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| **NAME OF DEPARTMENT:** | | | | | | | | | | | | | | | | | | | Computer Applications | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| **Subject Name:** | | | | | | | | | Communication and Soft Skills | | | | | | | | | | | | | | | | | | | | | | | | | **Subject Code:** | | | | | | | | | TBI 105 | | | |
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| **Course Name:** | | | | | | | | | BSc IT | | | | | | | | | | | | | | | | | | | | | | | | |  | | | | | | | | |  | | | |
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| **1** | **Contact Hours:** | | | | | | | | | | | 48 | | | |  | | | | | | | | | | | | | | | | | | | **L** | | 2 | | | **T** | | | | 0 | **P** | 0 | |
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| **2** | **Examination Duration(Hrs):** | | | | | | | | | | | | | | | | | | | | |  | **Theory** | | | | | 0 | 3 |  | **Practical** | | | | | 0 | | 0 | |  | | | | | | |
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| **3** | **Relative Weightage:** | | | | | | | | | | | | |  | | | | | **CWE:** | | | | | | | 25 | | **MTE:** | | | 25 | | **ETE:** | | | | 50 | | | |  | | | | | |
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| **4** | **Credits:** | | | | | | 0 | | | 2 | |  | | | | | | | | | | | | |  | | |  | | |  | |  | | | |  | | | |  | | | | | |
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| **5** | **Semester:** | | | | | | | **🗸** | | | |  | | |  | | |  | | |  | | |  | | | | | | | | | | | | | | | | | | | | | | |
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| **6** | **Pre-Requisite:** | | | | | | | | | | | **Knowledge of English Language** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| **7** | **Subject Area:** | | | | | | | | | | | **Professional Communication** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| **8** | **Objective:** | | | | | | | | | | To familiarize students with the Communication and Soft Skills. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| **9** | **Course Outcome:** | | | | | | | | | | | | | | A student who successfully fulfills the course requirements will be able to:   * 1. Solve the problems with good reasoning abilities and mental aptitude.   2. Analyze and interpret data.   3. Excel career opportunities   4. Use theories of interpersonal communication to explain and evaluate their own behavior in interpersonal relationships.   5. Synthesize and apply appropriate and effective conflict management strategies | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| **10** | | **Details of the Course:** | | | | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Unit No.** | | | | **CONTENT** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **CONTACT HOURS** | | | | | | | |
| **1** | | | | **Basic forms of communication:** Introduction to communication, Communication process, Barriers of effective communication, Communication model: Formal (Vertical, Horizontal, Diagonal, Grapevine) & Informal, External & Internal communication, Verbal (Oral and Written) and Non-verbal (Paralanguage, Kinesics, Proxemics), Importance of communication in business world. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 9 | | | | | | | |
| **2** | | | | **Presentations:** making and delivery of presentation (purpose, methods of delivery, analyzing the audience, role of non-verbal communication) factors affecting effective presentation.  **Listening**: Barriers to effective listening, approaches to effective listening, speaker’s role in ensuring better listening and characteristics of good and bad listener.  **Group discussion**s: Introduction, Do’s and Don’ts, role of non-verbal communication in GD, importance of lateral thinking in GD.  **Interviews:** Purpose, Planning the interview (getting information about other party, deciding the structure, considering possible questions, planning the physical setting, anticipating problems), Conducting the interview (Opening, Body, closing), Types of Interviews, Ethics of interviewing(guidelines for the interviewer and for the respondent) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 10 | | | | | | | |
| **3** | | | | **Perception:** Nature of perception, perceptual process, factors affecting perceptual selectivity.  **Learning:** Definition, Components of learning process, Theories of learning(conditioning theory, cognitive learning theory, social learning theory) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 9 | | | | | | | |
