

**SREENIVASA INSTITUTE OF TECHNOLOGY AND MANAGEMENT STUDIES**  
**(Autonomous)**

**I B. TECH – II SEM**

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**16SAH121 FUNCTIONAL ENGLISH-II**  
**(Common to All Branches)**

**Introduction:**

English is a global language as well as living and problem solving. People have found that knowledge of English is the bridge to survive and to reach the destination. As it is a language of opportunities in this global village, English is bound to expand its territory of use every where.

**Objectives:**

The syllabus has been designed:

- To enhance communication skills of the students of engineering both technically and literally to face the global competitions in future.
- Importance is given on all the four skills i.e LSRW.
- Encourage the students to use the target language in the way of interactive and learner-centered.
- Ignite the habit of reading and critical thinking skills.

**SYLLABUS**

**UNIT-I**

**(a) UNDER THE BANYAN TREE** – a short story – by *R.K.Narayan*

Exercises: 1. What do we learn from trees – Discuss (Speaking activity by students) 2. Synonyms and Antonyms 2. Tenses – Types 3. Transitive and Intransitive Verbs

**UNIT-II**

**COMMUNICATION SKILLS FOR PROFESSIONALS**

**(a) Communication** – Verbal – Areas of Communication – Suggestions to improve verbal Communication – Importance of Body Language

**(b) Non-verbal Communication** – Category and Features – Cultural differences in Non-verbal communication – Suggestions to improve Non-verbal Communication.

Exercises: 1. Discuss a few interesting Cross cultural aspects of communication (Speaking activity by students) 2. Voice of Verbs 3. Direct and Indirect speech 4. Modal Verbs

**UNIT-III**

**THE LAST RIDE TOGETHER** – a poem – by *Robert Browning*

Exercises: 1.Which is important in life-money or love?-Discuss (Speaking activity by students)2.Expansion of Proverbs-(oral and written) 3.Conditional clauses 4. Note making 5.Question Tags

#### UNIT-IV

(a) **TECHNOLOGY WITH A HUMAN FACE**-a lecture-by *E.F.Schumacher*

(b) **DR. APJ. ABDUL KALAM –A Missile Man** –*web source*

Exercises: 1.Is technology a boon or bane?-Discuss (Speaking activity by students) 2. Synonyms and Antonyms 3. Idioms 4.Phrasal verbs 5.Subject Verb agreement 4.Analogy

#### UNIT-V

**WANGARI MATHAAI**-a Kenyan environmental and political activist -*from inspiring lives*

Exercises: 1.Have a discussion regarding current environmental issues (Speaking activity by students) 2.Synonyms and Antonyms 3.One word substitutes 4.Detecting errors

#### **Prescribed Book:**

The text book prepared by the Department of English of SITAMS will be issued to students

#### **References Books:**

- 1.Business Communication and Soft Skills. K.Srinivasa Krishna and B. Kuberudu, 2008, Excel Books, New Delhi.
- 2.English for Technical Communication. K. R. Lakshmi Narayana, Scitech.
- 3.Spoken English, 2009, R. K. Bansal and J. B. Harrison, Edn, Orient Longman, Mumbai.
- 4.Speaking English Effectively, 2/e, Krishna Mohan & NP Singh, Macmillan, New Delhi
- 5.A Practical Course in English Pronunciation, 2004, J. Sethi, Kamlesh Sadanand & D.V. Jindal, Prentice-Hall of India Pvt. Ltd., New Delhi.
6. Murphy's English Grammar by Raymond Murphy.
- 7.Cambridge English Dictionary for Advanced Learners(with CD)

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**I B. TECH – II SEM**

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**16SAH122**

**MATHEMATICS – II**  
**(Common to all Branches)**

**Course Objectives**

- To develop logical thinking in solving various mathematical models
- To learn an overview of Matrices which occur in physical and engineering problems
- It aims at providing the student with the concepts of Integral Calculus, Fourier series, Fourier and Z-transforms which find the applications in engineering

