Proposed Curriculum & Syllabus – 2022-23

SEMESTER I

Sl. No.	CourseCode	CourseTitle	L	T	P	Credits	Marks		
							Internal	External	Total
1	AECC-1 (CAUATA1)	Soft Skills	2	0	0	2	30	70	**100**
2	DSE-1 (CAUATD1)	Foundation of Mathematics (Disc, Prob, St)	4	0	0	4	30	70	**100**
3	C-1 (CAUATT1)	Computer Organization	4	0	0	4	30	70	**100**
4	C-2 (CAUATT2)	Programming in C	4	0	0	4	30	70	**100**
5	C-3 (CAUATT3)	Introduction to Operating Systems	4	0	0	4	30	70	**100**
6	L_C-1 (CAUALT1)	Lab: Programming in C	0	0	4	2	30	70	**100**
7	L_C-2 (CAUALT2)	Lab: Linux &Shell Programming	0	0	4	2	30	70	100
Total			**Credits**			**22**	**Marks**		**700**

SEMESTER II

Sl. No.	CourseCode	CourseTitle	L	T	P	Credits	Marks		
							Internal	External	Total
1	AECC-2 (CAUBTA2)	Environmental Studies	2	0	0	2	30	70	**100**
2	C-4 (CAUBTT1)	Introduction to Data Science	4	0	0	4	30	70	**100**
3	C-5 (CAUBTT2)	Programming In Java	4	0	0	4	30	70	**100**
4	C-6 (CAUBTT3)	Data Structures	4	0	0	4	30	70	**100**
5	C-7 (CAUBTT4)	MOOC -1 / Theory of Automata	3	0	0	3	30	70	**100**
6	L_C-3 (CAUBLT1)	Lab: Programming in Java	0	0	4	2	30	70	**100**
7	L_C-4 (CAUBEF1)	Industrial Internship	0	0	0	4		100	100
Total			**Credits**			**23**	**Marks**		**700**

SEMESTER III

Sl. No.	CourseCode	CourseTitle	L	T	P	Credits	Marks		
							Internal	External	Total
1	C-8 (CAUCTT1)	Introduction to AI	4	0	0	4	30	70	**100**
2	C-9 (CAUCTT2)	Relational Database Management Systems	4	0	0	4	30	70	**100**
3	C-10 (CAUCTT3)	Computer Networks	4	0	0	4	30	70	**100**
4	C-11 (CAUCTT4)	Programming in Python	4	0	0	4	30	70	**100**
5	L_C-5 (CAUCLT1)	Lab: Programming in Python	0	0	4	2	30	70	**100**
6	L_C-6 (CAUCLT2)	Lab: RDBMS(MySQL/Oracle)	0	0	4	2	30	70	**100**
7	L_C-7 (CAUCPF1)	Project (Industrial Training for 2 weeks)	0	0	0	4		100	100
Total			**Credits**			**24**	**Marks**		**700**

SEMESTER IV

Sl. No.	CourseCode	CourseTitle	L	T	P	Credits	Marks		
							Internal	External	Total
1	C-12 (CAUDTT1)	Web Technology	4	0	0	4	30	70	**100**
2	C-13 (CAUDTT2)	Data Mining/MOOC-2	4	0	0	4	30	70	**100**
3	C-14 (CAUDTT3)	IoT	4	0	0	4	30	70	**100**
4	C-15 (CAUDTT4)	SoftwareProjectManagement	4	0	0	4	30	70	**100**
5	L_C-8 (CAUD LT2)	Lab: Web Technology	0	0	4	2	30	70	**100**
6	L_C-9 (CAUDLT2)	Lab: IoT	0	0	4	2	30	70	**100**
7	L_C-10 (CAUDPF1)	Project (Industrial Training for 2 weeks)	0	0	0	4	-	100	100
Total			**Credits**			**24**	**Marks**		**700**

SEMESTER V

Sl. No.	CourseCode	CourseTitle	L	T	P	Credits	Marks		
							Internal	External	Total
1	C-16 (CAUETT1)	Big Data Analytics	4	0	0	4	30	70	**100**
2	C-17 (CAUETT2)	Machine Learning	4	0	0	4	30	70	**100**
3	C-18 (CAUETT3)	Data Visualization/ MOOC-3	3	0	0	3	30	70	**100**
4	C-19 (CAUETT4)	Network Security / Cyber Security and Cyber Law	4	0	0	4	30	70	**100**
5	L_C-11 (CAUELT1)	Lab: BigData Analytics	0	0	4	2	30	70	**100**
6	L_C-12 (CAUELT2)	Lab: Machine Learning	0	0	4	2	30	70	**100**
7	L_C-13 (CAUEPF1)	Project (Industrial Training for 2 weeks)	0	0	0	4	-	100	100
Total			**Credits**			**24**	**Marks**		**700**

