VASAVI COLLEGE OF ENGINEERING(AUTONOMOUS)

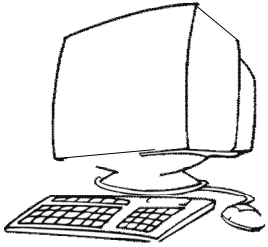
Ibrahimbagh, Hyderabad-31

Approved by A.I.C.T.E., New Delhi and
Affiliated to Osmania University, Hyderabad-07

Sponsored by
VASAVI ACADEMY OF EDUCATION
Hyderabad

STUDENT HAND BOOK

Academic Regulations (Autonomous) and Syllabi of
SECOND YEAR B.E(CSE) w.e.f 2016–17



DEPARTMENT OFCOMPUTER SCIENCE ENGINERING
+91-40-23146020, 23146021
Fax: +91-40-23146090
Website: www.vce.ac.in

DEPARTMENT VISION

To be a center for academic excellence in the field of Computer Science and Engineering education to enable graduates to be ethical and competent professionals.

DEPARTMENT MISSION

To enable students to develop logic and problem solving approach that will help build their careers in the innovative field of computing and provide creative solutions for the benefit of society.

PROGRAM EDUCATIONAL OBJECTIVES

Graduates should be able to utilize the knowledge gained from their academic program to:

PEO 1: Solve problems in a modern technological society as valuable and productive engineers.

PEO 2: Function and communicate effectively, both individually and within multidisciplinary teams

PEO 3: Be sensitive to the consequences of their work, both ethically and professionally, for productive professional careers

PEO 4: Continue the process of life-long learning

ABOUT THE COLLEGE

VISION

Striving for a symbiosis of technological excellence and human values

Established in 1981 by Vasavi Academy of Education under the stewardship of Late Sri Pendekanti Venkata Subbaiah, a veteran statesman of independent India and by a few eminent people from different walks of life Vasavi College of Engineering represents a rich tradition of excellence in technology based education in a stimulating environment. From a modest beginning with just three undergraduate programs, viz., B.E. degree programs in Civil, Mechanical and Electronics & Communication Engineering, with dedicated efforts for over **33** years, it has now grown into a mighty center of learning with excellent and well-developed infrastructural facilities, offering 6 undergraduate programs, viz., B.E. in Civil, Mechanical, Electrical & Electronics, Electronics & Communication Engineering, Computer Science & Engineering, and Information Technology, in addition to a 3-year postgraduate program in Computer Applications (MCA), and 2-Year Postgraduate Programmes in CSE, ECE, EEE and Mechanical Engineering.

MISSION

To arm the young brains with competitive technology and nurture the holistic development of the individuals for a better tomorrow.

All the undergraduate (B.E) programs were accredited by National Board of Accreditation (NBA) for the academic years 2013-2015. The college sought fresh approval for NBA accreditation for two eligible PG programs and MCA program. The college has been recognized under 12(B) and 2(f) sections of the University Grants Commission (UGC).

The college has been granted ***autonomy by the University Grants Commission***, New Delhi and Osmania University, Hyderabad for all the programs it offers for a period of six years with effect from 2014-15.

The College has 185 highly qualified and experienced faculty members consisting of Professors, Associate Professors and Assistant Professors and around **158** technical and supporting staff. The college has very

good infrastructural facilities which go beyond the curriculum requirements. The college offers value-added courses in GIS, CAD/CAM, DSP, VLSI, Networking, J2EE and communication skills to bridge the gap between the curriculum and the requirements of the Industry. Finishing school has been made part of curriculum from the second year onwards to improve the skills of the students.

QUALITY POLICY

Education without quality is like a flower without fragrance. It is our earnest resolve to strive towards high standards of teaching, training and developing human resources.

A Research & Development (R&D) Cell is established by personnel from industry / research organization to encourage the faculty and the students in acquiring additional qualifications and knowledge.

This Cell also facilitates the faculty for interaction with industry/research organizations in getting sponsored research projects. In addition, the college extends consultancy in various fields of engineering and technology. The Center for Counseling and Placement at Vasavi College of Engineering provides personal and career-related support to its students. The educational experience at the college is enlivened and enriched by an array of extra-curricular activities to fulfill the cultural and emotional needs of students.

A good number of ranks in university examinations are secured by our students every year. The all-round development of a student is achieved by exposing him/her to the outside world in a systematic and well planned manner. Just not marks and ranks, but also ethics and morals are incorporated into psyche of a student at Vasavi in a cautious way. This unification of tradition and technology makes Vasavi a place for paradise of learning.

ACADEMIC RULES AND REGULATIONS
FOR FOUR YEAR B.E DEGREE COURSE
w.e.f 2016-17 Academic Year

1. RULES OF PROMOTION

ATTENDANCE: The ***minimum aggregate attendance*** percentage for BE program ***is 75%***. On medical grounds 65% attendance with valid medical certificate will be considered. A candidate who did not meet above attendance requirements is not eligible to appear for the semester examinations.

A student is allowed to use medical condonation facility only 4 (four) times in the entire period of 8 semesters in the span of 4 years B.E program.

2. ASSESSMENT AND EVALUATION SYSTEM:

There will be continuous and comprehensive evaluation of students. The distribution of sessional (internal) and semester examination marks for ***B.E program*** are given below:

SESSIONALS EXAMS (internals)
Theory: **30 Marks**

- **20** Marks each for two internal examinations in a semester and 10 marks for assignments and quizzes etc together.
- **Average of two tests** will be considered for calculating internal exams marks to which assignment/quiz marks will be added for obtaining total CIE marks.
- Every student should secure a **minimum of 40% aggregate marks in the internal exams.**

Lab: 25 Marks

15 marks for day-to-day laboratory class work which will be awarded based on the average of all experiments.

- 10 marks for the internal examination.

SEMESTER EXAMS

- Semester theory examinations will be conducted for 70 marks. A student should secure a minimum of 40% marks in each subject for a pass.
- Semester laboratory examinations will be conducted for 50 marks. A student should secure a minimum of 50% marks for a pass.

In addition, a student shall secure a minimum of 40% marks in a theory subject and 50% marks in lab from sessional exams and semester examinations put together for a pass.

3. PROMOTION RULES TO NEXT HIGHER CLASS

S No	Semester /Class	Conditions to be fulfilled for
1	From 1/4 BE, I-SEM to 1/4 BE, II-SEM	Regular course of study of 1/4 B.E, I-SEM and 40% aggregate sessional marks in I-SEM
2	From 1/4 BE, II-SEM to 2/4 BE, I SEM	(a) Regular course of study of 1/4 B.E-II SEM and (b) Must have secured at least 50% of total credits prescribed for 1/4 B.E.
3	From 2/4 BE, I-SEM to 2/4 BE, II-SEM	Regular course of study of 2/4 BE, I-SEM and 40% aggregate sessional marks in II- SEM
4	From 2/4 BE, II-SEM to 3/4 BE, I SEM	(a) Regular course of study of 2/4 BE II SEM (b) Must have secured at least 50% of total credits prescribed for 2/4B. E and passed in all the subjects 1/4 B.E.
5	From 3/4 BE, I-SEM to 3/4 BE, II-SEM	Regular course of study of 3/4 B.E, I-SEM, and 40% aggregate sessional marks in I- SEM
6	From 3/4 BE, II-SEM to 4/4 BE, I SEM	(a) Regular course of study of 3/4 B.E, II-SEM (b) Must have secured at least 50% of total credits prescribed for 3/4 B.E and passed in all the subjects 2/4 B.E.
7	From 4/4 BE, I-SEM to 4/4 BE, II-SEM	(a) Regular course of study of 4/4 B.E, I-SEM and 40% aggregate sessional marks in II-SEM

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
SCHEME OF INSTRUCTION AND EXAMINATION w.e.f 2016-17
B.E. II / IV SEMESTER-I

S. No.	Syllabus Ref. No.	SUBJECT	Scheme of Instruction				Scheme of Examination			Credits
			Periods per Week				Duration in Hrs	Maximum Marks		
			L	T	D	P		SEM Exam	Sessionals	
		THEORY								
1.	MA 2010	Mathematics – III	4	-	-	-	3	70	30	3
2.	CS 2020	Data Structures	4	-	-	-	3	70	30	3
3.	CS 2030	Discrete Structures	4	-	-	-	3	70	30	3
4.	CS 2040	Logic and Switching Theory	4	-	-	-	3	70	30	3
5.	CS 2050	Computer Architecture	4	1	-	-	3	70	30	3
6.	EC 2130	Basic Electronics	4	1	-	-	3	70	30	3
7	HS 2170	Finishing School: Communication Skills in English -I	4	-	-	-	3	70	30	2
8	HS 2140	Human Values & Professional Ethics-I	2	-	-	-	3	70	30	1
		PRACTICALS								
1.	CS 2071	Data Structures Lab	-	-	-	3	3	50	25	2
2.	EC 2391	Basic Electronics Lab	-	-	-	3	3	50	25	2
		Total	**30**	**2**		**6**	**-**	**660**	**290**	**25**

With effect from the A.Y 2016-17

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)

9-5-81, Ibrahimbagh, Hyderabad-500031

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
SYLLABUS FOR BE 2/4 FIRST SEMESTER
MATHEMATICS – III

Instructions: 4 periods / Week	Sem Exam Marks : 70	Subject Ref Code :**MA 2010**
Credits 3	Sessional Marks : 30	Duration of Sem Exam : 3 Hr.

