Adikavi Nannaya University, Andhra Pradesh B.E./B.Tech CSE Sem 1 syllabus

English - 1

UNIT-I

Listening: Listening to short audio texts and identify the topic and supporting ideas
Speaking: Self introduction
Reading: Skimming and Scanning
Writing: Paragraph Structure and types
Grammar: Content words and function words, basic sentence structure, wh-questions, word order in sentences
Vocabulary: Introduction to word formation
Poem: Once upon a time by Gabriel Okara

UNIT-II

Listening Listening for comprehension and summarizing what is listened to.
Speaking: Group Discussions
Reading: Identifying the structure of the text, transition words and linkers
Writing: Punctuation, use of phrases and clauses in sentences
Grammar: Articles, use of prepositions
Vocabulary: Root words from other languages
Short Story: A Horse and Two Goats by R.K. Narayan

UNIT III

Listening: Making predictions while listening to conversations
Speaking: Role plays – asking for and giving information/ directions
Reading: Intensive Reading / Detailed reading – recognizing, inferring

and interpreting specific contexts;
strategies to use text clues for reading comprehension
Writing: Principles of Good Writing, Introduction to Essay Writing
Grammar: Verb – tenses, subject-verb agreement
Vocabulary: Prefixes and Suffixes
Speech: Fringe Benefits of failure by JK Rowling

UNIT IV

Listening: Identifying key terms and concepts
Speaking: Formal oral presentations on topics from academic contexts – without PPT
Reading: Use of graphic elements in text, understanding patterns
Writing: Types of essays – paragraph organisation, creating coherence, summarization/ précis writing
Grammar: Noun –pronoun agreement, subject – verb agreement
Vocabulary: Synonyms, antonyms
Letter: On saving Time by Seneca

REFERENCE BOOKS:

1. Krishna Swamy N., Modern English Grammar, MacMillan India Ltd.
2. Oxford Advanced Learner's Dictionary of Current English,8th ed. Oxford: Oxford UP,2010
3. Bailey, Stephen, Academic Writing: A handbook for international students, Routledge, 2014
4. Chase, Becky Tarver, Pathways: Listening, Speaking and Critical Thinking, Heinley ELT; 2nd
Edition, 2018

MATHEMATICS I

UNIT-I

Differential Equations of first order and first degree
Linear and Bernoulli's Equation Exact, Reducible to Exact, Orthogonal Trajectories
Applications: Newton's law of cooling, Law of natural growth and decay;

UNIT-II

Linear Differential Equations of Higher Order
Non-Homogeneous equations of higher order with constant

coefficients of R.H.S terms of the type
e
ax, sin ax, cos ax, polynomials in x, eaxV(x) and x V(x); Method of Variation of parameters:
Legendre’s equation, Cauchy-Euler equation.

UNIT-III

Partial Differentiation
Introduction, Partial Differentiation, Homogeneous functions, Euler’s Theorem; Total derivative,
Chain Rule, Jacobian, Taylor’s and Maclaurin’s series expansion of function of two variables;
Functional dependence & independence.
Applications: Maxima and minima of functions of two variables without constraints and Lagrange’s
method with constraints.

UNIT-IV

Differential Calculus
Mean value Theorems: Rolle’s Theorem, Lagrange’s Mean value theorem, Taylor’s and Maclaurin
Theorems with Reminders, indeterminate forms and L’Hospital’s Rule; Maxima and Minima.

Text Books:
1. Dr. B.S.Grewal, Higher Engineering Mathematics, Khanna publishers, 43rd Edition.
2. Dr. S.K.Vali, Dr.G.Venkata Rao, Engineering Mathematics- I, Cengage Publications.
Reference Books:
1. N.P.Bali and Manish Goyal, A text book of Engineering Mathematics, Laxmi Publications,
Reprint, 2008.
2. Ramana B.V., Higher Engineering Mathematics, Tata McGraw Hill New Delhi, 11th Reprint,
2010.
3. Erwin Kreyszig, Advanced Engineering Mathematics, 9th Edition, John Wiley & Sons, 2006.
4. G.B.Thomas and R.L.Finney, Calculus and Analytic geometry, 9th Edition, Pearson, Reprint,
2002.

Programming for Problem Solving

Course Code ESC-CS104

Course Title Programming for Problem Solving

Credits 3

UNIT-I

Introduction to C: Basic Structure of C Program, Constants, Variables and data types,Operators and expressions, Arithmetic precedence and associativity, Type Conversions . Managing Input and Output Operations, Formatted Input and Output statements.
Decision making, Branching, Looping: Decision making with if statement ,Simple if statement , The if.....else statement, Nesting of if.....else statement, the else.....if ladder, switch statement,the (?:) operator, the GOTO statement ., The while statement ,the do statement, the for statement , Jumps in Loops. Examples on Decision making, Branching, Looping.

UNIT-II

Arrays and strings : One, Two-dimensional Arrays, Character Arrays .Declaration and initialization of Strings, reading and writing of strings, String handling functions, Table of strings, Sparse matrices, Storage classes & C-pre processors. Examples on Arrays & strings.

