**Syllabus**

**5th Semester**

**(Batch 2022 onwards)**

**for**

**B. Tech. Course**

**Computer Science and Engineering**

**Government College of Engineering and Technology**

**Safapora Ganderbal Kashmir-193504.**

**SEMESTER-V**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Course** | | **Hrs./week** | | | **Marks** | | | | **Credits** |
| **Code** | **Course Name** | **L** | **T** | **P** | **CIE Internal**  **Marks** | | **SEE External**  **Marks** | **Total** | **Credits** |
|  | | | | | **Theory** | **Lab** | **Theory** |
| ESC-502 | **Data Communication** | 02 | 0 | 02 | 25 | 50 | 75 | 150 | 3 |
| PCC CS-501 | **Introduction to Database Management Systems** | 03 | 0 | 02 | 50 | 50 | 100 | 200 | 4 |
| PCC CS-502 | **Operating Systems** | 03 | 0 | 02 | 50 | 50 | 100 | 200 | 4 |
| PCC CS-503 | **System Programming** | 03 | 01 | 0 | 100 | 0 | 100 | 200 | 4 |
| PCC CS-504 | **Software Engineering** | 03 | 0 | 0 | 75 | 0 | 75 | 150 | 3 |
| HSMC- 502 | **Operations Research** | 02 | 01 | 0 | 75 | 0 | 75 | 150 | 3 |
| MC | **Constitutional Values of India** | 02 | - | - | - | - | - | 0 | 0 |
|  | **Total** | 18 | 02 | 06 | 375 | 150 | 525 | 1050 | 21 |

MC – Mandatory Course (0 credits)

|  |  |  |
| --- | --- | --- |
| **Class: B.Tech. 5th Semester** | **Branch: Computer Science and Engineering** | |
| **Course Title: Data Communication** | **Course Code: ESC-502** | |
| **L-T-P-Credits: 2-0-2-3** | **Total Marks: 150** | |
| **Evaluation Policy:** | **Int. Marks: T-25 P-50** | **Ext. Marks: 75** |
| **Course Objectives:** | | |
| * To understand the concept of communication engineering, Signals, Channels and Communication systems. * To understand and analyze the characteristics of Various Modulation techniques. * To critically analyze various modulation techniques used in modern communication systems. * To solve basic network design problems using knowledge of common local and wide area network architectures. * To apply knowledge of computers, Software, Networking technologies and information assurance to an organization's management, Operations and requirements. | | |
| **Course Outcomes:** | | |
| * Identify various components in a data communication system and explain how they work and evaluate their performance. * Design solutions to solve engineering problems that require the applications of data and computer communication technology. | | |
| **Unit I:** | | |
| Data communication network **-**Data communication concept, Basic concept of network, Types of networks (LAN, MAN and WAN), Different network topologies like Star, Ring, Hybrid tree. Network models (OSI and TCP/IP), Components of data communication system: Data representation, Data flow, Analog and Digital signals and Periodic analog signals. | | |
| **Unit II:** | | |
| Transmission media**-**guided and unguided media, Twisted wire pair, Co- axial cable, Optical fiber, Microwave links, Satellite microwave link., Data signals, Types of signals, Bandwidth, Spectrum, Transmission impairments, Shannon capacity. | | |
| **Unit III:** | | |
| Digital transmission techniques**:** Digital to digital conversions: NRZ, RZ biphase Manchester coding. Analog to digital conversion: PCM, Delta modulation, Nyquist sampling theorem, Quantization. Digital to analog conversion: ASK, PSK, FSK, and QAM. Analog to analog conversion**:** Amplitude modulation, Frequency modulation phase modulation. | | |
| **Unit IV:** | | |
| Bandwidth utilization techniques**-**multiplexing, Frequency division multiplexing, Time division multiplexing and Wavelength division multiplexing. Data transmission: Simplex, Half duplex and Full duplex, Synchronous and Asynchronous data transmission.  Error in data communication: Error types, Error detection, Checksum, Hamming code. | | |
| **BOOKS RECOMMENDED:** | | |
| **Text Books:**   1. Behrouz A. Forouzan, Data Communication and Networking, Third Edition, Tata McGraw-Hill 2003. 2. William Stallings: Data & Computer Communications, 7th Ed, Phi 3. Andrew Tanenbaum,” Computer Networks” Phi   **References:**   1. Bernard Sklar, “Digital Communications Fundamentals & Applications”2nd Ed Pearson Publication. 2. Gerd E. Keizer, “Local Area Networks” McGraw Hill. | | |
| **List of Experiments:** | | |
| 1. To study different types of Transmission media. 2. Study and analysis of QAM modulation. 3. To study PC to PC communication using Parallel port. 4. To study LAN using Star topology. 5. To study LAN using Bus topology. 6. To study LAN using Tree topology. 7. To study interconnection of cables for Data communication. 8. To study fiber optic communication. 9. To study wireless communication | | |