COURSE OBJECTIVES	COURSE OUTCOMES
Students should be able to	Students will be able to
1. ***Study*** the Fourier series, conditions for expansion of function and half range series 2. ***Formulate*** and solve linear and nonlinear partial differential equations and apply partial differential equations to engineering problems viz., wave, heat and Laplace's equations. 3. ***Study*** the methods to solve equations, apply numerical methods to interpolate, differentiate and integrate functions and to solve differential equations using numerical methods and solve systems of equations. 4. ***Understand*** Random variables Probability Distributions, Statistics and their applications. 5. ***Understand*** how to fit a curve to a given data, how Correlation between variables can be measured.	1. ***Expand*** any function which is continuous, discontinuous, even or odd in terms of its Fourier series. 2. ***Find t***he Partial differential equations by eliminating arbitrary constants and functions and solve linear, non linear Partial differential equations and also will be able solve wave, heat and Laplace's equations in engineering problems . 3. ***Solve*** algebraic and transcendental equations using Bisection method Regula-Falsi, Newton-Raphson, apply numerical methods to interpolate, differentiate functions, solve systems of equations and solve differential equations using numerical methods. 4. ***Apply*** various probability distributions to solve practical problems, to estimate unknown parameters of populations and apply the tests of hypotheses. 5. ***Solve*** problems on how fitting of a curve to given data using curve fitting, and also to find co-efficient of correlation and to determine regression lines and their applications.

UNIT –I (8 classes)

Fourier Series : Introduction to Fourier series – Conditions for a Fourier expansion – Functions having points of discontinuity – Change of Interval - Fourier series expansions of even and odd functions - Fourier Expansion of Half- range Sine and Cosine series.

UNIT –II (15 classes)

Partial Differential Equations and its Applications: Formation of first and second order Partial Differential Equations - Solution of First Order Equations – Linear Equation - Lagrange's Equation, Non-linear first order equations - Charpit's method

Applications of Partial Differential Equations: Classification of second order Partial Differential Equations- Method of Separation of Variables - Solution of One **D**imensional Heat Equation - One Dimensional Wave Equation – Two Dimensional Heat Equation - Laplace's Equation.

UNIT-III (15 classes)

Numerical Methods: Solution of Algebraic and Transcendental equations**-** Bisection method - Regula Falsi method- Newton-Raphson Method - Interpolation- Newton's Forward and Backward Interpolation Formulae - Lagrange's Interpolation Formula - Newton's Divided Difference Formula - Numerical Differentiation -Interpolation approach- Numerical Solutions of Ordinary Differential Equations - Taylor's Series Method - Euler's Method - Runge-Kutta Method of 4^{th} order(without proofs).

UNIT-IV (12 classes)

Probability and Statistics: Random Variables - Probability Distribution function for Discrete and Continuous Random variables - Expectation – Variance – Moments -Moment Generating Function- Poisson and Normal Distributions – Testing of Hypothesis - Tests of Significance - t-test - F- test - χ^2 - test for small samples.

UNIT-V (6 classes) Curve Fitting: Curve fitting by the Method of Least Squares **-** Fitting of Straight line –- Regression - Lines of Regression - Correlation – Karl Pearson's Co-efficient of Correlation.

Text Books:

1. R.K. Jain & S.R.K. Iyengar, Advanced Engineering Mathematics, Third Edition, Narosa Publications, 2007.
2. Dr.B.S Grewal, Higher Engineering Mathematics, 40^{th} Edition, Khanna Publishers.
3. Dr.B.S Grewal, Numerical Methods, Khanna Publishers.
4. Gupta & Kapoor, Fundamentals of Mathematical Statistics, Sultan Chand & Sons, New Delhi.
5. Kreyszig E, Advanced Engineering Mathematics, 8^{th} Edition, John Wiley & Sons Ltd, 2006.
6. N.P.Bali & Manish Goyal A text book of Engineering Mathematics, Laxmi Publication.
7. S.S.Sastry Numerical Analysis–PHI Learning Ltd.,

With effect from the A.Y 2016-17

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
SYLLABUS FOR BE 2/4 FIRST SEMESTER
DATA STRUCTURES

Instructions : 4 Periods / Week	Sem Exam Marks : 70	Subject Reference Code: **CS 2020**
Credits : 3	Sessional Marks : 30	Duration of Sem Exam : 3 Hrs.

COURSE OBJECTIVE	COURSE OUTCOMES
Students should be able to	Students will be able to
• identify and use appropriate data structure for a given problem with effective utilization of space and time.	• analyze time and space complexity of algorithms and use different linear data structures to solve problems. • apply stack and queue data structures to solve computer science and engineering problems and compare different hashing techniques. • choose the appropriate tree data structure and demonstrate ability to perform various operations on them for solving a given problem. • describe the properties of a graph and their applications. • choose appropriate sorting techniques to maximize the performance.

UNIT - I

Performance and Complexity Analysis: Space Complexity, Time Complexity, Asymptotic Notations , Complexity Analysis Examples.

Linear List - Array Representation: Array Representation, Vector Representation, Multiple Lists in a Single Array.

Linear List - Linked Representation: Singly Linked Lists, Circular Lists and Header Nodes, Doubly Linked Lists, Applications.

Arrays and Matrices: Row-Major and Column-Major Representations, Special Matrices, Sparse Matrices.

String Pattern Matching Algorithms.

UNIT – II

Stacks: Array Representations, Linked Representations, Applications.

Queues: Array Representations, Linked Representations, Applications.

Skip List and Hashing: Skip Lists Representation, Hash Table Representation.

UNIT – III

Trees: Tree Definitions and Properties, Representations of Binary Trees, Operations, Binary Tree Traversal.

Binary Search Trees: Definitions, Operations and Implementation of Binary Search Trees.

Balanced Search Trees: AVL Trees, Red Black Trees, Splay Trees, B-Trees.

UNIT – IV

Graphs: Definitions and Properties, Representations, Graph Search Methods (DFS and BFS), Applications of Graphs: Shortest Path Algorithms (Dijkstra's)Minimum Cost Spanning Trees (Prim's and Kruskal's Algorithms).

UNIV – V

Sorting and Complexity Analysis: Selection Sort, Quick Sort, Insertion Sort, Merge Sort, Closest Pair of Points, Heap Sort.

Learning Resources:

1. Sartaj Sahni, *Data Structures Algorithms and Applications in C++*, Second Edition, Universities Press (India) Private Limited, 2005.
2. Mark Allen Weiss, *Data Structures and Problem Solving using C++*, Second Edition, Addison-Wesley, 2000.
3. Michel Goodrich, Roberto Tamassia, David Mount, *Data Structures and Algorithms in C++*, Wiley India Pvt. Ltd, 2004.
4. Thomas H. Cormen, Charles E. Leiserson, Ronald L Rivest, Clifford Stein, *Introduction to Algorithms*, Third Edition, MIT Press, 2009.
5. Yedidyah Langsam, Moshe J.Augenstein, Aaron M Tenenbaum, *Data Structures Using C and C++* , Second Edition, PHI, 2009 .

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
SYLLABUS FOR BE 2/4 FIRST SEMESTER
DISCRETE STRUCTURES

Instructions 4 periods / Week	Sem Exam Marks : 70	Subject Ref Code **CS 2030**
Credits: 3	Sessional Marks : 30	Duration Of Sem Exam : 3 Hrs

Course objective	Course outcomes
Students should be able to • apply programming logic and choose relevant mathematical model for solving real world problems.	Students will be able to • construct compound statements using logical connectives and verify the validity of conclusion using inference rules • compare different types of relations and functions and also apply principle of inclusion and exclusion to solve counting problems • describe recurrence relations to find the complexity of an algorithm • explain the properties of graphs, trees and construct minimal spanning trees for weighted graphs. • define monoid, semi group, group, homomorphism and apply group codes for error detection and correction

UNIT – I

Fundamentals of Logic: Basic Connectives and Truth Tables, Logical Equivalence, Logical Implication, Use of Quantifiers, Quantifiers, Definitions and the Proof of Theorems.

Properties of the Integers: The well – ordering Principle, Recursive Definitions, The division algorithms, The Greatest Common Divisor, The Fundamental Theorem of Arithmetic.

UNIT – II

Relations &Functions: Cartesian Product, One-to-one Functions, Onto Functions, Special Functions, Pigeonhole Principle, Composition and Inverse Functions.

Relations: Partial Orders, Equivalence Relations and Partitions.

Principle of Inclusion and Exclusion: Principles of Inclusion and Exclusion, Generalizations of Principle, Derangements, Rook Polynomials, Arrangements with Forbidden Positions.

UNIT – III

Generating Functions: Introductory Examples, Definition and Examples, Partitions of Integers, Exponential Generating Function, Summation Operator.

Recurrence Relations: First – Order Linear Recurrence Relation, Second – Order Linear Homogenous Recurrence Relation with Constant Coefficients, Non Homogenous Recurrence Relation.

UNIT – IV

Graph Theory: Definitions and Examples, Sub graphs, Complements and Graph Isomorphism, Vertex Degree, Planar Graphs, Hamiltonian Paths and Cycles, Graph Coloring and Chromatic Polynomials.

Trees: Definitions, Properties and Examples, Rooted Trees, Spanning Tress and Minimum Spanning Trees.

UNIT – V

Algebraic Structures: Algebraic System – General Properties, semi groups, Monoids, Homomorphism, Cosets and Lagrange's Theorem, Elements of Coding Theory, The Hamming Metric, The Parity Check Generator Matrices, Group Codes: Decoding with Coset Leaders.

Learning Resources:

1. Ralph P. Grimaldi, *Discrete and Combinatorial Mathematics*, 4th edition, Pearson Education, 2003.
2. Kenneth H Rosen, *Discrete mathematics and its applications*, 5th edition, Tata McGraw-Hill Edition, 2006.
3. J.P. Tremblay, R. Manohar, *Discrete Mathematical Structure with Applications to Computer Science*, McGraw Hill, 1987.
4. Joe L. Mott, A. Kandel, T.P. Baker, *Discrete Mathematics for Computer Scientists & Mathematicians*, Prentice Hall N.J., 1986.
5. Thomas Koshy, *Discrete Mathematics with Applications*, Elsevier Inc.2004.

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

SYLLABUS FOR BE 2/4 FIRST SEMESTER

LOGIC AND SWITCHING THEORY

Instructions 4 periods / Week	Sem Exam Marks : 70	Subject Ref Code: **CS 2040**
Credits 3	Sessional Marks : 30	Duration of Sem Exam : 3 Hrs.

