

# **CURRICULUM FOR ELECTRICAL ENGINEERING**

## **SEMESTER – I**

Sl. No.	Paper Code	Paper Title	L	T	P	Credits
1	100103	Chemistry	3	1	3	5.5
2	103102	Mathematics –I (Calculus and Differential Equations)	3	1	0	4
3	100104	Programming for Problem Solving	3	0	4	5
4	100105	Workshop Manufacturing Practices	1	0	4	3
5	100106	English	2	0	2	3

# 103 - ELECTRICAL ENGINEERING

**CHEMISTRY L:3 T:1 P:3 CREDIT 5.5**

## **MODULE 1: ATOMIC AND MOLECULAR STRUCTURE (10 LECTURES)**

FAILURE OF CLASSICAL NEWTONIAN AND MAXWELL WAVE MECHANICS TO EXPLAIN PROPERTIES OF PARTICLES AT ATOMIC AND SUB-ATOMIC LEVEL; ELECTROMAGNETIC RADIATION, DUAL NATURE OF ELECTRON AND ELECTROMAGNETIC RADIATION, PLANCKS THEORY, PHOTOELECTRIC EFFECT AND HEISENBERG UNCERTAINTY PRINCIPLE. FAILURE OF EARLIER THEORIES TO EXPLAIN CERTAIN PROPERTIES OF MOLECULES LIKE PARAMAGNETIC PROPERTIES. PRINCIPLES FOR COMBINATION OF ATOMIC ORBITALS TO FORM MOLECULAR ORBITALS. FORMATION OF HOMO AND HETERO DIATOMIC MOLECULES AND PLOTS OF ENERGY LEVEL DIAGRAM OF MOLECULAR ORBITALS. COORDINATION NUMBERS AND GEOMETRIES, ISOMERISM IN TRANSITIONAL METAL COMPOUNDS, CRYSTAL FIELD THEORY AND THE ENERGY LEVEL DIAGRAMS FOR TRANSITION METAL IONS AND THEIR MAGNETIC PROPERTIES.

## **MODULE 2: SPECTROSCOPIC TECHNIQUES AND APPLICATIONS (8 LECTURES)**

PRINCIPLES OF VIBRATIONAL AND ROTATIONAL SPECTROSCOPY AND SELECTION RULES FOR APPLICATION IN DIATOMIC MOLECULES. ELEMENTARY IDEA OF ELECTRONIC SPECTROSCOPY. UV-VIS SPECTROSCOPY WITH RELATED RULES AND ITS APPLICATIONS. FLUORESCENCE AND ITS APPLICATIONS IN MEDICINE. BASIC PRINCIPLE OF NUCLEAR MAGNETIC RESONANCE AND ITS APPLICATION. BASICS OF MAGNETIC RESONANCE IMAGING.

## **MODULE 3: INTERMOLECULAR FORCES AND PROPERTIES OF GASES (4 LECTURES)**

IONIC, DIPOLAR AND VAN DER WAALS INTERACTIONS. EQUATIONS OF STATE OF IDEAL AND REAL GASES, DEVIATION FROM IDEAL BEHAVIOUR. VANDER WAAL GAS EQUATION.

## **MODULE 4: USE OF FREE ENERGY IN CHEMICAL EQUILIBRIA and WATER CHEMISTRY (8 LECTURES)**

THERMODYNAMIC FUNCTIONS: ENERGY, ENTHALPY ENTROPY AND FREE ENERGY. EQUATIONS TO INTERRELATE THERMODYNAMIC PROPERTIES. FREE ENERGY, EMF. AND CELL POTENTIALS, THE NERNST EQUATION AND APPLICATIONS. CORROSION. USE OF FREE ENERGY CONSIDERATIONS IN METALLURGY THROUGH ELLINGHAM DIAGRAMS. SOLUBILITY EQUILIBRIA.