SEMESTER VI

Sl. No.	CourseCode	CourseTitle	L	T	P	Credits	Marks		
							Internal	External	Total
7	L_C-14 (CAUFPF1)	Industrial Project / Dissertation	0	0	0	25	-	500	500
Total			**Credits**			**25**	**Marks**		**500**

TOTALCREDITS –140

AECC-1

Soft Skills

Course Objectives:

1. Ability to be comfortable with English in use while reading or listening.
2. Ability to use receptive skills through reading and listening to acquire good exposure to
   language and literature.
3. Ability to write and speak good English in all situations.
4. Students should develop style in speech and writing and manipulate the tools of language
   for effective communication.
5. The course should provide exposure to the learners in Good Prose texts and Poems and
   expose the learners to value based ideas

Course Outcomes:

1. Students can read and understand any text in English listening to the inputs given by the
   teacher in the classroom.
2. Students imbibe the rules of language unconsciously and tune to deduce language
   structure and usage.
3. Students write paragraphs, essays, and letters.
4. Students decipher the mechanism of language and use it for success in competitive
5. examinations and job-related speaking and writing tasks.

1. **Introduction**: Theory of Communication, Types and modes of Communication
2. **Language of Communication**:
   Verbal and Non-verbal (Spoken and Written) Personal, Social and Business,Barriers and Strategies Intra-personal, Inter-personal and Group communication
3. **Speaking Skills**:
   Monologue Dialogue ,Group Discussion, Effective Communication/ Mis-Communication Interview Public Speech
4. **Reading and Understanding**
   Close Reading Comprehension Summary Paraphrasing ,Analysis and Interpretation Translation (from Indian language to English and vice-versa) Literary/Knowledge Texts
5. **Writing Skills:**
   Documenting,Report Writing,Making Notes,Letter writing

Readings:

1. *Fluency in English* - Part II, Oxford University Press, 2006.
2. *Business English*, Pearson, 2008.
3. *Language, Literature and Creativity*, Orient Blackswan, 2013.
4. *Language through Literature* (forthcoming) ed. Dr. Gauri Mishra, DrRanjana Kaul, Dr Brati Biswas

DSE-1

Foundation of Mathematics (Discrete Mathematics)

Course Objectives:

1. Introduce concepts of mathematical logic for analyzing propositions and proving theorems.
2. Use sets for solving applied problems, and use the properties of set operationsalgebraically.
3. Work with relations and investigate their properties.
4. Investigate functions as relations and their properties.
5. Introduce basic concepts of graphs and trees.

Course Outcomes:

1. Analyze logical propositions via truth tables.
2. Prove mathematical theorems using mathematical induction.
3. Understand sets and perform operations and algebra on sets.
4. Determine properties of relations, identify equivalence and partial order relations**.**
5. Define graphs, digraphs and trees, and identify their main properties.

1. **Mathematical Logic:** Propositions, logical connectives,Truth values & Truth table, Tautologies & Contradictions, Tautological Implications, Algebra of proposition, Normal Forms, Predicate Calculus.

2. **Set Theory:** Sets, Subsets, Cardinality, Power sets, Algebra of Sets: Union, Intersection and Complement, Duality, De-Morgan's law, **Relations:** Cartesian Products, properties of relations, equivalence relation **Functions:** Injection, Surjection, Bijection. Composition of functions, Recursion.

3. **Boolean Algebra:** Basic Definitions and Theorems,DeMorgan's Law, Simplification of Boolean expression by Algebraic method, Canonical forms and Karnaugh-Map, Logic Gates and Switching circuits.

4. **Graphs:** Simple Graph, directed graph, Degree of a Vertex, Types of Graphs, Sub Graphs and Isomorphic Graphs, Operations of Graphs, Path, Cycles and Connectivity, Euler and Hamilton Graph, Shortest Path Problems. Graph Coloring, Representation of Graphs, Planar Graphs.