|  |  |  |
| --- | --- | --- |
| **Class: B.Tech. 5th Semester** | **Branch: Computer Science and Engineering** | |
| **Course Title: Introduction to Database Management Systems** | **Course Code: PCC CS-501** | |
| **L-T-P-Credits: 3-0-2-4** | **Total Marks: 200** | |
| **Evaluation Policy:** | **Int. Marks: T-50 P-50** | **Ext. Marks: 100** |
| **Course Objectives:** | | |
| * Learn and practice data modelling using the entity-relationship, Relational model and developing database designs. * Understand the use of structured query language (SQL) and learn SQL syntax. * Apply normalization techniques to normalize the database. * Understand the needs of database processing and learn techniques for controlling the consequences of concurrent data access. * Learn about the basics file management system. | | |
| **Course Outcomes:** | | |
| * Differentiate database systems from file systems by enumerating the features provided by database systems and describe each in both function and benefit. * Demonstrate an understanding of the relational data model. * Transform an information model into a relational database schema and to use a data definition language and/or utilities to implement the schema using a DBMS. * Formulate, Using relational algebra, Solutions to a broad range of query problems. * Formulate, Using SQL, Solutions to a broad range of query and data update problems. | | |
| **Unit I:** | | |
| Conceptual database design**-**characteristics of the database, DBMS architecture & data independence, Database languages & interface, Overview of data models - hierarchical model, Network model, ER model, Relational model. Data modelling: Entity-relationship model – entities, Attributes and relationships, Cardinality of relationships, Strong and weak entity sets, Generalization, Specialization and aggregation, Converting ER model into relational model, Integrity constraints over relationship. | | |
| **Unit II:** | | |
| Relational database model- terminologies: Relation, Tuple, Attribute, Domain, Relational schema, Degree of relation, Keys. Relational constraints: Domain constraints, Key constraints, Entity integrity constraints, Referential integrity constraints, Code rules. Normalization: Functional dependencies (FDS), Closure set of attributes, determining candidate keys, Equivalence of FDS, Lossless join, Dependency preserving decomposition, Normal forms - 1NF, 2NF,3NF, BCNF. | | |
| **Unit III:** | | |
| Relational algebra- basic relational algebra, Tuple calculus- Structured query language (SQL) - Creating a table and constraints, Referential triggered actions, Aliasing, Data definition language (DDL), Data manipulation language (DML), Data control language (dcl), Transaction control language (TCL), Data query language (DQL), Set operations, ORDER BY, IN, ANY, ALL, SOME clauses, Nested correlated queries: EXISTS, NOT EXISTS, JOINS, Views, and Aggregate Functions. PL/SQL: Cursors, Triggers. | | |
| **Unit IV:** | | |
| File organization & indexing- File organization, Types of indexing: Primary, Secondary, Clustered indexing and multilevel indexing, Introduction to B trees and B+ trees, Database properties of B trees, Insertion and deletion on B tree.  Transaction and concurrency Control: ACID properties, Transactions, Schedules and Concurrent execution of transactions, Concurrency control-lock-based protocol, Serializability, Recoverability, dealing with deadlocks, and Concurrency control without locking. | | |
| **BOOKS RECOMMENDED:** | | |
| **Text Books:**   * 1. Database System Concept by Avi Silberschatz, Hennery F. Korth and Sudarshan 6th Edition   2. Ramez ElmasriAnd [Shamkant Navathe,](https://www.google.co.in/search?tbo=p&tbm=bks&q=inauthor:%22Shamkant+Navathe%22&source=gbs_metadata_r&cad=1) “Fundamentals Of Database Systems”, Pearson Education   3. Database Systems, Thomas Connolly, Carolyn Begg, Pearson 4th Edition.   **References:**   1. Raghu Ramakrishna, Johannes Gehrke, “Database Management Systems”, Third Edition, Tata McGraw Hill. | | |
| **List of Experiments:** | | |
| 1. RDBMS installation: Getting familiar with the workspace. 2. SQL commands: Implementation of creating and managing SQL tableside (Data definition language): Implementation of Create, Alter, Drop, Rename, Truncate, and Comment. 3. Basic Parts of speech in SQL. Implementation of Relational operators. Implementation of Logical operators (ALL, AND, ANY, BETWEEN, EXISTS, IN, LIKE, NOT, OR, SUM) SQL functions: (SUM, MAX, AVERAGE, LIKE). 4. Changing of data in tables. DML: Understanding the implementation of Select, Insert, Update, Delete, and Merge. Retrieval of data from the table: Understanding implementation of simple queries on single table only. 5. Implementation of constraints: Not null, Primary key, Unique, Check, Foreign key. Combining tables and execution of queries on such tables: Perform Join, inner join, outer join, natural join, and Subtypes of each. Implementation of advanced queries, subquery, and grouping (Group by and having clause). 6. Understanding the dependence in queries, correlated queries using existential quantifiers 7. Understanding the difference in replacing IN with OUTER JOIN, EXISTS, and NOT EXISTS. 8. Implementation of security by assigning privileges to database users   DCL: (Data Control Language): Understanding the implementation of Grant, Revoke and views.  TCL: (Transaction Control Language): Understanding the implementation of Begin, Commit, Rollback, and Save point in transaction.   1. Lab Project: Students are required to submit a case study. | | |