| **4** | | | | **Motivation:** Concept, definition, types of needs, Maslow’s need hierarchy theory, Herzberg’s Motivation-Hygiene theory, McClelland’s need theory.  **Personality:** Concept, Psychoanalytic personality theory, Freud’s stages of personality development.  **Attitude:** components of attitude,attitude formation, theories of attitude change (learning, elaboration likelihood, dissonance theory) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 10 | | | | | | | |
| **5** | | | | **Business letters**: Sales letter, quotation letter, order placement letter, complaint letter, adjustment letter, credit letter (request for credit, enquiry related to credit request, credit acceptance, credit rejection letters), Job application letters.  **Written Communication**: Notice, Memorandum, Agenda of meeting, Minutes of meeting, Reports (types and components). | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 10 | | | | | | | |
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| **11** | | **Suggested Books:** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  | | | | | | | |
| **Sl. NO.** | | | **NAME OF AUTHERS/BOOKS/PUBLISHERS** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **YEAR OF PUBLICATION** | | | | | | |
| **1** | | | Business Communication- K.K.Sinha | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2009 | | | | | | |
| **2** | | | B.C. Theory & Application- Lessical&prath | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2008 | | | | | | |
| **3** | | | Organisational Behavior- K. Aswathappa | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2010 | | | | | | |
| **4** | | | Murphy, Herta A and Peck, CharrlesE. : “Effective Business Communications”, 2nded., 1976, Tata McGraw Hill, New Delhi | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2011 | | | | | | |
| **5** | | | Pearce, C Glenn etc. : “Business Communications Principles and Applications”, 2nded., 1988, John Wiley, New York. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2012 | | | | | | |
| **NAME OF DEPARTMENT:** | | | | | | | | | | | | | | | | | | | Computer Applications | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| **Subject Name:** | | | | | | | | | Principles of Management | | | | | | | | | | | | | | | | | | | | | | | | | **Subject Code:** | | | | | | | | | TBI 104 | | | |
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| **Course Name:** | | | | | | | | | BSc IT | | | | | | | | | | | | | | | | | | | | | | | | |  | | | | | | | | |  | | | |
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| **1** | **Contact Hours:** | | | | | | | | | | | 45 | | | |  | | | | | | | | | | | | | | | | | | | **L** | | 3 | | | **T** | | 0 | | | **P** | 0 | |
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| **2** | **Examination Duration(Hrs):** | | | | | | | | | | | | | | | | | | | | |  | **Theory** | | | | | 0 | 3 |  | **Practical** | | | | | 0 | | 0 | |  | | | | | | |
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| **3** | **Relative Weightage:** | | | | | | | | | | | | |  | | | | | **CWE:** | | | | | | | 25 | | **MTE:** | | | 25 | | **ETE:** | | | | 50 | | | |  | | | | | |
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| **4** | **Credits:** | | | | | | 0 | | | 3 | |  | | | | | | | | | | | | |  | | |  | | |  | |  | | | |  | | | |  | | | | | |
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| **5** | **Semester:** | | | | | | | **🗸** | | | |  | | |  | | |  | | |  | | |  | | | | | | | | | | | | | | | | | | | | | | |
|  |  | | | | | **Autumn** | | | | | | | **Spring** | | | | | | | **Both** | | | | | | |  | | | | | | | | | | | | | | | | | | | |
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| **6** | **Pre-Requisite:** | | | | | | | | | | | **Very basic Idea about what is business and organization.** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **7** | **Subject Area:** | | | | | | | | | | | **Management** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **8** | **Objective:** | | | | | | | | | | To familiarize students with the basic concepts, principles, functions of management and issues to be dealt in a Business Organization. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| **9** | **Course Outcome:** | | | | | | | | | | | | | | A student who successfully fulfills the course requirements will be able to understand how:   1. Managers manage business organizations in the dynamic global environment 2. Organizations develop and maintain competitive advantage 3. Business decisions are made using various tools and techniques to remain competitive.   d) Analyze the leadership function, recognizing leadership as the relationship between a supervisor and subordinates in an organizational environment  e) Excel the skills to integrate IT and management sectors. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| **10** | | **Details of the Course:** | | | | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Unit No.** | | | | **CONTENT** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **CONTACT HOURS** | | | | | | | |