5. **Trees:**Introduction, Trees and their properties, Spanning Tree, Binary Tree, Tree Traversal, **Matrices:** Notation and Definition, Addition, Subtraction, Multiplication, Transpose.

Readings:

1. A text book of Discrete Mathematics By Swapan Kumar Sarkar (S. Chand & company Ltd.).
2. Discrete Mathematical structure with Applications to computer science By J.P Trembly & R.P.Manohar.
3. Discrete Mathematics By K.A Ross and C.R.B writht.
4. Discrete Mathematics Structures By Bernard Kohman& Robert C. Bushy.for computer science
5. Discrete Mathematics By Seymour Lipschutz Mare Lipson. Tata McGraw-Hill Edition

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C-1

Computer Organization

Course Objectives:

1. Discuss the basic concepts and structure of computers.
2. Understand concepts of number system, logic gates and arithmetic operations.
3. Explain different types of addressing modes, circuits and memory organization.

Course Outcomes:

1. Understand the theory and architecture of central processing unit.
2. Define different number systems, binary addition and subtraction, 2’s complement Representation and operations with this representation.
3. Summarize the memory organization and pipelining concepts.

1. **Number System**: Binary, Octal and Hexadecimal number system, Conversion from one number system to another, Binary arithmetic, Representing negative numbers, BCD codes, ASCII codes, EBCDIC codes, Excess three code, Gray code, Floating point representation, 1's complement and 2's compliment,Arithmetic representation of signed binary numbers, 9's complement and 10‟s compliment system.

2. **Logic Gates and Boolean Algebra**: Properties and Symbolic Representation Of NOT, AND ,OR,NOR,NAND ,EX-OR,EX – NOR GATES, NOR and NAND GATES as a universal gates, Lawsand identities of Boolean algebra, Demorgan‟s theorem, Use of Boolean algebra for simplification oflogic expression, SOP and POS forms, Canonical forms, Maxterm, Minterm, Karnaugh map for 2,3,4variable.

3. **Combinational and Sequential Circuits:** Multiplexer, De multiplexers, Decoders, Encoders, Halfadder, Full adder, Half subtractor, Full subtractor, n-bit adder, Adder-subtractor, Flip flops, Registers,Counters.

4. **CPU Organization and Parallel Processing:** General register organization of C.P.U, Stackorganization, Instruction format, Addressing modes, Parallel processing, Pipelining, Arithmeticpipelining, Instruction pipeline, RISC pipeline, Vector processing, Array processor**.**

5. **Memory Organization:** Memory hierarchy, Types of memory, Associative memory, Virtual memory,Cache memory.

Readings:

1. M. Morris Mano, Digital Design, 3.ed., Prentice Hall of India Pvt. Ltd., New Delhi, 2003/PearsonEducation (Singapore) Pvt. Ltd., New Delhi, 2003.
2. R.P.jain, Modern Digital Electronics, 3ed., Tata McGraw-Hill publishing company limited , New Delhi,2003.
3. Carl Hamacher, ZvonkoVranesic and SafwatZaky, 5th Edition “Computer Organization”, McGraw-Hill,2002.
4. William Stallings, “Computer Organization and Architecture – Designing for Performance”, 6th Edition,Pearson Education, 2003.
5. David A.Patterson and John L.Hennessy, “Computer Organization and Design: The hardware / softwareinterface”, 2nd Edition, Morgan Kaufmann, 2002

C-2

Programming in C

Course Objectives:

The course is designed to provide complete knowledge of C language. Students will be ableto develop logics which will help them to create programs, applications in C. Also, bylearningthe basic programming constructs they can easily switch over to any other language in
future.

Course Outcomes:

1. Develop a C program.
2. Control the sequence of the program and give logical outputs.
3. Implement strings in your C program.
4. Store different data types in the same memory.
5. Manage I/O operations in your C program.
6. Understand the basics of file handling mechanisms

1. **Fundamentals of C programming:** History and Importance of C, Structure of a C program, Character Set, Tokens, Keywords, Identifiers, Data Types, Variables, Constants, Storage Class Specifiers, Operators, type of operators, precedence and associativity of operators, expressions, Type Casting and Conversion, Console I/O functions.

2. **Control Statements and Functions: branching:** if, if-else, nested if, switch-case, **jump statements:** break, continue, goto, return, **looping:** for, while, do-while, nested loops, **functions:** library functions, user defined functions, function declaration, function definition, function call, local and global Variables, Call by value and Call by reference, Recursion, Command Line Argument.

