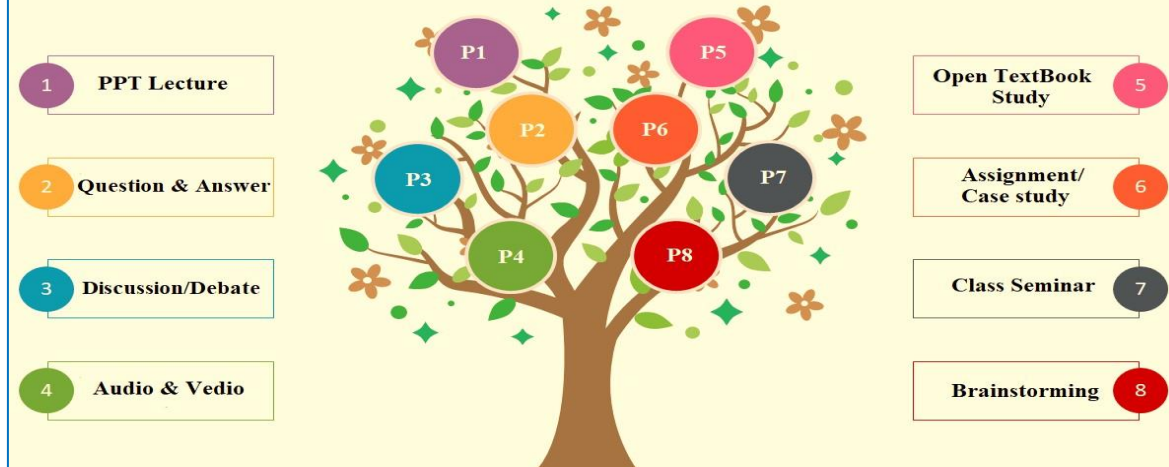


Teaching - Learning Pedagogy



EVALUATION PEDAGOGY



| Course: M.Sc.(Computer Science) | Year:I | | | Semester:I | | | |
|---------------------------------|--|----|----|------------|----|----|----|
| Subject: | MSCS 1.1 Discrete Mathematical Structures | | | | | | |
| Units: | 1.Sets, relations and functions 2.Permutations and combinations 3.Algebraic structures and morphisms 4.Algebraic structures and Boolean Algebras 5.Mathematical logic 6.Proof techniques 7.Graph Theory | | | | | | |
| LearningObjectives | <ul style="list-style-type: none"> • Introduce concepts of mathematical logic for analyzing propositions and proving theorems. • To provide students with an overview of discrete mathematics. • provides an essential foundation for virtually every area of computer science • Use sets for solving applied problems, and use the properties of set operations algebraically | | | | | | |
| Units | U1 | U2 | U3 | U4 | U5 | U6 | U7 |
| Total Hours: 60 | 10 | 10 | 10 | 5 | 10 | 10 | 5 |
| Internal Evaluation | 2 | 2 | 2 | 2 | 2 | 2 | 2 |

**Resource
Material:**

StudyMaterial(Handouts):

<https://web.stanford.edu/class/cs103x/cs103x-notes.pdf>

ReferenceBooks:

1. J. P. Tremblay and R. P. Manohar, Discrete Mathematical Structures with Applications to Computer Science, Tata McGraw-Hill, 2001.
2. Kenneth H. Rosen, Discrete Mathematics and its Applications, Tata McGraw-Hill.
3. C. L. Liu, **Elements of Discrete Mathematics**, 2nd Edition, Tata McGraw-Hill, 2000

YouTubeLinks:

<https://www.youtube.com/watch?v=i3CpxxFedIA>

PowerPointPresentations:

<https://www.slideshare.net/AliUsman10/discrete-lecture-m1-1>

<https://s2.smu.edu/~mhd/2353f07/part1.ppt>

ModelQuestionpaper:

<https://masterprogramming.in/discrete-mathematics-question-papers/>

Unit-wise Plan

| UNIT | DESCRIPTION | PEDAGOGY | INTERNAL EVALUATION |
|------------|---|----------------|---------------------|
| I | Operations on sets, relations and functions, binary relations, partial ordering relations, equivalence relations, principles of mathematical induction. | P1,P3,P5,P6 | PQ,PT |
| II | Permutations and combinations; recurrence relation and generating functions | P1,P2,P3,P7 | P6,PT,PQ |
| III | Algebraic structures with one binary operation - semigroups, monoids and groups, congruence relation and quotient structures. Free and cyclic monoids and groups, permutation groups, substructures, normal subgroups. | P1,P3,P8,P5 | P6,PT |
| IV | Algebraic structures with two binary operations, Lattices, Principle of Duality, Distributive and Complemented Lattices, Boolean Lattices and Boolean Algebras, Uniqueness of Finite Boolean Algebras, Boolean Functions and Boolean Expressions, Propositional Calculus. | P1,P2,P3,P4,P5 | P6,PT |
| V | Syntax, semantics of Propositional and predicate calculus, valid, satisfiable and unsatisfiable formulas, encoding and examining the validity of some logical arguments. | P1,P2,P3,P8,P5 | PQ,PT,P6 |
| VI | Proof techniques: forward proof, proof by contradiction, contrapositive proofs, proof of necessity and sufficiency | P1,P3,P6,P8,P5 | PQ,PT |
| VII | Graph Theory: Graphs and digraphs, trees, Eulerian cycle and Hamiltonian cycle, adjacency and incidence matrices, vertex colouring, planarity. | P1,P4,P5,P2,P6 | P6, PT,P7 |

| Course:M.Sc.(Computer Science) | Year:I | Semester:I | | | | | | |
|--------------------------------|--|------------|----|----|----|----|----|----|
| Subject: | MSCS 1.2 Data Structures & File Structures | | | | | | | |
| Units: | PART – A 1.The Stack and Queue and Linked List 2.Trees and Tree Searching PART – B 3.File Processing Operations and Secondary Storage 4.Journey and buffer Management 5.File Structure Concepts and Managing records in C files 6.Organizing files for performance 7.Indexing and .Indexed sequential file access and prefix B+ Trees 8.Hashing | | | | | | | |
| LearningObjectives | 1. To provide the knowledge of basic data structures and their implementations. 2. To understand importance of data structures in context of writing efficient programs. 3. To develop skills to apply appropriate data structures in problem solving. | | | | | | | |
| Units | U1 | U2 | U3 | U4 | U5 | U6 | U7 | U8 |
| Total Hours: 60 | 10 | 10 | 10 | 5 | 10 | 5 | 5 | 5 |
| Internal Evaluation | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |

| | |
|--------------------------|---|
| ResourceMaterial: | StudyMaterial(Handouts): https://www.vssut.ac.in/lecture_notes/lecture1428550942.pdf ReferenceBooks: 1. Data Structures Using C and C++ YddishLangsam, Moshe J. Augenstein and Aaron M. Tanenbaum, Prentice Hall Of India (2nd Edition) (Chapters 1 to 8) 2. Data Structures, Algorithms and Applications with C++, SahaniMc-Graw Hill. 3. File Structures – An Object Oriented Approach with C++ by Michael J. Folk, Bill Zoellick YouTubeLinks: https://youtu.be/Txixd9SSCfl PowerPointPresentations https://www.slideshare.net/adishesha12/data-structure-ppt-138483078 ModelQuestionpaper: https://studychacha.com/discuss/238068-bsc-computers-model-papers-andhra-university.html |
|--------------------------|---|

| UNIT | DESCRIPTION | PEDAGOGY | INTERNAL EVALUATION |
|------|---|----------------|---------------------|
| I | <p>The Stack: Primitive operations – As an Abstract Data Type – Implementing the Stack operations using Arrays, and Structures</p> <p>Queues:: The Queue as Abstract Data Type – Sequential Representation ,Types of Queues – Operations – Implementation using Arrays, and Structures</p> <p>Linked List: Operations – Implementation of Stacks, Queues and priority Queues. Circular Lists: Insertion, Deletion and Concatenation Operations _ Stacks and Queues as Circular Lists _ Doubly Linked Lists _Applications.</p> | P1,P2,P3,P6 | P6,PT |
| II | <p>Trees: Binary Trees Operations and Applications. Binary Tree Representation: Node Representation – Implicit array Representation – Choice of Representation – Binary Tree Traversal – Threaded Binary Trees and their Traversal – Trees and their Applications</p> <p>Tree Searching: Insertion into a Binary Search Tree – Deleting from a Binary Search Tree – Efficiency of Binary Search Tree operation</p> | P1,P3,P6,P7 | P7,PT,PQ |
| III | <p>File Processing Operations</p> <p>Physical and logical files, opening, reading & writing and closing files in C, seeking and special characters in files, physical devices and logical files, file-related header files in C</p> <p>Secondary Storage</p> <p>Disks – organization, tracks, sectors, blocks, capacity, non-data overhead, cost of a disk access,Magnetic Tape – types, performance, organization estimation of tape length and data transmission times</p> | P1,P5,P8,P2 | P6,PT |
| IV | <p>Journey and buffer Management</p> <p>File manager, I/O buffer, I/O processing, buffer strategies and bottlenecks</p> | P1,P2,P3,P4,P5 | P6,PT,P7 |
| V | <p>File Structure Concepts</p> <p>A stream file, field structures, reading a stream of fields, record structures and that uses a length indicator, Mixing numbers and characters – use of a hex dump, reading the variable length records from the files</p> <p>Managing records in C files</p> <p>Retrieving records by keys, sequential search, direct access, choosing a record structure and record length, header records, file access and file organization</p> | P1,P7,P3,P8,P5 | PQ,PT,P6 |
| VI | <p>Organizing files for performance 4</p> <p>Data compression, reclaiming space – record deletion and storage compaction, deleting fixed-length records for reclaiming space dynamically, deleting variable-length records, space fragmentation, replacement strategies.</p> | P1,P2,P3,P8,P6 | PQ,PT |

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|--------------------|---|----------------------------|--------------|
| <p>VII</p> | <p>Indexing Index, A simple index with an entry sequenced file, basic operations on an indexed, entry sequenced file, indexes that are too large to hold in memory, indexing to provide access by multiple keys, retrieval using combination of secondary keys, improving the secondary index structure – inverted lists</p> <p>Indexed sequential file access and prefix B+ Trees Indexed sequential access, maintaining a sequence set, adding a simple index to the sequence set, the content of the index: separators instead of keys, the simple prefix B+ tree, simple prefix B+ tree maintenance, index set block size, internal set block size, internal structure of index set blocks: a variable order B-tree, loading a simple prefix B+ tree</p> <p>Hashing</p> | <p>P1,P4,P5,P2, P6</p> | <p>PT,P7</p> |
| <p>VIII</p> | <p>Hashing Collisions in hashing, a simple hashing algorithms, hashing functions and record distributions, memory requirements, collision resolution by progressive overflow, buckets, deletions.</p> | <p>P1,P2,P5,P3, P6</p> | <p>PT,PQ</p> |

| Course: M.Sc.(Computer Science) | Year:I | | Semester:I | | | | |
|--|---|----|-------------------|----|----|----|----|
| Subject: | MSCS 1.3 Computer Organization & Architecture | | | | | | |
| Units: | 1. Register Transfer and Micro operations 2. Basic Computer Organization and Design 3. Micro programmed Control 4. Central Processing Unit 5. Input/output Organization 6. Memory Organization 7. Overview of Computer Architecture | | | | | | |
| LearningObjectives | <ul style="list-style-type: none"> • To conceptualize the basics of organizational and architectural issues of a digital computer. • To analyze performance issues in processor and memory design of a digital computer. • To understand various data transfer techniques in digital computer. • To analyze processor performance improvement using instruction level parallelism | | | | | | |
| Units | U1 | U2 | U3 | U4 | U5 | U6 | U7 |
| Total Hours: 60 | 10 | 10 | 10 | 5 | 10 | 10 | 5 |
| Internal Evaluation | 2 | 2 | 2 | 2 | 2 | 2 | 2 |

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| ResourceMaterial: | <p>StudyMaterial https://mrcet.com/downloads/digital_notes/IT/R18A1201%20COA.pdf</p> <p>ReferenceBooks:</p> <ol style="list-style-type: none"> 1. Computer Architecture and Organization, William Stallings, PHI Pvt. Ltd., Eastern Economy Edition, Sixth Edition, 2003. 2. “Computer System Architecture”, John. P. Hayes. 3. Computer Architecture A quantitative approach 3rd edition John L. Hennessy & David A. Patterson Morgan Kufmann (An Imprint of Elsevier) <p>YouTubeLinks: https://youtu.be/-dbUlq6jsYE https://youtu.be/zMkye9iaWB4</p> <p>PowerPointPresentations: https://slideplayer.com/slide/6276663/</p> <p>ModelQuestionpaper: https://studychacha.com/discuss/15759-andhra-university-old-question-papers.html</p> |
|--------------------------|--|

| UNIT | DESCRIPTION | PEDAGOGY | INTERNAL EVALUATION |
|------|--|----------------|---------------------|
| I | 1. Register Transfer and Micro operations: Register Transfer Language, Register Transfer, Bus and Memory Transfers, Arithmetic Micro operations, Logic Micro operations, Shift Micro operations, Arithmetic Logic Shift Unit | P1,P3,P5,P6 | P7,PT |
| II | 2. Basic Computer Organization and Design: Instruction Codes, Computer Registers, Computer Instructions, Timing and Control, Instruction Cycle, Memory-Reference Instructions, Input-Output and Interrupt, Complete Computer Description, Design of Basic Computer, Design of Accumulator Logic. | P1,P6,P3,P7 | P7,PT,PQ |
| III | Micro programmed Control: Control Memory, Address Sequencing, Micro program Example, Design of Control Unit. | P1,P3,P8,P7 | P6,PT |
| IV | Central Processing Unit: Introduction, General Register Organization, Stack Organization, Instruction Formats, Addressing Modes, Data Transfer and Manipulation, Program Control, Reduced Instruction Set Computer(RISC) | P1,P2,P3,P7,P5 | P6,PT,P7 |
| V | Input/output Organization: Peripheral Devices, I/O interface, Asynchronous data transfer, Modes of transfer, priority Interrupt, Direct memory access, Input-Output Processor (IOP), Serial Communication. | P1,P2,P3,P6,P5 | PQ,PT |