| **1** | | | | **Nature of Management:**  Meaning, Definition, it's nature purpose, importance & Functions, Management as an Art, Science & Profession- Management as social System, Manager’s role and skills, Concepts of management-Administration-Organization  **Evolution of Management Thought**: Contribution of F.W.Taylor, Henri Fayol ,Elton Mayo, Chester Barhard& Peter Drucker to the management. thought. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 10 | | | | | | | |
| **2** | | | | **Planning, Forecasting and organizing:**  Planning - Meaning - Need & Importance, Planning process, types ,levels – advantages & limitations. Forecasting –Process of forecasting, Need & Techniques. Decision making steps and Process, Organizing - Elements of organizing & processes: Types of organizations, Delegation of authority - Need, difficulties in delegation – Decentralization, Centralization | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 10 | | | | | | | |
| **3** | | | | **Staffing and Direction:** Nature and Purpose of Staffing: meaning, manpower planning, recruitment methods and selection process, Coordination - Meaning, elements of coordination, Techniques for Effective Coordination, need and Importance of coordination .  Direction - Nature –Principles, Communication-Types, process & Importance of communication. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 10 | | | | | | | |
| **4** | | | | **Motivation, leadership and controlling**: Motivation, its need and Importance – theories of motivation, Leadership - Meaning - styles, qualities & functions of leaders.  Controlling - Need, Nature, importance, Process of controlling & Techniques of controlling. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 7 | | | | | | | |
| **5** | | | | **Recent Trends in Management:**  Corporate social responsibility, cases in favor and against CSR, CSR in India, concept of strategic management, Management Crisis, Total Quality Management, Stress Management, Management of Change. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 8 | | | | | | | |
|  | | | | **TOTAL** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **45** | | | | | | | |
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| **11** | | **Suggested Books:** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  | | | | | | | |
| **Sl. NO.** | | | **NAME OF AUTHORS/BOOKS/PUBLISHERS** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **YEAR OF PUBLICATION/REPRINT** | | | | | | |
| **1** | | | Essential of Management - Horold Koontz and IteinzWeibrich -McGrawhills International. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2009 | | | | | | |
| **2** | | | Principles & practice of management - Dr. L.M.Parasad, Sultan Chand & Sons - New Delhi. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2008 | | | | | | |
| **3** | | | Management Theory & Practice - J.N.Chandan. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2010 | | | | | | |
| **4** | | | Essential of Business Administration - K.Aswathapa Himalaya Publishing House. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2011 | | | | | | |
| **5** | | | Business Organization & Management - Dr. Y.K. Bhushan. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2012 | | | | | | |

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| **NAME OF DEPARTMENT:** | | | | | | | | | | | | | | | | | | | Computer Applications | | | | | | | | | | | | | | | | | | | | | | | | | |
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| **Subject Name:** | | | | | | | | | Mathematical Foundation of Computer Science | | | | | | | | | | | | | | | | | | | | | | | | | **Subject Code:** | | | | | | | | TBI 103 | | |
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| **Course Name:** | | | | | | | | | BSc IT | | | | | | | | | | | | | | | | | | | | | | | | |  | | | | | | | |  | | |
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| **1** | **Contact Hours:** | | | | | | | | | | | 48 | | | |  | | | | | | | | | | | | | | | | | | | **L** | | 3 | | | **T** | | 0 | **P** | 0 | |
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| **2** | **Examination Duration (Hrs):** | | | | | | | | | | | | | | | | | | | | |  | **Theory** | | | | | 0 | 3 |  | **Practical** | | | | | 0 | | 0 | |  | | | | |
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| **3** | **Relative Weightage:** | | | | | | | | | | | | |  | | | | | **CWE:** | | | | | | | 25 | | **MTE:** | | | 25 | | **ETE:** | | | | 50 | | | |  | | | |
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| **4** | **Credits:** | | | | | | 0 | | | 3 | |  | | | | | | | | | | | | |  | | |  | | |  | |  | | | |  | | | |  | | | |