UNIT-III

Functions: Definition of Functions, Return Values and their types,Function Calls, Function Declaration, Category of Functions: No Arguments and no Return Values, Arguments but no Return values, Arguments with Return values, No Argument but Returns a Value, Functions that return Multiple Values .Nesting of functions ,recursion, passing arrays to functions, passing strings to functions, The scope, visibility and lifetime of variables.
Pointers: Accessing the address of a variable, declaring pointer variables ,initializing of pointer variables, accessing variables using pointers, chain of pointers, pointer expressions, pointers and arrays, pointers and character strings, array of pointers,pointers as function arguments, functions returning pointers , pointers to functions, pointers to structures,Memory allocations in C -program Applications.

UNIT-IV

Structure and Unions: Defining a structure, declaring structure variables, accessing structure members , structure initialization, copying and comparing structure variables, arrays of structures, within structures, structures within structures, structures and functions and unions,size of structures and bit-fields –program applications .
File Handling: Defining and opening a file, closing a file, Input /Output operations on files, Error Handling during I/O operations, random access to files and command Line Arguments- program Applications.

Text Books:
C & Data Structures (A practical approach) - by G.S. Baluja and G.K.baluja, Dhanapatrai & Co publishers.

Professional Ethics & Human Values

UNIT –I

Ethics and Human Values: Understanding Value Education: Need for Value Education, Content of
Value Education; Process of Value Education. Self Exploration as the Process for Value Education:
Introspection; Process of Self Exploration. Ethics: Ethical Vision and Ethical Decisions Human
Values: Classification of Values and Universality of Values .

UNIT – II

Engineering Ethics: Nature of Engineering Ethics, Profession and Professionalism, Professional
EthicsCode of Ethics, Sample codes- IEEE, ASCE, ASME and CSI. Engineering as Social
Experimentation; Engineering Professionals – Life Skills. Engineers as Managers, Consultants and
Leaders; Role of Engineers in promoting ethical climate

UNIT – III

Safety Social Responsibility and Rights: Safety and Risk, Moral

Responsibility of Engineers for
safety. Case Studies: Bhopal Gas Tragedy, Chernobyl disaster, Fukushima Nuclear disaster.
Professional Rights; Gender discrimination, Sexual harassment at work place. Balanced outlook on
Law.

UNIT – IV

Global Issues: Globalization and MNCs, Environmental Ethics.
Computer Ethics; Cyber crimes.
Ethical Living; Concept of Harmony in Life

Text Books

1. Govindharajan, M., Natarajan, S. and Senthil Kumar, V.S., Engineering Ethics, Prentice Hall
of India, (PHI) Delhi, 2004.
2. Subramaniam, R., Professional Ethics, Oxford University Press, New Delhi, 2013.

Reference Books

1.Charles D, Fleddermann, Engineering Ethics, Pearson/ PHI, New Jersey 2004. (Indian Reprint)
2. Guar, R.R., Sangal, R., and Bagaria, G.P. A Foundation course in Human Values and
Professional Ethics, Excel Books, New Delhi, 2010.

Chemistry

UNIT-I

High Polymers: Definition -Types of Polymerization (Addition & Condensation) –Mechanisms-
Stereo Polymers – Physical and Mechanical properties of polymers .
Plastics : Thermo plastics and Thermo setting plastics – Compounding and Fabrication of plastics –
preparation and properties of Polyethylene, PVC and Bakelite
.Elastomers: Rubber, Natural Rubber and Elastomers – Vulcanization – Styrene butadiene rubber-
Thiokol rubber – applications - Fiber reinforced plastics – Biodegradable polymers – Conducting polymers.

UNIT-II

Corrosion: Causes and effects of corrosion – theories of corrosion (dry/ chemical and wet / electrochemical corrosion) – Factors effecting corrosion – Corrosion control methods – Cathode protection – Sacrificial Anodic, Impressed current methods – Surface coating – Methods of application on metals (Hot dipping, Galvanizing, tinning, Cladding, Electroplating, Electro less plating)

Thermodynamics:Thermodynamic functions: energy, entropy and free energy. Free energy and emf.Elctrode potentials - Nernst equation and applications. Galvanic cells - Electrochemical series- Primary, Secondary and Fuel Cells.

UNIT-III

Fuels:Coal – Proximate and ultimate analysis – Numerical problems based on analysis – Calorific value (Bomb Calorimeter) – HCV and LVC - Refining – Cracking – Petrol – Diesel – Octane and Cetane numbers - Knocking and anti-knocking, Synthetic Petrol (Fisher-Tropsh Method).

Types of Organic reactions :Introduction to reactions involving substitution, addition, elimination, oxidation, reduction, cyclization and ring openings.

Introduction to Stereo chemistry : Structural isomers and stereoisomers, configurations and symmetry and chirality, enantiomers, diastereomers, optical activity.

UNIT-IV

Water Technology:Determination of hardness of water by EDTA method – Potable water – Municipal water treatment - Sterilization and Disinfection – Boiler feed water – Boiler troubles – Priming and foaming, scale and sludge formation, corrosion, caustic embrittlement, turbine deposits.Desalination of brakish water -Reverse osmosis and Electro Dialysis.

Nanotechnology: Nanomaterials– Properties of nanomaterials – Engineering applications

Text Books:

1. Jain and Jain (Latest Edition), Engineering Chemistry, DhanpatRai Publishing company Ltd.,
2. N. Y. S. Murthy, “A Text Book of Engineering Chemistry” Maruthi Publications.
3. C. Parameswara Murthy Text Book of Engineering Chemistry, B. S. Publications.