WATER CHEMISTRY, HARD AND SOFT WATER. PARAMETERS OF QUALITY OF WATER TO BE USED IN DIFFERENT INDUSTRIES AS FOR DRINKING WATER. CALCULATION OF HARDNESS OF WATER IN ALL UNITS. ESTIMATION OF HARDNESS USING EDTA AND ALKALINITY METHOD. REMOVAL OF HARDNESS BY SODA LIME AND ION EXCHANGE METHOD INCLUDING ZEOLITE METHOD

## **MODULE 5: PERIODIC PROPERTIES (4 LECTURES)**

EFFECTIVE NUCLEAR CHARGE, PENETRATION OF ORBITALS, VARIATIONS OF S, P, D AND F ORBITAL ENERGIES OF ATOMS IN THE PERIODIC TABLE, ELECTRONIC CONFIGURATIONS, ATOMIC AND IONIC SIZES, IONIZATION ENERGIES, ELECTRON AFFINITY AND

ELECTRONEGATIVITY, POLARIZABILITY, ACID, BASE, PRINCIPLE OF HSAB THEORY, OXIDATION STATES, HYBRIDIZATION AND MOLECULAR GEOMETRIES.

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## **MODULE 6: STEREOCHEMISTRY (4 LECTURES)**

REPRESENTATIONS OF 3-D STRUCTURES, STRUCTURAL ISOMERS AND STEREOISOMERS, CONFIGURATIONS AND SYMMETRY AND CHIRALITY, ENANTIOMERS, DIASTEREOMERS, OPTICAL ACTIVITY, ABSOLUTE CONFIGURATIONS AND CONFORMATIONAL ANALYSIS.

## **MODULE 7: ORGANIC REACTIONS AND SYNTHESIS OF A DRUG MOLECULE (4 LECTURES)**

INTRODUCTION TO INTERMEDIATES AND REACTIONS INVOLVING SUBSTITUTION, ADDITION, ELIMINATION, OXIDATION-REDUCTION, DIELS ELDER CYCLIZATION AND EPOXIDE RING OPENINGS REACTIONS. SYNTHESIS OF A COMMONLY USED DRUG MOLECULE LIKE ASPIRIN.

SUGGESTED TEXT BOOKS:

~ UNIVERSITY CHEMISTRY, BY B. H. MAHAN

~CHEMISTRY: PRINCIPLES AND APPLICATIONS, J. SIENKO AND R. A. PLANE

BY M.

~FUNDAMENTALS OF MOLECULAR SPECTROSCOPY, BY C. N. BANWELL

~ENGINEERING CHEMISTRY (NPTEL WEB-BOOK), BY B. L. TEMBE, KAMALUDDIN AND M. S. KRISHNAN

~ PHYSICAL CHEMISTRY, BY P. W. ATKINS ~ ORGANIC CHEMISTRY: STRUCTURE AND FUNCTION BY

K. P. C. VOLHARDT AND N. E. SCHORE, 5TH EDITION

~[HTTP://BCS.WHFFREEMAN.COM](http://BCS.WHFFREEMAN.COM)

[/VOLLHARDTSCHORESE/DEFAULT.ASP](#)

CHEMISTRY LABORATORY

CHOICE OF 10-12 EXPERIMENTS FROM THE FOLLOWING

~ DETERMINATION OF SURFACE TENSION AND

VISCOSITY

~THIN LAYER CHROMATOGRAPHY ~ ION EXCHANGE COLUMN FOR REMOVAL OF

HARDNESS OF WATER

~ DETERMINATION OF CHLORIDE CONTENT OF WATER

~ COLLIGATIVE PROPERTIES USING FREEZING POINT

DEPRESSION

~ DETERMINATION OF THE RATE CONSTANT OF A

REACTION

~ DETERMINATION OF CELL CONSTANT AND

CONDUCTANCE OF SOLUTIONS ~ POTENTIOMETRY - DETERMINATION OF REDOX

POTENTIALS AND EMFS

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~ SYNTHESIS OF A POLYMER/DRUG ~SAPONIFICATION/ACID VALUE OF AN OIL

CHEMICAL ANALYSIS OF A SALT LATTICE STRUCTURES AND PACKING OF SPHERES ~MODELS OF POTENTIAL ENERGY SURFACES ~CHEMICAL OSCILLATIONS- IODINE CLOCK REACTION ~DETERMINATION OF THE PARTITION COEFFICIENT OF