|  |  |  |
| --- | --- | --- |
| **Class: B.Tech. 5th Semester** | **Branch: Computer Science and Engineering** | |
| **Course Title: Operating Systems** | **Course Code: PCC CS-502** | |
| **L-T-P-Credits: 3-0-2-4** | **Total Marks: 200** | |
| **Evaluation Policy:** | **Int. Marks: T-50 P-50** | **Ext. Marks: 100** |
| **Course Objectives:** | | |
| * Introduction to the fundamental understanding of operating system principles and Functionality. * Introductions to the key concepts of an operating system, such as processes, scheduling,   Synchronization, Deadlocks, Memory management, and I/O management.   * Introduction to the important design and development considerations for an operating system. * Introduction to additional operating system topics and features. * Introduction to applying operating system concepts in software development and system administration. * Introduction to problem-solving skills in the context of operating system design and implementation. | | |
| **Course Outcomes:** | | |
| * Understand the structure and organization of file systems and OS design. * Understand processes and how they are synchronized and scheduled. * Analyze various memory management techniques. * Understand system calls for managing processes, memory & file systems, and the algorithms used in OS implementation. | | |
| **Unit I:** | | |
| Introduction to operating systems**-**operating system functions, Evolution of operating systems, Batch, Interactive, Time sharing and Real-time system, System protection, Operating system structure, Operating system services**,** System calls and System programs.  Process management: Process concept, Process state diagram, Schedulers, Scheduling concept, Scheduling criteria, Scheduling algorithms, Multiprocessor scheduling. | | |
| **Unit II:** | | |
| Concurrent processes**-**principle of concurrency, Producer-consumer problem, Critical section problem, Semaphores, Inter-process communication, Classical problems in concurrency.  Deadlock**:** System model, Deadlock characterization, Prevention, Avoidance, Detection and Recovery. | | |
| **Unit III:** | | |
| Memorymanagement**-**resident monitor, Contiguous memory management techniques, Non-contiguous allocation - Paging, Segmentation, Performance. Allocation strategies.  Virtual memory management**:** Virtual memory concept, Demand paging, Performance, Page replacement algorithms, Allocation of frames, Thrashing. | | |
| **Unit IV:** | | |
| I/O Management & Disk Scheduling: I/O devices and organization of I/O function, I/O buffering, DISK scheduling, and operating system design issues.  File System**:** File system overview, File organization and Access mechanism, File directories, File sharing. | | |
| **BOOKS RECOMMENDED:** | | |
| **Text Books**:   1. Operating System Concepts by A. Silberschatz, P. Galvin, And G. Gagne, John Wiley and Sons. 2. Design of the Unix Operating System By M. J. Bach, Prentice Hall of India, 1986. 3. Stallings, William. OperatingSystems: Internals And Design Principles. Upper Saddle River, Nj: Prentice Hall, 2001. | | |
| **References:**   1. Operating System Concepts by J. Peterson, A. Silberschatz, And P. Galvin, Addison Wesley. 2. Operating Systems by Milan Milenkovic, Tata McGraw Hill. | | |
| **List of Experiments:** | | |
| 1. To familiarize the students with the operating systems. 2. Introduction and use of basic Linux commands. 3. To demonstrate the process, memory, file and directory management modules under the Linux/Windows OS. 4. To introduce Linux basic commands. 5. To demonstrate use of Window APIs. 6. Write programs using the following system calls of UNIX Operating System: Fork, exec, getpid, exit, wait, close, stat, open Dir., reader. 7. Given the list of processes, their CPU burst times and arrival times, display/print the Gantt chart for FCFS and SJF. For each of the scheduling policies, compute and print the average Waiting time and Average turnaround time. 8. Given the list of processes, their CPU Burst times and Arrival times, display/print the Gantt chart for priority and round robin. For each of the scheduling policies, compute and print the Average waiting time and Average turnaround time. 9. Write programs to simulate and analyze Page replacement algorithms with respect to various parameters. Implement the producer consumer problem using semaphores. 10. Implement the deadlock free solution to the Dining Philosophers problem to illustrate the problem of deadlock and or starvation that can occur when many synchronized threads are competing for limited resources. | | |