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|------------|---|----------------|-----------|
| VI | Memory Organization: Memory Hierarchy, Main memory, Auxiliary memory, Associate Memory, Cache Memory, and Virtual memory, Memory Management Hardware. | P1,P7,P2,P8,P5 | PQ,PT,P6 |
| VII | Overview of Computer Architecture: Evolution of Computer Systems, Parallelism in Uni- processor System, Parallel Computer Structures, Architectural Classification Schemes, Parallel Processing Applications. | P1,P3,P5,P8,P6 | P6, PT,P7 |

| Course:M.Sc.(Computer Science) | Year:I | | | Semester:I | | | | |
|--------------------------------|--|----|----|------------|----|----|----|----|
| Subject: | MSCS 1.4 Object oriented Programming Using C++ & JAVA | | | | | | | |
| Units: | 1.Fundamentals of object oriented programming 2. Basic OF C ++ 3. Classes & Objects 4. Inheritance & Polymorphism 5. Introduction to JAVA 6. Packages and Interface, and Multi threading 7. Exception Handling In C++ & Java 8. Streams & Files: | | | | | | | |
| LearningObjectives | <ul style="list-style-type: none"> • Object-oriented programming aims to implement real-world entities like inheritance, hiding, polymorphism etc. in programming. • The main aim of OOP is to bind together the data and the functions that operate on them so that no other part of the code can access this data except that function. • When completing an object-oriented design, there are five basic concepts to understand: classes/objects, encapsulation/data hiding, inheritance, polymorphism, and interfaces/methods | | | | | | | |
| Units | U1 | U2 | U3 | U4 | U5 | U6 | U7 | U8 |
| Total Hours: 60 | 10 | 10 | 10 | 5 | 10 | 5 | 5 | 5 |
| Internal Evaluation | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |

ResourceMaterial:**StudyMaterial(Handouts):**

<https://www.msuniv.ac.in/images/e-content/1.Object%20Oriented%20Programming%20with%20C%20and%20Java.pdf>

ReferenceBooks:

1. Object Oriented Programming in C++: N. Barkakati, PHI
2. Object Oriented Programming using C++, Ira Pohl, PEARSON EDUCATIO
3. JAVA 2.0- Complete Reference : Herbert Schildt& F. Naughton.
4. Object oriented Programming using C++: E. Balagurusamy, PHI.
5. Programming with JAVA- A primer: E. Balagurusamy, PHI

YouTubeLinks:

<https://youtu.be/SiBw7os-zlv>

PowerPointPresentations:

<https://www.slideshare.net/AdilAslam4/object-oriented-programming-using-c-slides-13-69148519> n

ModelQuestionpaper: <https://www.indiastudychannel.com/question-papers/131579-Object-Oriented-Programming.aspx>

| UNIT | DESCRIPTION | PEDAGOGY | INTERNAL EVALUATION |
|------|--|-------------|---------------------|
| I | Fundamentals of object oriented programming: Introduction to Object Oriented Paradigm, procedural Paradigm, Benefits Of OOP, An Overview Of Classes, Objects and Methods, Inheritance and Polymorphism. | P1,P2,P3,P6 | P6,PT |
| II | Basic OF C ++: Structure Of C++ Program, Data Types And Declaration, Expressions And Operator Precedence, Program Flow Control, Functions, Scope of Variables, Inline Functions and Default Arguments, Dynamic Allocation New And Delete Operators. | P1,P3,P6,P7 | P7,PT,PQ |
| III | Classes & Objects: Classes And Objects, User Defined Data Types, Constructors & Destructors, Controlling and Accessibility, Class Members, Member Functions, Friend Functions, This Pointer, Static and Constant Member Functions, Type Conversions, Function selection, | P1,P5,P8,P2 | P6,PT |

| | | | |
|-------------|---|----------------|----------|
| | FriendFunctions , Function Adapters, String Library, Class Templates, Function Templates, Member Function Templates. | | |
| IV | Inheritance & Polymorphism: Derived Classes, Syntax Of Derived Classes, Making Private Members Inheritable, Single, Multilevel, Multiple, Hierarchical, Hybrid Inheritance, Polymorphism, Operator Overloading , Function Overloading , Pointers, pointers to objects, this pointer, pointers to derived classes, virtual and pure virtual functions. | P1,P2,P3,P4,P5 | P6,PT,P7 |
| V | Introduction to JAVA: Applets & Applications, Structure of Java Program, Introduction to Classes and Objects, Arrays, strings and Vectors. | P1,P7,P3,P8,P5 | PQ,PT,P7 |
| VI | Packages and Interface, and Multi threading: Packages, Interfaces, creating, extending, stopping, blocking threads, thread states, thread methods, exceptions, priority in threads, synchronization, Runnable interface. | P1,P2,P3,P8,P6 | PQ,PT,P6 |
| VII | Exception Handling In C++ & Java : Exception, Handling, Throwing Exceptions, Try Blocks, Handlers, Exception Specification, Standard Exceptions And Use | P1,P4,P5,P2,P6 | PT,P7 |
| VIII | Streams & Files: Managing Console I/O Operations, Working With Files Using Assert.H, Signal.H, Managing I/O Files In Java | P1,P3,P5,,P6 | PT,P6 |

| Course:M.Sc.(Computer Science) | Year:I | | | | Semester:I | | | |
|--------------------------------|---|----|----|----|------------|----|----|----|
| Subject: | MSCS 1.5 Advanced Computer NetworkS | | | | | | | |
| Units: | 1.Introduction to Computer Networks 2. Data Communications 3.LANs & MANs 4. Design Issues in Networks 5. Internet Transport Protocols 6.World Wide Web 7. Network Devices 8. Advanced Concepts in Networks | | | | | | | |
| LearningObjectives | 1.Resource sharing. ... 2.Resource availability & reliability. ... 3.Performance management. ... 4.Increased storage capacity. ... 5.Streamlined collaboration & communication. ... 6.Reduction of errors. ... 7.Secured remote access. | | | | | | | |
| Units | U1 | U2 | U3 | U4 | U5 | U6 | U7 | U8 |
| Total Hours: 60 | 10 | 10 | 10 | 5 | 10 | 5 | 5 | 5 |