Course objective	Course outcomes
Students should be able to	Students will be able to
• describe components of digital system and design combinational and sequential circuits.	• perform binary arithmetic and represent the Boolean functions in standard forms. • implement digital circuits by minimizing Boolean functions • design combinational circuits • design sequential circuits • design counters and registers

UNIT-I

Digital Computers and Information: Information Representation, Computer Structure.

Number Systems: Binary Numbers, Octal and Hexadecimal Numbers, Number Ranges.

Arithmetic Operations: Conversion from Decimal to Other Bases.

Decimal Codes: BCD Addition. Alphanumeric Codes, ASCII Character Code, Parity Bit.

Binary Logic and Gates: Binary Logic, Logic Gates. Boolean Algebra, Basic Identities of Boolean Algebra, Algebraic Manipulation, Complement of a Function.

Standard Forms: Minterms and Maxterms, Sum of Products and Product of Sums.

UNIT-II

Minimization of Switching Functions: Introduction ,The Map Method, The Tabulation Procedure for the Determination of Prime Implicants, The Prime Implicant Chart, Don't-Care Conditions

NAND and NOR Gates: NAND Circuits, Two-level Implementation, Multilevel NAND Circuits, NOR Circuits. Exclusive-OR Gates, Odd Function, Parity Generation and Checking.

Integrated Circuits: Levels of Integration, Digital Logic Families, Positive and Negative Logic, Transmission Gates

UNIT-III

Combinational Logic Design: Combinational Circuits, Design Topics, Design Hierarchy, Top –Down Design, Computer-Aided Design, Hardware Description Languages, Logic Synthesis

Analysis Procedure: Derivation of Boolean Functions, Derivation of the Truth Table, Logic Simulation

Design Procedure: Code Converters, Decoders, Encoders, Multiplexers, Binary Adders, Binary Subtraction, Binary Multipliers

UNIT-IV

Sequential Circuits: Sequential Circuit Definitions, Latches, Flip-Flops, Characteristic Tables, Sequential Circuit Analysis, Sequential Circuit Design, Designing with D Flip-Flops, Designing with JK Flip-Flops

UNIT-V

Registers and Counters: Registers, Shift Registers, Ripple Counter, Synchronous Binary Counters, Other Counters: BCD Counter, Arbitrary Count Sequence

Learning Resources:

1. M.Morris Mano, Charles R. Kime, *Logic and Computer Design Fundamentals*, Second Edition, Pearson Education, 2004.
2. ZviKohavi, *Switching and Finite Automata Theory*, Tata McGraw Hill, Second Edition, 1978.
3. Charles H. Roth, Jr., Larry L. Kenny, *Fundamentals of Logic Design*, Cengage Learning, Seventh Edition, 2013.
4. A. Anand Kumar, *Switching Theory and Logic Design*, PHI Publishers, Second Edition, 2014
5. CH Roth, *Fundamentals of Logic Design*, Jaico Publishers, 1998.

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

SYLLABUS FOR BE 2/4 FIRST SEMESTER

COMPUTER ARCHITECURE

Instructions: 4+1 Periods / Week	Sem Exam Marks : 70	Subject Ref Code: **CS 2050**
Credits: 3	Sessional Marks : 30	Duration of Sem Exam:3 Hrs.

Course objective	Course outcomes
Students should be able to	Students will be able to
• describe the structure and behavior of various functional modules of a computer and demonstrate how they interact to provide the processing needs of the user.	• describe major components of a computer including CPU, memory, and I/O. • discuss organization and design of a digital computer and control memory. • explain internal organization, instructions of CPU and Pipeline. • discuss the techniques used by a computer to communicate with I/O devices. • explain the concepts, operation and organization of memory and evaluate the performance of a CPU.

UNIT-I

Overview of Computer Function and Interconnection: Computer Components, Interconnection Structures, Bus Interconnection, Bus Structure, Data Transfer.

Register Transfer and Micro-operations: Register Transfer Language, Register Transfer, Bus and Memory Transfers, Arithmetic, Logic, Shift Micro-operations, Arithmetic Logic Shift Unit.

UNIT-II

Basic Computer Organization and Design: Instruction Codes, Computer Registers, Computer Instructions, Timing and Control, Instruction Cycle, Memory Reference Instructions, Input-Output and Interrupt.

Microprogrammed Control: Control Memory, Address Sequencing, Microprogram Example, Design of Control Unit.

UNIT-III

Central Processing Unit: General Register Organization, Stack Organization, Instruction Formats, Addressing Modes, Data Transfer and Manipulation, Program Control, RISC.

Pipeline: Parallel Processing, Pipelining, Arithmetic Pipeline, Instruction Pipeline.

Computer Arithmetic: Introduction, Addition and Subtraction, Multiplication Algorithms, Division Algorithms, Floating-Point Arithmetic Operations, Decimal Arithmetic Unit.

UNIT-IV

Input-Output Organization: Peripheral Devices, Input-Output Interface, Asynchronous Data Transfer, Modes of Transfer, Priority Interrupt, Direct Memory Access, Input-Output Processor (IOP), Serial Communication.

UNIT-V

Memory Organization: Memory Hierarchy, Main Memory, Auxiliary Memory, Associative Memory, Cache Memory, Virtual Memory, Memory Management Hardware.

Assessing and Understanding Performance: CPU Performance and its Factors, Evaluating Performance.

Learning Resources:

1. M.Morris Mano, *Computer System Architecture*, 3rd Edition, Pearson Education Asia, 2002.
2. William Stallings, *Computer Organization & Architecture*, 6th Edition, Pearson Education Asia, 2003.
3. David A Patterson, John L Hennessy, *Computer Organization and Design*, Morgan Kaufmann, 2005.
4. V.Carl Hamacher, Z.G. Vranesic, S.G. Zaky, *Computer Organization*, McGraw Hill, 2004.
5. Pal Chaudhuri,P., *Computer Organization and Design*, Prentice Hall of India, 3rd Edition 2009.

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
SYLLABUS FOR BE 2/4 FIRST SEMESTER
BASIC ELECTRONICS

Instructions: 4+1 Periods/Week	Sem. Exam Marks: 70	Subject Ref. Code: **EC 2130**
Credits: 3	Sessional Marks : 30	Duration of Sem. Exam: 3 Hrs.

Course objective	Course outcomes
Students should be able to	Students will be able to
• acquire the knowledge of various electronic devices and their applications.	1. employ different electronic devices to build electronic circuits such as rectifiers, amplifiers, voltage regulators and oscillators. 2. implement digital circuits such as adders and subtractors using logic gates. 3. convert real time signals into corresponding electrical signals using different types of transducers.

UNIT - I

Semiconductor Theory: Classification of semiconductors, Energy Levels, Conductivity, Mobility, Diffusion and Drift currents, Hall Effect, Characteristics of P-N Junction diode, Parameters and Applications. **Rectifiers:** Half wave and Full wave Rectifiers (Bridge, center tapped), ripple factor and efficiency, comparison of rectifiers, Filters, types of filters, Rectifiers with and without filters

UNIT - II

Transistors: Bipolar Junction Transistor, Construction, Types, Working principle, Configurations, Transistor parameters, Transistor as an amplifier, Problems, h-parameter equivalent circuits. Field effect transistor, Construction and working of JFET, Parameters and applications of JFET, Types of MOSFET (depletion and enhancement), Comparison of BJTs with JFETs; **Regulators:** Characteristics of Zener Diode, Voltage Regulation, Zener diode as voltage regulator, IC voltage regulators.

UNIT - III

Feedback Concepts – Basic concept of feedback, Types of feedback, Feedback topologies, General characteristics of Negative feedback amplifiers; **Oscillators** – Classification of Oscillators, Types, LC Type and RC Type Oscillators and Crystal Oscillators (Qualitative treatment only)

UNIT - IV

Operational Amplifiers – Introduction, Characteristics of ideal Operational amplifier, Operational amplifier stages, Parameters, Open loop and closed loop configurations, Applications (Adder, Subtractor, Voltage follower, Integrator, Differentiator, Instrumentation Amplifier); **Digital circuits:** Boolean Algebra, Logic Gates, Combinational circuits such as half and full adders, half and full subtractors.

UNIT - V

Data Acquisition systems: Introduction, Classification of transducers, Capacitive transducer, Inductive transducer, LVDT, Electrical strain gauges, Temperature transducers (Thermocouple), Piezoelectric transducer, Photoelectric transducer; **Photo Electric Devices:** Photo diode, Photo Transistor, LED, LCD; **Industrial Devices:** SCR, TRIAC, DIAC, UJT - Construction, Working principle and Characteristics only; **Display Systems:** Constructional details of C.R.O and Applications.

Learning Resources:

1. S. Shalivahan, N. Suresh Kumar, A Vallavea Raj, *Electronic Devices and Circuits*, Tata McGraw Hill, 2003.
2. Jacob Milman & C., Halkias, *Electronic devices*, 8th Edition, Reprinted, Mc Graw Hill, 1985.
3. Ramakanth A. Gayakwad, *Op-AMPS and Linear Integrated Circuits*, 3rd edition, Prentice Hall of India, 1985.
4. Mooris Mano, *Digital design*, 3rd edition, Prentice Hall of India, 2002.
5. Cooper, *Electronic Measurement and Instrumentations.*

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
SYLLABUS FOR B.E. 2/4 I-SEMESTER
FINISHING SCHOOL: COMMUNICATION SKILLS IN ENGLISH-I

Instruction : 4 Periods / week	Sem Exam Marks : 70	Subject Ref Code : HS 2170
Credits : 2	Sessional Marks: 30	Duration of Sem Exam :3 Hours

Course Objective	Course Outcomes
• The four major skills of language learning, listening, speaking, reading and writing provide the right key to success. • The main objective of this finishing school curriculum is to involve content for all the above mentioned four skills in teaching English and to get students proficient in both receptive and productive skills	• Respond to questions and Engage in an informal conversation. • Narrate a message/story/incident, both verbally and in writing. • Describe an event/a session/ a movie/ an article. • Respond to others while being in a casual dialogue. • comprehend facts given and respond in an appropriate manner. • Construct sentences in a coherent form • Provide explanations • Recognize and list the key points in a topic/message/article. • Participate in group and forum discussions by providing factual information, possible solutions, and examples. • Debate on a topic by picking up the key points from the arguments placed. • Provide logical conclusions to the topics under discussion. • Prepare, present, and analyze reports

UNIT I: FUNDAMENTALS OF COMMUNICATION

Competencies:

- Basic conversational ability.
- Write e-mails introducing themselves & their purpose

Topics covered

Greeting and Introductions
Small Talk
Recalling

Topic Level Details

Greeting & Introductions

Competencies:

- Greeting appropriately
- Introducing themselves, a friend
- Responding to simple statements and questions both verbally and in writing

- Seeking introduction from others about themselves or about any topic.
- Writing an email with appropriate salutation, subject lines, self-introduction, and purpose of mail.

