independence, DBMS Architecture Data models - Client/Server Architecture, Object Based Logical Model, Record Based Logical Model (relational, hierarchical, network)
				Academic and Professional Skills	Professional Presentation Creativity at Workplace:
S ep	r	15-15	15+15 20	Entity Relationship Model ER to Yabie DDL Statements DML Statements	Viewing the structure of a table insert, update, delete, Select all columns, specific columns, unique records, conditional select, in clause, between clause, limit, aggregate functions (count, min, max, avg, sum), group by clause, having clause Entities, attributes, entity sets, relations, relationship sets, Additional constraints (key constraints, participation constraints, weak entities, aggregation / generalization, Conceptual Design using ER (entities VS attributes, Entity Vs relationship, binary Vs ternary, constraints beyond ER) Creating Databases, Using Databases, data types, Creating Tables (with integrity constraints primary key, default, check, not null), Altering Tables, Renaming Tables, Dropping Tables, Truncating Tables
Oct	n	15+15		Relational data model Relational Algebra Functions	omains, attributes, Tupies and Relations. Relational Model Notation, Characteristics of Relations, Relational Constraints - primery key, referential integrity, unique constraint, Null constraint, Check constraint Relational Algebra operations (selection, projection, set operations union, intersection, difference, cross product, Joins -conditional, equi join and natural joins, division) Functions - String Functions (concat, instr. left, right, mid, length, icase/upwer, ucase/upper, replace, sucenp, trim, Itrum, rtrim), Math Functions (abs, cell, floor, mod, pow, sort, round, truncate) Date Functions (adddate, datediff, day, month, year, hour, min, sec, now, reverse) Joining Tables - Inner Join, outer Join (left outer, right outer, full outer)

					Subqueries - subqueries with IN, EXISTS, subqueries restrictions, Nested subqueries, ANY/ALL clause, correlated subqueries
*	ь	15		Exam & Papar evaluation	
Dec	FY	15+15	12+05	Structure of C program Data Variables Types of operators	Header and body, Use of comments. Interpreters vs compilers, Python vs C. Compilation of a program. Formatted I/O: printf(), scanf(), Data: Variables, Constants, data types like: int, float char, double and void, short and long size qualiflers, signed and unsigned qualiflers. Compare with datatypes in Python. Compare static typing in C vs dynamic typing in Python Variables: Beclaring variables, scope of the variables according to block, hierarchy of data types. Compare explicit declarations in C with implicit declarations in Python. Types of operators: Arithmetic, relational, logical, compound assignment, increment and decrement, conditional or ternary, bitwise and comma operators. Precedence and order of evaluation, statements and Expressions. Automatic and explicit type conversion.
				Green H. Fundamentals	Green FI Fundamentals: Information Technology and Environment, Bosiness, Environment, and Green Enterprise. Characteristics, Green Vision and Strategic Points, Green Value, Green IT Opportunity, Challenges of a Carbina Economy, Environmental Intelligence, Envisioning the Green Future.
				Iterations Arrays Data Input and Output functions Manipulating Strings	Control statements for decision making: (I) Branching: If statement, else If statement, (does the writer mean If-else or nested Ifs)switch statement. (II) Looping: while loop, do while, for loop. (III) Jump statements: break, continue and goto. declaring array variables, initialization of arrays, accessing array elements. Compare array types of C with list and tuple types of Python. Character I/O format: getch(), getche(), getchar(), getc(), gets(), putchar(), putc(), puts()Declaring and initializing String variables, Character and string handling functions. Compare with Python strings.
Jan	FY	15-15	12	Green Assets and emerging Trends	Green Assets and emerging Trends: Data Servers Optimization and Virtualization, Physical Data Server Organization and Cooling, Cloud Computing and Data Centers, Networking and Communicational Infrastructures. End-User Devices, Smart Meters in Real-Time, Managing Devices for Central Green Services, Devices and Organizational Boundaries for Measurements, Mobile Devices, and Sustainability Green Beamers, Process Management: Introduction, Green Recongeneering, Groon Process, Green BPM and standards, Green Business Analysis, Green Requirements Modelling, Groon Florermance, Green Beamers Process and Applications, QoS. Achieving green BPM, Green Mobile Business Process, Digital Library Green Enterprise Architecture: Green IT and organizational Systems. Aspects of Green Solutions Architecture, Contents and Enterprise Architecture. Service-Oriented Architecture, Green Supply Chain Management, Green Portals in Green Enterprise Architecture. Environmental Intelligence.
				Functions Recursion Pointer	Functions: Function declaration, function definition, Global and local variables, neturn statement, Calling a function by passing values. Recursion: Definition, Recursive functions. 1SL 20 Unit III Pointer: Fundamentals, Pointer variables, Referencing and de-referencing, Pointer Arthmetic, Using Pointers with Arrays, Using Pointers with Strings, Array of Pointers, Pointers as function arguments, Functions returning pointers
Feb	FY	15-15	51	Circen Information Systems(CHS)	Green Information Systems(GIS). Design and Development Mislets, Describing GIS, GIS Requirements. Sociocultural Aspects of Green II. Green II.'s Social Jupace, Unioning Organization, Green Social Stakeholders, Robelland View of Green II. Green Hor Produces, Antitade and Subjectivity or Green II. Green II. Efficies and Code of Conduct, Princey and Security of Green Information, Green Washing, Communications in Green Fransformation Projects, Green Vistorial Computer Sygnizational Structures, Green-Colla, Workers, Robes and Skill Seo, Green Vistorial Communities Green Complaince, Produceds, Standards, and Auditis Produceds and Standards, 180 14000-7004 Standards Visions minimines by stakeholders, Green Aedia and types, Audit and use of Carbon ministen management software Emerging Carbon bases. Technologies and Feature Fourier Carbon Landacape, Green ICT and Technology Trends, Cloud Computing, Nanouechnology, Quantum computing, Renewable energies, eco-design. Collaborative environmental intelligence
Warch	"	19+15	06	Pointer Memory Allocation	Dynamic Memory Allocation: malloc(), calloc(), realloc(), free() and sizeof operator. Compare with automatic garbage collection in Python. Structure: Declaration of structure, reading and assignment of structure variables, Array of structures, arrays within structures, structures within structures. Compare C structures with Python tuples. Unions: Defining and working with unions. File handling: Different types of files like text and binary, Different types of functions: fopen(), fclose(), fgetc(), fputc(), fgets(), fputs(), fseah(), fprintf(), getw(), putw(), fread(), fwrite(), fseeh().
April	FY	_		Exam & paper assessment	
				*	