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| **5** | **Semester:** | | | | | | | **🗸** | | | |  | | |  | | |  | | |  | | |  | | | | | | | | | | | | | | | | | | | | |
|  |  | | | | | **Autumn** | | | | | | | **Spring** | | | | | | | **Both** | | | | | | |  | | | | | | | | | | | | | | | | | |
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| **6** | **Pre-Requisite:** | | | | | | | | | | | **Basics of math, Number systems** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| **7** | **Subject Area:** | | | | | | | | | | | **Mathematics** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| **8** | **Objective:** | | | | | | | | | | **:** To familiarize students with the Mathematical Foundation of Computer Science | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| **9** | **Course Outcome:** | | | | | | | | | | | | | | A student who successfully fulfills the course requirements will be able to:   1. Explain the theoretical limits on computational solutions of undecidable and inherently complex problems 2. describe concrete examples of computationally undecidable or inherently infeasible problems from different fields 3. understand formal definitions of machine models, classical and quantum 4. prove the undecidability or complexity of a variety of problems 5. understand the issue of whether there are limits of computability | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| **10** | | **Details of the Course:** | | | | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Unit No.** | | | | **CONTENT** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **CONTACT HOURS** | | | | | |
| **1** | | | | **Set Theory:** Sets representation, Types, Operations on sets, De-Morgan law, Duality of sets, Venn diagrams  Relation: Type and compositions of relations, Pictorial representation of relations, Equivalence relations, Partial ordering relation. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 10 | | | | | |
| **2** | | | | **Prepositional Logic:** Preposition, First order logic, Basic logical operations, Tautologies, Contradictions, Algebra of Proposition, Logical implication, Logical equivalence, Normal forms, Inference Theory, Predicates. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 10 | | | | | |
| **3** | | | | **Elementary Combinatorics:** Basics of counting, Combinations & Permutations, with repetitions, Constrained repetitions, Binomial Coefficients, Binomial and Multinomial theorem, the principles of Inclusion – Exclusion. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 10 | | | | | |
| **4** | | | | **Determinant and Matrices**  **Determinant: -** Definition, properties of determinant, application of determinant (Area of triangle, area of quadilateral, solution of non-homogenous simultaneous linear equations using Cramer’s Rule).  **Matrices:** - Definition, Types of matrices, algebra of matrices, adjoint and inverse of a matrix.  Solution of simultaneous non-homogenous linear equation (Upto 3 variables) using inverse of the matrix. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 9 | | | | | |
| **5** | | | | **Differential calculus:** Real numbers and there basic properties, differentiation(simple cases),limits and continuity, simple application of differentiation(maxima and minima for one variable) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 9 | | | | | |
|  | | | | **TOTAL** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **48** | | | | | |
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| **11** | | **Suggested Books:** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  | | | | | |
| **Sl. NO.** | | | **NAME OF AUTHERS/BOOKS/PUBLISHERS** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **YEAR OF PUBLICATION/REPRINT** | | | | |
| **1** | | | J.K.Sharma**,** "Discrete Mathematics", Macmillan publication | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2009 | | | | |
| **2** | | | S.A.Sarkar, "Discrete Mathematics",S.Chand Publication | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2008 | | | | |
| **3** | | | Liptschutz, Seymour, "Discrete Mathematics", TMH. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2010 | | | | |
| **4** | | | Trembley, J.P. & R. Manohar, "Discrete mathematical Structure with Application to Computer Science", TMH. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2011 | | | | |
| **5** | | | Kenneth H. Rosen, "Discrete Mathematics and its applications”, TMH. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2012 | | | | |