Small Talk

Competencies:

- Identifying the topic of conversation.
- Speaking a few sentences on a random list of topics
- Reading simple information like weather reports, advertisements
- Seeking clarifications.

Recalling

Competencies:

- State takeaways from a session or conversations

UNIT II: NARRATIONS AND DIALOGUES

Competencies:

- Framing proper phrases and sentences to describe in context
- Speaking fluently with clarity and discrimination
- Responding to others in the dialogue.

Topics covered

Paraphrasing

Describing

Topic Level Details

Paraphrasing

Competencies:

- Listen for main ideas and reformulating information in his/her own words
- Draw appropriate conclusions post reading a passage.
- Writing an email confirming his/her understanding about a topic

Describing

Competencies:

- Speaking, Reading, and Writing descriptive sentences and paragraphs.

UNIT-III: RATIONAL RECAP

Competencies:

- Organizing and structuring the communication
- Detailing a topic
- Summarizing a topic.

Topics Covered:

Organizing

Sequencing

Explaining

Summarizing

Topic Level Details

Organizing

Competencies:

- Organizing the communication based on the context and audience

Sequencing

Competencies:

- Structuring the content based on the type of information.

Explaining

Competencies:

- Explaining a technical/general topic in detail.
- Write an email giving detailed explanation/process

Summarizing

Competencies:

- Recapitulating

UNIT-IV: PROFESSIONAL DISCUSSIONS AND DEBATES

Competencies:

- Analytical and Probing Skills
- Interpersonal Skills

Topics Covered:

Discussing

Debating

Topic Level Details

Discussing

Competencies:

- Thinking
- Assimilating

Debating

Competencies:

- Comprehending key points of the debate and note decisive points including supporting details.
- Construct a logical chain of arguments and decisive points.
- Writing a review about a product by providing reasons, causes, and effects

UNIT -V: DRAWING CONCLUSIONS AND REPORTING

Competencies:

- Reasoning skills - Coherent and logical thinking
- Reporting and Analyzing skills.

Topics Covered:

Concluding
Reporting

Topic Level Details

Concluding

Competencies:

- Analyzing the points discussed.
- Connecting all points without gaps.
- Identifying clinchers.
- Communicating the decisions

Reporting

Competencies:

- Reporting an incident
- Writing/Presenting a project report

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
SYLLABUS FOR B.E. 2/4 FIRST SEMESTER
HUMAN VALUES AND PROFESSIONAL ETHICS-I

Instruction : 2 Periods per week	Sem Exam Marks : 70	Subject Ref Code : HS2140
Credits : 1	Sessional Marks : 30	Duration of Sem Exam : 3 Hours

Course objectives	Course outcomes
The course will enable the students to:	**At the end of the course students should be able to:**
• Get a holistic perspective of value-based education. • Grasp the meaning of basic human aspirations vis-a-vis the professional aspirations. • Understand professionalism in harmony with self and society. • Develop ethical human conduct and professional competence. • Enrich their interactions with the world around, both professional and personal.	• Gain a world view of the self, the society and the profession. • Make informed decisions. • Start exploring themselves in relation to others and their work –constantly evolving into better human beings and professionals • Inculcate Human values into their profession. • Validate their aspirations through right understanding of human relationship and see the co-relation between the human values and prevailing problems. • Strike a balance between physical, mental, emotional and spiritual parts their being. • Obtain a holistic vision about value-based education and professional ethics.

UNIT-I:

The purpose of life-Individual to society to the ideal –individual transformation as a stepping stone to idealism- the flow of transformation from individual to society – An awakened society as a basis to move towards the concept of idealism. How do lifestyles and habits affect the basic behavior? What is the roadmap to a healthy lifestyle and how does it impact the individual, furthermore, how does it enhance the purpose of life.

Philosophy of Life from different cultures–value of life–Objective of life- The Physical, Mental and Emotional aspects of man-Building an integrated personality. Ways and means to accomplish it.

UNIT-II:

Time Management-Why is it essential? Impediments-how best to manage time? Benefits of effective time-management. How to make the best of the present?

UNIT-III:

Positive thinking-The need, nature and scope of positive Thinking-Positive thinking as a foundation to success and building character – Introspection and Self-analysis-identifying the desirable traits-Building of right character. Meaning of values versus skills. Self-worth and Professional worth. Professional Obligations and Competence. Work-life balance.

UNIT-IV:

Different lifestyles and habits- Excellence-Professional & Personal ethics in Society-Goals-Striking a balance between excellence and goals and how to aim for excellence and achieve it with ethics.

UNIT-V:

Potentials and harnessing Potentials-Self-Hidden Potentials-Weeding out Weaknesses-Channelizing the potential. Optimizing potential to achieve goals.

Learning Resources:

1. B.L Bajpai, 2004, Indian Ethos and Modern Management, New Royal Book Co., Lucknow. Reprinted 2008.
2. A.N Tripathy, 2003 Human values, New Age International Publishers.
3. EG Seebauer & Robert L. Berry,2000,Fundamentals of Ethics for Scientists and Engineers, Oxford University Press.
4. Mike Martin and Ronald Schinzinger "Ethics in Engineering "McGraw Hill
5. Charles E Haris, Micheal J Rabins, " Engineering Ethics "Cengage Learning

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

SYLLABUS FOR BE 2/4 FIRST SEMESTER

DATA STRUCTURES LAB

Instructions : 3 Periods / Week	Sem Exam Marks : 50	Subject Ref. Code: **CS 2071**
Credits : 2	Sessional Marks : 25	Duration of Sem Exam : 3 Hrs.

Course objective	Course outcomes
Students should be able to	Students will be able to
• identify and implement appropriate data structure for a given problem with effective utilization of space and time.	• implement various operations on array and linked list. • develop applications using stack and queue • implement operations on tree data structure • write programs using graph data structure • choose and implement optimized sorting technique for the given data set

Programming exercise using C++ for the following:

1. Implementation of Singly Linked List, Doubly Linked List and Circular Linked List.
2. Polynomial Arithmetic using Linked List.
3. Implementation of String Matching algorithms.
4. Implementation of Stacks, Queues.(Using both Arrays and Linked Lists)
5. Infix to Postfix Conversion, Evaluation of Postfix Expression.
6. Implementation of Binary Search , Hashing and Skip Lists.
7. Implementation of Recursive and Iterative Traversals on Binary Tree.
8. Implementation of Binary Search Tree.
9. Implementation of Operations on Binary Tree (Delete Entire Tree, Copy Entire Tree, Mirror Image, Level Order, Search for a Node etc.).
10. Implementation of operations on AVL Trees.
11. Implementation of B-Trees.
12. Implementation of Traversal on Graphs.
13. Implementation of Shortest path Algorithm.
14. Implementation of Selection, Merge, Quick, Heap, and Insertion Sort.

Learning Resources:

1. Sartaj Sahni, *Data Structures Algorithms and Applications in C++*, Second Edition, Universities Press (India) Private Limited, 2005.
2. Mark Allen Weiss, *Data Structures and Problem Solving using C++*, Second Edition, Addison-Wesley, 2000.
3. Michel Goodrich, Roberto Tamassia, David Mount, *Data Structures &Algorithms in C++*, Wiley India Pvt. Ltd, 2004.
4. Thomas H. Cormen, Charles E. Leiserson, Ronald L Rivest, Clifford Stein, *Introduction to Algorithms*, ThirdEdition, MIT Press, 2009.
5. Yedidyah Langsam , Moshe J. Augenstein ,Aaron M. Tenenbaum, *Data Structures Using C and C++* , Second Edition, PHI, 2009

With effect from the A.Y 2016-17

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
SYLLABUS FOR BE 2/4 FIRST SEMESTER
BASIC ELECTRONICS LAB

Instructions : 3 Periods / Week	Sem Exam Marks : 50	Subject Refe, Code : **EC 2391**
Credits : 2	Sessional Marks : 25	Duration of Sem Exam : 3 Hrs.

Course objective	Course outcomes
Students should be able to	Students will be able to
• verify the characteristics of various electronic devices and circuits.	1. verify input/output characteristics of active devices and to compute their parameters. 2. perform operations such as addition, subtraction, comparison of voltage levels using operational amplifier. 3. implement digital adders and subtractors using logic gates.

1. Characteristics of Semiconductor (Si and Ge) and Zener diodes
2. CRO Applications
3. Full wave rectifier with and without filter
4. Zener Voltage Regulator
5. Characteristics of BJT (CB and CE)
6. Characteristics of FET
7. Amplifier with and without feedback
8. RC Phase shift oscillator
9. Hartley oscillator and Calpitt's Oscillator
10. Applications of Operational Amplifier: Adder, Subtractor, Comparator.
11. Verifications of Logic gates
12. Realization of Half and Full adder

Learning Resources:

1. Paul B. Zbar, Albert P. Malvino , Michael A. Miller, *Basic Electronics*, A Text-Lab Manual, 7th Edition, TMH, 1994.
2. Paul B. Zbar, *Industrial Electronics*, A Text – Lab Manual, 3rd Edition, TMH, 1983.