corical variables, Feature



Semester: HLIV

Class : SY

Subject :Operating System,Fundamentals of Algorithms

1_			Semest	er Planning of Teaching	
	Class	Assigned Lecture	Lectures Taken	Tupic to be covered	Key Polats of Topic
,	sy	15	5	Introduction to Operating-Systems Operating-System Structures Processes Throads Process Synchronization	Definition of Operating System. Operating System's role. Operating-System Operations. Functions of Operating System, Computing Environments Operating-System Services. Herr and Operating-System Interface. System Calls. Types of System Calls. Operating-System Structure
	o,	15	13	Process Synchronization Schedning: Deadlecks	General structure of a typical process, race condition. The Critical-Section Problem Peterson's Solutions. Synchronization Hardware, Mates I coks, Semaphores. Classic Problems of Synchronization Monators. Synchronization Monators. Selected ing. Basic Canogue. Scheduling Criteria. Scheduling General Selected ing. Algorithms (FCFS, SIF, SPTF, Priority, RR, Multi-level Critical Scheduling, Algorithms (FCFS, SIF, SPTF, Priority, RR, Multi-level Critical Scheduling, Multi-level Feedback Queue Scheduling). Thread Scheduling, Multi-level Feedback, Queue Scheduling, Trated Scheduling, System Medic, Deallock Characterization. Methods for Heading Deallock Totallock Prevention, Deadlock Associatione, Deallock Detection, Recovery from Deadlock.
-					Background, Logical address space, Physical address space, MNU. Swapping, Contiguous Memory Afforation, Segmentation, Paging, MNU. Swapping, Contiguous Memory Afforation, Paging, MNU. Swapping, Contiguous Memory Mem
ic,	57	15	,	Main Memory Virtual Memory Mass-Storage Structure File-System Interface File-System Interface Implementation	MAUL Swapping, Codingwos software Surveys of the Page Talk Surveys of the Page Talk Background, Demand Paging, Copwon-Write, Page Replacement, Allocation of Frames, Travshing Royalectement, Moestien of Frames, Travshing Overview, Disk Structure, Disk Structure, Disk Structure, Disk Structure, Page Talk System Methods, Directory and Disk Surveire, File-System Mounting, File Sharing Tile-System Structure, File-System Mounting, File Sharing Tile-System Structure, File-System Implementation, Directory Implementation, Allocation Methods, Free-Space Management
out Ser Fran	& Paper Assessment	49			
					The to Commerc Allege theme, Rule of
	sv	15	п	Introduction to algorithm	Introduction to algorithm, Why to analysis algorithm, Running time analysis, He-s to Compute Algorithms, Rate of Growth, Commonly Used Rates of Growth, Types of Analysis, Asymptotic Notation, Thereb Notation, These Notation, These Notation, These Notation, These Notation, These Notations, Asymptotic Natalysis, Properties of Notations, Commonly used Logarithms and Saturations, Performance characteristics of algorithms, Master Theorem for Privale and Compute Recurrences, Notation of Guessing Master Theorem for Subract and Compute Recurrences, Method of Guessing and Confirming
Dex			15	Introduction in algorithm True algorithms Graph Algorithms	Grovah, Commonly, George Land, Asymptotic Analysis, Proportion of Notation, Track-th Notation and Compare Statistics. Performance characteristics of algorithms described and Confirming Track algorithms. Problems & Solutions. Master Theorem for Subreact and Compare Recurrences, Mechanic of Guessing and Confirming True algorithms. What is a True? Glossary, Binary Trees, Types of Binary Trees, Proposition of Binary Trees, Binary Trees, Traversals, Generic Trees (News). Trees), Threaded Binary Street, Proposition of Binary Trees, Proposition of Binary Street, Binary Binary Street, Binary Binary Street, Binary Street, Binary Binary Street, Binary
	sv	15		Tree algorithms	Groval, Commonly Used Man Symptotic Analysis, Properties of Notation, Total Company, State of Notation, Track-th Notation, Performance characteristics of algorithms, Master Theorem for Schemet and Conquer Recurrences, Method of Guessing and Confirming Tree algorithms. What is a Tree? Glossary, Bissary Trees, Types of Bissary Trees, Propositios of Bissary Trees, Bissary Trees, Traversals, Expression Trees, Bissary Search Trees, Proposition of Bissary State Trees, AVI. (Adoction-Visital and Lands) Trees Crash, Algorithms: Introduction, (BSTs), Balanced Bissary Search Trees, AVI. (Adoction-Visital and Lands) Trees Crash, Algorithms: Introduction, Groups Torontal Analysis and Lands.
Dex	sv	15		Tree algorithms Graph Algorithms	Grovats, Commonly Used Man Application Analysis, Properties of Notation, Technologies and Congres Notation, Track-th Notation, Partners Nation, Partners of Supervisors, Master Theorem for Direct and Congres, Breide and Congres, Statistics, Parformance characteristics of Elegacity Research and Congress Research Problems & Solutions, Master Theorem for Submert and Congress Recutationes, Method of Guessing and Confirming True algorithms. What is a Tree? Glossary, Binary Trees, Psychologist and Congress Representations of Binary Trees, Properties of Binary Trees, Binary Search Trees, May Trees, Properties of Binary Search Trees (New Yorks), Business Binary Search Trees, May Leaders Visibility and Landis Trees, Graph Algorithms, branchesting (Binary State) Trees, May Leaders Visibility and Landis Trees, Graph Algorithms, Districtions of Graphs, Graph Representation, Graph Traversals, Topological Sort, Shorted Path Minited Spanning Tree

Signature Of Teacher

Coordinator Computer Science Department Government of Maharashtra's Isroedir Wester Control of Control

Arts, Science & Commerce. Jogeshwari (East), Mumbai - 400 069,

Semester: V, V1

Class: TY

Subject : Web Service. Datata science

Semester Planning of Teaching

	17		Semeste	r Planning of Teaching	
-pih	Ciass	Assigned Lecture	Lectures faken	Tupic to be covered	Key Points of Espic
de:	SY	15	5	Web services basicsation Practical 1-3	What Are Web Services? Types of Web Services Distributed computing infrastructure, eventures of YML, SUAP, Building Web Services with JAN-WS, Registering and Discovering Web Services, Service Friended Architecture. Web Services Development Life Cycle, Developing and entoruning sample Web Services across platform
Aug	Ŋ	15.	13	The REST Architectural style Practical from 3-6	Introducing HTTP. The core architectural elements of a RESTful system, Description and discovery of RESTful web services, Java tools and frameworks for building RESTful web services, JSON message forms and work and frameworks. Build RESTful web services with JAN-RS APIe. The Description and Description of RESTful web services, Sector RESTful web services. Web Services, Design guidelines for building RESTful web services, Sector RESTful web services.
Se7	sv	15	,	Developing Service-Oriented Applications with WCF	What Is Windows Communication Foundation, Fundamental Windows Communication Foundation Concepts, Windows Communication Foundation Architecture, WCF and .NET Francework Client Profile, Basic WCF Programming, WCF Feature Details. Web Service QoS
Oct & Non East	& Paper Amessment	of SV			
Dec	sy	15	и	futroduction in Data Science	What is Data* Different kinds of data. 151. Introduction to high level programming language + Integrated Development Environment (IDE), Exploratory Data Analysis (EDA) + Data Vocasfination, Different types of data sources, Data Klurtagement: Data Collection. Data cleaning/extraction, Data analysis & Modeling
les:	55	15	15	Dats Ceration Practical from 5-7	Query languages and Operations to specify and transform data. Structured scheme based systems as users and sequence of data Semi-survival experience in sucress and acquirers of data. Unstructured systems in the acquirers and acquirers of data. Security and chibral considerations in relation to authoritioning and authorizing access to data on remain continuous sources. Software development tools, Large waite data systems. A maxim Web Services (AWS)
for The Control of th	sy	15	15	Statistical Modelling and Machine Learning Practical 7-9	Histoduction to middl selection: Regularization, base's anasce tradeoff or pursuinery. All, BIC, Cross vanishme, Ridge regressions and peralized regression or g. LASSO Data transformations. Diseasement exclusion, Feature eventions, Ridge regression and aggregating Supervised Learning Regression, theme middle, Regression trees, Time-series, Analysis, Smoothing and aggregating Supervised Learning Regression, theme middle Regression trees, Time-series, Analysis, Smoothing and aggregating Supervised Learning. Principal Components Analysis (PCA), Innova clustering. Heart-sheal clustering, Researche methods.
March &h April	sv		Practical Exam. Theory exam. Faper Assessment and Kumit		A

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Department of Computer Science 1000.

Department of Computer Science A.Y. 2018-19 Semester Wise Teachers Plan

Name Of the Teacher: Sybal Dias

Class: FY

Subject : Free open source, Linux

Semester: I,II

Month	Class	Assigned Lecture	Lectures Taken	Topic to be covered	Key Points of Topic
June					
					Open Source, Free Software, Free Software vs. Open Source software Public Domain Software, FOSS does not mean no cost. History. BSD. The Free Software Foundation and the GNU Project. Methodologies Open Source History, Initiatives, Principle and methodologies. Philosophi Software Freedom, Open Source Development Model Licenses and Patents: What Is A License, Important FOSS Licenses (Apache,BSD,GPL, LGPL), copyrights and copy lefts, Patents Economics of FOSS: Zero Marginal Cost, Income-generation opportunities, Problems with traditional commercial software, Internationalization
					Open source vs. closed source, Open source government, Open source ethics. Social and Financial impacts of open source technology, Shared software, Shared source, Open Source in Government
July	FY	15	5 9	Introduction	Case Studies Example Projects: Apache web server, GNU/Linux, Android, Mozilla (Firefox), Wikipedia, Drupal, wordpress, GCC, GDB, github, Open Office. Study: Understanding the developmental models, licensings, mode of funding,commercial/non-commercial use. Open Source Hardware, Open Source Design, Open source Teaching. Open source media. Collaboration, Community and Communication Contributing to Open Source Projects Introduction to github, interacting with the community on github, Communication and etiquette, testing ope source code, reporting issues, contributing code. Introduction to wikipedia, contributing to Wikipedia Or contributing to any prominent open source project of student's choice. Starting and Maintaining own Open Source Project.
				Understanding Open Source Ecosystem Open Source Operating Systems: GNU/Linux, Android, Free BSD, Open Solaris. Open Source Hardware, Virtualization Technologies, Containerization Technologies: Docker, Development tools, IDEs, debuggers, Programming languages LAMP, Open Source database technologies	
					History, GNU Info and Utilities, Various Linux Distributions, The Unix/Linux architecture, Features of Unix/Linux, Starting the shell, Shell prompt, Command structure, File Systems and Directory Structure, man pages, more documentation pages
					General purpose utility Commands, basic commands, Various file types, attributes and File handling Commands, Handling Ordinary Files. More file attributes
	FY	15	13	1)Advanced Bash shell 1)Linux operating	Simple Filters, Filters using regular expressions. Setting, Locating and removing environment variables like PATH etc, Default shell environment variables, Using command aliase