ResourceMaterial:

StudyMaterial(Handouts):

https://mrcet.com/downloads/digital_notes/CSE/III%20Year/COMPUTER%20NETWORKS%20NOTES.pdf

ReferenceBooks:

1. Data Communications and Networking , Behrouz A Forouzan , Tata McGraw-Hill Co Ltd , Second Edition, ISBN: 0-07-049935-7
2. Computer networks, Mayank Dave, CENGAGE.
3. Computer networks, A system Approach, 5th ed, Larry L Peterson and Bruce S Davie, Elsevier.
4. An Engineering Approach to Computer Networks-S.Keshav, 2nd Edition, Pearson Education.
5. Understanding communications and Networks, 3rd Edition, W.A. Shay, Thomson

YouTubeLinks:

<https://youtu.be/mzKtDtjFSME>

PowerPointPresentations:

<https://www.slideshare.net/KrishiAgrawal/computer-networks-presentation-58566459>

ModelQuestionpaper:

<https://www.indiastudychannel.com/question-papers/131601-Discrete-Mathematical-Structures-II.aspx>

| | | | | | | | |
|----------------------------|---|---|---|---|---|---|---|
| Internal Evaluation | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
|----------------------------|---|---|---|---|---|---|---|

| UNIT | DESCRIPTION | PEDAGOGY | INTERNAL EVALUATION |
|------|--|----------------|---------------------|
| I | Introduction to Computer Networks: Introduction, Network Hardware, Network Software, Reference Models, Data Communication Services & Network Examples, Internet Based Applications. | P1,P2,P3,P6 | P7,PT |
| II | Data Communications: Transmission Media, Wireless Transmission, Multiplexing, Switching, Transmission in ISDN, Broad Band ISDN , ATM Network | P1,P2,P6,P7 | PT,PQ |
| III | Data Link Control, Error Detection & Correction, Sliding Window Protocols, LANs & MANs: IEEE Standards for LANs & MANs-IEEE Standards 802.2, 802.3, 802.4, 802.5, 802.6, High Speed LANs. | P1,P5,P8,P2 | P6,PT |
| IV | Design Issues in Networks: Routing Algorithms, Congestion Control Algorithms, Net work Layer in the Internet, IP Protocol, IP Address, Subnets, and Internetworking. | P1,P2,P3,P5 | P6,PT |
| V | 5. Internet Transport Protocols: TRANSPORT Service, Elements of Transport Protocols, TCP and UDP Protocols, Quality of Service Model, Best Effort Model, Network Performance Issues | P1,P2,P3,P6,P5 | PQ,PT,P6 |
| VI | Over View of DNS, SNMP, Electronic Mail, FTP, TFTP, BOOTP, HTTP Protocols, World Wide Web, Firewalls.. | P1,P2,P3,P8 | PQ,PT |
| VII | Network Devices: Over View of Repeaters, Bridges, Routers, Gateways, Multiprotocol Routers, Brouters, Hubs, Switches, Modems, Channel Service Unit CSU, Data Service Units DSU, NIC, Wireless Access Points, Transceivers, Firewalls, Proxies. | P1,P5,P8, | PT,P7,PQ |
| VIII | Advanced Concepts in Networks: Over View of Cellular Networks, Adhoc Networks, Mobile Adhoc Networks, Sensor Networks, Virtual Private Networks .Delay Tolerant Networks DTN, Ipvs, | P1,P5,P8,P6 | PT,PQ,P6 |

| Course:M.SC(CS) | Year:I | | Semester: II | | | | |
|----------------------------|---|----|--------------|----|----|----|----|
| Subject: | MSCS 2.1 FORMALLANGUAGES&AUTOMATATHEORY | | | | | | |
| Units: | <ol style="list-style-type: none"> 1. Finite Automata and Regular Expressions 2. Regularsets&RegularGrammars 3. Context Free Grammars and Languages 4. Push down Automata 5. Turing Machines 6. Universal Turing Machines and Undecidability 7. ChomskyHierarchyofLanguages | | | | | | |
| LearningObjectives | <ul style="list-style-type: none"> • To understand the concept of machines: finite automata, pushdown automata, linear bounded automata, and Turing machines. • To understand the formal languages and grammars • To understand the relation between these formal languages, grammars, and machines. • To understand the complexity or difficulty level of problems when solved using these machines. • To understand the concept of algorithm. • To compare the complexity of problems | | | | | | |
| Unit | U1 | U2 | U3 | U4 | U5 | U6 | U7 |
| Total Hours: 60 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| Internal Evaluation | 2 | 2 | 2 | 2 | 2 | 2 | 2 |

Resource Material:**Study Material (Handouts):**

<https://www.tutorialsduniya.com/notes/theory-of-computation-notes/>

Reference Books:

1. Introduction to Automata Theory, Languages and Computations – J.E. Hopcroft, & J.D. Ullman, Pearson Education Asia.
2. Introduction to languages and theory of computation – John C. Martin (MGH)
3. Theory of Computation, KLP Mishra and N. Chandra Sekhar, IV th Edition, PHI
3. Introduction to Theory of Computation – Michael Sipser (Thomson Nrools/Cole)

YouTube Links:

<https://www.youtube.com/watch?v=14RLvkzbHFc>

PowerPoint Presentations:

<https://www.slideshare.net/Shiraz316/theory-of-computation-69977770>

Model Question paper:**Notes:**

https://www.google.com/url?sa=i&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=0CAQQw7AJahcKEwjQvJCail_6AhUAAAAAHQAAAAAQAg&url=https%3A%2F%2Fvijayacollege.ac.in%2Fwp-content%2Fuploads%2F2021%2F05%2Ftoc_model_qp2-.pdf&psig=AOvVaw3oNyhUdXKBLFvbL2Bo4RWW&ust=1664714822508276

| UNIT | DESCRIPTION | PEDAGOGY | INTERNAL EVALUATION |
|------|--|----------------|---------------------|
| I | Finite Automata and Regular Expressions: Basic Concepts of Finite State Systems, Deterministic and Non-Deterministic Finite Automata, Finite Automata with ϵ -moves, Regular Expressions, Mealy and Moore Machines, Two-Way Finite Automata, Applications of FSM | P1, P2, P3, P6 | PT |
| II | Regular sets & Regular Grammars: Basic Definitions of Formal Languages and Grammars, Regular Sets and Regular Grammars, Closure Properties of Regular Sets, Pumping Lemma for Regular Sets, Decision Algorithm for Regular Sets, Myhill-Nerode Theorem, Minimization of Finite Automata. | P1, P2, P3, P4 | P5, PT |