**Course Outcomes**

- Usage of matrices and techniques for solving systems of linear equations in the different area of Linear Algebra
- Student gains knowledge to tackle engineering problems using the concepts of Integral Calculus, Fourier series, Fourier and Z-transforms

**UNIT – 1: Matrices**

Rank - Echelon form and Normal form - Solution of linear system of homogeneous and non-homogeneous equations - Direct methods - Gauss elimination, Gauss Jordan method - Eigen values, Eigen vectors - Properties - Cayley-Hamilton theorem(without proof) - Inverse and powers of a matrix. – Diagonalization of a matrix using similarity transformation only.

**UNIT – 2: Multiple Integrals**

Multiple Integrals: Double and triple integrals - Change of variables - Change of order of integration.

**UNIT – 3: Fourier Series**

Determination of Fourier coefficients - Fourier series - Even and odd functions - Fourier series in an arbitrary interval - Even and odd periodic continuation - Half-range Fourier sine and cosine expansions.

**UNIT – 4: Fourier Transforms**

Fourier integral theorem(only statement) - Fourier sine and cosine integrals - Fourier transform - Fourier sine and cosine transforms - Properties - Inverse transforms - Finite Fourier transforms.

## **UNIT –5: Z- Transforms**

Z-transforms - Properties - Damping rule - Shifting rule - Initial and final value theorems - Inverse Z-transform - Convolution theorem - Solution of difference equations by Z-transforms

### **Text books:**

1. Mathematical Methods, 2012, T.K.V. Iyengar, B.Krishna Gandhi, S. Ranganatham and M.V.S.S.N. Prasad, S. Chand and Company Ltd, New Delhi.
2. Higher Engineering Mathematics, 34/e, 1999, Dr. B. S. Grewal, Khanna Publishers, Delhi

### **Reference books:**

1. Engineering Mathematics–I, 2012, T.K.V. Iyengar, B.Krishna Gandhi, S. Ranganatham and M.V.S.S.N. Prasad, S. Chand and Company Ltd, New Delhi.
2. Engineering Mathematics for JNTU, 2012, B.V. Ramana, Tata McGraw Hill Publishers, New Delhi.
3. Higher Engineering Mathematics, Dr. M. K. VenkataRamana, National Pub & Co, Madras.
4. A Text Book of Engineering Mathematics, 2011, N.P.Bali, Laxmi publications(P)Ltd, New Delhi.
5. Advanced Engineering Mathematics, 8/e, 2009, Erwin Kreyszig, Wiley India, New Delhi.

**SREENIVASA INSTITUTE OF TECHNOLOGY AND MANAGEMENT STUDIES**  
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**I B. TECH – II SEMESTER**

**L T P C**  
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**16CSE121**

**DATA STRUCTURES**  
(Common to CSE, ECE & EEE)

**Course Objectives:**

The objective of the course is to introduce the fundamentals of Data Structures, Abstract concepts and how these concepts are useful in problem solving.

**Course Outcomes:**

After completion of this course student will be able to

- Understand the basic concepts of data structure.
- Understand and use the common data structures typically found in C programs — namely arrays, strings, lists and trees.
- Implementing various data structures viz. Stacks, Queues, Linked Lists and Trees.
- Understanding various sorting and searching techniques.

**UNIT 1 – INTRODUCTION TO DATA STRUCTURES:**

Definition, Abstract Data Type, Classification of Data Structures – Linear and Non-Linear, Applications.

Review of Arrays, Dynamic Memory Allocation and Deallocation.

**UNIT 2 – LINKED LISTS**

Definition – Structure of Linked List - Singly linked lists- Circularly linked lists- Doubly-linked lists – applications of linked lists.

**UNIT 3 – STACKS AND QUEUES**

**Stacks:** Definition – Structure and Operations of stack - Array-based implementation – Linked list implementation – Applications of stacks.