A SUBSTANCE BETWEEN TWO IMMISCIBLE LIQUIDS

~ ADSORPTION OF ACETIC ACID BY CHARCOAL

~ USE OF THE CAPILLARY VISCOSIMETERS TO THE

DEMONSTRATE OF THE ISOELECTRIC POINT AS THE PH OF MINIMUM VISCOSITY FOR GELATIN SOLS AND/OR COAGULATION OF THE WHITE PART OF EGG.

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# Mathematics-I

**(Calculus and Differential Equations) L:3 T:1 P:0 Credit:4 CONTENTS**

## **MODULE 1:**

CALCULUS (8 LECTURES)

EVOLUTES AND INVOLUTES; EVALUATION OF DEFINITE AND IMPROPER INTEGRALS; BETA AND GAMMA FUNCTIONS AND THEIR PROPERTIES; APPLICATIONS OF DEFINITE INTEGRALS TO EVALUATE SURFACE AREAS AND VOLUMES OF REVOLUTIONS. ROLLES THEOREM, MEAN VALUE THEOREMS, TAYLORS AND MACLAURIN THEOREMS WITH REMAINDERS; INDETERMINATE FORMS AND L HOSPITAL RULE; MAXIMA AND MINIMA.

## **MODULE 2:**

SEQUENCES AND SERIES (7 LECTURES)

CONVERGENCE OF SEQUENCE AND SERIES, TESTS FOR CONVERGENCE, POWER SERIES, TAYLORS SERIES. SERIES FOR EXPONENTIAL, TRIGONOMETRIC AND LOGARITHMIC FUNCTIONS; FOURIER SERIES: HALF RANGE SINE AND COSINE SERIES, PARSEVALS THEOREM.

## **MODULE 3:**

MULTIVARIABLE CALCULUS: DIFFERENTIATION (6 LECTURES)

LIMIT, CONTINUITY AND PARTIAL DERIVATIVES, DIRECTIONAL DERIVATIVES, TOTAL DERIVATIVE; TANGENT PLANE AND NORMAL LINE; MAXIMA, MINIMA AND SADDLE POINTS; METHOD OF LAGRANGE MULTIPLIERS; GRADIENT, CURL AND DIVERGENCE.

## **MODULE 4:**

MULTIVARIABLE CALCULUS: INTEGRATION (7 LECTURES)

MULTIPLE INTEGRATION: DOUBLE AND TRIPLE INTEGRALS (CARTESIAN AND POLAR), CHANGE OF ORDER OF INTEGRATION IN DOUBLE INTEGRALS, CHANGE OF VARIABLES (CARTESIAN TO POLAR), APPLICATIONS: AREAS AND VOLUMES BY (DOUBLE INTEGRATION) CENTER OF MASS AND GRAVITY (CONSTANT AND VARIABLE DENSITIES). THEOREMS OF GREEN, GAUSS AND STOKES, ORTHOGONAL CURVILINEAR COORDINATES, SIMPLE APPLICATIONS INVOLVING CUBES, SPHERE AND RECTANGULAR PARALLELEPIPEDS.

## **MODULE 5:**

FIRST ORDER ORDINARY DIFFERENTIAL EQUATIONS (3 LECTURES)

EXACT, LINEAR AND BERNOULLI EQUATIONS, EULER EQUATIONS, EQUATIONS NOT OF FIRST DEGREE: EQUATIONS SOLVABLE FOR P, EQUATIONS SOLVABLE FOR Y, EQUATIONS SOLVABLE FOR X AND CLAIRAUTS TYPE.