General Note:

1. There should not be more than 2 students per batch while performing any of the lab experiment.
2. Mini Project cum design exercise:
   a) The students must design, rig-up, and test the circuits wherever possible and should carry out the experiments individually.
   b) This exercise carries Sessional marks of 10 out of 25, while the remaining 15 marks are for the remaining lab exercises.

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
9-5-81, Ibrahimbagh, Hyderabad-500031
DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
SCHEME OF INSTRUCTIONAND EXAMINATION WITH EFFECT FROM THE ACADEMIC YEAR 2016-17
B.E. II YEAR II SEMESTER

S. No.	Syllabus Ref. No.	SUBJECT	Scheme of Instruction: Periods per Week L	T	D	P	Scheme of Examination: Duration in Hrs	Maximum Marks: SEM Exam	Sessionals	Credits
THEORY										
1.	MA 2020	Mathematics – IV	4	-	-	-	3	70	30	3
2.	CS 2100	Object Oriented Programming using Java	4	-	-	-	3	70	30	3
3.	CS 2110	Microprocessors& Interfacing	4	-	-	-	3	70	30	3
4.	CS 2120	Data Communication	4	1	-	-	3	70	30	3
5.	CS 2130	Design & Analysis of Algorithms	4	1	-	-	3	70	30	3
6.	CE 2090	Environmental Studies	4	-	-	-	3	70	30	3
7.	HS 2270	Finishing School: Communication Skills in English-II	4	-	-	-	3	70	30	2
PRACTICALS										
1.	CS 2151	Java Lab	-	-	-	3	3	50	25	2
2.	CS 2161	Microprocessors & Interfacing Lab	-	-	-	3	3	50	25	2
		Total	**28**	**2**	**6**			**590**	**260**	**24**

With effect from the A.Y 2016-17

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)

9-5-81, Ibrahimbagh, Hyderabad-500031

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

SYLLABUS FOR BE 2/4 SECOND SEMESTER

MATHEMATICS – IV

Instructions: 4 Periods/ Week	Sem Exam Marks : 70	Subject Ref. Code:**MA 2020**
Credits: 3	Sessional Marks : 30	Duration of Sem Exam: 3 Hrs.

Course objectives	Course outcomes
Students should be able to	Students will be able to
1. ***Understand*** the Definition of Laplace and inverse Laplace Transforms-Shifting Properties and various theorems and how to apply them in solving Differential Equations. 2. ***Analyze*** the characteristics and properties of and Z – transforms and solve the Difference Equations. 3. ***Study*** the concept of Fourier and inverse Fourier Transform of a function and various properties. 4. ***Understand*** the Analytic functions, to evaluate a line integral of a function of a complex variable using Cauchy's integral formula, to evaluate real integrals using complex integration and how to evaluate Laurent Series and residues.	1. ***Evaluate*** Laplace transforms and inverse Laplace transforms of functions. Apply Laplace transforms to solve ordinary differential equations arising in engineering problems. 2. ***Apply*** Z-transform in the analysis of continuous time and discrete time systems and also solve the Difference Equations using Z-transform. 3. ***Determine*** Fourier transform, Fourier sine and cosine transform of a function. 4. ***Know*** the condition(s) for a complex variable function to be analytic and/or harmonic and state and prove the Cauchy Riemann Equation and use it to show that a function is analytic and to define singularities of a function, know the different types of singularities, evaluate contour integrals using the Cauchy Integral Theorem and the Cauchy Integral Formula and will be able to determine transformation in a complex space.

UNIT- I (12 classes)

Laplace Transforms: Introduction to Laplace transforms - Inverse Laplace transform - Sufficient Condition for Existence of Laplace Transform –Properties of Laplace Transform- Laplace Transform of Derivatives - Laplace Transform of Integrals - Multiplication by t^n - Division by t – Evaluation of Integrals by Laplace Transforms- Convolution Theorem - Application of Laplace transforms to Linear Differential Equations with Constant Coefficients.

UNIT –II (8 classes)

Fourier Transforms: Mathematical transforms, Fourier Integral Theorem - Fourier Transforms – Inverse Fourier Transform - Properties of Fourier Transform –Fourier Cosine & Sine Transforms - Convolution Theorem.

UNIT-III: (8 classes)

Z-Transforms: Introduction - Z-transforms of Standard sequences - Linearity Property – Damping Rule - Shifting Properties- Multiplication by n - Initial and Final value theorems – Inverse Z-Transforms- Convolution Theorem – Application of Z-Transforms to Difference Equations.

UNIT-IV (15 classes)

Functions of Complex Variables: Limits and Continuity of function - **D**ifferentiability and Analyticity - Necessary & Sufficient Condition for a Function to be Analytic - Milne-Thomson's method - Cauchy-Riemann Equations in Polar Form - Harmonic Functions - Complex Integration - Cauchy's Theorem - Extension of Cauchy's Theorem for multiply connected regions- Cauchy's Integral Formula.

UNIT-V (10 classes)

Power series - Taylor's Series - Laurent's Series (without proofs) - Zeros and Singularities –Residues – Cauchy's Residue Theorem -Evaluation of Real Integrals using Residue Theorem -Bilinear Transformation.

Learning Resources

1. R. K. Jain & S. R. K. Iyengar, *Advanced Engineering Mathematics*,3rd Edition, Narosa Publications
2. Dr. B. S. Grewal, *Higher Engineering Mathematics,* 40th Edition, Khanna Publishers.
3. Goyal & Gupta, *Laplace's and Fourier transforms,* 23rd Edition, Pragati Prakashan, 2009
4. Kreyszig E, Advanced Engineering Mathematics, 8 th Edition, John Wiley & Sons Ltd, 2006.
5. N.P.Bali & Manish Goyal A text book of Engineering Mathematics, Laxmi Publication.
6. H.K. Dass, Er.Rajnish Verma,Higher Engineering Mathematics, 2011 Edition S.Chand & company Ltd.
7. R.V. Churchill, "Complex Variables & its Applications".Mc Graw-Hill Book Company, INC

With effect from the A.Y 2016-17

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
SYLLABUS FOR BE 2/4 SECONDSEMESTER

OBJECT ORIENTED PROGRAMMING USING JAVA

Instructions: 4 Periods / Week	Sem. Exam Marks:70	Subject Ref. Code: **CS 2100**
Credits: 3	Sessional Marks : 30	Duration of Sem Exam: 3Hrs.

Course objectives	Course outcomes
Students should be able to	Students will be able to
• demonstrate the ability to apply object oriented principles for developing an application using Java	• apply the object oriented programming paradigm and demonstrate concurrent programming and runtime error handling through java programming • choose appropriate classes and interfaces from Collection framework to handle set of objects • select input, output classes/interfaces from IO package to work with console, files and network streams • develop a java bean implementing event driven programming • develop GUI for any application using Swing framework

UNIT – I

Object Oriented System Development: Understanding Object Oriented Development, Understanding Object Concepts, Benefits of Object Oriented Development.

Java Programming Fundamentals: Introduction, Overview of Java, Data types, Variables and Arrays, Operators, Control Statements, Classes, Methods, Inheritance, Packages and Interfaces, Exception Handling, Multithreaded Programming, String Handling.

UNIT – II

Java.lang: Type Wrapper, Process, Runtime, Object classes

Collections: Overview, Collection Interfaces, Collection Classes, Iterators, Random Access Interface, List, Set, Maps, Comparators, Arrays, Legacy Classes and Interfaces, String Tokenizer, BitSet, Date, Calendar, Observable, Timer.

UNIT – III

I/O: Java I/O Classes and Interfaces, Files and Directories, Byte and Character Streams, Serialization.

UNIT – IV

GUI and event Programming: Applet Class, Applet architecture, Event Handling, The Delegation Event Model, Event Classes, Source of Events, Events Listener Interfaces, AWT: Classes, Working with Graphics.

Java Beans: Introduction, Bean Properties, Beans API, A Sample Bean.

UNIT – V

Java Swing: Basics of Swing, Difference between AWT & Swing, MVC Architecture, Components and Container, Swing Components: JLabel, JTextField, JList, JRadioButton, JCheckBox, JComboBox, JButton, JScrollPane, JTabbedPane, JTable, JToggleButton, JTree, Layout Managers.

Learning Resources:

1. Herbert Schildt, *The Complete Reference Java*, 7th Edition, Tata McGraw Hill 2005.
2. James M Slack, *Programming and Problem Solving with JAVA*, Thomson Learning 2002.
3. C Thomas Wu, *An Introduction to Object Oriented Programming with Java*, Tata McGraw Hill, 2005.
4. P. Radha Krishna, *Object Oriented Programming through Java*, Universities Press, 2007.
5. Sachin Malhotra, Saurabh Choudhary, *Programming in Java*, 2nd Edition, Oxford Press, 2014.

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
SYLLABUS FOR BE 2/4 SECOND SEMESTER

MICROPROCESSORS & INTERFACING

Instructions: 4 Periods / Week	Sem. Exam Marks : 70	Subject Ref. Code: **CS 2110**
Credits: 3	Sessional Marks : 30	Duration of Sem, Exam: 3 Hrs.

Course objective	Course outcomes
Students should be able to	Students will be able to
• describe the basics of microprocessor and microcontroller Programming and their applications	• describe the basic elements and functions of microprocessor. • explain the architecture of microprocessor and its peripheral devices. • analyze operations on interfacing devices using microprocessor. • explain the architecture of microcontroller • analyze the pin configurations of 8051 microcontroller and interface keyboard, ADC, DAC with 8051

UNIT-I
8085Architecture: Introduction to microprocessors and microcontrollers, 8085 Processor Architecture, Internal operations, Instructions and timings, Programming the 8085 – Introduction to 8085 instructions, Addressing modes and Programming techniques with Additional instructions.