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| **NAME OF DEPARTMENT:** | | | | | | | | | | | | | | | | | Computer Applications | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| **Subject Name:** | | | | | | | Programming Concepts Using C Language | | | | | | | | | | | | | | | | | | | | | | | | | **Subject Code:** | | | | | | | | | TBI 102 | | |
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| **Course Name:** | | | | | | | BSc IT | | | | | | | | | | | | | | | | | | | | | | | | |  | | | | | | | | |  | | |
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| **1** | **Contact Hours:** | | | | | | | | | 48 | | | |  | | | | | | | | | | | | | | | | | | | **L** | | 3 | | | **T** | | | 0 | **P** | 0 | |
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| **2** | **Examination Duration(Hrs):** | | | | | | | | | | | | | | | | | | |  | **Theory** | | | | | 0 | 3 |  | **Practical** | | | | | 0 | | 2 | |  | | | | | |
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| **3** | **Relative Weightage:** | | | | | | | | | | |  | | | | | **CWE:** | | | | | | | 25 | | **MTE:** | | | 25 | | **ETE:** | | | | 50 | | | | |  | | | |
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| **4** | **Credits:** | | | | 0 | | | 3 | |  | | | | | | | | | | | | |  | | |  | | |  | |  | | | |  | | | | |  | | | |
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| **5** | **Semester:** | | | | | **🗸** | | | |  | | |  | | |  | | |  | | |  | | | | | | | | | | | | | | | | | | | | | |
|  |  | | | **Autumn** | | | | | | | **Spring** | | | | | | | **Both** | | | | | | |  | | | | | | | | | | | | | | | | | | |
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| **6** | **Pre-Requisite:** | | | | | | | | | **Knowledge of Algorithm and Flowchart** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| **7** | **Subject Area:** | | | | | | | | | **Programming** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| **8** | **Objective:** | | | | | | | | To familiarize students with the Methodology of Programming and C language | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| **9** | **Course Outcome:**  CO1  CO2  CO3  CO4  CO5  CO6 | | | | | | | | | | | | A student who successfully fulfills the course requirements will be able to  Understand the basic terminology used in computer programming Write, compile and debug programs in C language.  Use different data types in a computer program.  Design programs involving decision structures, loops and functions.  Make use of pointers, string, arrays, structure and union.  Exercise files concept to show input and output of files in C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **10** | | **Details of the Course:** | | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Unit No.** | | | **CONTENT** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **CONTACT HOURS** | | | | | | |
| **1** | | | **Problem Solving Tools**: Algorithms: Definition, Flowcharts: Symbols, A sequential flowchart, Conditional and iterative flow chart, Control Flow Statements: Sequential, Selection – If- else, Switch-Case; Iteration ,Program Design Methodologies: Top-down and bottom-up design approaches, Modular approach, History, Importance of C, Structure of C program, Data Types , primitive type and user defined type: typedef and enum, Variables and Constants, String Constant, Numeric Constant, Declaration of variables Modifiers, Identifiers and keywords, Symbolic constants; Statements & Expressions. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 10 | | | | | | |
| **2** | | | **Operators & Expression**: Unary operators, Arithmetic & logical operators, Bit wise operators, Assignment operators; Conditional operator, precedence and order of evaluation. Basic Input - Output Statements: formatted & unformatted input and output statements, Storage classes: automatic, external, register and static, **Decision Making, Branching and Looping** Decision making with if statement, The switch statement, the ?: operator, goto statement.  **Loops:** while*,* do while*,* for, Break and continue statements. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 8 | | | | | | |
| **3** | | | **Arrays:** One-dimensional Arrays, Declaration of one-dimensional Arrays, Initialization of one-dimensional Arrays, Two-dimensional Arrays, Initializing two-dimensional Arrays. Character Arrays and Strings: Declaring, writing strings to screen and reading strings from Terminal, String handling functions.  **Functions:** Definition, User Defined function, Library function, Function calls: by reference and by value, Category of functions: Nesting of functions, Recursion, Passing arrays to functions, Passing strings to functions. Preprocessor directives, Macros, macro vs. function and conditional compilation, Variable number of arguments. Command line arguments. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 10 | | | | | | |