			9	system and Basics 2)Basic Bash shell commands 3)Practical from 1 to 3 commands 2)The Linux environment variable 3)Understanding Linux file	Linux security, Using Linux groups, Decoding file permissions, Changing security setting, Sharing files. Understanding Linux Security, uses of root, sudo command, working with passwords, Understanding ssh.
				permission 4)Linux Security 5)Practical from 4 to 6	
	FY	15	9	1)Networking 2)Working withEditors 3)Basic script building 4) Practical from 6 to 9	TCP/IP Basics, TCP/IP Model, Resolving IP addresses, Applications, ping, telnet, ftp, DNS awk, sed and introduction to vi. Using multiple commands, Creating script files, Displaying messages, Using variables, Redirecting Input and Output, Pipes performing math, Exiting the script.
Oct	FY	15	9		
Nov	FY			Practical Exam	
Dec					
Jan		15	15 9	1 5)Practical from 1 to 6	
Feb		15	15 9		
March		15	15	ăi.	
April			Practical Exam, Theory exam , Paper Assessment and Result		

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Department of Computer Science A.Y. 2018-19

Semester wise Plan

Name Of the Teacher: Sybal Dias

Semester: III,IV

Class: SY

Subject: Core java ,Advanced java

Month	Class	No. Of Lectu res As Per Sylla bus	Title Of Topic to be covered	No. Of Lectures as per TimeTable	Key Points of Topic
June	SY	15	The Java Language OOPS	5	Features of Java, Java programming format, Java Tokens, Java Statements, Java Data Types, Typecasting, Arrays Introduction, Class, Object, Static Keywords, Constructors, this Key Word, Inheritance, super Key Word, Polymorphism (overloading and overriding), Abstraction, Encapsulation, Abstract Classes, Interfaces String,
July	SY		String Manipulations .	10	String Buffer, String Tokenizer Packages: Introduction to predefined packages (java.lang, java.util, java.io, java.sql, java.swing), User Defined Packages, Access specifiers.
Aug	SY	15	Exception Handling: I/O Streams:	15	Introduction, Pre-Defined Exceptions, Try-Catch-Finally, Throws, throw, User Defined Exception examples Multithreading: Thread Creations, Thread Life Cycle, Life Cycle Methods, Synchronization, Wait() notify() notify all() methods ResultSet, Navigating and manipulating data, ResultSetMetaData, Managing Transactions in JDBC, JDBC Exception classes, BLOB & CLOB Introduction, Byte-oriented streams, Character- oriented streams, File, Random access File, Serialization Networking: Introduction, Socket, Server socket, Client –Server Communication
Sep	SY	15	Wrapper Classes AWT	15	: Introduction, Byte, Short, Integer, Long, Float, Double, Character, Boolean classes Collection Framework: Introduction, util Package interfaces, List, Set, Map, List interface & its classes, Set interface & its classes, Map interface & its Inner Classes: Introduction, Member inner class, Static inner class, Local inner class, Anonymous inner class AWT: Introduction, Components, Event-Delegation-Model, Listeners, Layouts,

					Individual components Label, Button, CheckBox, Radio Buta Choice, List, Menu, Text Field, Text Area
DEC	SY	15	Swing Swing components	8	Need for swing components, Difference between AWT and swing, Components hierarchy, Panes, Jlabel, JTextField and JPasswordField, JTextAres, JButton, JCheckBox, JRadioButton, JComboBox and JList JDBC: Introduction, JDBC Architecture, Types of Drivers, Statement, ResultSet, Read Only ResultSet, Updatable ResultSet, Forward Only ResultSet, Scrollable ResultSet, PreparedStatement, Connection Modes, SavePoint, Batch Updations, CallableStatement, BLOB & CLOB
Jan	SY	15	Servlets: Session Tracking Mechanisms JSP:	7	Servlets: Introduction, Web application Architecture, Http Protocol & Http Methods, Web Server & Web Container, Servlet Interface, GenericServlet, HttpServlet, Servlet Life Cycle, ServletConfig, ServletContext, Servlet Communication, Session Tracking Mechanisms JSP: Introduction, JSP LifeCycle, JSP Implicit Objects & Scopes, JSP Directives, JSP Scripting Elements, JSP Actions: Standard actions and customized actions,
Feb	SY	15	Java Beans:	15	Introduction, JavaBeans Properties, Examples Struts 2: Basic MVC Architecture, Struts 2 framework features, Struts 2 MVC pattern, Request life cycle, Examples, Configuration Files, Actions, Interceptors, Results & Result Types, Value
March.	SY	15	Stack/OGNL JSON:	15	Overview, Syntax, DataTypes, Objects, Schema, Comparison with XML, JSON with Java.

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Department of Computer Science A.Y. 2018-19 Semester wise Plan

Name Of the Teacher: Sybal Dias

Semester: V,VI

Class: TY

Subject: Linux Administration system, Cloud computing

Month	Class	Assigned Lecture	Lectures Taken	Topic to be covered	Key Points of Topic
June					
July	FY	15	5	Introduction Single-Host Administration Networking and Security Practical 1-3	Technical Summary of Linux Distributions, Managing Software Managing Users and Groups, Booting and shutting down processes. File Systems, Core System Services, Process of configuring, compiling, Linux Kernel TCP/IP for System Administrators, basic network Configuration, Linux Firewall (Netfilter), System and network security
Aug	FY	15	9	Internet Services Practical 4-6	Domain Name System (DNS), File Transfer Protocol (FTP), Apache web server, Simple Mail Transfer Protocol (SMPT), Post Office Protocol and Internet Mail Access Protocol (POP and IMAP), Secure Shell (SSH), Network authentication system (Kerberos), Domain Name Service (DNS), Security
Sep	FY	15	9	Internet Services Practical 7-8	Network File System (NFS), Samba, Distributed File Systems (DFS), Network Information Service (NIS
Oct	FY	15	9		Lightweight Directory Access Protocol (LDAP), Dynamic Host configuration Protocol (DHCP), MySQL, LAMP Applications, File Services, Email Services, Chat applications, Virtual Private Networking.
Nov	FY			Practical Exam	
Dec	7.7			Exams	

Jan	15	15 9	Cloud Computing Basics Web Services – Virtulization:- Practical 1-2.	Distributed Computing, Parallel Computing, WSDL structure, SOAP- Structure of SOAP Message (In JAX-WS), SOAP Messaging Architecture, SOAP Header, Client-side SOAP Handler, REST What is REST? HTTP methods, Java API for RESTful Web Services (JAXRS) Characteristics of Virtualized Environments Pros and Cons of Virtualization. Virtualization using KVM, Creating virtual machines, oVirt - management toolforvirtualization environment
Feb	15	15 9	Introduction to Cloud Computing: Cloud Computing Software Security fundamentals Practical 3-4	Definition, Types of Clouds, Deployment of software solutions and web applications, Types of Cloud Platforms, Essential characteristics – On demand self-service, Broad network access, Location independent resource pooling "Rapid elasticity", Measured service, Comparing cloud providers with traditional IT service providers Cloud Information Security Objectives, Confidentiality, Integrity, Availability, Cloud Security Services, Relevant Cloud Security Design Principles, Secure Cloud Software Requirements, Secure Development practices, Approaches to Cloud Software Requirement Engineering, Cloud Security Policy Implementation.
March	15	15	Cloud Applications CloudSim: AWS: Practical 6-8	Introduction to Simulator, understanding CloudSim simulator, CloudSim Architecture(User code, CloudSim, GridSim, SimJava) Understanding Working platform for CloudSim, OpenStack: Introduction to OpenStack, OpenStack test-drive, Basic OpenStack operations, OpenStack CLI and APIs, Tenant model operations, Quotas, Private cloud building blocks, Controller deployment, Networking deployment, Block Storage deployment, Compute deployment, deploying and utilizing OpenStack in production environments, Building a production environment, Application orchestration using OpenStack Heat Architecting on AWS, Building complex solutions with Amazon Virtual Private Cloud (Amazon VPC).
April		Practical Exam, Theory exam , Paper Assessment and Result		

Name Of the Teacher: Charul Singh
Semester: V&VI

Class: TY

Subject : INS,EH.