**Queues:** Definition – Structure and Operations of Queue - Array-based implementation – Linked list implementation – Double-ended Queues – Applications of Queues.

**UNIT 4 – SORTING AND SEARCHING TECHNIQUES**

**Sorting Techniques:** Insertion sort - Selection sort - Bubble sort - Quick sort - Merge sort –  
**Searching Techniques:** Linear search - Binary Search.

**UNIT 5– TREES**

Introduction to Trees - Definition – Basic Terminologies – Binary Tree – Types of Binary Trees – Tree Traversals – Binary Search Tree.

**Text Books:**

1. Classic Data Structure by D. Samanta, Eastern Economy Edition.
2. Mark Allen Weiss, “Data Structures and Algorithm Analysis in C”, 2nd Edition, Pearson Education, 1997.

**Reference Books:**

1. Programming in C and Data Structures, 2010, J.R.Hanly, Ashok N. Kamthane and A. Ananda Rao, Pearson Education, Chennai
2. Programming in C and Data Structures, 2/e, 2012, E.Balaguruswamy, Tata McGraw Hill, New Delhi.
3. ReemaThareja, “Data Structures Using C”, Oxford University Press, 2011.
4. Aho, Hopcroft and Ullman, “Data Structures and Algorithms”, Pearson Education,1983.

**SREENIVASA INSTITUTE of TECHNOLOGY and MANAGEMENT STUDIES**  
**(Autonomous) 2016-2017**

**I B. TECH – II SEM**

<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>3</b>	<b>1</b>	<b>0</b>	<b>3</b>

**16SAH112**

**ENGINEERING PHYSICS**  
**(Common to all Branches)**

**Aim**

To provide a strong foundation of physics for all branches of Engineering students which enable them to practice in their dynamic and progressive engineering professional careers with responsibility to society.

**Objectives:**

1. Use their Engineering foundation and their understanding of the fundamental areas of physics in:
  - a. Technical careers in industry, academia, or government.
  - b. Careers involving engineering or scientific practice, research and development, management, or service
  - c. Nontechnical careers in areas such as law, medicine, business, public policy, secondary education, service industries, etc.
2. Effectively communicate opportunities and solutions to technical and nontechnical communities
3. Educate students to think and participate deeply, creatively, and analytically in emerging areas of science and Technology.
4. To mould them to collaborate within their organization; and be active in research and development in a relevant area of science and technology.

**Engineering Physics Student Learning Outcomes**

- an ability to apply knowledge of science, and applied sciences
- an ability to design and conduct experiments, as well as to analyze and interpret data
- an ability to identify and solve applied science problems
- an understanding of professional and ethical responsibility
- the broad education necessary to understand the impact of solutions in a global and societal context
- an ability to use the techniques, skills, and modern scientific and technical tools necessary for professional practice

## **UNIT - 1: Physical Optics, Lasers and Fiber Optics**

**Physical Optics:** Interference in thin films by reflection (Qualitative) - Newton's rings (Qualitative) - Diffraction - Fraunhofer Diffraction at single slit - Diffraction Grating.

**Lasers:** Laser characteristics - Spontaneous and Stimulated emissions - Population inversion - Solid state laser (Ruby laser) - Gas (He-Ne) laser - Semiconductor (GaAs) laser - Applications of lasers.

**Fiber Optics:** Structure of optical fiber - Types of optical fibers - Numerical aperture - Fiber optics in communications - Applications.

## **UNIT - 2: Crystal Structures and Ultrasonics**

**Crystal Structures:** Introduction - Space lattice - Unit cell - Lattice parameters - Bravais lattices - Crystal Systems - Structures of Simple Cubic - Body Centered Cubic - Face Centered Cubic crystals - Miller Indices - Bragg's law - X-ray diffraction - Laue Methods.

**Ultrasonics:** Introduction - Production of ultrasonic waves by Piezoelectric method - Properties of ultrasonic waves - Applications of ultrasonics.