## **MODULE 6:**

ORDINARY DIFFERENTIAL EQUATIONS OF HIGHER ORDER (6 LECTURES)

SECOND ORDER LINEAR DIFFERENTIAL EQUATIONS WITH VARIABLE COEFFICIENTS, METHOD OF VARIATION

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OF PARAMETERS, CAUCHY-EULER EQUATION; POWER SERIES SOLUTIONS; LEGENDRE POLYNOMIALS, BESSEL FUNCTIONS OF THE FIRST KIND AND THEIR PROPERTIES.

## **MODULE 7:**

PARTIAL DIFFERENTIAL EQUATIONS: FIRST ORDER (3 LECTURES)

FIRST ORDER PARTIAL DIFFERENTIAL EQUATIONS, SOLUTIONS OF FIRST ORDER LINEAR AND NON-LINEAR PDES.

TEXT/REFERENCES:

~ G.B. THOMAS AND R.L. FINNEY, CALCULUS AND ANALYTIC GEOMETRY, PEARSON, 2002. ~T. VEERARAJAN, ENGINEERING MATHEMATICS,

MCGRAW-HILL, NEW DELHI, 2008. ~B. V. RAMANA, HIGHER ENGINEERING MATHEMATICS, MCGRAW HILL, NEW DELHI, 2010. DIFFERENTIAL EQUATIONS AND BOUNDARY VALUE

~N.P. BALI AND M. GOYAL, A TEXT BOOK OF ENGINEERING MATHEMATICS, LAXMI PUBLICATIONS, 2010.

~B.S. GREWAL, HIGHER ENGINEERING MATHEMATICS, KHANNA PUBLISHERS, 2000.

~E. KREYSZIG, ADVANCED ENGINEERING MATHEMATICS, JOHN WILEY and SONS, 2006.

~W. E. BOYCE AND R. C. DIPRIMA, ELEMENTARY

PROBLEMS, WILEY INDIA, 2009. ~ S. L. ROSS, DIFFERENTIAL EQUATIONS, WILEY INDIA, 1984.

~E. A. CODDINGTON, AN INTRODUCTION TO ORDINARY

DIFFERENTIAL EQUATIONS, PRENTICE HALL INDIA, 1995. ~E. L. INCE, ORDINARY DIFFERENTIAL EQUATIONS,

DOVER PUBLICATIONS, 1958.

~G.F. SIMMONS AND S.G. KRANTZ, DIFFERENTIAL EQUATIONS, MCGRAW HILL, 2007.

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# **Programming for Problem Solving L:3 T:0 P:4 Credit:5**

## **MODULE 1: INTRODUCTION TO PROGRAMMING (6 LECTURES) I**

INTRODUCTION TO COMPONENTS OF A COMPUTER SYSTEM (DISKS, MEMORY, PROCESSOR, WHERE A PROGRAM IS STORED AND EXECUTED, OPERATING SYSTEM, COMPILERS ETC). IDEA OF ALGORITHM: STEPS TO SOLVE LOGICAL AND NUMERICAL PROBLEMS. REPRESENTATION OF ALGORITHM: FLOWCHART/ PSEUDO CODE WITH EXAMPLES. FROM ALGORITHMS TO PROGRAMS; SOURCE CODE, VARIABLES (WITH DATA TYPES) VARIABLES AND MEMORY LOCATIONS, TYPE CASTING/TYPE CONVERSION, RUN TIME ENVIRONMENT (STATIC, DYNAMIC LOCATION), STORAGE CLASSES (AUTO, REGISTER, STATIC, EXTERN), SYNTAX AND LOGICAL ERRORS IN COMPILATION, OBJECT AND EXECUTABLE CODE.