Month	Class	No. Of Lectu res As Per Sylla bus	Title Of Topic to be covered	No. Of Lectures as per TimeTable	Key Points of Topic
June	TY	15	Introduction	05	Introduction: Security Trends, The OSI Security Architecture, Security Attacks, Security Services,
July	TY		Cryptography and RSA.	10	Security Mechanisms Classical Encryption Techniques: Symmetric Cipher Model, Substitution Techniques, Transposition Techniques, Steganography, Block Cipher Principles, The Data Encryption Standard, The Strength of DES, AES (round 15 Page 10 of 63 details not expected), Multiple Encryption and Triple DES, Block Cipher Modes of Operation, Stream Ciphers Public-Key Cryptography and RSA: Principles of Public-Key Cryptosystems, The RSA Algorithm
Aug	TY	15	Key Management	15	Key Management: Public-Key Cryptosystems, Key Management, Diffic Hellman Key Exchange Message Authentication and Hash Functions: Authentication Requirements, Authentication Functions, Message Authentication Codes, Hash Functions, Security of Hash Functions and Macs, Secure Hash Algorithm, HMAC Digital Signatures and Authentication: Digital Signatures, Authentication Protocols, Digital Signature Standard Authentication Applications: Kerberos, X.509 Authentication, Public-Key Infrastructure
Sep	TY	15	Electronic Mail Security	15	Electronic Mail Security: Pretty Good Privacy, S/MIME IP Security Overview, Architecture, Authentication Header, Encapsulating Security Payload, Combining Security Associations, Key Management Web Security: Web Security Considerations, Secure Socket Layer and Transport Layer Security, Secure Electronic Transaction Intrusion Intruders, Intrusion Techniques, Intrusion Detection Malicious Software Viruses and Related Threats, Virus Countermeasures, DDOS Firewalls, Firewall Design Principles, Types of Firewalls

Jan	TY	15	Introduction, Scanning and Enumeration.	15	Introduction: Terminology, Hacking Technology Types, Ethical Hacking Phases, Hacktivism, Hacker Classes, Skills Required for an Ethical Hacker, Vulnerability Research, Ways to Conduct Ethical Hacking Footprinting: Definition, Information Gathering Methodology. Competitive Intelligence, DNS Enumeration, Whois and ARIN Lookups, Types of DNS Records, Traceroute in Footprinting, E-Mail Tracking Social Engineering: Common Types Of Attacks Scanning and Enumeration: Port Scanning, Network Scanning, Vulnerability Scanning, CEH Scanning Methodology, Ping Sweep Techniques, Nmap Command Switches, SYN, Stealth, XMAS, NULL, 15 Page 48 of 63 IDLE, FIN Scans, Anonymizers, HTTP Tunneling Techniques, IP Spoofing Techniques, SNMP Enumeration, Steps Involved in Enumeration
Feb	TY	15	System Hacking,Hacking Web Servers.	15	System Hacking: Password-Cracking Techniques, Types of Passwords. Keyloggers and Other Spyware Technologies, Escalating Privileges, Rootkits Sniffers: Protocols Susceptible to Sniffing, Active and Passing Sniffing, ARP Poisoning, MAC Flooding, DNS Spoofing Techniques, Sniffing Countermeasures Denial of Service: Types of DoS Attacks, Working of DoS Attacks, BOTs/BOTNETs, "Smurf" Attack, "SYN" Flooding, DoS/DDoS Countermeasures Session Hijacking: Spoofing vs. Hijacking, Types, Sequence Prediction, Steps, Prevention Hacking Web Servers: Web Server Vulnerabilities, Attacks against Web Servers, Patch Management Techniques, Web Server Hardening
March	TY	15	Web Application Vulnerabilities,Penetra tion Testing Methodologies.	15	Web Application Vulnerabilities: Web Application Hacking. Web Application Threats, Google Hacking, Countermeasures Web-Based Password Cracking Techniques: Authentication Types, Password Crackers, Countermeasures SQL Injection: Steps, SQL Server Vulnerabilities. Countermeasures Buffer Overflows: Types, Stack-Based Buffer Overflows, Mutation Techniques Wireless Hacking: WEP, WPA Authentication Mechanisms, and Cracking Techniques, Wireless Sniffers, Rogue Access Points, Wireless Hacking Techniques, Securing Wireless Networks Penetration Testing Methodologies: Methodologies, Steps, Automated Tools, Pen-Test Deliverables

Signature Of Teacher

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Name Of the Teacher: Charul Singh

Class: FY

Semester: I,II. Subject : COD,GT.

Month	Class	No. Of Lectu res As Per Sylla bus	Title Of Topic to be covered	No. Of Lectures as per TimeTable	Key Points of Topic
July	FY	15	Computer Abstractions and Technology:	07	Computer Abstractions and Technology: Basic structure and operation of a computer, functional units and their interaction. Representation of numbers and characters.
Aug	FY	15	Logic circuits and functions:	08	Combinational circuits and functions: Basic logic gates and functions, truth tables; logic circuits and functions. Minimization with Karnaugh maps. Synthesis of logic functions with and-or-not gates, nand gates, nor gates. Fan-in and fan-out requirements; tristate buffers. Half adder, full adder, ripple carry adder. (Flip flops) Gated S-R and D latches, edge-triggered D latch. Shift registers and registers. Decoders, multiplexers. Sequential circuits and functions; State diagram and state table; finite state machines and their synthesis.
Sep	FY	15	Instruction set architectures:	08	Memory organization, addressing and operations; word size, big-endian and little- endian arrangements. Instructions, sequencing. Instruction sets for RISC and CISC (examples Altera NIOS II and Freescale ColdFire). Operand addressing modes: pointers; indexing for arrays. Machine language, assembly language, assembler directives. Function calls, processor runtime stack, stack frame. Types of machine instructions: arithmetic, logic, shift, etc. Instruction sets, RISC and CISC examples.
Oct	FY	15	Basic Processor Unit:		Main components of a processor: registers and register files, ALU, control unit, instruction fetch unit, interfaces to instruction and data memories. Datapath. Instruction fetch and execute; executing arithmetic/logic, memory access and branch instructions; hardwired and microprogrammed control for RISC and CISC. Basic I/O: Accessing I/O devices, data transfers between processor at I/O devices. Interrupts and exceptions: interrupt requests and processing.

Jan	FY	15	Green IT Overview:	Green IT Overview: Introduction , Environmental Concerns and Sustainable Development, Environmental Impacts of IT, Green I , Holistic Approach to Greening IT, Greening IT, Applying IT for Enhancing Environmental Sustainability, Green IT Standards and Eco-Labelling of IT , Enterprise Green IT Strategy, Green Washing, Green IT: Burden or Opportunity? Green Devices and Hardware: Introduction , Life Cycle of a Device or Hardware, Reuse, Recycle and Dispose that Software Introduction , Processor Power States , Energy-Saving Software Techniques, Evaluating and Measuring Software Impact to Platform Power Sustainable Software Development: Introduction, Current Practices, Sustainable Software, Software Sustainability Attributes, Software Sustainability Metrics, Sustainable Software Methodology, Defining Actions
Feb	FY	15	Green Data Centres:	Green Data Centres: Data Centres and Associated Energy Challer Data Centre IT Infrastructure, Data Centre Facility Infrastructure: Implications for Energy Efficiency, IT Infrastructure Management, Green Data Centre Metrics Green Data Storage: Introduction, Storage Media Power Characteristics, Energy Management Techniques for Hard Disks, System-Level Energy Management Green Networks and Communications: Introduction, Objectives of Green Network Protocols, Green Network Protocols and Standardsm Enterprise Green IT Strategy: Introduction, Approaching Green IT Strategies, Business Drivers of Green IT Strategy, Business Dimensions for Green IT Transformation,, Organizational Considerations in a Green IT Strategy, Steps in Developing a Green IT Strategy, Metrics and Measurements in Green Strategies.
March	FY	15	Sustainable Information Systems and Green Metrics:	Sustainable Information Systems and Green Metrics: Introduction. Multilevel Sustainable Information, Sustainability Hierarchy Models, Product Level Information, Individual Level Information, Functio Level Information, Organizational Level Information, Measuring the Maturity of Sustainable ICT Enterprise Green IT Readiness: Introduction, Readiness and Capability, Development of the G-Readiness Framework, Measuring an Organization's G-Readiness Sustainable IT Services: Creating a Framework for Service Innovation: Introduction, Factors Driving the Development of Sustainable IT, Sustainable IT Services (SITS), SITS Strategic Framework Green Enterprises and the Role of IT: Introduction, Organizational and Enterprise Greening, Information Systems in Greening Enterprises, Greening the Enterprise: IT Usage and Hardware, Inter-organizational Enterprise Activities and Green Issues
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Signature Of Teacher

Computer Science Department
Government of Italian Teshtor's
Head of Pepartment College of
Arts, Science & Commerce
Jogeshwari (Fast), Mumbai - 400 060.