| | | | |
|------------|--|----------------|--------|
| III | Context Free Grammars and Languages: Context Free Grammars and Languages, Derivation Trees, Simplification of Context Free Grammars, Normal Forms, Pumping Lemma for CFL, Closure properties of CFL's, Decision Algorithm for CFL. | P1, P3, P5, P8 | PQ, PT |
| IV | Push down Automata: Informal Description, Definitions, Push-Down Automata and Context free Languages, Parsing and Push-Down Automata. | P1, P2, P3, P4 | P6, PT |
| V | Turing Machines: The Definition of Turing Machine, Design and Techniques for Construction of Turing Machines, Combining Turing Machines. | P1, P2, P4, P5 | PQ, PT |
| VI | Universal Turing Machines and Undecidability : Universal Turing Machines. The Halting Problem, Variants of Turing Machines, Restricted Turing Machines, Decidable & Undecidable Problems - Post Correspondence Problem. | P1, P2, P4, P5 | PQ, PT |
| VII | Chomsky Hierarchy of Languages: Regular Grammars, Unrestricted Grammars, Context Sensitive languages, Relationship between Classes of Languages. | P1, P3, P4, P5 | P6, PT |

Resource Material:**Study Material (Handouts):**

https://www.google.com/url?sa=i&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=0CAQQw7AJahcKEwjQkZWoib_6AhUAAAAAHQAAAAAQAg&url=http%3A%2F%2Fkamarajcollege.ac.in%2FDepartment%2FComputer%2520Science%2FII%2520Year%2Fe003%2520Core%252025%2520Relational%2520Database%2520Management%2520System%2520-%2520IV%2520Sem.pdf&psig=AOvVaw1OZLdmoLwT4WQyhzQHxtau&ust=1664715131423479

Reference Books:

1. Database System Concepts, AviSilberschatz , Henry F. Korth , S. Sudarshan McGraw-Hill, Sixth Edition, ISBN 0-07-352332-1.
2. Database Management Systems, Raghu Ramakrishnan, Johannes Gehrke, McGraw-Hill.
3. Schneider, Robert D & J. R. Garbus Optimizing SQL.

YouTube Links:

<https://www.youtube.com/watch?v=ggZQDGVb878>

PowerPoint Presentations:

<https://www.slideshare.net/MuhammadAdeel26/rdbms-59310206>

Model Question paper:

https://www.google.com/url?sa=i&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=0CAMQw7AJahcKEwjAga76ib_6AhUAAAAAHQAAAAAQAg&url=http%3A%2F%2Fwww.amietv.org%2Fuploads%2Fstudent%2Fquestion_paper%2F17332%2520-%2520Relational%2520Data%2520Base%2520Management%2520System.pdf&psig=AOvVaw1IfSlZYp5P9CojYSrKdA1u&ust=1664715292165499

| UNIT | DESCRIPTION | PEDAGOGY | INTERNAL EVALUATION |
|------|--|-------------|---------------------|
| I | Database Systems: Introduction to the Database Systems, Introduction three layered Architecture, Data Modeling, Concepts of Relational Models and Relational Algebra. | P1,P2,P3,P6 | PT |
| II | 2. SQL: Introduction to SQL Queries, Integrity Constraints, Joins, Views, Intermediate and Advanced SQL features and Triggers. | P1,P2,P3,P4 | P5,PT |

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|------|---|-------------|--------|
| III | 3. Database Design: Overview of the Design process, E-R Models, Functional dependencies and other kinds of dependencies, Normal forms, Normalization Techniques and Schema Refinement. | P1,P3,P5,P8 | PQ,PT |
| IV | 4. Database Application Design and Development: User Interfaces and Tools, Embedded SQL, Dynamic SQL, Cursors and Stored procedures, JDBC, Security and Authorization in SQL, Internet Applications. | P1,P2,P3,P4 | P6,PT |
| V | 5. Query Evaluation: Overview, Query processing, Query optimization, Performance Tuning. | P1,P2,P4,P5 | PQ,PT |
| VI | 6. Database System Architectures: Centralized and Client-Server Architecture, Server system Architecture, Parallel and Distributed database, Object based databases and XML. Advanced data types in databases. Cloud based data storage systems. | P1,P2,P4,P5 | PQ,PT |
| VII | 7. Transaction Management: Overview of Transaction Management, Transactions, Concurrency control, Recovery systems, Advanced Transaction Processing | P1,P3,P4,P5 | P6, PT |
| VIII | 8. Case Studies: Postgre SQL, Oracle, IBM DB2 Universal Database, Microsoft SQL Server. | P3,P6 | P6 |

ResourceMaterial:

StudyMaterial(Handouts):

<https://www.geektonight.com/operating-systems-pdf-notes/>

ReferenceBooks:

1. Silberschatz & Galvin, 'Operating System Concepts', Wiley.
2. "DISTRIBUTED SYSTEMS", Second edition, Andrew S. Tanenbaum, Maarten Van teen.
3. William Stallings-"Operating Systems"- 5th Edition - PHI
4. Charles Crowley, 'Operating Systems: A Design-Oriented Approach', Tata Hill Co., 1998 edition.
5. Andrew S. Tanenbaum, 'Modern Operating Systems', 2nd edition, 1995, PHI.
6. Advanced Concepts in Operating systems. Distributed, Database and Multiprocessor operating systems, Mukeshsinghal, Niranjan G. Shivaratri, Tata McGraw Hill Edition.
7. Dhamdhere, "Operating Systems - A concept based approach", 2nd Edition, TMH, 2006.

YouTubeLinks:

<https://www.youtube.com/watch?v=mXw9ruZaxzQ>

PowerPointPresentations:

<https://www.slideshare.net/nitishxavier11/presentation-on-operating-system>

ModelQuestionpaper:

<https://jeppiaarcollege.org/wp-content/uploads/2019/02/II-YEAR-IV-SEM-CS8493-OPERATING-SYSTEMS.pdf>

| UNIT | DESCRIPTION | PEDAGOGY | INTERNAL EVALUATION |
|------|---|-------------|---------------------|
| I | Introduction To Operating Systems, Types Of Operating Systems, Operating System Structures. Operating-System Services, System Calls, Virtual Machines, Operating System Design And Implementation. | P1,P2,P4,P6 | PT,P5 |
| II | Process Management: Process Concepts, Operations On Processes, Cooperating Processes, Threads, Inter Process Communication, Process Scheduling, Scheduling Algorithms, Multiple-Processor Scheduling. Thread Scheduling. | P1,P2,P3,P6 | PQ,PT |
| III | Process Synchronization & Deadlocks: The Critical Section Problem, Semaphores, And Classical Problems Of Synchronization, Critical Regions, Monitors, Deadlocks, -System Model, Deadlocks Characterization, Methods For Handling Deadlocks, Deadlock-Prevention, Avoidance, Detection, & Recovery from Deadlocks. | P1,P3,P5,P8 | PQ,PT |
| IV | Memory Management & File System Implementation: Logical Versus Physical Address Space, Paging And Segmentation, Virtual Memory, Demand Paging, Page Replacement Algorithms, Thrashing, File System Implementation - Access Methods, Directory Structure, Protection, File System Structure, Allocation Methods, Free Space Management, Directory Management, Device Drivers | P1,P2,P4 | P6,PT |
| V | Distributed Operating Systems: Distributed System Goals, Types Of Distributed Systems, Styles & Architecture Of Distributed Systems, Threads, Virtualization, Clients, Servers, Code Migration, and Communication in Distributed Systems. | P1,P2,P4 | PQ,PT |