| **4** | | | **Pointers:** Declaring and Initialization of Pointer variables, accessing a variable through its pointer; Pointer arithmetic.  **Structure**: Structure and Union: Definition, declaration, accessing structure members, structure initialization, copying and comparing structure variables. Array’s of structures, Array’s within structures, nested structures, structures and functions.  **Union:** definition, comparing union with a structure, Bit-Fields | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 10 | | | | | | |
| **5** | | | **FILE HANDLING And System Calls** File Introduction, File types – Binary, Text files; Access mode, Opening and Closing files; Formatted –Unformatted input/output to files; Errors in opening files; File navigation operation- functions, System Calls Introduction: open(), close(), system(), System calls vs. library calls | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 10 | | | | | | |
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| **11** | | **Suggested Books:** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  | | | | | | |
| **Sl. NO.** | | | **NAME OF AUTHERS/BOOKS/PUBLISHERS** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **YEAR OF PUBLICATION** | | | | | |
| **1** | | | E.Balagurusamy, “Programming in ANSI C”, 8th Edition, Tata McGraw Hill. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2019 | | | | | |
| **2** | | | Yashwant Kanetkar ,“Let Us C”, 15th Edition, BPB Publication. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2018 | | | | | |
| **3** | | | S.K. Srivastava, “C in Depth”, 2nd Edition, BPB Publication. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2012 | | | | | |
| **4** | | | B. W. Kernighan and D. M. Ritchie, “ANSI C: The C Programming Language”, 2nd Edition, Pearson Publication. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2015 | | | | | |

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| **NAME OF DEPARTMENT:** | | | | | | | | | | | | | | | | | | Computer Applications | | | | | | | | | | | | | | | | | | | | | | | | | |
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| **Subject Name:** | | | | | | | | Computer Fundamentals and Information Technology | | | | | | | | | | | | | | | | | | | | | | | | | **Subject Code:** | | | | | | | TBI 101 | | | |
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| **Course Name:** | | | | | | | | BSc IT | | | | | | | | | | | | | | | | | | | | | | | | |  | | | | | | |  | | | |
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| **1** | **Contact Hours:** | | | | | | | | | | 48 | | | |  | | | | | | | | | | | | | | | | | | | **L** | | 3 | | | **T** | | 0 | **P** | 0 | |
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| **2** | **Examination Duration (Hrs):** | | | | | | | | | | | | | | | | | | | |  | **Theory** | | | | | 0 | 3 |  | **Practical** | | | | | 0 | | 0 | |  | | | | |
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| **3** | **Relative Weightage:** | | | | | | | | | | | |  | | | | | **CWE:** | | | | | | | 25 | | **MTE:** | | | 25 | | **ETE:** | | | | 50 | |  | | | | | |
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| **4** | **Credits:** | | | | | 0 | | | 3 | |  | | | | | | | | | | | | |  | | |  | | |  | |  | | | |  | |  | | | | | |
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| **5** | **Semester:** | | | | | | **🗸** | | | |  | | |  | | |  | | |  | | |  | | | | | | | | | | | | | | | | | | | | |
|  |  | | | | **Autumn** | | | | | | | **Spring** | | | | | | | **Both** | | | | | | |  | | | | | | | | | | | | | | | | | |
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| **6** | **Pre-Requisite:** | | | | | | | | | | **Knowledge of Computers** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **7** | **Subject Area:** | | | | | | | | | | **Computer Application** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **8** | **Objective:** | | | | | | | | | To familiarize the students with the basics of computer and information technology. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| **9** | **Course Outcome:** | | | | | | | | | | | | | A student who successfully fulfills the course requirements will be able to   1. Define the appropriately use of information technology; 2. Identify computer hardware components and describe their functions; 3. Describe the essential elements of the computer's architecture and discuss how this architecture functions; 4. Describe the characteristics and representations of data, and interpret and compare this data in different representations; 5. Compare the roles of different sectors of the information technology industry. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **10** | | **Details of the Course:** | | | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Unit No.** | | | | **CONTENT** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **CONTACT HOURS** | | | | |