Name Of the Teacher: Charul Singh

Semester: III,IV

Class: SY

Subject: IOT,TOC,CN,Android.

Month	Class	No. Of Lect ures As Per Syll abus	Title Of Topic to be covered	No. Of Lectures as per TimeTabl e	Key Points of Topic
June	SY	15	SoC and Raspberry Pi	5	System on Chip: What is System on chip? Structure of System on Chip. SoC products: FPGA, GPU, APU, Compute Units. ARM 8 Architecture: SoC on ARM 8. ARM 8 Architecture Introduction Introduction to Raspberry Pi: Introduction to Raspberry Pi, Raspberry Pi Hardware, Preparing your raspberry Pi. Raspberry Pi Boot: Learn how this small SoC boots without BIOS. Configuring boot sequences and hardware.
July	SY		Programming Raspberry Pi	10	Raspberry Pi and Linux: About Raspbian, Linux Commands, Configuring Raspberry Pi with Linux Commands Programing interfaces: Introduction to Node.js, Python.
Aug	SY	15	Raspberry Pi Interfaces	15	Raspberry Pi Interfaces: UART, GPIO, 12C, SPI Useful Implementations: Cross Compilation, Pulse Width Modulation, SPI for Camera.
Sep	SY	15	IoT and Protocols	15	Introduction to IoT: What is IoT? IoT examples, Simple IoT LED Program. IoT and Protocols IoT Security: HTTP, UPnp, CoAP, MQTI, XMPP.

					loT Service as a Platform: Clayster, Thinger.io, SenseloT, carriots and Node RED. IoT Security and Interoperability: Risks, Modes of Attacks, Tools for Security and Interoperability.
Dec	SY	15	Introduction Network Models:	05	Introduction to data communication, Components, Data Representation, Data Flow, Networks, Network Criteria, Physical Structures, Network types, Local Area Network, Wide Area Network, Switching, The Internet, Accessing the Internet, standards and administration Internet Standards. Network Models, Protocol layering, Scenarios, Principles of Protocol Layering, Logical Connections, TCP/IP Protocol Suite, Layered Architecture, Layers in the TCP/IP Protocol Suite, Encapsulation and Decapsulation, Addressing, Multiplexing and Demultiplexing. Detailed introduction to Physical Layer, Detailed introduction to Network Layer, Detailed introduction to Transport Layer, Detailed introduction to Application Layer. Data and Signals, Analog and Digital Data, Analog and Digital Signals, Sine Wave Phase, Wavelength, Time and Frequency Domains, Composite Signals, Bandwidth, Digital Signal, Bit Rate, Bit Length, Transmission of Digital Signals, Transmission Impairments, Attenuation, Distortion, Noise, Data Rate Limits, Performance, Bandwidth, Throughput, Latency (Delay)
Jan	SY		Introduction to Physical Layer and Data-Link Layer:		Digital Transmission digital-to-digital conversion, Line Coding, Line Coding Schemes, analog-to-digital conversion, Pulse Code Modulation (PCM), Transmission Modes, Parallel Transmission, Serial Transmission. Analog Transmission, digital-to-analog Conversion, Aspects of Digital-to-Analog Conversion, Amplitude Shift Keying, Frequency Shift Keying, Phase Shift Keying, analog-to-analog Conversion, Amplitude Modulation (AM), Frequency Modulation (FM), Phase Modulation (PM), Multiplexing, Frequency-Division

					Languages, Languages and Automata, Regular Grammar, Regular Expressions, Finite automata and Regular Expressions.
Aug	SY	15	Regular Sets and Regular Grammar	6	Pumping Lemma and its Applications, Closure Properties, Regular Sets and Regular Grammar.Context-free Languages, Derivation Tree, Ambiguity of Grammar, CFG simplification, Normal Forms, Pumping Lemma for CFG.
Sep	SY	15	1)Context Free Languages 2) Pushdown Automata 3) Linear Bound Automata 4) Turing Machines, Undecidability	7	Definitions, Acceptance by PDA, PDA and CFG.The Linear Bound Automata Model, Linear Bound Automata and Languages. Turing Machine Definition, Representations, Acceptability by Turing Machines, Designing and Description of Turing Machines, Turing Machine Construction, Variants of Turing Machine,The Church-Turing thesis, Universal Turing Machine, Halting Problem, Introduction to Unsolvable Problems.
DEC	SY	15	What is Android?	8	What is Android? Obtaining the required tools, creating first android app, understanding the components of screen, adapting display orientation, action bar, Activities and Intents, Activity Lifecycle and Saving State, Basic Views: TextView, Button, ImageButton, EditText, CheckBox, ToggleButton, RadioButton, and RadioGroup Views, ProgressBar View, AutoCompleteTextView, TimePicker View, DatePicker View, ListView View, Spinner View
Jan	SY	15	User Input Controls.	7	User Input Controls, Menus, Screen Navigation, RecyclerView, Drawables, Themes and Styles, Material design, Providing resources for adaptive layouts, AsyncTask and AsyncTaskLoader, Connecting to the Internet, Broadcast receivers, Services, Notifications, Alarm managers, Transferring data efficiently

July	SY		Automata Theory 1) Formal Languages	08	Minimizing Automata, Mealy and Moore Machines, Minimizing Automata. Defining Grammar, Derivations, Languages generated by Grammar, Chomsky Classification of Grammar and Languages, Recursive Enumerable Sets, Operations on
June	SY	15	Automata Theory	07	Defining Automaton, Finite Automaton, Transitions and Its properties, Acceptability by Finite Automaton, Nondeterministic Finite State Machines, DFA and NDFA equivalence, Mealy and Moore Machines
Feb	SY	15	Network layer, Transport Layer	15	Media Access Control (MAC), random access, CSMA, CSMA/CD, CSMA/CA, controlled access, Reservation, Polling, Token Passing, channelization, FDMA, TDMA, CDMA. Connecting Devices and Virtual LANs, connecting devices, Hubs, Link-Layer Switches, Routers, Introduction to Network Layer, network layer services, Packetizing, Routing and Forwarding, Other Services, IPv4 addresses, Address Space, Classful Addressing. Unicast Routing, General Idea, Least-Cost Routing, Routing Algorithms, Distance-Vector Routing, Link-State Routing, Path-Vector Routing, Introduction to Transport Layer, Transport-Layer Services, Connectionless and Connection-Oriented Protocols. Transport-Layer Protocols, Service, Port Numbers, User Datagram Protocol, User Datagram, UDP Services, UDP Applications, Transmission Control Protocol, TCP Services, TCP Features, Segment.
					Multiplexing, Wavelength-Division Multiplexing, Time-Division Multiplexing. Transmission Media, Guided Media, Twisted-Pair Cable, Coaxial Cable, Fiber-Optic Cable. Switching, Three Methods of Switching, Circuit Switched Networks, Packet Switching, Introduction to Data-Link Layer, Nodes and Links, Services, Two Sub-layers, Three Types of addresses, Address Resolution Protocol (ARP). Error Detection and Correction, introduction, Types of Errors. Redundancy, Detection versus Correction,

Feb	SY	15	Data	15	Data - saving, retrieving, and loading: Overview to storing data, Ghared preferences, SQLite primer, store data using SQLite database, ContentProviders, loaders to load and display data, Permissions, performance and security, Firebase and AdMob, Publish your app
					0

Signature Of Teacher

Computed Department of Departm J. inswrisegot

Department of Computer Science A.Y. 2018-19 Semester wise Plan

Semester: I,II

Name Of the Teacher: Amita Vakil

Class : FY

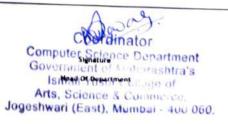
Subject: Soft Skills, Programming with C, Database System