|  |  |  |
| --- | --- | --- |
| **Class: B.Tech. 5th Semester** | **Branch: Computer Science and Engineering** | |
| **Course Title: system programming** | **Course Code: PCC CS-503** | |
| **L-T-P-Credits: 3-1-0-4** | **Total Marks: 200** | |
| **Evaluation Policy:** | **Int. Marks: T-100 P-0** | **Ext. Marks: 100** |
| **Course Objectives:** | | |
| * Provide foundational knowledge of system software components, Including assemblers, Loaders, Macro processors and Compilers. * Understand the design principles and functionality of assemblers, Loaders and Linkers. * Introduce macro processors and their features in programming environments. * Explain the structure and phases of a compiler including parsing techniques. | | |
| **course outcomes:** | | |
| * Understand the core components and functions of system software. * Design and analyses single-pass and two-pass assemblers along with macro processors. * Differentiate between various loader schemes and understand dynamic linking and loading. * Identify and explain compiler phases, Parsing techniques and High-level language features. | | |
| **Unit I:** | | |
| Overview of system software **-**System software, Evolution of components of programming system -Assemblers, Loaders, Macros, Compilers, Formal systems, General machine structure, Machine language, Assembly language. | | |
| **Unit II:** | | |
| Assemblers and Macro Processors**-** Element of assembly language programming, Overview of assembly process, Design of single pass assembler and Two-pass assembler, Introduction to macros, Macro Instructions, Features of a macro facility, Design of a macro processor**.** | | |
| **Unit III:** | | |
| Loaders and Linkage editors- loader schemes-compile and go loaders, General loader scheme, Absolute loaders, Relocating loaders, Direct linking loaders, Relocation, Binder, Overlays, Dynamic loading and dynamic linking, Design of absolute loader and direct linking loader. | | |
| **Unit IV:** | | |
| Compilers**-**compilers-general model, Introduction to various phases and Data structures of compiler, Passes of a compiler, Introduction to parser and parsing techniques, Importance and features of HLL. | | |
| **BOOKS RECOMMENDED:** | | |
| **Text Books:**   1. Systems Programming by J.J. Donovan, McGraw Hill. 2. Introduction To Systems Software by D. Dheere, TMH. 3. System Programming and Operating Systems by D.M. Dhamdhere, TMH.   **References:**   1. System Software: An Introduction to Systems Programming By Leland L. Beck, Addison-Wesley. 2. Compilers: Principles, Techniques, And Tools by Aho, Lam, Sethi, And Ullman, Pearson. | | |