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| VI | Distributed Systems & Synchronization: Clock Synchronization, Logical Clocks, Mutual Exclusion, Global Positioning Of Nodes, Data-Centric Consistency Models, Client-Centric Consistency Models, Consistency Protocols | P1, P2, P5 | PQ, PT |
| VII | Fault Tolerance, Security: Introduction To Fault Tolerance, Process Resilience, Reliable Client-Server Communication, Reliable Group Communication, Distributed Commit, Recovery, Secure Channels, Access Control, Security Management | P1, P3, P4 | P6, PT |
| VIII | Case Study: Over View Of UNIX, LINUX, Windows NT, Android And IOS Operating Systems | P3, P6 | P6 |

Resource Material:**StudyMaterial(Handouts):**

https://mrcet.com/downloads/digital_notes/ECE/IV%20Year/EMBEDDED%20SYSTEMS%20DESIGN.pdf

ReferenceBooks:

1. The 8051 Microcontroller Architecture, Programming & Applications, Kenneth J. Ayala, Penram International.
3. An Embedded Software Primer, David E. Simon, Pearson Education , 2005.
4. 1. Embedded Systems: Architecture , Programming and Design, Raj Kamal,
5. Tata McGraw-Hill Education, 2008

YouTubeLinks:

<https://www.youtube.com/watch?v=IY4xrpJQwOY>

PowerPointPresentations:

https://www.slideshare.net/erwin_globio/embedded-system-presentation-35074257

ModelQuestionpaper:

<https://klsvidit.edu.in/wp-content/uploads/2021/09/4th-Sem-MES-QP-SET-1.pdf>

| UNIT | DESCRIPTION | PEDAGOGY | INTERNAL EVALUATION |
|------|--|-------------|---------------------|
| I | Examples of Embedded Systems – Typical Hardware – Memory – Microprocessors –Busses–DirectMemoryAccess–Introductionto8051Microcontroller–Architecture–Instructionset–Programming. | P1,P2,P4,P6 | PT,P5 |
| II | MicroprocessorArchitecture–InterruptBasics–TheShared-Dataproblem–InterruptLatency. | P1,P2,P3,P4 | PQ,P6 |
| III | Round–Robin Architecture - Round–Robin with Interrupts Architecture- Function-Queue-SchedulingArchitecture–Real-TimeOperatingSystemsArchitecture–SelectionofArchitecture. | P1,P3,P2,P8 | PQ,PT |

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| IV | Tasks and Task States – Tasks and Data – Semaphores and Shared Data – Semaphore Problems – Semaphore variants. | P1,P2,P3 | P6,PT |
| V | Message Queues – Mailboxes – Pipes – Timer Functions – Events – Memory Management – Interrupt Routines in RTOS Environment. | P1,P2,P4 | PQ,PT |
| VI | RTOS design – Principles – Encapsulation Semaphores and Queues – Hard Real-Time Scheduling Considerations – Saving Memory Space – Saving Power. | P1,P2,P4 | PQ,PT |
| VII | Host and Target Machines – Linker/Locator for Embedded Software – Getting Embedded Software into the Target System. | P1,P3,P5 | P6, PT |
| VIII | Testing on your Host Machine – Instruction Set Simulators – Laboratory Tools used for Debugging. | P1,P3,P6 | P6,PT |

ResourceMaterial:**StudyMaterial(Handouts):**

https://www.iare.ac.in/sites/default/files/lecture_notes/IARE_WT_LECTURE_NOTES.pdf

ReferenceBooks:

1. Web Programming, building internet applications, 2nd Ed., Chris Bates, Wiley Dreamtech
2. The complete Reference HTML and DHTML, Thomas A. Powey
3. The complete Reference J2ME, James Keogh
4. Core Servlets and Java Server Pages, Marty Hall Larry Brown, Second Edition
5. Internet , World Wide Web , How to program, Dietel , Nieto, PHI/PEA
6. Web Tehnologies, Godbole, kahate, 2nd Ed., TMH

YouTubeLinks:

<https://www.youtube.com/watch?v=VfGW0Qiy2IO>

PowerPointPresentations:

https://www.uobabylon.edu.iq/eprints/publication_3_22187_1402.pdf

ModelQuestionpaper:

https://drive.google.com/file/d/1rnQeyS9iSZG20Ck_OYxWjFjeDcp1P1i4/view

| UNIT | DESCRIPTION | PEDAGOGY | INTERNAL EVALUATION |
|------|--|---------------|---------------------|
| I | Introduction to HTML , Core Elements , Links and Addressing, Images , Text , Colors andBackground,Lists,TablesandLayouts, Frames,Forms , CascadingStyleSheets. | P1,P2,P3P4,P6 | PT,P6 |
| II | Introduction to Java Scripts, Elements ofObjects in Java Script, Dynamic HTML with JavaScript | P1,P5,P3,P4 | PQ,P6,PT |
| III | Documenttypedefinition,XMLSyntax,XMLSchemas,DocumentObj ectmodel,PresentingXML,UsingXML Processors | P1,P3,P2,P7 | PQ,P6,PT |
| IV | JDBC OBJECTS- JDBC Driver Types, JDBC Packages, Database Connection, StatementObjects,ResultSet. | P1,P2,P3,P6 | P6,PT |