3. **Arrays, Strings and User defined Data Types:** Introduction to Arrays, one dimensional array, multi-dimensional array, Passing Array to functions, Introduction to strings, string functions, passing string to function, Introduction to Structure and Union, Declaration and initialization of structure, nested structure, array of structure, self-referential structure, passing structure to function, typedef keyword, Introduction to Enumeration.

4. **Pointer and Dynamic Memory Allocation:** Introduction to pointers, pointer variable, pointer arithmetic, pointer to pointer, null and void pointer,

pointer vs. array, array of pointer, passing pointer to functions, sizeof() operator, Introduction to Dynamic memory allocation: malloc(), calloc(), realloc(), fee() functions.

5. **File Handling in C:** Introduction to file handling, file pointer, file accessing functions, fopen, fclose, fputc, fgetc, fprintf, fscanf, fread, fwrite, beof, fflush, rewind, fseek, ferror, File handling through command line argument. Introduction to C preprocessor #include, #define, Conditional compilation directives: #if, #else, #elif, #endif, #ifndef etc.

Readings:

1. Programming in C “Yashwant Kanetkar”, BPB Publications,Tenth Edition.
2. Programming with C “Venugopal”, TMHOutlineSeries,Third Edition.
3. The C Programming Language “Kemigham and Ritche [Prentice Hall]”
4. Programming in C Language, “Dr Amit Saxena“ Ananya Publication
5. Programming in C Language “BalaGurusamy“ Fourth Edition

C-3

Introduction to operating system

Course Objectives:

1. Students will learn how Operating System is Important for Computer System.
2. To make aware of different types of Operating System and their services.
3. To learn different process scheduling algorithms and synchronization techniques to achieve better performance of a computer system.
4. To learn secondary memory management.
5. Basic knowledge of linux programming.

Course Outcomes:

1. Understands the different services provided by Operating System at different level.
2. They learn real life applications of Operating System in every field.
3. Understands the use of different process scheduling algorithm and synchronization techniques toavoid deadlock.
4. They will learn different memory management techniques like paging, segmentation and demandpaging etc**.**

1. **Introduction:** Definition, Design Goals, Types of Operating System, Functions of Operating System. **Process Management:** Process states, Process Control block, Schedulers, CPU Scheduling algorithms.

2. **Inter process synchronization and communication:** need, Mutual exclusion, semaphore, critical region, **Deadlock:** Characteristics, prevention, resource allocation graphs.

3. **Memory Management:** Address Binding, Dynamic Loading and Linking Concepts, Logical and Physical Addresses, Contiguous Allocation, Fragmentation, Paging, Segmentation, Virtual Memory, Demand Paging, Page fault, Page replacement algorithms, Thrashing.

4. **File and Secondary Storage Management:** File Attributes, File Types, File Access Methods, File System Organization, Allocation Methods; Disk Structure, Logical and Physical View, Disk Scheduling, Formatting.

5. **Introduction to Linux & Shell Programming:**The Linux Architecture, various Linux distributions, Command Structure and common commands, The vi editor, File System, Introduction to Shells, Standard Streams, Redirection,

Pipes, Quotes, Job Control, Variables, Filter, Regular Expression, GREP, SED, AWK, Introduction to Shell Scripting.