## **MODULE 2: OPERATORS (3 LECTURES)**

ARITHMETIC EXPRESSIONS/ARITHMETIC OPERATORS/ RELATIONAL OPERATORS/LOGICAL OPERATORS/ BITWISE OPERATORS AND PRECEDENCE

## **MODULE 3: CONDITIONAL BRANCHING AND LOOPS (5 LECTURES)**

WRITING AND EVALUATION OF CONDITIONALS AND CONSEQUENT BRANCHING, ITERATION AND LOOPS

## **MODULE 4: ARRAYS (4 LECTURES)**

ARRAY DECLARATION and INITIALIZATION, BOUND CHECKING ARRAYS (1-D, 2-D), CHARACTER ARRAYS AND STRINGS.

## **MODULE 5: BASIC ALGORITHMS (6 LECTURES)**

SEARCHING (LINEAR SEARCH, BINARY SEARCH ETC.), BASIC SORTING ALGORITHMS (BUBBLE, INSERTION AND SELECTION), FINDING ROOTS OF EQUATIONS, NOTION OF ORDER OF COMPLEXITY THROUGH EXAMPLE PROGRAMS (NO FORMAL DEFINITION REQUIRED)

## **MODULE 6: FUNCTION (4 LECTURES)**

INTRODUCTION and WRITING FUNCTIONS, SCOPE OF VARIABLES FUNCTIONS (INCLUDING USING BUILT IN LIBRARIES), PARAMETER PASSING IN FUNCTIONS, CALL BY VALUE, PASSING ARRAYS TO FUNCTIONS: IDEA OF CALL BY REFERENCE

## **MODULE 7: RECURSION (5 LECTURES)**

RECURSION, AS A DIFFERENT WAY OF SOLVING PROBLEMS. EXAMPLE PROGRAMS, SUCH AS FINDING FACTORIAL, FIBONACCI SERIES, REVERSE A STRING USING RECURSION, AND GCD OF TWO NUMBERS, ACKERMAN FUNCTION ETC. QUICK SORT OR MERGE SORT.

## **MODULE 8: STRUCTURE/UNION (3 LECTURES)**

STRUCTURES, ACCESSING STRUCTURE ELEMENTS, WAY OF STORAGE OF STRUCTURE ELEMENT, DEFINING STRUCTURES AND ARRAY OF STRUCTURES, BASIC DEFINITION OF UNION, COMPARISON Between STRUCTURE and UNION WITH EXAMPLE

## **MODULE 9: POINTERS (5 LECTURES)**

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IDEA OF POINTERS, DEFINING POINTERS, USE OF POINTERS IN SELF-REFERENTIAL STRUCTURES, NOTION OF LINKED LIST (NO IMPLEMENTATION), POINTER TO POINTER, POINTER TO ARRAY, POINTER TO STRINGS, ARRAY OF POINTER, POINTER TO FUNCTION, POINTER TO STRUCTURE.

#### **MODULE 10: FILE HANDLING**

(ONLY IF TIME IS AVAILABLE, OTHERWISE SHOULD BE DONE AS PART OF THE LAB)

SUGGESTED TEXT BOOKS:

~ BYRON GOTTFRIED, SCHAUMS OUTLINE OF PROGRAMMING WITH C, MCGRAW-HILL ~E.  
BALAGURUSWAMY, PROGRAMMING IN ANSI C, TATA MCGRAW-HILL

SUGGESTED REFERENCE BOOKS

~ BRIAN W. KERNIGHAN AND DENNIS M. RITCHIE, THE C PROGRAMMING LANGUAGE, PRENTICE HALL OF INDIA YASHWANT KANETKAR, LET US C, BPB PUBLICATION

THE STUDENT WILL LEARN

~TO FORMULATE SIMPLE ALGORITHMS FOR ARITHMETIC AND LOGICAL PROBLEMS. ~TO TRANSLATE THE ALGORITHMS TO PROGRAMS (IN

C LANGUAGE).