|  |  |  |
| --- | --- | --- |
| **Class: B.Tech. 5th Semester** | **Branch: Computer Science and Engineering** | |
| **Course Title: Software Engineering** | **Course Code: PCC CS-504** | |
| **L-T-P-Credits: 3-0-0-3** | **Total Marks: 150** | |
| **Evaluation Policy:** | **Int. Marks: T-75 P-0** | **Ext. Marks: 75** |
| **Course Objectives:** | | |
| * Introduce foundational and evolving software engineering methods enabling students to select and apply appropriate methods across various projects. * Equip students with skills to manage all phases of the software lifecycle including requirements engineering, Design, implementation, Testing and Maintenance. * Develop students’ communication skills for creating documentation and engaging in project discussions, Presentations and reviews. * Install professionalism, Ethical practices, and awareness of cultural diversity, Emphasizing the responsibilities of a software engineer and the importance of continuous learning**.** | | |
| **course outcomes:** | | |
| * Understand and apply classical and modern software engineering practices for successful project execution. * Demonstrate proficiency in software lifecycle activities from requirements gathering to risk management and testing. * Communicate effectively through written and oral mediums producing essential project documentation and contributing to team discussions. * Apply ethical and professional standards in software engineering practices, Appreciating diverse perspectives and the need for lifelong learning in a dynamic field. | | |
| **Unit I:** | | |
| Software Process-the evolving role of software, defining software, Software myths, Legacy software, Process framework Capability maturity model integration (CMMI), Process assessment, Product and process, Process models – Build and Fix model, The Waterfall model, Incremental process model, RAD model, Evolutionary process models, Unified process mode | | |
| **Unit II:** | | |
| Requirements and Tools- Software requirements: Functional and Non-functional requirements; Eliciting requirements, developing use cases, Requirement analysis and modelling: Requirements review, Software requirement and Specification (SRS) document. | | |
| **Unit III:** | | |
| Estimation: Estimation and scheduling of software projects: Software sizing, LOC and FP based estimations, Estimating  cost and effort, Estimation models, Constructive cost model (COCOMO), Project scheduling and staffing, Time-line  charts, Quality factors, Risk management: Risk mitigation, Monitoring and Management (RMMM) | | |
| **Unit IV:** | | |
| Design- Abstraction, Architecture, Patterns, Separation of concerns, Modularity, Information hiding, Functional independence, Cohesion and coupling, Object-oriented design, Data design, Architectural design, User interface design, Component level design.  Testing & Maintenance**:** Verification and validation, Error, Fault, Bug and Failure, Unit and Integration testing, White-box and Black-box testing, Basis path testing, Control structure testing, Deriving test cases, Alpha and Beta testing, Regression testing, Performance testing, Stress testing, Reverse engineering, Re-engineering. | | |
| **BOOKS RECOMMENDED:** | | |
| **Text Books:**   1. R. S. Pressman, Pressman, “Software Engineering: A Practitioner's Approach,” (6e), McGraw-Hill, 2005. 2. Software Engineering, K.K. Aggarwal, Yogesh Singh, New Age International Publishers.   **References:**   1. Richard Fairley, "Software Engineering Concepts", McGraw Hill. 2. Stephan Schach, “Software Engineering”, Tata McGraw Hill. | | |