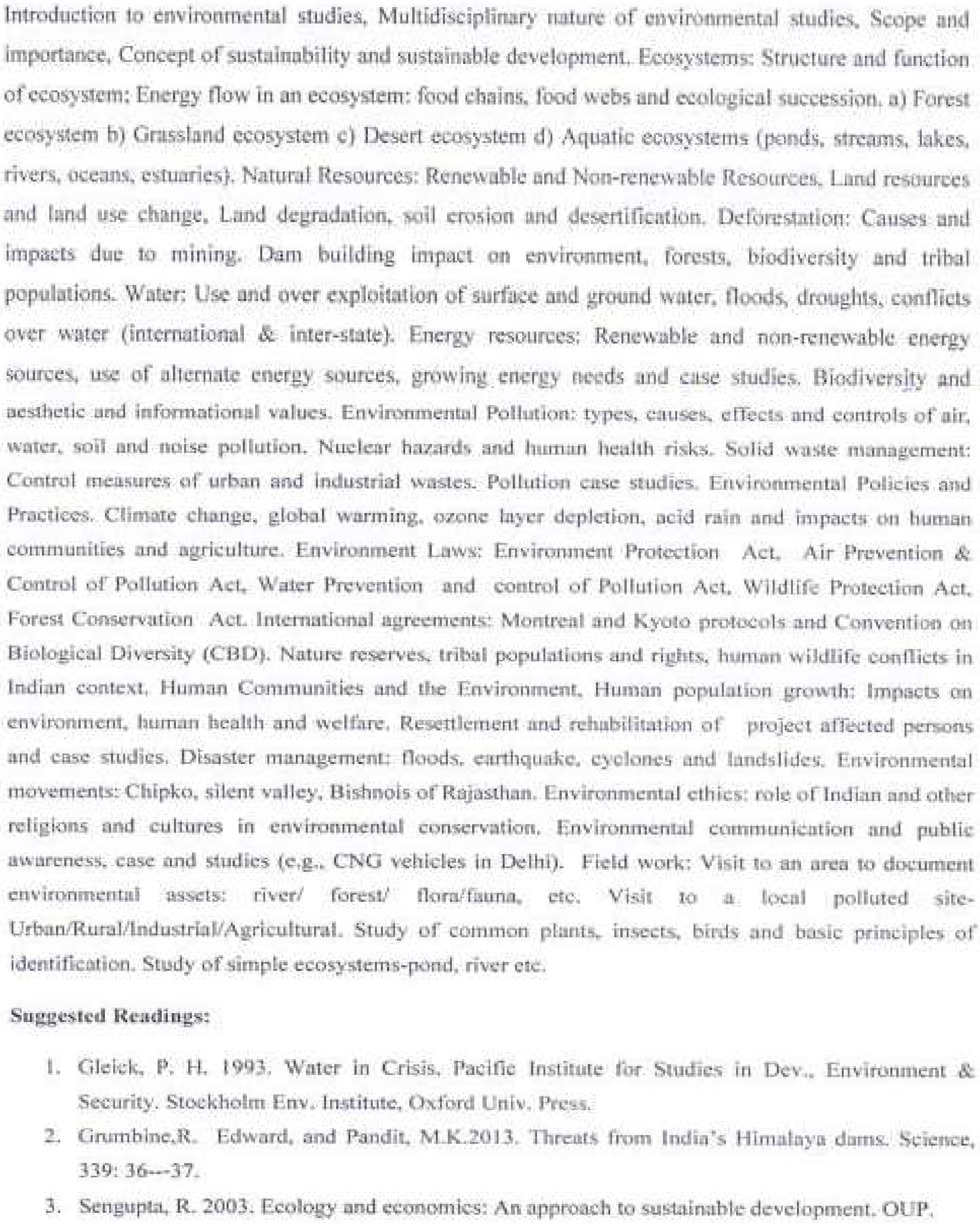
Readings:

1. Operating System Concepts 6/ed By Silberschatz and Galvin, Addison Wesley.
2. Operating Systems: Internals and Design Principles 5/ed By William Stalling, PHI.
3. Modern operating Systems By Tanenbaum, PHI.
4. The UNIX Operating System By K. Christian, John Wiley.
5. Behrouz A. Forouzan, Richard F. Gilbery, “Unix and shell Programming”, 1stEdition, Cengage Learning India, 2003.

BCA (semester II)

AECC-2

Environmental Studies



Introduction to environmental studies, Multidisciplinary nature of environmental studies, Scope and importance, Concept of sustainability and sustainable development. Ecosystems: Structure and function of ecosystem; Energy flow in an ecosystem: food chains, food webs and ecological succession. a) Forest ecosystem b) Grassland ecosystem c) Desert ecosystem d) Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries). Natural Resources: Renewable and Non-renewable Resources, Land resources and land use change, Land degradation, soil erosion and desertification. Deforestation: Causes and impacts due to mining. Dam building impact on environment, forests, biodiversity and tribal populations. Water: Use and over exploitation of surface and ground water, floods, droughts, conflicts over water (international & inter-state). Energy resources: Renewable and non-renewable energy sources, use of alternate energy sources, growing energy needs and case studies. Biodiversity and aesthetic and informational values. Environmental Pollution: types, causes, effects and controls of air, water, soil and noise pollution. Nuclear hazards and human health risks. Solid waste management: Control measures of urban and industrial wastes. Pollution case studies. Environmental Policies and Practices. Climate change, global warming, ozone layer depletion, acid rain and impacts on human communities and agriculture. Environment Laws: Environment Protection Act, Air Prevention & Control of Pollution Act, Water Prevention and control of Pollution Act, Wildlife Protection Act, Forest Conservation Act. International agreements: Montreal and Kyoto protocols and Convention on Biological Diversity (CBD). Nature reserves, tribal populations and rights, human wildlife conflicts in Indian context. Human Communities and the Environment, Human population growth: Impacts on environment, human health and welfare. Resettlement and rehabilitation of project affected persons and case studies. Disaster management: floods, earthquake, cyclones and landslides. Environmental movements: Chipko, silent valley, Bishnois of Rajasthan. Environmental ethics: role of Indian and other religions and cultures in environmental conservation. Environmental communication and public awareness, case and studies (e.g., CNG vehicles in Delhi). Field work: Visit to an area to document environmental assets: river/ forest/ flora/fauna, etc. Visit to a local polluted site-Urban/Rural/Industrial/Agricultural. Study of common plants, insects, birds and basic principles of identification. Study of simple ecosystems-pond, river etc.