Semester Planning of Teaching

			Semeste	r Planning of Teach	ling		
Month	Class	Assigned Lecture	Lectures Taken	Topic to be covered	Key Points of Topic		
Anc	FY.			Introduction to Soft Skills Personality Development Emotional Intelligence	Soft Skills: An Introduction - Definition and Significance of Soft Skills; Process, Importance and Measurement of Soft Skill Development. Personality Development: Knowing Yourself, Positive Thinking, Johart's Window, Physical Fitness Emotional Intelligence: Meaning and Definition, Meed for Emotional Intelligence, Intelligence Quotient versus Emotional Intelligence Quotient, Components of Emotional Intelligence Quotient Versus Emotional Intelligence Quotient, Components of Emotional Intelligence Positivity and Motivation: Developing Positive Thinking and Attitude; Driving out Megativity: Meaning and Theories of Motivation; Enhancing Motivation Levels Etiquette and Mannersmi Introduction, Professional Etiquette, Technology Etiquette Ethical Values: Ethics and Society, Theories of Ethics, Correlation between Values and Behavior, Nurturing Ethics, Importance of Work Ethics, Problems In the Absence of Work Ethics		
July	п	15+15	14	14	5 14	Capacity Building, Elements of Capacity Building, Zones of Learning, Ideas for Learning, Strategies for Capacity Building Leadership and Team Building: Leader and Leadership, Leadership Traits, Culture and Leadership	Capacity Building: Learn, Unlearn and Relearn Creativity at Workplace: Introduction, Current Workplaces, Creativity, Motivation, Nurturing Creativity at Workplace: Introduction, Current Workplaces, Creativity, Motivation, Nurturing Hobbies at Work, The Six Thinking Hat Method. Capacity Building: Learn, Unlearn and Relearn: Capacity Building, Elements of Capacity Building. Zones of Learning, Ideas for Learning. Strategies Capacity Building, Leadership and Building: Leader and Leadership, Leadership Traits, Culture and Leadership, Leadership Styles and Tronds, Team Building, Types of Teams. Decision Making and Negotiation: Introduction to Decision Making, Steps for Decision Making, Decision Making Techniques, Negotiation Fundamentals, Negotiation Styles, Major Negotiation Concepts Stress and Time Management: Stress, Sources of Stress, Ways to Cope with Stress
		15+15		Basic Skills In Communication	Components of effective communication Communication Skills Job Interviews Group Discussion:		
Aug	FY		13	Introduction to DBMS Data models	Database, DBMS - Definition, Overview of DBMS, Advantages of DBMS, Levels of abstraction, Data independence, DBMS Architecture Data models - Client/Server Architecture, Object Based Logical Model, Record Based Logical Model (relational, hierarchical, network)		
				Academic and Professional Skills	Professional Presentation Creativity at Workplace:		
5 ep	r	15+15	20	Entity Relationship Model ER to Table DDL Statements DML Statements	Viewing the structure of a table fraert, update, delete, Select all columns, specific columns, unique records, conditional select, in clause, between clause, limit, aggregate functions (count, min, max, avg. sum), group by clause, having clause Entities, attributes, entity sets, relations, relationship sets, Additional constraints (key constraints, participation constraints), weak entities, aggregation / generalization, Conceptual Design using ER (entities VS attributes, Entity Vs relationship, binary Vs ternary, constraints beyond ER) Creating Databases, Using Databases, data types, Creating Tables (with integrity constraints-primary key, default, check, not nuil), Altering Tables, Renaming Tables, Dropping Tables.		
Oct	FY	15+15		Relational data model Relational Algebra Functions	omains, ettributes, Tuples and Relations, Relational Model Notation, Characteristics of Relations, Relational Constraints - primary key, referential integrity, unique constraint, Null constraint, Check constraint Relational Algebra operations (selection, projection, set operations union, intersection, difference, cross product, Joins -conditional, equi join and natural joins, division) Functions - String Functions (concat, lists), left, right, mid. length, icase/lower, ucase/upper, replace, strcmp, trim. Itrum, trim). Math Functions (abs. ceil, floor, mod., pow, sqrt, round, truncate) Date Functions (addidate, datediff, day, month, year, hour, min, sec, now, reverse) Joining Tablus - Inner Join, outer Join (left outer, right outer, full outer)		

					Subqueries - subqueries with IN, ERSTS, subqueries restrictions, Nested subqueries, ANY/ALL clause, correlated subqueries
Nov	FY	15		Exam & Paper evaluation	
Dec	n	15	12	Structure of C program Data Variables Types of operators	Header and body, Use of comments. Interpreters vs. compilers, Python vs. C. Compilation of a program. Formatted I/O: printf(), scanf(). Data: Variables, Constants, data types like: int, float char, double and void, short and long size qualifiers, signed and unsigned qualifiers. Compare with datatypes in Python. Compare static typing in C vs. dynamic typing in Python Variables. Declaring variables, scope of the variables according to block, hierarchy of data types. Compare explicit declarations in C with implicit declarations in Python. Types of operators: Arithmetic, relational, logical, compound assignment, increment and decrement, conditional or ternary, bitwise and comma operators. Precedence and order of evaluation, statements and Expressions. Automatic and explicit type conversion.
Jan	PY .	15	12	Iterations Arrays Data Input and Output functions Manipulating Strings	Control statements for decision making: (i) Branching: If statement, etse If statement, (does the writer mean if-else or nested ifs)switch statement. (ii) Looping: while loop, do while, for loop. (iii) Jump statements: break, continue and goto. declaring array variables, initialization of arrays, accessing array elements. Compare array types of C with list and tuple types of Python. Character I/O format: getch(), getche(), getchar(), getc(), gets(), putchar(), putc(), puts()Declaring and initializing String variables, Character and string handling functions. Compare with Python strings.
Feb	FY	15	"	Functions Recursion Pointer	Functions: Function declaration, function definition, Global and local variables, return statement, Calling a function by passing values. Recursion: Definition, Recursive functions. 15L 20 Unit IB Pointer: Fundamentals, Pointer variables, Referencing and de-referencing. Pointer Arithmetic, Using Pointers with Arrays. Using Pointers with Strings. Array of Pointers, Pointers as function arguments, Functions returning pointers
March	r	15	06	Pointer Memory Allocation	Dynamic Memory Allocation: malloc(), calloc(), realloc(), free() and size of operator. Compare with automatic garbage collection in Python. Structure: Declaration of structure, reaching and assignment of structure variables, Array of structures, arrays within structures, structures within structures. Compare C structures with Python tuples. Unions: Defining and working with unions. File handling: Different types of files like text and binary, Different types of functions: fopen(), fclose(), fgetc(), fputc(), fgets(), fputs(), fscanf(), fprintf(), getw(), putw(), fread(), fwrite(), fseek(),
April	FY			Exam & paper assessment	





Department of Computer Science A.Y. 2018-19 Semester wise Plan

Name Of the Teacher: Amita Vakil

Semester: II,IV

Class: SY

Subject : Green Tech, Fundamentals of Algo

Semester Planning of Teaching

Month	Class	No. Of Lectu res As Per Sylla bus	Title Of Topic to be covered	No. Of Lectures as per TimeTable	Key Points of Topic
June	SY	15	Green IT Fundamentals	05	Green IT Fundamentals: Information Technology and Environment, Business, Environment, and Green Enterprise Characteristics, Green Vision and Strategic Points, Green Value, Green IT Opportunity, Challenges of a Carbon Economy, Environmental Intelligence, Envisioning the Green Future.
Je 🎝	SY		Green IT Strategies	10	Green IT Strategies: Green strategic alignment, Green IT Drivers-Cost, Regulatory and Legal, Sociocultural and Political, Business ecosystem, New market opportunities, Green IT Business Dimensions, KPls in Green Strategies Environmentally Responsible Business: Developing ERBS, Policies, Practices, and Metrics, Mobility and Environment, Green It Metrics and Measurements, Green IT Readiness and CMM, Context Sensitivity and Automation in Green IT Measures Green Assets: Introduction, Green Assets, Green IT Hardware, Green Data Centers and ICT Equipment, Server and Data Strategy.
Aug	sy	15	Green Assets and emerging Trends	15	Green Assets and emerging Trends: Data Servers Optimization and Virtualization, Physical Data Server Organization and Cooling, Cloud Computing and Data Centers, Networking and CommunicationsInfrastructure, End-User Devices, Smart Meters in Real-Time, Managing Devices for Central Green Services, Devices and Organizational Boundaries for Measurements, Mobile Devices, and Sustainability Green Business Process Management: Introduction, Green Reengineering, Green Process, Green BPM and standards, Green Business Analysis, Green Requirements Modelling, Green IT Governance, Green Business Process and Applications, QoS. Achieving green BPM, Green Mobile Business Process, Digital Library Green Enterprise Architecture: Green IT and organizational

					Systems, Aspects of Green Solutions Architecture, Contents and Integration with Service-Oriented Architecture, Green Supply Chain Management, Green Portals in Green Enterprise Architecture, Environmental Intelligence. Green Information Systems(GIS): Design and Development Models:
Sep	SY	15	Green Information Systems(GIS)	15	Describing GIS, GIS Requirements Sociocultural Aspects of Green IT: Green IT's Social Impact, Learning Organization, Green Social Stakeholders, Role-Based View of Green IT, Green User Practices, Attitude and Subjectivity in Green IT, Green IT Ethics and Code of Conduct, Privacy and Security of Green Information, Green Washing, Communications in Green Transformation Projects, Green HR and Changing Organizational Structures, Green-Collar Workers: Roles and Skill Sets, Green Virtual Communities Green Compliance: Protocols, Standards, and Audits: Protocols and Standards, ISO 14000-2004 Standard, Various initiatives by stakeholders, Green Audits and ty Audit and use of Carbon emission management software Emerg. Carbon Issues: Technologies and Future: Future Carbon Landscape, Green ICT and Technology Trends, Cloud Computing, Nanotechnology, Quantum computing, Renewable energies, eco-design, Collaborative environmental intelligence

Signature Of Teacher

Computer Science Department
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IsnHead Of Department ra's
Arts, Science & Commerce,
Jogeshwari (East), Mumbai - 400 060.