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| V | JDBC and Embedded SQL- Tables, Inserting Data into Tables, Selecting Data from a Table, Meta Data , Updating Table , Deleting data from Table , Joining Table , Calculating Data, Grouping and Ordering Data , Subqueries , View. | P1,P3,P2,P4 | PQ,PT,P3 |
| VI | Introduction to Servlet, Servlet Life Cycles, Servlet Basics, Tomcat Web Server, Configuring Apache Tomcat, Handling Client Request and Response, Handling Cookies, Session Tracking | P1,P2,P4,P5 | PQ,PT |
| VII | Introduction to JSP, Benefits of JSP, Basic Syntax, Invoking Java code with JSP Scripting Elements, JSP Page Directive, Including Files in JSP Pages, | P1,P3,P5,P2 | P6, PT,PQ |
| VIII | Introduction to Java Beans, Using Java Bean Components in JSP Documents, MVC Architecture. | P1,P2,P3,P6 | PQ,PT |

| Course:M.Sc.(Computer Science) | Year:II | | Semester:III | | | | |
|--------------------------------|---|----|--------------|----|----|----|----|
| Subject: | MSCS 3.1 Data Warehousing & Data Mining | | | | | | |
| Units: | <ol style="list-style-type: none"> 1. Introduction to Data Mining 2. Understanding Data 3. Data Warehouse and OLAP Technology 4. Data Preprocessing& Data Cube Technologies 5. Mining Frequent Patterns Based on Associations and Correlations 6. Classification 7. Cluster Analysis | | | | | | |
| LearningObjectives | <p>1 Be familiar with mathematical foundations of data mining tools..</p> <p>2 Understand and implement classical models and algorithms in data warehouses and data mining.</p> <p>3 Characterize the kinds of patterns that can be discovered by association rule mining, classification and clustering.</p> | | | | | | |
| Units | U1 | U2 | U3 | U4 | U5 | U6 | U7 |
| Total Hours: 60 | 10 | 10 | 10 | 5 | 10 | 10 | 5 |
| Internal Evaluation | 2 | 2 | 2 | 2 | 2 | 2 | 2 |

ResourceMaterial:**StudyMaterial(Handouts):**

[https://mrcet.com/pdf/Lab%20Manuals/IT/DATA%20WAREHOUSING%20AND%20DATA%20MINING%20\(R18A0524\).pdf](https://mrcet.com/pdf/Lab%20Manuals/IT/DATA%20WAREHOUSING%20AND%20DATA%20MINING%20(R18A0524).pdf)https://www.vssut.ac.in/lecture_notes/lecture1428550844.pdf

ReferenceBooks:

1. Data Mining Techniques, A.K.Pujari, University Press Data mining concepts by Tan, Steinbech, and Vipin Kumar - Pearson Edu publishers
2. Data Mining –Introductory and Advanced by Margaret Dunham -- Pearson Education publishers
3. Data Warehousing for Real –world by Sam Annahory-- Pearson Education publisher

YouTubeLinks:

https://youtu.be/nt_Ouf5Cw-c
https://youtu.be/6hpl-u0F_7E

PowerPointPresentations:

<https://www.slideshare.net/HarishChand5/data-mining-data-warehousing-ppt>

ModelQuestionpaper:

<https://www.indiastudychannel.com/question-papers/195-DATA-WAREHOUSING-AND-DATA-MINING.aspx>

| UNIT | DESCRIPTION | PEDAGOGY | INTERNAL EVALUATION |
|------|--|-------------|---------------------|
| I | Introduction to Data Mining: Motivation and importance of Data Warehousing and Data Mining, Kinds of Data, Patterns, Technologies used, Major Issues in Data Mining., Data Mining Applications. | P1,P3,P5,P6 | PQ,PT |
| II | Understanding Data: Data Objects and Attributes Types, Statistical Descriptions of Data, Data Visualization, Estimating Data Similarity and Dissimilarity. | P1,P7,P3,P5 | PT,PQ |
| III | Data Warehouse and OLAP Technology: Basic Concepts of Data warehouse, Data Modeling using Cubes and OLAP, DWH Design and usage, Implementation using Data Cubes and indexing, types of OLAP servers, Data Generalization with Attribute Oriented Induction | P1,P6,P8,P5 | P7,PT |

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| IV | Data Preprocessing & Data Cube Technologies: need for Pre-processing the Data, Data Cleaning, Data Integration, Data Reduction, Data Transformation, Discretization and Concept Hierarchy Generation; Preliminary Concepts of Data Cube Computation, Data Cube Computation by Multi-way Array Aggregation for Full Cub | P1,P2,P3,P6 | P6,PT |
| V | Mining Frequent Patterns Based on Associations and Correlations: Basic Concepts, Frequent Itemset Mining Methods: Apriori Algorithm, Association Rule Generation, Improvements to A Priori, FP-Growth Approach, Mining Frequent Patterns using Vertical Data Formats, Mining Closed and Max Patterns, Pattern Evaluation Method | P1,P2,P3,P6, P5 | PQ,PT,P6 |
| VI | Classification: Basic Concepts, Decision Tree Induction, Bayes Classification, Rule-Based Classification, Model Evaluation and Selection, Techniques to Improve Classification Accuracy, Classification by Back Propagation, SVM, Associative Classification, Lazy Learning, Fuzzy Sets, Rough Sets, Genetic Algorithms. | P1,P7,P8,P5 | PQ,PT |
| VII | . Cluster Analysis: Basic Concepts, Types of Data in Cluster Analysis, Partitioning Methods, Hierarchical Methods, Density Based Methods, Grid Based Methods, Evaluation of Clustering Solutions | P1,P5,P3,P6 | PQ, PT,P7 |

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| Course: M.Sc.(Computer Science) | Year:II | | Semester:III | | | | |
| Subject: | MSCS 3.2 Object Oriented Software Engineering | | | | | | |
| Units: | <ol style="list-style-type: none"> 1. Introduction to Object Oriented Software Engineering 2. Requirements Engineering 3. Unified Modeling Language & Use Case Modeling 4. Class Design and Class Diagrams 5. Software Design And Architecture 6. Software Testing 7. Software Project Management | | | | | | |
| LearningObjectives | <ol style="list-style-type: none"> 1. Software engineering is a detailed study of engineering to the design, development and maintenance of software. 2. Software engineering was introduced to address the issues of low-quality software projects. 3. Problems arise when a software generally exceeds timelines, budgets, and reduced levels of quality. 4. Access to Education. The greatest reason to become a software engineer or developer is access to education. ... | | | | | | |
| Units | U1 | U2 | U3 | U4 | U5 | U6 | U7 |
| Total Hours: 60 | 10 | 10 | 10 | 5 | 10 | 10 | 5 |
| Internal Evaluation | 2 | 2 | 2 | 2 | 2 | 2 | 2 |

ResourceMaterial:**StudyMaterial(Handouts)**https://www.vssut.ac.in/lecture_notes/lecture1428551142.pdf**Reference books:**

1. Object-Oriented Software Engineering: Using UML, Patterns and Java, Bernd Bruegge and Allen H. Dutoit, 2nd Edition, Pearson Education Asia.
2. Software Engineering: A Practitioner's Approach, Roger S Pressman.
3. A Practical Guide to Testing Object-Oriented Software, John D. McGregor; David A. Sykes, Addison-Wesley Professional