| **1** | | | | **Evolution of Computers**:  **Introduction to computer and information technology:** Introduction to information technology, Computer definition, functions, characteristics, capabilities and limitations, changed scenario of computing, applications in today’s world.  **Components of Computer:** **Hardware-(**Input devices : keyboard, Mouse, Trackball, Joystick, Digitizing Tablet, Scanners, Digital Camera, MICR, OCR, OMR, Bar-code Reader, Voice Recognition, Light Pen, Touch Screen etc. & Output devices : Printer, Projector, speaker, monitors, plotters etc.) **Software**: System software and application software, Humanware; Functional Block diagram of a computer.  **Categories of Computers:** Analog, digital, hybrid, general purpose and special purpose computers, microcomputers, mini computers and super computers.  **Generation of Computers:** First, Second, Third, Fourth and Fifth with advantages and disadvantages of each generation.  **Hardware Organization of a Computer:** Central Processing Unit (CPU); CPU Subunits- Arithmetic Logic Unit(ALU),Registers, Control Unit (CU). | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 11 | | | | |
| **2** | | | | **Number Systems:** Decimal, Binary, Octal and Hexadecimal; r’s, (r-1)’s complements, Conversions of One number system to another, BCD numbers, GRAY code, Conversion from binary to grey code.  **Data Representation:** Integer Representation: Signed Magnitude Representation, Signed 1’s Compliment Representation, Signed 2’s compliment, Floating Point representation.  **Main Memories:** Cache, RAM - Static, Dynamic; ROM – PROM, EPROM and EEPROM with its uses, capacity and features.  **Secondary Storage Devices:** Introduction to Magnetic Tapes; Magnetic Disks - Hard Disk Drives, Floppy Disks; Optical Disks - CD, DVD, Magneto-Optical Disks, Zip Drive and Flash drives. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 08 | | | | |
| **3** | | | | **Basic Operating System Concepts**: MS-DOS with its basic Commands (internal and external), Managing File and Directories in various operating Systems,, WINDOWS, Functional knowledge of these operating systems, role and function of operating system, Types of Operating Systems (general Purpose, Single user, Multi – User, Multi-tasking, Multi-Threading, Batch operating, Time Sharing, Real Time)  **DOS Kingdom OF DOS**- ROM Software, ROM Startup routines, ROM-BIOS Routines, BOOT TIME process. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 9 | | | | |
| **4** | | | | **Introduction to Internet**: Introduction, History of internet with its uses, advantages and applications; How to Connect to Internet (Dial Up, BroadBand, Lease Line, wi-fi, hot-spot) Devices: Modems, Repeater, Computer network : LAN, WAN, MAN, Network Connecting Devices: Bridges, Routers, Gateways;  **Internet Services:** World Wide Web, EMAIL, USENET, WAIS etc.  **Concept of Security:** Introduction to Firewalls, Cyber Laws, Cookies, Hackers and Crackers, Terms of security (Secrecy, Privacy, Authentication, Authorization, Password protection, File Permissions) only Introduction | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 9 | | | | |
| **5** | | | | **Programming Models:**  Computer Languages, Classification of Computer Languages: Machine Level, Assembly Language, High Level Language, Advantages and Disadvantages of Procedural programming languages.  Object Oriented Programming – ADT – classes, objects,4GL – features and advantages. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 9 | | | | |
|  | | | | **TOTAL** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **48** | | | | |
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| **11** | | **Suggested Books:** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  | | | | |
| **Sl. NO.** | | | **NAME OF AUTHERS/BOOKS/PUBLISHERS** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **YEAR OF PUBLICATION/REPRINT** | | | | |
| **1** | | | Norton, Peter, “Introduction to Computers”, McGraw-Hill. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2011 | | | | |
| **2** | | | \Leon, Alexis & Leon, Mathews, “Introduction to Computers”, Leon Tech World. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2012 | | | | |
| **3** | | | P.K.Sinha and Preeti Sinha, “Computer Fundamentals”,BPB. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2010 | | | | |
| **4** | | | Rajaraman, V., “Fundamentals of Computers”,PHI. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2011 | | | | |