Contents and

Department of Computer Science A.Y. 2018-19 Semester wise Plan

Semester: I,II

Name Of the Teacher: Amita Vakil

Class : FY

Subject: Soft Skills, Programming with C, Database System, Green Technologies

Semester Planning of Teaching

				Semeste	er Planning of Teac	
Mont	th	Class	Assigned Lecture	Lectures Taken	Topic to be covered	Key Points of Top44
Jun		PY			Introduction to Soft Skills Personality Development Emotional Intelligence	Soft Skills: An Introduction - Definition and Significance of Soft Skills; Pracess, Importance and Measurement of Soft Skill Development. Personality Development: Knowing Yourself, Positive Thinking, Joharf's Window, Physical Fitness Emotional Intelligence: Meaning and Definition, Meed for Emotional Intelligence, Intelligence Quotient versus Emotional Intelligence Quotient, Components of Emotional Intelligence Quotient, Emotional Intelligence Quotient, Positivity and Motivation: Developing Positive Thinking and Attitude; Driving out Negativity; Meaning and Theories of Motivation; Enhancing Motivation Levels Etiquette and Mannerism: Introduction, Professional Etiquetta, Technology Etiquette Ethical Values: Ethics and Society, Theories of Ethics, Correlation between Values and Behavior, Murturing Ethics, Importance of Work Ethics, Problems in the Absence of Work Ethics
Jul	y	FY	15+15	14	Capacity Building, Elements of Capacity Building, Zones of Learning, Ideas for Learning, Strategies for Capacity Building Leadership and Team Building: Leader and Leadership, Leadership Tratis, Culture and Leadership	Capacity Building: Learn, Unlearn and Relearn Creativity at Workplace: Introduction, Current Workplaces, Creativity, Motivation, Nurturing Hobbios at Work, The Six Thinking Hat Mothod. Capacity Building: Learn, Unlearn and Relearn: Capacity Building, Elements of Capacity Building, Zones of Learning, Ideas for Learning, Strategies for Capacity Building Leadership and Team Building: Leader and Leadership, Leadership Traits, Culture and Leadership, Leadership Syles and Trends, Team Building. Types of Teams. Decision Making and Negotiation: Introduction to Decision Making, Steps for Decision Making, Decision Making Techniques, Negotiation Fundamentals, Negotiation Syles, Major Negotiation Concepts Stress and Time Management: Stress, Sources of Stress, Ways to Cope with Stress
	Aug FY 15+15 13			Basic Skills In Communication	Components of effective communication Communication Skills Job Interviews Group Discussion:	
АЩ		13	Introduction to DBMS Data models	Database, DBMS - Definition, Overview of DBMS, Advantages of DBMS, Levels of abstraction, Data Independence, DBMS Architecture Data models - Client/Server Architecture, Object Based Logical Model, Record Based Logical Model, Record Based Logical Model, Record Based Logical Model (relational, hierarchical, network)		
-					Academic and Professional Skills	Professional Presentation Creativity at Workplace:
s es		r	15+15	20	Entity Relationship Model ER to Table DDL Statements DML Statements	Viewing the structure of a table insert, update, delete, Select all columns, specific columns, unique records, conditional select, in clause, between clause, limit, aggregate functions (count, min, max, avg. sum), group by clause, having clause. Entitles, attributes, entity sets, relations, relationship sets, Additional constraints (key constraints, participation constraints, weak entities, aggregation / generalization, Conceptual Design using ER (entities VS attributes, Entity Vs relationship, binary Vs ternary, constraints beyond ER) Creating Datebases. Using Databases, date types, Creating Tables (with integrity constraints primary key, default, check, not null), Altering Tables, Renaming Tables, Dropping Tables, Truncating Tables
Get		r	15+15		Relational data model Relational Algebra Functions	omains, attributes, Tuples and Relations, Relational Model Notation, Characteristics of Relations, Relational Constraints - primary key, referential integrity, unique constraint, Null constraint, Check constraint Relational Algebra operations (selection, projection, set operations union, intersection, difference, cross product, Joins conditional, equi join and natural joins, division) Functions - String Functions (concat, Instr. Jeff, right, mid, length, icase/lower, ucase/upper, replace, sucrep, usin, turn, rrum), Math Functions (abs, cell, floor, mod, pow, sort, round, truncate) Date Functions (addition, datediff, day, month, year, hour, min, sec, now, reverse) Joining Tables - inner join, outer join (left outer, right outer, full outer)

					1	
					Subqueries - subqueries with IN, EXISTS, subqueries restrictions, Nested subqueries, ANY/ALL clause, correlated subqueries	
Nov	FY	15		Exam & Paper evaluation		
Dec	FY	15+15	12-05	Structure of C program Data Variables Types of operators	Header and body, Use of comments. Interpreters vs compilers, Python vs C. Compilation of a program. Formatted I/O: printf(), scanf(). Data: Variables, Constants, data types like: int, float cher, double and void, short and long size qualiflers, signed and unsigned qualiflers. Compare with datatypes in Python. Compare static typing in C vs dynamic typing in Python Variables: Declaring variables, scope of the variables according to block, hierarchy of data types. Compare explicit declarations in Python. Types of operators: Arithmetic, relational, logical, compound assignment, increment and decrement, conditional or ternary, bitwise and comma operators. Prefedence and order of evaluation, statements and Expressions. Automatic and explicit type conversion.	
				Green II Pundamentals	Green II Fundamentals: Information Technology and Environment, Business, Environment, and Green Enterprise Characteristics, Green Vision and Strategic Points, Green Value, Green IF Opportunity, Challenges of a Carbon Bernouny, Environmental Intelligence, Envisioning the Green Luture.	
					Iterations Arrays Data Input and Output functions Manipulating Strings	Control statements for decision making: (f) Branching: If statement, else If statement, (does the writer mean if-else or nested lifs)switch statement. (II) Looping: while loop, do while, for loop. (III) Jump statements: break, continue and goto. declaring array variables, initialization of arrays, accessing array elements. Compare array types of C with list and tuple types of Python. Character I/O format: getch(), getche(), getchar(), getc(), gets(), putchar(), putc(), puts()Declaring and initializing String variables, Character and string handling functions. Compare with Python atrings.
Jan	ř	15+15	12	Green Assets and emerging Transls	Green Assets and emerging Trends: Data Servers Optimization and Virtualization, Physical Data Server Organization and Cooling, Cloud Computing and Data Centers, Networking and Constructional Infraranceure. End-User Devices, Smart Meters in Real-Time, Managing Devices for Central Green Services. Devices and Organizational Boundaries for Measurements, Mobile Devices, and Sustainability Green Business Process Management: Introduction, Green Recognizational Households of Green Business Process. Green BPM and standards, Green Business Analysis, Green Requirements Modelling, Green II Grovensance, Green Business Process and Applications, QUS, Achieving green BPM, Groen Mobile Business Process. Digital Library Green Enterprise Architecture: Green IT and organizational Systems. Aspects of Green Solutions Architecture Contents and Integration with Service-Oriented Architecture, Green Supply Chain Management, Green Portals in Green Enterprise Architecture. Environmental Intelligence.	
				ì	Functions Recursion Pointer	Functions: Function declaration, function definition, Global and local variables, return statement, Calling a function by passing values. Recursion: Definition, Recursive functions. 15t. 20 Unit III Pointer: Fundamentals, Pointer variables, Referencing and de-referencing, Pointer Arithmetic, Using Pointers with Arrays, Using Pointers with Strings, Array of Pointers, Pointers as Aunction arguments, Functions returning pointers
Feb	FY	15+15	11	Green Information Systems(GIS)	Green Information Systems(GIS): Design and Development Models: Describing GIS, GIS Requirements Socionalitural Aspects of Green IT: Green ITer Social Impact. Learning Organization, Green Social Stakeholders, Role-Based View of Green IT; Green ITer Practices, Attitude and Subjectivity in Green IT. Green IT Lenies and Cods: of Conduct, Privacy and Scenning of Green Information, Green Washing, Constructions on Green Transformation Projects, Green II and Changing Organizational Structures, Green-Collar Workers, Rokes and Skill Sees, Green Variad Communities Green Compliance: Protocols, Standards, 150 (4609-2004 Standard, Various initiatives by makebolders, Green Audits and types, Audit and use of Carbon emission management software Emerging Carbon Bases. Technologies and Future: Future Carbon Landacepe, Green ICT and Technology Trends, Cloud Computing, Nanoechnology, Quastion computing, Renewable energies, eco-design, Collaborative en troumental intelligence	
March	r	15+15	G6	Pointer Memory Allocation	Dynamic Memory Allocation: malloc(), calloc(), reelloc(), free() and size of operator. Compare with automatic garbage collection in Python. Structure: Declaration of structure, reading and assignment of structure variables, Array of structures, arrays within structures, structures within structures. Compare C structures with Python tuples. Unions: Defining and working with unions. File handling: Different types of file like text and binary, Different types of functions: Topen(), fclose(), (getc(), fputc(), fgets(), fputs(), fscanf(), fprintf(), getw(), putw(), fread(), fwrite(), fscek().	