~TO TEST AND EXECUTE THE PROGRAMS AND

CORRECT SYNTAX AND LOGICAL ERRORS. ~TO IMPLEMENT CONDITIONAL BRANCHING,

ITERATION AND RECURSION.

~TO DECOMPOSE A PROBLEM INTO FUNCTIONS AND SYNTHESIZE A COMPLETE PROGRAM USING DIVIDE AND

CONQUER APPROACH. ~TO USE ARRAYS, POINTERS AND STRUCTURES TO

FORMULATE ALGORITHMS AND PROGRAMS. ~TO APPLY PROGRAMMING TO SOLVE MATRIX ADDITION AND MULTIPLICATION PROBLEMS AND

SEARCHING AND SORTING PROBLEMS.

~TO APPLY PROGRAMMING TO SOLVE SIMPLE NUMERICAL METHOD PROBLEMS, NAMELY ROOT FINDING OF FUNCTION, DIFFERENTIATION OF FUNCTION AND SIMPLE INTEGRATION.

LABORATORY PROGRAMMING FOR PROBLEM SOLVING

[THE LABORATORY SHOULD BE PRECEDED OR FOLLOWED BY A TUTORIAL TO EXPLAIN THE APPROACH OR ALGORITHM TO BE IMPLEMENTED FOR THE PROBLEM GIVEN.]

TUTORIAL 1: PROBLEM SOLVING USING COMPUTERS:

LAB1: FAMILIARIZATION WITH PROGRAMMING ENVIRONMENT

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TUTORIAL 2: VARIABLE TYPES AND TYPE

CONVERSIONS:

LAB 2: SIMPLE COMPUTATIONAL PROBLEMS USING ARITHMETIC EXPRESSIONS

TUTORIAL 3: BRANCHING AND LOGICAL EXPRESSIONS: LAB 3: PROBLEMS INVOLVING IF-THEN-ELSE

STRUCTURES

TUTORIAL 4: LOOPS, WHILE AND FOR LOOPS: LAB 4: ITERATIVE PROBLEMS E.G., SUM OF SERIES

TUTORIAL 5: 1D ARRAYS: SEARCHING, SORTING:

LAB 5: 1D ARRAY MANIPULATION

TUTORIAL 6: 2D ARRAYS AND STRINGS

LAB 6: MATRIX PROBLEMS, STRING OPERATIONS

TUTORIAL 7: FUNCTIONS, CALL BY VALUE:

LAB 7: SIMPLE FUNCTIONS

TUTORIAL 8: NUMERICAL METHODS (ROOT FINDING, NUMERICAL DIFFERENTIATION, NUMERICAL INTEGRATION):

LAB 8: PROGRAMMING FOR SOLVING NUMERICAL METHODS PROBLEMS

TUTORIAL 9: RECURSION, STRUCTURE OF RECURSIVE

CALLS

LAB 9: RECURSIVE FUNCTIONS

TUTORIAL 10: POINTERS, STRUCTURES AND DYNAMIC MEMORY ALLOCATION

LAB 10: POINTERS AND STRUCTURES

TUTORIAL 11: FILE HANDLING:

LAB 11: FILE OPERATIONS

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## **Workshop Manufacturing Practices L:1 T:0 P:4 Credit:3**

LECTURES and VIDEOS: (10 HOURS) [L: 1; T: 0; P: 0 (1 CREDIT)]

DETAILED CONTENTS:

1. MANUFACTURING METHODS—CASTING, FORMING, MACHINING, JOINING, ADVANCED MANUFACTURING METHODS (3 LECTURES)
2. CNC MACHINING, ADDITIVE MANUFACTURING (1 LECTURE)
3. FITTING OPERATIONS and POWER TOOLS (1 LECTURE)
4. CARPENTRY (1 LECTURE)
5. PLASTIC MOULDING, GLASS CUTTING (1 LECTURE)
6. METAL CASTING (1 LECTURE)
7. WELDING (ARC WELDING and GAS WELDING), BRAZING, SOLDERING (2 LECTURE)

SUGGESTED TEXT/REFERENCE BOOKS:

~HAJRA CHOUDHURY S.K., HAJRA CHOUDHURY A.K. AND NIRJHAR ROY S.K., ELEMENTS OF WORKSHOP TECHNOLOGY, VOL. I 2008 AND VOL. II 2010, MEDIA PROMOTERS AND PUBLISHERS PRIVATE LIMITED, MUMBAI.