UNIT-II
Stacks and subroutines, Interfacing Peripherals - Basic interfacing concepts, interfacing output displays, interfacing input keyboards. Interrupts - 8085 Interrupts, Programmable Interrupt Controller (8259A). Direct Memory Access (DMA) – DMA Controller (Intel 8257), Interfacing 8085 with Digital to Analog and Analog to Digital converters.

UNIT-III
Programmable peripheral interface (Intel 8255A), Programmable communication interface (Intel 8251), Programmable Interval timer (Intel 8253 and 8254), Programmable Keyboard / Display controller (Intel 8279). Serial and parallel bus standards RS 232 C, IEEE 488.

UNIT-IV
Introduction to Microcontrollers, 8051 – Architecture – Instruction set, Addressing modes and Programming techniques. Comparison of various families of 8-bit micro controllers. System Design Techniques- Interfacing of LCD, ADC, Sensors, Stepper motor, keyboard and DAC using microcontrollers.

UNIT-V
Applications of Microcontrollers: Interfacing Keyboards, Interfacing LCD, Interfacing LED, Interfacing ADC&DAC, Interfacing with Sensors, RTC, Stepper Motor. Communication standards – serial RS232 and USB.

Learning Resources:

1. Ramesh S. Gaonkar, *Microprocessor Architecture, Programming, and Applications with the 8085*, Prentice Hall India, 5 th Edition , 2002.
2. Kenneth Ayala, *The 8051 Microcontroller*, Cengage Learning, 3rd Edition, 2007.
3. Muhammed Ali Mazidi, *The 8051 Microcontroller & Embedded Systems*, Pearson Education, India, 2 nd Edition, 2007.
4. Myke Predko, *Programming and Customizing the 8051 Microcontroller*, Tata McGraw Hill Education, 2000.
5. Yu-Cheng Liu & Glenn A Gibson, *Microcomputer systems 8086/8088 family, Architecture, Programming and Design*- 2nd Edition-, Prentice Hall of India, 2005.

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
SYLLABUS FOR BE 2/4 SECOND SEMESTER

DATA COMMUNICATIONS

Instructions: 4+1 Periods / Week	Sem. Exam Marks : 70	Subject Ref. Code: **CS 2120**
Credits: 3	Sessional Marks : 30	Duration of Sem. Exam: 3 Hrs.

Course objective	Course outcomes
Students should be able to	Students will be able to
• describe concepts of data and computer communications, identify the various protocols involved in Physical and Data link layers of ISO-OSI reference model.	• describe data communications, signal encoding techniques in the Physical layer. • explain bandwidth utilization methods, transmission and switching techniques. • illustrate functionalities and protocols in data link layer. • explain various LAN technologies. • describe various Wireless LAN technologies.

UNIT-I
Data Communication and Networking Overview, Protocol Architectures: OSI, TCP/IP and ATM. Data Transmission, Guided and Wireless Transmission. Signal Encoding Techniques: Digital Data-Digital Signals, Digital Data-Analog Signals, Analog Data-Digital Signals, Analog Data-Analog Signals.

UNIT-II
Multiplexing, Circuit Switching and Packet Switching, Digital Data Communication Techniques: Asynchronous and Synchronous transmission, DSL and ADSL.

UNIT-III
Data Link Control Protocols: Error Detection, Error Correction, Interfacing. Line Configurations, Flow Control, Error Control, High-Level Data Link Control (HDLC), Protocol verification.

UNIT-IV
Local Area Networks, LAN Technologies, MAC sub layer, CSMA/CD, Token Ring, High Speed LANs: Ethernet, Fiber Channel, IEEE Standards, Switched, Fast, Gigabit Ethernets.

UNIT-V
Wireless LAN's, 802.11, Broadband Wireless, 802.16, Bluetooth, Bridge, Spanning Tree Bridge, Source Routing Bridge, Repeaters, Hubs, Switches, Routers and Gateways, Virtual LAN's.

Learning Resources:

1. William Stallings, *Data and Computer Communications*, 8th Edition, PHI, 2012.
2. Andrew S. Tanenbaum, David J.Wetherall, *Computer Networks*, 5th Edition, Pearson Education, 2012
3. Forouzan, *Data Communications and Networking*, 5 th Edition, McGraw Hill Education, 2013.
4. Fred Halsall, *Data Communications, Computer Networks and Open Systems*, 4th Edition, Pearson Education.
5. Kurose, J.F. and Ross, K.W., *Computer Networking: A Top-Down Approach Featuring the Internet*, 3rd Edition, Addison Wesley, 2004.

With effect from the A.Y 2016-17

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
SYLLABUS FOR BE 2/4 SECOND SEMESTER
DESIGN AND ANALYSIS OF ALGORITHMS

Instructions 4+1 periods / Week	Sem. Exam Marks : 70	Subject Ref, Code **CS 2130**
Credits 3	Sessional Marks : 30	Duration of Sem. Exam : 3

Course objective	Course outcomes
Students should be able to	Students will be able to
• analyze the asymptotic performance of algorithms and apply various algorithm design strategies to solve engineering problems.	• analyze time and space complexity of algorithms • describe and apply the divide-and-conquer paradigm for designing an algorithm to a specific problem. • illustrate the greedy and dynamic programming paradigms and explain when an algorithmic design situation calls for them. • explain the back tracking and branch and bound paradigms and explain when an algorithmic design situation calls for them. • differentiate between NP-complete, NP-Hard problems.

UNIT – I

Introduction: what is an algorithm, algorithm specification.

Performance analysis: Space complexity, Time complexity. Asymptotic notations, Amortized analysis

UNIT – II

Divide and Conquer: General method, binary search, finding maximum and minimum, Merge sort, quick sort, performance measurement, Masters theorem.

The Greedy Method: The general method, Knapsack problem, Job sequencing with deadlines, Minimum-cost spanning trees, Optimal Storage on Tapes, Optimal Merge Patterns, Single Source Shortest Paths.

UNIT – III

Dynamic Programming: The general method, Matrix-chain multiplication problem, Multistage graph, All-Pairs Shortest Paths, Optimal Binary Search Trees, 0/1 Knapsack, Reliability Design, Traveling Salesperson Problem, Biconnected Components and DFS, Longest Common Subsequence problem.

UNIT – IV

Backtracking: The General method, The 8-Queens Problem, Graph Coloring, Hamiltonian Cycles, Knapsack Problem.

Branch and Bound: The method, 0/1 Knapsack problem, Traveling Salesperson problem.

UNIT – V

NP-Hard and NP-Complete problems: Basic concepts, Cook's theorem, NP-hard graph problems- Clique Decision Problem, Node Cover Decision Problem, NP-Hard Scheduling Problems- Scheduling Identical Processors. NP-Hard Code Generation Problems-Code Generation with Common Subexpressions.

Learning Resources:

1. Ellis Horowitz, Satraj Sahani , *Fundamentals of computer Algorithms*, Second edition, Universities Press,2010.
2. Thomas H. Cormen, Charles E. Leiserson, Ronald L. Rivest , Clifford Stein, *Introduction to Algorithm,* 2nd edition,PHI, MIT press,USA,2001
3. Michael T. Goodrich, Roberto Tamassia, *Algorithm Design, foundations, analysis, and internet examples*, Wiley student edition,2006.
4. Aho, Hopcroft, Ulman, *The Design and Analysis of Computer algorithms*, Pearson Education, 2000.
5. *The algorithm design manual*, Steven S.Skiena,1997, Springer.

With effect from the A.Y 2016-17

DEPARTMENT OF CIVIL ENGINEERING
SYLLABUS FOR BE 2/4 SECOND SEMESTER

ENVIRONMENTAL STUDIES

Instruction: 4 Periods per week	Sem. Exam Marks:70	Subject Ref. Code: **CE 2090**
Credits : 3	Sessional Marks :30	Duration of Sem. Exam: 3 Hrs

Course objectives	Course outcomes
Students should be able to	Students will be able to
1. Describe various types of natural resources available on the earth surface. 2. Explain the concepts, energy flow in ecosystem along with the biotic and abiotic components of various aquatic ecosystems. 3. Identify the values, threats of biodiversity, endangered and endemic species of India along with the conservation of biodiversity. 4. Explain the causes, effects and control measures of various types of pollutions and environmental protection acts. 5. Describe the methods for water conservation, the causes, effects of global warming, climate change, acid rain, ozone layer depletion, various types of disasters and their mitigation measures.	1. Describe the various types of natural resources. 2. Differentiate between various biotic and abiotic components of ecosystem. 3. Examine the values, threats of biodiversity, the methods of conservation, endangered and endemic species of India. 4. Illustrate causes, effects, control measures of various types of environmental pollutions and environmental protection acts. 5. Explain the causes, effects of climate change, global warming, acid rain and ozone layer depletion, various types of disasters and their mitigation measures and list the methods of water conservation and watershed management.

UNIT-I

Environmental Studies: Definition, scope and importance, need for public awareness. Natural resources: Water resources; floods, drought, conflicts over water, dams-benefits and problems. Effects of modern agriculture, fertilizer-pesticide problems, water logging salinity. Energy resources, growing energy needs, renewable and non-renewable energy sources. Land Resources, land as a resource, land degradation, soil erosion and desertification.

UNIT-II

Ecosystems: Concepts of an ecosystem, structure and functions of an ecosystem, producers, consumers and decomposers, energy flow in ecosystem, food chains, ecological pyramids, aquatic ecosystem (ponds, oceans, estuaries).

UNIT-III

Biodiversity: Genetic species and ecosystem diversity. Value of biodiversity, threats to biodiversity, endangered and endemic species of India, conservation of biodiversity.

UNIT-IV

Environmental Pollution: Causes, effects and control measures of air pollution, water pollution, soil pollutions, noise pollution, thermal pollution and solid waste & e-waste management.

Environment Protection Act: Air, water, forest and wild life acts.