Suggested Readings:

1. Gleick, P. H. 1993. Water in Crisis. Pacific Institute for Studies in Dev., Environment & Security. Stockholm Env. Institute, Oxford Univ. Press.
2. Grumbine,R. Edward, and Pandit, M.K.2013. Threats from India's Himalaya dams. Science, 339: 36---37.
3. Sengupta, R. 2003. Ecology and economics: An approach to sustainable development. OUP.

C-4

Introduction to Data Science

UNIT -I

Introduction to Data Science: Definition, benefits and uses of data science and big data.
Facets of Data: Structured data, unstructured data, natural language, machine generated data, network data, audio, images and video streaming data.
Data science process: overview of data science process, defining the goal, retrieving data, data preparation, data exploration, build the models, cleaning and transforming data, presentation and automation.

UNIT -II

DATA: Definition, characteristics of data, classification of digital data.

The Data Science Fundamentals: Distributed file system, data integration frame work, machine learning framework, system deployment, security.

Data Mining: definition, languages for data science, collection data –hunting, logging, scraping, cleaning data –error vs. artifacts, data compatibility, dealing with missing values, outlier detection.

UNIT –III

BIG DATA: Definition, Evolution of big data and its importance, four V's in big data, Drivers for Big data, Big data analytics, Big data applications, designing data architecture, Big data Vs Little data

UNIT - IV

Machine Learning: Definition, Applications of machine learning in data science, Types of Machine Learning (Degree) - supervised learning, semi supervised learning, un-supervised learning, Linear regression, Decision Tree classifier – constructing decision Tree, Bayes - Naive Bayes

UNIT -V

Data Visualization: Definition, importance of data visualization in data science, Exploratory Data analysis -confronting new data set, visualization tools, developing a visualization aesthetic
– maximizing data link ratio, proper scaling and labeling, effective use of color and shading, the power of repetition.

Chart Types: Tabular data, dot and line plots, scatter plots, bar plots and pie charts.

Readings:

1. Introducing Data Science by Davy Cielen , Arno D.B.Meysman and Mohamed Ali, Published by Manning

2. Steven S.Skiena, The Data Science Design Manual, Published by Springer.Nature.

3. Cathy O'Neil and Rachel Schutt. Doing Data Science, Straight Talk from The Frontline.O'Reilly.

4. Jure Leskovek, AnandRajaraman and Jeffrey D.Ullman. Mining of Massive Datasets. v2.1, Cambridge University Press.

C-5

Programming in Java

Unit -I. Introduction to Java Understanding the semantic and syntax differences between C++ and Java, Compiling and Executing a Java Program, Variables, Constants, Keywords Data Types, Operators Doing Basic Program Output, Decision Making Constructs (conditional statements and loops)

Unit-II Arrays, Strings and I/O Creating & Using Arrays (One Dimension and Multi-dimensional), Java Strings: The Java String class, Collection in Java.

Unit-III Object-Oriented Programming Overview Principles of Object-Oriented Programming, Class Constructors, Method Overloading, Class Variables & Methods, Objects as parameters, final classes. Inheritance: Single Level and Multilevel, Method Overriding,

Unit-IV Abstract Classes Interfaces and Packages Using Standard Java Packages (util, lang, io, net), Exception Handling Exception types, uncaught exceptions, throw, built-in exceptions.