~KALPAKJIAN S. AND STEVEN S. SCHMID, MANUFACTURING ENGINEERING AND TECHNOLOGY, 4TH EDITION, PEARSON EDUCATION INDIA EDITION, 2002.

~GOWRI P. HARIHARAN AND A. SURESH BABU, MANUFACTURING TECHNOLOGY I PEARSON EDUCATION, 2008.

~ROY A. LINDBERG, PROCESSES AND MATERIALS OF MANUFACTURE, 4TH EDITION, PRENTICE HALL INDIA, 1998.

~RAO P.N., MANUFACTURING TECHNOLOGY, VOL. I AND VOL. II, TATA MCGRAWHILL HOUSE, 2017.

COURSE OUTCOMES:

~UPON COMPLETION OF THIS COURSE, THE STUDENTS WILL GAIN KNOWLEDGE OF THE DIFFERENT MANUFACTURING PROCESSES WHICH ARE COMMONLY EMPLOYED IN THE INDUSTRY, TO FABRICATE COMPONENTS USING DIFFERENT MATERIALS.

**WORKSHOP PRACTICE: (60 HOURS) [L: 0; T: 0; P: 4 (2 CREDITS)]**

1. MACHINE SHOP (10 HOURS) AND FITTING SHOP (8 HOURS)
  2. CARPENTRY (6 HOURS)
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3. WELDING SHOP (8 HOURS) (ARC WELDING 4 HRS + GAS WELDING 4 HRS)
  4. CASTING (8 HOURS) AND SMITHY (6 HOURS)
  5. PLASTIC MOULDING and GLASS CUTTING (6 HOURS)
  6. 3-D PRINTING OF DIFFERENT MODELS (8 HOURS)
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# English L:2 T:0 P:2 Credit:3

## DETAILED CONTENTS

### **1.VOCABULARY BUILDING**

- A. THE CONCEPT OF WORD FORMATION
- B. ROOT WORDS FROM FOREIGN LANGUAGES AND THEIR USE IN ENGLISH
- C. ACQUAINTANCE WITH PREFIXES AND SUFFIXES FROM FOREIGN LANGUAGES IN ENGLISH TO FORM DERIVATIVES.
- D. SYNONYMS, ANTONYMS, AND STANDARD ABBREVIATIONS.
- E. AFFIXES, ACRONYMS

### **2.BASIC WRITING SKILLS**

- A. SENTENCE STRUCTURES
- B. USE OF PHRASES AND CLAUSES IN SENTENCES
- C. IMPORTANCE OF PROPER PUNCTUATION
- D. KINDS OF SENTENCES
- E. USE OF TENSE, USE IN CONTEXT AND COHERENCE OF TENSE IN WRITING
- F. USE OF VOICE-ACTIVE/PASSIVE IN SENTENCES
- G. USE OF SPEECH - DIRECT AND INDIRECT SPEECH
- H. FRAMING QUESTIONS- DIRECT, USING MODAL VERBS

### **3.IDENTIFYING COMMON ERRORS IN WRITING**

- A. SUBJECT-VERB AGREEMENT
  - B. NOUN-PRONOUN AGREEMENT
  - C. MISPLACED MODIFIERS
  - D. ARTICLES
  - E. PREPOSITIONS
  - F. REDUNDANCIES
  - G. CLICHÉS
  - H. COMMON ENGLISH ERRORS
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#### **4. NATURE AND STYLE OF SENSIBLE WRITING**