NIT-V

Social Aspects and the Environment: Water conservation, watershed management, and environmental ethics. Climate change, global warming, acid, rain, ozone layer depletion. EIA, population explosion.

Disaster Management: Types of disasters, impact of disasters on environment, infrastructure, and development. Basic principles of disaster mitigation, disaster management, and methodology, disaster management cycle, and disaster management in India.

Learning Resources:

1. Deswal S. and Deswal A., A Basic Course on Environmental studies, Dhanpat Rai & Co Pvt. Ltd. 2004.
2. Benny Joseph, Environmental Studies, Tata McGraw-Hill, 2005.
3. Suresh K. Dhameja, Environmental Studies, S.K. Kataria & Sons, 2010.
4. De A.K., Environmental Chemistry, New Age International, 2003.
5. Odum E.P., Fundamentals of Ecology, W.B. Sunders Co., USA, 2004.
6. Sharma V.K., Disaster Management, National Centre for Disaster Management, IIPE, Delhi, 1999.
7. Rajagopalan R., Environmental Studies, Second Edition, Oxford University Press, 2013.

With effect from the A.Y 2016-17

DEPARTMENT OF HUMANITIES AND SOCIAL SCIENCES

SYLLABUS FOR BE 2/4 SECONDSEMESTER

FINISHING SCHOOL: COMMUNICATION SKILLS IN ENGLISH-II

Instruction: 4 Periods per week	Sem Exam Marks : 70	Subject Ref Code : **HS2270**
Credits : 2	Sessional Marks : 30	Duration of Sem Exam : 3 Hours

Course Objective	Course Outcomes
1. identify the various features and functions of human language and communication. **2.** develop the habit of listening effectively so as to analyze the speaker's tone and tenor. **3.** choose appropriate words so as to speak and write accurately. **4.** read various types of texts and sift information correctly. **5.** study organizational structures and behavioral patterns and adapt appropriately.	• Participate in group and forum discussions by providing factual information, possible solutions, and examples. • Debate on a topic by picking up the key points from the arguments placed. • Provide logical conclusions to the topics under discussion. • Prepare, present, and analyze reports. • choose appropriate words and tone to present accurate, specific, and factual reports. • Compose a summary of beginning high level reading text that identifies the thesis and key supporting details. • Summarize with 70% comprehension.. • Apply reading skills, including how to approach different types of literature.

UNIT I: PROFESSIONAL DISCUSSIONS AND DEBATES

Competencies:

- Analytical and Probing Skills
- Interpersonal Skills

Topics Covered:

Discussing

Debating

Topic Level Details

Discussing

Competencies:

- Thinking
- Assimilating

Debating

Competencies:

- Comprehending key points of the debate and note decisive points including supporting details.
- Construct a logical chain of arguments and decisive points.
- Writing a review about a product by providing reasons, causes, and effects

UNIT II: DRAWING CONCLUSIONS

Competencies:

- Reasoning skills - Coherent and logical thinking
- Reporting and Analyzing skills.

Topics Covered:

How to draw conclusions

Importance of Logic

Topic Level Details:

Drawing conclusions

Competencies:

- Analyzing the points discussed.
- Connecting all points without gaps.
- Identifying clinchers.
- Communicating the decisions

UNIT III - REPORTING

Competencies:

- Reporting an incident
- Writing/Presenting a project report

UNIT IV - READING FOR CONTEXT

Competencies

Develop metacognitive strategies

Topics covered

Develop critical reading skills:

- o Recognition of author's purpose
- o Awareness of stylistic differences
- o Discernment of fact and opinion
- o Evaluation of fact and opinion
- o Recognition of propaganda techniques
- o Present vocabulary building methods
- o Use comprehension and vocabulary strategies to raise reading rate.

UNIT V- SOFT-SKILLS

1. Professional integrity
2. Managing time
3. Coping with stress
4. Organizational skills

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
SYLLABUS FOR BE 2/4 SECOND SEMESTER
JAVA LAB

Instructions: 3 Periods / Week	Sem. Exam Marks : 50	Subject Ref. Code: **CS 2151**
Credits: 2	Sessional Marks : 25	Duration of Sem. Exam: 3

Course objective	Course outcomes
Students should be able to	Students will be able to
• demonstrate the ability to implement object oriented system development using Java	• implement object oriented system development using java • apply various data structures for solving a use cases using Collection framework • implement IO programming to work with console, files and network streams • develop a java bean implementing event driven programming • develop a front end application using Java Swing framework

LIST OF PROGRAMS

1. Class with constructors, methods and overloading.
2. Inheritance and dynamic polymorphism
3. Abstract class and Interfaces.
4. Exception handling and Multithreading.
5. Thread Synchronization.
6. String Tokenizer
7. Array List and Linked list class
8. Hash Set and Tree Set class
9. Iterator and List Iterator Interfaces.
10. Hash Map and Tree Map classes.
11. Enumeration and Comparator interfaces, Legacy Classes.
12. Filtered, Buffered I/O streams
13. Serialization
14. To develop GUI with different form controls, menus and event handling.
15. Creation of Java Beans

Learning Resources:

1. Herbert Schildt, *The Complete Reference Java*, 7th Edition, Tata McGraw Hill 2005.
2. James M Slack, *Programming and Problem Solving with JAVA*, Thomson Learning 2002.
3. C Thomas Wu, *An Introduction to Object Oriented Programming with Java*, Tata McGraw Hill, 2005.
4. P. Radha Krishna, *Object Oriented Programming through Java*, Universities Press, 2007.
5. Sachin Malhotra, Saurabh Choudhary, *Programming in Java*, 2nd Edition, Oxford Press, 2014.

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
SYLLABUS FOR BE 2/4 SECOND SEMESTER
MICROPROCESSORS & INTERFACING LAB

Instructions: 3 Periods / Week	Sem. Exam Marks : 50	Subject Ref. Code: **CS 2161**
Credits: 2	Sessional Marks : 25	Duration of Sem, Exam: 3 Hrs.

Course objective	Course outcomes
Students should be able to	Students will be able to
• explain the basics of microprocessor and microcontroller Programming and their applications.	1. demonstrate programming constructs of 8085 2. apply the fundamentals of assembly level programming of microprocessors 3. analyze, apply, design and develop the programs to work with 8255, 8279, 8259, 8251, 8257 ICs. 4. work with standard microprocessor interfaces including , serial ports, digital-to-analog converters and analog-to-digital converters 5. perform microcontroller interfacing and their application programs.

PART A: 8085 PROGRAMMING USING MICROPROCESSOR TRAINER KIT

1. Simple programming examples using 8085 addressing modes.
2. Programming examples using 8085 Data transfer and Arithmetic instructions.
3. Programming examples using 8085 Logical instructions.
4. Interfacing and programming of 8255. (E.g. traffic light controller).
5. Interfacing and programming of 8254. (E.g. Timer Programs).
6. Interacting and programming of 8279. (E.g. Display Character, Rolling Display).

PART B: 8051 PROGRAMMING

1. Simple Programming examples using 8051 Micro Controller.
2. Programming examples using arrays.
3. A/D converter interface.
4. D/A converter interface.
5. Stepper Motor interface.
6. Seven Segment LED Display interface.
7. Elevator Interface

Learning Resources:

1. Ramesh S Gaonkar, Microprocessor Architecture, Programming and Applications with 8085,5/E Prentice Hall, 2002.
2. Kenneth Ayala, The 8051 Microcontroller, West publishing company.

SCHEME OF INSTRUCTION & EXAMINATION
2/4 B.E. Bridge Course (for Lateral Entry Students of all branches)
Scheme of Instruction and Examination w.e.f 2016-17

I-Semester

S No.	Code	Subject	Scheme of Instruction				Scheme of Examination			
			Periods per week				Duration	Maximum Marks		Credits
			L	T	D	P		SEM Exam	Sessionals	
Theory										
1	MA2040	Mathematics	1	-	-	-	90 min	25	-	-
2	PH2130	Physics of materials	1	-	-	-	90 min	25	-	-
3	CE2080	Engineering Mechanics	2	-	-	-	3 hrs	50	-	-
Practicals										
4	CS 2091	C-Programming Lab	-	-	-	2	3 hrs	50	-	-
			4	**-**	**-**	**2**	**-**	**150**	-	-
II-Semester Practical										
1	HS2231	ELT-LAB	-	-	-	2	3	50	-	-

No credits will be awarded to the bridge courses offered at 2/4 B.E (all branches) lateral entry students admitted from the academic year 2015-16 under autonomous status. However pass in each of these courses is mandatory to obtain the degree. Every student shall get 40% marks in each course for a pass in theory subject and 50% marks in laboratory course. Only semester examinations will be conducted at the end of each semester. The marks /Grades obtained by the student in this course ***will not be added in computing the SGPA /CGPA***

DEPARTMENT OF CIVIL ENGINEERING

SYLLABUS FOR BRIDGE COURSE BE 2/4-FIRSTSEMESTER (All branches)
ENGINEERINGMECHANICS

Instruction :2periodsweek	Subject Reference Code: **CE2080**
Sem Exam Marks: **50**	Duration of Sem Exam:**3Hrs**

COURSE OBJECTIVES	COURSE OUTCOMES
1. To **learn** the resolution of a system of spatial forces. 2. To **assess** the frictional forces on rigid body. 3. To **understand** the concepts of dynamics and its principles. 4. To **explain** kinetics and kinematics of particles, projectiles, curvilinear motion and centroidal motion. 5. To **impart** the concepts of work-energy method and its applications to rectilinear translation, centroidal motion.	***Students will be able to:*** 1. **Judge** whether the body under the action of spatial force system. 2. **Solve** problem of bodies subjected to friction. 3. **Distinguish** between statics and dynamics and differentiate between kinematics and kinetics. 4. **Understand** the kinetics and kinematics of a body undergoing rectilinear, curvilinear, rotatory motion and rigid body motion. 5. **Know** the concepts of work and energy principles subject and derive the work energy equations for translation, rotation and connected systems.