Storday of Teacher

Computer Science Department
Government of Maharashtra's
Ismail Visur Gollege of
Arts, Science & Commerce,
Jogeshwari (East), Mumbai - 400 060.

Department of Computer Science A.Y. 2818-19 Semester wise Plan

Name Of the Teacher: Amita Vaidl

Semester: III.JV

Clear SV

Subject :Operating System, Fundamentals of Algorithms

Semester Planning of Teaching

Semester Planuing of Teaching							
Moath	Class	Assigned Lecture	Lectures Taken	Topic to be covered	Key Points of Topic		
Juh	54	15	s	Introduction to Operating-Systems Operating-System Structure Processes Threads Process Synchronization Practical 1-3	Definition of Operating System, Operating System's role, Operating-System Operations, Functions of Operating Systems Competing Law transments Operating-System Strikes, User and Operating-System Interface, System Colls, Types of System Colls, Operating-System Structure.		
Are	sv	15	9	Process Synchronization Scheduling: Deadlecks: Practical from 3-6	General structure of a bytical process, tase condition. The Critical-Section Problem. Petursor's Solution. Synchronization Healthours, Minet Lucks. Semaphones, Classic Problems of Synchronization, Monitors. Basic Concepts, Scheduling Critican, Scheduling. Basic Concepts, Scheduling Critican, Scheduling. Multiver's Feodobac Quase Scheduling. The Scheduling System Model, Dendlock Characterization. Metaods for Thanding Decadlock Characterization. Metaods for Thanding Decadlock Characterization. Metaods for Thanding Decadlock Characterization. Deadlock Avoidance, Deadlock Defection, Recovery from Dendlock:		
Sey	SY	15	•	Main Memory Virtual Memory Mass-Storage Structure File-System Interface File-System Implementation	Background, Logical address states, Physical address space. MIMU, Swapping, Configuous Memory Allocation, Segmentation, Paging, Structure of the Page Table Background, Domaid Paging, Copy-on-Write, Page Replacement, Allocation of Frames, Transhing Overview, Disk Structure, Disk, Scheduling, Disk, Management File Concept, Access Methods, Directory and Disk Structure, File-System Mounting, File Sharing File-System Mounting, File Sharing File-System Structure, File-System Implementation, Directory Implementation, Allocation Methods, Free-Space Management		
Oct & No. Exam	i & Paper Amenancat	dsy					
Dux	sv	15	п	Introduction to aignrithm	Introduction to algorithm, Why to analysis algorithm. Running time analysis, How to Compare Algorithms, Rate of Growth, Commonly Used Rates of Growth, Types of Analysis, Asymptotic Notation, Roseon, Onega-El Notation, Theta-Pi Notation, Asymptotic Analysis, Properties of Notations, Commonly used Legarithms and Summations, Performance characteristics of algorithms. Master Theorem 6v Divide and Compact, Ovide and Compact Master Theorem Problems & Solutions, Master Theorem for Subract and Conquer Recurrences, Method of Guesting and Confirming		
	sv.	is	15	Tree algorithms Graph Algorithms Practical from 5-7	Tree algorithms: What is a Tree? Glossary, Binary Trees, Types of Banary Trees, Properties of Banary Trees, Benary		
Feli	sy	15	15. 3	Dynamic Programming Practical 7-9	Introduction, What is a Dynamic Programming Strategy? Projecties of Dynamic Programming Strategy. Problems which can be solved using Dynamic Programming. Operation Dynamic Programming Algorithms, Understanding Dynamic Programming, Longest Common Subsequence.		
March &t April	SY		Practical Exam. Theory exam. Paper Assertancel and Result				

Signature DI Teacher

Computer Science Department
Governœewhath Maharashtra's
Ismail Yusuf College of
APropropert of Computer Actions
Jogeshwari (East), Mumbat 2.1

Department of Computer Science A.Y. 2018-19 Semester wise Plan

Name Of the Jeacher: Amita Vakil

Semester: V, VI

Class : FY

Subject : Web Service. Dateta science

Semester Planning of Teaching

			Semest	er Planning of Teaching	
Month	Class	Assigned Lecture	Lectures lisken	Inpic to be covered	Key Points of Lopic
Juh	ss	15	,	Web services basicsation Practical 1-3	What Are Web Services? Types of Web Services Distributed computing infrastructure, exercises of NML, SOAP, Building Web Services with JAN-N-S, Registering and Discovering Web Services, Service Covered Architecture. Web Services Development Life Cycle, Developing and consuming simple Web Services across platform.
Aug	**	15	13	The BEST Architectural style Practical from 3-6	Introducing HTTP. The core architectural elements of a PESTful system. Description and discovery of BESTful web services, for taken and frameworks for building RESTful web services. ISON arrange forms and roots and services, for the service with IANASS APIs. The Description and Discovery of RESTful web services. Secure RESTful web services. Design guidelines for building RESTful web services. Secure RESTful web services.
Ser.	59	15	,	Developing Service-Oriented Applications with WCF	What is Windows Communication Foundation, Fundamental Windows Communication Foundation Concepts, Windows Communication Foundation Architecture, WCF and .NET Frumework Chem Profile, Havie WCF Programming, WCF Feature Details. Web Service QuS
Oct & No. East	& Paper Amessment	of S1			
Dec	55	15	п	Introduction to Data Science	What is Data* Different kinds of data, 151. Introduction to high level programming language + Integrated Development Environment (IDE), Exploratory Data Analysis (EDA) + Data Visualization, Different types of data sources, Data Munigement: Data Collection, Data cleaning/extraction. Data analysis & Modeling
Sac	5	15	15	Data Curation Practical from 5-7	Query languages and Operations to specify and transform data. Structured scheme based systems as area and acquirers of data Semi-structured systems as users and acquirers of data. Unattrictured systems in the acquirition and structuring of data. Security and othical considerations in relation to authoritioning and authoritioning access to data on remote, eyel, and Structure development inois, Large scale data systems. Anatons Web Services (AWS)
Fet	ส	15	15 4	Statistical Modelling and Machine Learning Practical 7-9	Historduction to model selection: Regularization, base/annance tradeoff og parsonery. ACC BIC, Cross validations, Ridge regressions and penalized regression og J. ASSO Data transformations. Dimension redaction, Feature extraction, Smootling and aggregating Supervised Learning, Regression, these models, Regression tees, Time-series, Asalysis, Smootling and aggregating Supervised Learning, Regression, these models and the supervised Proceeding, Classification electrification toot, Logistic regressions, explaining byto-particles (New Hospitanics). His participation of the process of the supervised process of the supervised process of the participation of
Marci &k April	sv		Practical Esam, Theory esam, Paper Assessment and Result		

Computer Science Department
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Logeshwari (East), Mumbai - 400 060. Computer Science Department