- A. DESCRIBING
- B. DEFINING
- C. CLASSIFYING
- D. PROVIDING EXAMPLES OR EVIDENCE
- E. WRITING INTRODUCTION AND CONCLUSION
- F. ORGANISING PRINCIPLE OF PARAGRAPHS IN DOCUMENTS
- G. ARGUMENT, DESCRIBING/ NARRATING/ PLANNING, DEFINING, CLASSIFYING
- H. LEXICAL RESOURCES, USING SUITABLE LANGUAGE REGISTER
- I. COHERENCE, WRITING INTRODUCTION, BODY AND CONCLUSION, TECHNIQUES FOR WRITING PRECISELY, GRAMMAR AND ACCURACY

#### **5. WRITING PRACTICES**

- A. COMPREHENSION
- B. FORMAL LETTER WRITING/ APPLICATION/ REPORT WRITING/ WRITING MINUTES OF MEETINGS
- C. ESSAY WRITING
- D. FORMAL EMAIL WRITING
- E. RESUME/ CV WRITING, COVER LETTER,
- F. STATEMENT OF PURPOSE

#### **6. ORAL COMMUNICATION**

(THIS UNIT INVOLVES INTERACTIVE PRACTICE SESSIONS IN LANGUAGE LAB)

- A. LISTENING COMPREHENSION
  - B. PRONUNCIATION, INTONATION, STRESS AND RHYTHM
  - C. COMMON EVERYDAY SITUATIONS: CONVERSATIONS
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AND DIALOGUES

D. COMMUNICATION AT WORKPLACE

E. INTERVIEWS

F. FORMAL PRESENTATIONS

G. ACQUAINTING STUDENTS WITH IPA SYMBOLS H. PHONETICS (BASIC)

I. SOUNDS - VOWELS, CONSONANTS J. CLEARING MOTHER TONGUE INFLUENCE

K. CLEARING REDUNDANCIES AND COMMON ERRORS

RELATED TO INDIANISMS L. GROUP DISCUSSION

M. EXPRESSING OPINIONS

N. COHERENCE AND FLUENCY IN SPEECH

### **7. READING SKILLS**

A. READING COMPREHENSION,

B. PARAGRAPH READING BASED ON PHONETIC

SOUNDS/ INTONATION

### **8. PROFESSIONAL SKILLS**

A. TEAM BUILDING

B. SOFT SKILLS AND ETIQUETTES

### **9. ACQUAINTANCE WITH TECHNOLOGY-AIDED LANGUAGE LEARNING**

A. USE OF COMPUTER SOFTWARE (GRAMMARLY,

GINGER...)

B. USE OF SMARTPHONE APPLICATIONS (DUOLINGO,

BUSUU...)

### **10. ACTIVITIES**

A. NARRATIVE CHAIN

B. DESCRIBING/ NARRATING C. WRITING ESSAYS IN RELAY

D. PEER/ GROUP ACTIVITIES E. BRAINSTORMING VOCABULARY

F. CUE / FLASH CARDS FOR VOCABULARY

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G. DEBATES

**SUGGESTED READINGS :**

~PRACTICAL ENGLISH USAGE. MICHAEL SWAN. OUP.

1995.

~REMEDIAL ENGLISH GRAMMAR. F.T. WOOD.

MACMILLAN.2007 ~ON WRITING WELL. WILLIAM ZINSSER. HARPER

RESOURCE BOOK. 2001

~STUDY WRITING. LIZ HAMP-LYONS AND BEN HEASLY. CAMBRIDGE UNIVERSITY PRESS. 2006.

~COMMUNICATION SKILLS. SANJAY KUMAR AND PUSHPLATA. OXFORD UNIVERSITY PRESS. 2011.

~EXERCISES IN SPOKEN ENGLISH. PARTS. I-III. CIEFL

HYDERABAD, OXFORD UNIVERSITY PRESS

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