UNIT-I (3periods)

Force Systems: Components of forces, moments in space and its applications.

UNIT-II (4periods):

Friction: Laws of friction. Application to simple systems and wedge friction.

UNIT-III (5periods):

Kinematics: Rectilinearmotion,Curvilinearmotion,Velocityandacceleration of a particle.

UNIT-IV (6periods):

Kinetics: Analysis as a particle. Analysis as a rigid body in translation. Fixed axis rotation and Rolling bodies.

UNIT-V (5periods):

Work Energy: Principles of work-energy, and its application to translation, Particle motion and connected systems.

Learning Resource:

1. F.L.Singer, "Engineering Mechanics", Harpper & Collins, Singapore 1994.
2. S.P.Timoshenko and D.H.Young, "Engineering Mechanics", McGraw Hill International Edition, 1983
3. Andrew Pytel., Jaan Kiusalaas., "Engineering Mechanics", Cengage Learning, 2014.
4. F.P.Beer & E.R.Johnston, "Jr. Vector Mechanics for Engineers", TMH, 2004.
5. R.C.Hibbeler & Ashok Gupta, "Engineering Mechanics", Pearson Education, 2010.
6. Tayal A.K., "Engineering Mechanics – Statics & Dynamics", Umesh Publications, 2011.
7. Basudeb Bhattacharyya., "Engineering Mechanics", Oxford University Press, 2008.
8. Meriam. J. L., "Engineering Mechanics", Volume-I Statics, John Wiley & Sons, 2008.
9. NPTEL Course and Virtual labs on the web.

w.e.f. the academic year 2015-16

DEPARTMENT OF MATHEMATICS

SYLLABUS FOR BRIDGE COURSE BE 2/4-FIRSTSEMESTER(for All branches)

MATHEMATICS

Instruction :1periodweek	Subject Reference Code: **MA2040**
Sem Exam Marks: **25**	Duration of Sem Exam:**90 Min**

Unit -I (6 Periods):

Basics of Statistics & Probability: Measure of central tendency (Mean, Median & Mode) - Definition of Probability - Addition & Multiplication theorem - Discrete random variable

Unit – II (6 Periods):

Integral Calculus: Methods of integration- Multiple Integrals -Applications of Integration - areas - Surface areas - Volume of solid of revolution

LEARNING RESOURCES:

1. B.S. Grewal , Higher Engineering Mathematics.
2. Fundamentals of Mathematical Statistics by Gupta & Kapoor
3. Integral calculus by Shantinarayana

DEPARTMENT OF PHYSICS

SYLLABUS FOR BRIDGE COURSE BE 2/4-FIRSTSEMESTER (All branches)

PHYSICS OF MATERIALS

Instruction :1periodweek	Subject Reference Code: PH2130
Sem Exam Marks: 25	DurationofSemesterExam:90 Min

Course objectives	Course Outcomes *Student should be able*
• To apply basic principles of physics in field of engineering • Analyze the characteristics of semiconductor devices • To take up research at Undergraduate Level in new and emerging areas like materials science including magnetic dielectrics and nanotechnology	• Differentiate properties, characteristics and applications of various materials like magnetic, dielectric and semiconducting materials • Inquire the new trends in interdisciplinary research area such as Magnetic materials, dielectric materials Semiconductors and nanotechnology

UNIT -I

1. Dielectric Materials: (3 periods)

Polar and Non polar dielectrics-Different types of polarizations in dielectrics- Ferro-electric materials: properties and applications.

2. Magnetic Materials: (3 periods)

Ferro, Ferri and anti ferro magnetic materials and their properties, Domain theory of ferromagnetism- Hysteresis (B-H) curve-soft and hard magnetic materials

UNIT – II:

1. Semiconductor Devices: (3 periods)

Fermi energy in semiconductor- Intrinsic carrier concentration of semiconductor-Characteristics of Photo diode and solar cell

2. Nano Materials: (3 periods)

Distinction between Bulk, thin and nano material-Surface to volume ratio-Quantum confinement-Basic properties of nano-materials, Applications of Nano materials and CNT's.

LEARNING RESOURCES:

1. Introduction to Solid State Physics, Kittel C, Wiley Eastern
2. A text book of Engineering Physics, Avadhanulu & Kshirasagar
3. Applied Physics for Engineers, Neeraj Mehta, PHI
4. N Chattopadhyay, K. K.Banerjee- Introduction to Nanoscience and Nanotechnology, PHI

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
SYLLABUS FOR BRIDGE COURSE BE 2/4-FIRST SEMESTER (for All branches)
C-PROGRAMMING LAB

Instruction :2periods/week	Subject Reference Code: **CS 2091**
Sem Exam Marks: **50**	Duration of Sem Exam:**3hr**

Course objective	Course outcomes
Students should be able to	Students will be able to
• understand the fundamentals of programming in C Language • write, compile and debug programs in C • formulate problems and implement in C • effectively choose programming components to solve computing problems	• draw flowcharts and write algorithms for a given problem • choose appropriate data types for writing programs in C language • design programs involving input output operations, decision making and looping constructs • design modular programs

1. Finding roots of quadratic equation
2. Check whether a given number is (i) Prime (ii) Perfect (iii) Am Strong
3. Sin x and Cos x values using series expansion.
4. Menu driven program to calculate income tax
5. Generating Pascal's Triangle
6. Frequency of occurrence of characters and special characters like \n, \t, white spaces.
7. Bubble sort, Selection sort using arrays
8. Linear search and Binary Search.
9. Functions to find maximum and minimum of given set of numbers, interchange two numbers
10. Recursion: Factorial, Fibonacci, GCD of given numbers
11. Functions for string manipulations without using library functions
12. String comparisons and sorting using pointers to strings.
13. Matrix addition and multiplication using pointers
14. Programs on Structures and Unions
15. File handling programs, Finding the no: of characters, words and lines of given text file.
16. **Mini Project**: Simple application using the concepts of C language

Learning Resources:

1. B.A.Forouzan & Richard F.Gilberg, *A Structured Programming Approach using C*, 3rd Edition, Cengage Learning, 2013
2. Brian W. Kernighan and Dennis M. Ritchie, *The C Programming Language* 2nd Edition, Prentice-Hall, 2006
3. E.Balagurusamy, *Programming in ANSI C*, TMG, 4th Edition, 2008.

DEPARTMENT OF HUMANITIES AND SOCIAL SCIENCES(for All branches)
SYLLABUS FOR BRIDGE COURSE BE 2/4– SECOND SEMESTER
ELT-LAB

Instruction :2periodsweek	Subject Reference Code: **HS2231**
Sem Exam Marks: **50**	Duration of Sem Exam: 2hrs

Course objectives	Course Outcomes
• Use language effectively without mother tongue influence. • Converse in various situations. • Make paper and power point presentations. • Listen to audio clippings, exchange dialogues and write short texts. • Speak effectively using discourse markers. • Read and understand various forms of texts and review them.	• Pronounce words in isolation as well as in spoken discourse. • Research and sift information to make presentations. • Comprehend the tone and tenor of various types of speeches from media and classroom lectures. • Listen for gist and make inferences from various speeches. • Identify connectives and transitions in various speeches. • Use connectives and make transitions effectively while speaking

PHONETICS LAB- TOPICS

1 **Introduction to English Phonetics:** Introduction to auditory, acoustic and articulatory phonetics. Organs of speech: the respiratory, articulatory and phonatory systems

2 **Sound System of English:** Phonetic sounds, Introduction to International Phonetic Alphabet, Classification and Description of English Phonemic sounds; Minimal pairs: The Syllable: Types of syllables; Difficulties of Indian speakers with sound of English.

3 **Rhythm and Intonation:** Introduction to rhythm and intonation; Major patterns of intonation in English with their semantic implications; difficulties of Indian speakers with sound of English.

INTERACTIVE COMMUNICATION SKILLS LAB-TOPICS

1 **Group discussion:** Objectives of GD, Types of GDs; Initiating, Continuing, and concluding a GD.

2 **Debate:** Understanding the differences between a debate and a group discussion, essentials of debate, concluding a debate.

3 **Presentation Skills:** Making Effective Presentations, Expressions which can be used in Presentations, Use of Non-Verbal Communication, Coping with Stage Fright, Handling Question and Answer Session; Use of Audio-Visual Aids, PowerPoint Presentations.

4 **Public Speaking:** Advantages of public speaking, essentials of an effective speech, types of delivery, rehearsal techniques, planning and delivering a speech.

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

ALMANAC FOR B.E - II & III year - I Semester [all branches]

S.No.	Particulars	Date
1	Commencement of Instruction	11-07-2016
2	I Class Test	29-08-2016 to 01-09-2016
3	II Class Test	26-10-2016 to 29-10-2016
4	Last date of Instruction	29-10-2016
5	Preparation holidays & Practical Examinations	31-10-2016 to 12-11-2016
6	Commencement of Theory Examinations	14-11-2016

ALMANAC FOR B.E - II & III year - II Semester [all branches]

S.No.	Particulars	Date
1	Commencement of Instruction	26-12-2016
2	I Class Test	13-02-2017 to 16-02-2017
3	II Class Test	11-04-2017 to 15-04-2017
4	Last date of instruction	15-04-2017
5	Preparation holidays & practical Examinations	17-04-2017 to 29-04-2017
6	Commencement of Theory Examinations	01-05-2017
7	Summer vacation	01-05-2017 to 08-07-2017
8	Commencement of I Semester for the Academic year 2017-2018	10-07-2017

E - JOURNALS & E-BOOKS SUBSCRIBED	
ASCE	35
ASME	27
IEEE ASPP	155
ACM Digital Library	1138
Springer Mechanical	49
Total GIST E-Journals	1405
DELNET CONSORTIUM (IESTC E-Journals -2016)	1152
DELNET E-Journals	817
Total e-journals	3374
DELNET MEMBERSHIP E-Books	335
Journals and magazines Print version	106