Unit-V Thread creating single and multiple threads, using in File handling

Readings:

1. Y. Kanetkar, Let Us C, BPB Publication.
2. B.S. Gottfried, Schaum's outline of Theory and Problems of Programming with C, McGrawHill.
3. Programming in ANSI C - Balaguruswami, TMH 2.
4. The 'C' programming language - B.W.Kernighan, D.M.Ritchie, PHI
5. A.K. Saxena, Programming Language C : Anamaya Publishers, New Delhi.
6. C The Complete Reference - H.Sohildt, TMH 3.
7. Computer fundamentals and programming in C – Pradip Dey &Manas Ghosh, OXFORD

C-6

Data Structure

1. **Basics terminologies:** Introduction to basic data Structures: Arrays, linked list, trees, stack, queue, Data structure operations; time complexity, space complexity.

2. **Stacks, Queues:** Stacks; Array representation of stack; Linked representation of stack; Various polish notation's-Prefix, Postfix, infix; Evaluation of a postfix & Prefix expression; Conversion from one another; Application of stack; Queues; Linked representation of queues; De queues; Circular queue; Priority queue;

3. **Searching and Sorting:** Searching algorithm: linear search, binary search; sorting algorithms: Bubble sort, Insertion sort, Selection sort, Quick Sort, Merge sort and Heap sort.

4. **Trees:**Binary trees; Representation of binary tree in memory; traversing binary tree; Binary search trees; Searching and inserting in binary search trees; Deleting in a binary search ,tree; AVL search trees; Insertion and deletion in binary search trees; Heap.

5. **Graphs:** Terminology & representation; Warshall algorithm; Shortest path; Minimum spanning tree; Kruskal &Dijkstara algorithm; Operation on graph; Traversing a graph.

READINGS:

1. Data Structure By Lipshutz, McGraw Hill.
2. Data Structure By Standish, Addison-Wesley.
3. Data Structures using C By A. M. Tennenbaum, Y. Langsam and M. J. Augenstein,PHI, 1991

C-7

MOOC -1 / Theory of Automata

UNIT I INTRODUCTION TO COMPILERS

Structure of a compiler — Lexical Analysis — Role of Lexical Analyzer — Input Buffering — Specification of Tokens — Recognition of Tokens — Lex — Finite Automata — Regular Expressions to Automata — Minimizing DFA.

UNIT II SYNTAX ANALYSIS

Role of Parser — Grammars — Error Handling — Context-free grammars — Writing a grammar — Top Down Parsing — General Strategies Recursive Descent Parser Predictive Parser-LL(1) Parser-Shift Reduce Parser-LR Parser-LR (0)Item Construction of SLR Parsing Table - Introduction to LALR Parser — Error Handling and Recovery in Syntax Analyzer-YACC.

UNIT III INTERMEDIATE CODE GENERATION

Syntax Directed Definitions, Evaluation Orders for Syntax Directed Definitions, Intermediate Languages: Syntax Tree, Three Address Code, Types and Declarations, Translation of Expressions, Type Checking.

UNIT IV RUN-TIME ENVIRONMENT AND CODE GENERATION

Storage Organization, Stack Allocation Space, Access to Non-local Data on the Stack, Heap Management — Issues in Code Generation — Design of a simple Code Generator.

UNIT V CODE OPTIMIZATION

Principal Sources of Optimization — Peep-hole optimization — DAG- Optimization of Basic Blocks-Global Data Flow Analysis — Efficient Data Flow Algorithm.

TEXT BOOK:

1. Alfred V. Aho, Monica S. Lam, Ravi Sethi, Jeffrey D. Ullman, Compilers: Principles, Techniques and Tools‖, Second Edition, Pearson Education, 2009.

REFERENCES:

1. Randy Allen, Ken Kennedy, Optimizing Compilers for Modern Architectures: A Dependence based Approach, Morgan Kaufmann Publishers, 2002.
2. Steven S. Muchnick, Advanced Compiler Design and Implementation‖, Morgan Kaufmann Publishers - Elsevier Science, India, Indian Reprint 2003.
3. Keith D Cooper and Linda Torczon, Engineering a Compiler‖, Morgan Kaufmann Publishers Elsevier Science, 2004.
4. V. Raghavan, Principles of Compiler Design‖, Tata McGraw Hill Education Publishers, 2010.
5. Allen I. Holub, Compiler Design in C‖, Prentice-Hall Software Series, 1993.