|  |  |  |
| --- | --- | --- |
| **Class: B.Tech. 5th Semester** | **Branch: Computer Science and Engineering** | |
| **Course Title: Operations Research** | **Course Code: HSMC-502** | |
| **L-T-P-Credits: 2-1-0-3** | **Total Marks: 150** | |
| **Evaluation Policy:** | **Int. Marks: T-75 P-0** | **Ext. Marks: 75** |
| **Course Objectives:** | | |
| * To understand the methodology of or problem solving and formulate linear programming problem. * To develop formulation skills in transportation models and finding solutions. * To understand the basics in the field of game theory and assignment problems. * To know how project management techniques help in planning and scheduling a project. | | |
| **Course Outcomes:** | | |
| After successful completion of the course, the students are able to:   * Recognize the importance and value of operations research and linear programming in solving practical problems in industry * Interpret the transportation models' solutions and infer solutions to the real-world problems. * Recognize and solve game theory and assignment problems. * Gain knowledge of drawing project networks for quantitative analysis of projects. * Know when dynamic programming can be applied in real world problems. | | |
| **Unit I:** | | |
| Introduction to operations research: Definition and scope of operations research, Historical development of operation research, Applications of operation research in various fields, Linear programming, Graphical method, Simplex method for solving linear programming problems. | | |
| **Unit II:** | | |
| Transportation problem: Introduction to the problem, LP formulation of a transportation problem. Basic feasible solution by north-west corner method, Vogel's approximation method, least cost method. Finding optimal solution by Modi method, Degeneracy, Unbalanced transportation problem and maximization in transportation model.  Assignment problem: One to one assignment problem, Optimal solutions, Unbalanced assignment matrix. | | |
| **Unit III:** | | |
| Decision Theory: Decision making under uncertainty. Decision trees, Decision under risk – EMY, EOL, EVPI.  Theory of games: Introduction, Rectangular two-person zero sum games, Solution of rectangular games in terms of mixed strategies, Solution of 2x2 games without saddle point, Concept of dominance to reduce the given matrix, Graphical method for 2xN and Nx2 games. | | |
| **Unit IV:** | | |
| Project Planning through networks: Introduction, Basic steps in PERT/CPM techniques, Network diagram representation, Rules of drawing network diagram, Fulkerson's rule, Time estimates and critical path in network analysis, Floats, Project evaluation and review technique, Application areas of PERT/CPM techniques. | | |
| **BOOKS RECOMMENDED:** | | |
| **Text Books:**   1. Taha, H A, “Operations Research – An Introduction”, Sixth Edition, Prentice Hall Of India Private Limited, N. Delhi, 2004. 2. Ravindran, A., Phillips, D.J., And Solberg, J.J., “Operations Research- Principles and Practice”, John Wiley & Sons, 2005. 3. Operations Research - H.A. Taha, Pearson, 7th Edition, June 2002. 4. Introduction To Operations Research - Hiller and Liberman, Mgh, 7th Edition, 2002. | | |

|  |  |  |
| --- | --- | --- |
| **Class: B.Tech. 5th Semester** | **Branch: Computer Science and Engineering** | |
| **Course Title: Constitutional Values of India** | **Course Code: MC** | |
| **L-T-P-Credits: 2-0-0-0** | **Total Marks: 0** | |
| **Evaluation Policy:** | **Int. Marks: T-0 P-0** | **Ext. Marks: 0** |
| **Course Objectives:** | | |
| * Enrich students with knowledge and relevance of the constitution. * Develop awareness about duties and values. * Inculcate a sense of constitutionalism in thought and action. * Reflect on the importance of constitutional values in promoting a just and equitable society. | | |
| **Course Outcomes:** | | |
| After studying this paper students will gain basic understanding of   * Constitutional values as they are enshrined in Indian constitution. * They will appreciate these values and will apply the spirit of fundamental values and duties in their lives. | | |
| **Unit I:** | | |
| Indian Constitution**:** Introduction to Constitution: An, Making of Indian constitution: Constituent assembly, Committees and their role in constitution Making, Objective resolution and preamble: Introduction and significance. | | |
| **Unit II:** | | |
| Values under Indian Constitution-I:Sovereignty: Internal and external dimensions, Socialism: Democratic socialism, Secularism: Sarva Dharam Sam bhava, Democracy and republicanism: Parliamentary democracy. | | |
| **Unit III:** | | |
| Values under Indian Constitution-II**:** Justice: Social, Political and economic, Liberty: Positive liberty and negative liberty, liberties available in article19, 21 and 25 of Indian constitution. Equality: of status and opportunity, Equalityunderarticles14-18 of Indian Constitution. Fraternity: Unity and integrity-Significance and challenges. | | |
| **Unit IV: Rights, Duties and Welfare:** | | |
| Fundamental Rights-Part III, Directive Principles of State Policy-Part IV, Fundamental Duties-Art.51A, Relationship between Rights, Duties and Welfare-A debate. | | |
| **BOOKS RECOMMENDED:** | | |
| **Text Books:**   1. Introduction To the Constitution of India, By Durga Das Basu 2. The Oxford Handbook of The Indian Constitution, Edited by Sujit Choudhry, Madhav Khosla, And Pratap Bhanu Mehta 3. The Indian Constitution: Corner Stone of a Nation, By Granville Austin 4. India's Living Constitution: Ideas, Practices, Controversies, Edited by Zoya Hasan, Eswaran Sridharan, And R. Sudarshan. 5. Secularism In India: Concept And Practice, BY V.R. Mehta 6. Social Justice and The Constitution of India, By R.K. Gupta 7. Indian Polity by Laxmikant (Latest Edition) 8. The Oxford Union to Politics in India by Niraja Jayal and Pratab Banu Mehta | | |