YouTubeLinks:<https://youtu.be/jZo1oAy9oMQ>**PowerPointPresentations:**<https://www.engppt.com/2011/12/object-oriented-software-engineering.html>**ModelQuestionpaper:**<https://www.indiastudychannel.com/question-papers/131579-Object-Oriented-Programming.aspx>

| UNIT | DESCRIPTION | PEDAGOGY | INTERNAL EVALUATION |
|------|---|-------------|---------------------|
| I | Introduction to Object Oriented Software Engineering Nature Of The Software, Types Of Software , Software Engineering Projects, Software Engineering Activities, Software Quality, Introduction To Object Orientation, Concepts Of Data Abstraction, Inheritance & Polymorphism, Software Process Models-Waterfall Model, The Opportunistic Model , The Phased Released Model, The Spiral Model, Evolutionary Model, The Concurrent Engineering Model | P1,P3,P7 | P6,PT |
| II | Requirements Engineering: Domain Analysis, Problem Definition And Scope, Requirements Definition, Types Of Requirements, Techniques For Gathering And Analyzing Requirements, Requirement Documents, Reviewing, Managing Change In Requirements | P1,P2,P5,P7 | P6,PT |
| III | Unified Modeling Language & Use Case Modeling: Introduction To UML, Modeling Concepts, Types Of UML Diagrams With | P1,P3,P6 | P7,PT,PQ |

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| | Examples; User-Centred Design, Characteristics Of Users, Developing Use Case Models Of Systems, Use Case Diagram, Use Case Descriptions, The Basics Of User Interface Design, Usability Principles, User Interfaces | | |
| IV | Class Design and Class Diagrams: Essentials Of UML Class Diagrams, Associations And Multiplicity, Other Relationships, Generalization, Instance Diagrams, Advanced Features Of Class Diagrams, Interaction And Behavioural Diagrams: Interaction Diagrams, State Diagrams, Activity Diagrams, Component And Deployment Diagrams. | P1,P2,P3,P7,P5 | PQ,PT |
| V | Software Design And Architecture The Process Of Design, Principles Leading To Good Design, Techniques For Making Good Design Decisions, Writing A Good Design Document., Pattern Introduction, Design Patterns: The Abstraction-Occurrence Pattern, General Hierarchical Pattern, The Play-Role Pattern, The Singleton Pattern, The Observer Pattern, The Delegation Pattern, The Adaptor Pattern, The Façade Pattern, The Immutable Pattern, The Read-Only Interface Pattern And The Proxy Pattern; Software Architecture Contents Of An Architecture Model, Architectural Patterns: The Multilayer, Client-Server, Broker, Transaction Processing, Pipe & Filter And MVC Architectural Patterns | P1,P2,P3,P5 | PQ,PT |
| VI | Software Testing Overview Of Testing, Testing Concepts, Testing Activities, Testing Strategies, Unit Testing, Integration Testing, Function Testing, Structural Testing, Class Based Testing Strategies, Use Case/Scenario Based Testing, Regression Testing, Performance Testing, System Testing, Acceptance Testing, Installation Testing, OO Test Design Issues, Test Case Design, Quality Assurance, Root Cause Analysis, Post-Mortem Analysis. | P1,P3,P6,P8,P5 | PQ,PT |
| VII | Software Project Management Introduction To Software Project Management, Activities Of Software Project Management, Structure Of Project Plan, Software Engineering Teams, Software Cost Estimation, Project Scheduling, Tracking And Monitoring | P1,P4,P5,P2,P6 | P6, PT,P7 |

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| Course: M.Sc.(Computer Science) | Year:II | | Semester:III | | | | |
| Subject: | MSCS 3.4 Elective-IIICLOUDCOMPUTING | | | | | | |
| Units: | 1.Cloud Computing Basics 2. OrganizationandCloudComputing 3. Hardware and Infrastructure 4. Software as a Service 5. DevelopingApplications 6. Local Clouds and Thin Clients 7. Migrating to the Cloud | | | | | | |
| LearningObjectives | 1.Understand the concepts, characteristics, delivery models and benefits of cloud computing 2.Understand the key security and compliance challenges of cloud computing Understand the key technical and organisational challenges 3.Understand the different characteristics of public, private and hybrid cloud deployment models. | | | | | | |
| Units | U1 | U2 | U3 | U4 | U5 | U6 | U7 |
| Total Hours: 60 | 10 | 10 | 10 | 5 | 10 | 10 | 5 |
| Internal Evaluation | 2 | 2 | 2 | 2 | 2 | 2 | 2 |

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| Resource Material: | <p>Study Material (Handouts):</p> <p>https://www.geektonight.com/cloud-computing-notes/</p> <p>Reference Books:</p> <p>1. Cloud Computing - A Practical Approach, Anthony T. Velte, Toby J. Velte, Robert Elsenpeter. McGraw Hill</p> <p>YouTube Links:</p> <p>https://www.youtube.com/watch?v=V6zJi8CU7Tk</p> <p>PowerPoint Presentations:</p> <p>https://www.slideshare.net/OECLIBOdishaElectron/cloud-computing-ppt-79142235</p> <p>Question and answers:</p> <p>https://www.guru99.com/cloud-computing-interview-questions.html</p> |
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| UNIT | DESCRIPTION | PEDAGOGY | INTERNAL EVALUATION |
|------|---|----------------|---------------------|
| I | Cloud Computing Basics - Cloud Computing Overview, Applications, Intranets and the Cloud, First Movers in the Cloud. The Business Case for Going to the Cloud - Cloud Computing Services, Business Applications, Deleting Your Data center, Salesforce.com, Thomson Reuters. | P1, P2, P5, P6 | PQ, PT |
| II | Organization and Cloud Computing - When You Can Use Cloud Computing, Benefits, Limitations, Security Concerns, Regulatory Issues, Cloud Computing with the Titans - Google, EMC, NetApp, Microsoft, Amazon, Salesforce.com, IBM Partnerships. | P1, P7, P3, P5 | PT, PQ |

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| III | Hardware and Infrastructure - Clients, Security, Network, Services. Accessing the Cloud - Platforms, WebApplications, WebAPIs, WebBrowsers. CloudStorage-Overview, CloudStorageProviders, Standards-Application, Client, Infrastructure, Service. | P1,P2,P8,P5 | P7,PT,PQ |
| IV | Software as a Service - Overview, Driving Forces, Company Offerings, Industries Software plusServices-Overview, MobileDevice Integration, Providers, MicrosoftOnline. | P1,P2,P3 | P6,PT |
| V | DevelopingApplications- Google,Microsoft,IntuitQuickBase,CastIronCloud,BungeeConnect,Development,Troubleshooting, ApplicationManagement. | P1,P2,P6,P5 | PQ,PT |
| VI | Local Clouds and Thin Clients - Virtualization in Your Organization, Server Solutions, ThinClients,Case Study:McNeilus Steel. | P1,P2,P8,P3 | PQ,PT,P6 |
| VII | Migrating to the Cloud - Cloud Services for Individuals, Cloud Services Aimed at the Mid-Market, Enterprise-Class Cloud Offerings, Migration, Best Practices and the Future of CloudComputing-Analyze Your Service,BestPractices,HowCloudComputingMightEvolve. | P1,P3,P6 | PQ, PT |