## **UNIT - 3: Quantum Mechanics and Semi Conductors**

**Quantum Mechanics:** Matter waves and properties - De Broglie's concept of matter waves - One dimensional time independent Schrodinger's wave equation - Particle in one dimensional potential box

**Semiconductors:** Intrinsic and extrinsic semiconductors (Qualitative) - Drift and diffusion - Einstein's relation - Hall effect - Direct and indirect band gap semiconductors - p-n junction

## **UNIT - 4: Magnetic Materials and Superconductivity**

**Magnetic Materials:** Origin of magnetic moment of an atom - Classification of dia - para - ferro magnetic materials on the basis of magnetic moment (Qualitative) - Hysteresis curve - soft and hard magnetic materials with Applications.

**Superconductivity:** General properties - Meissner effect - Types of superconductors - BCS Theory - Josephson's effect - Applications of superconductors.

## **UNIT - 5: Physics of Nanomaterials**

**Nano Materials:** Introduction to nanomaterials - Significance of nanoscale - surface to volume ratio - Synthesis of Nanomaterials - Ball milling Method - Chemical vapour deposition methods - Optical, thermal, mechanical and electrical properties of nano materials - applications of nanomaterials.



**Text Books:**

1. Engineering Physics, 2011, M.R. Srinivasan, New Age International, Chennai.
2. Engineering Physics, First Edition 2014, K. Thyagarajan, McGraw Hill Publishers, New Delhi.

**Reference Books:**

1. Concepts of Modern Physics, 8/e, 2007, AurtherBeiser, Tata McGraw Hill Publishers, New Delhi.
2. Modern Engineering Physics, 2012, A.S. Vasudeva, S. Chand & Co., New Delhi.
3. Materials Science, 1/e, 2004, M. Vijaya and G. Rangarajan, Tata McGraw Hill Publishers, New Delhi.
4. Physics, Part I and II (Part I 5/e, 2002, Part II 5/e, 2001), Halliday and Resnick, John Wiley & sons (Asia)
5. Engineering Physics, 7/e, 2006, Gaur & Gupta, Dhanpati Rai Publications, New Delhi.

SITAMS, CHITTOOR

**SREENIVASA INSTITUTE of TECHNOLOGY and MANAGEMENT STUDIES**  
**(Autonomous) 2016-2017**

<b>I B.Tech II Sem</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>	<b>3</b>	<b>2</b>	<b>0</b>	<b>3</b>
<b>16SAH113</b>	<b>ENGINEERING CHEMISTRY</b> <b>(Common to all Branches)</b>							

**Course Objectives**

- The Engineering Chemistry course for undergraduate students is framed to strengthen the fundamentals of chemistry and then build an interface of theoretical concepts with their industrial/engineering applications.
- The course main aim is to impart in-depth knowledge of the subject and highlight the role of chemistry in the field of engineering.
- The lucid explanation of the topics will help students understand the fundamental concepts and apply them to design engineering materials and solve problems related to them. An attempt has been made to logically correlate the topic with its application.
- The extension of fundamentals of electrochemistry to energy storage devices such as commercial batteries and fuel cells is one such example.
- After the completion of the course, the student would understand about the concepts of chemistry in respect of water, mechanism of corrosion and factors to influence, polymers with their applications, Phase rule, structural materials, Refractories, Lubricants and Electrochemistry

**Course Outcomes**

- Differentiate between hard and soft water
- Understand the disadvantages of using hard water domestically and industrially. Select and apply suitable treatments domestically and industrially. UNIT 1 Understand the electrochemical sources of energy
- Understand industrially based polymers, various engineering materials.
- Get the knowledge of electrochemistry hydrogen oxygen fuel cells and methanol fuel cells..

**UNIT- 1: Water and Water for Industrial Purpose**

Water: Sources of water - Types of Impurities in Water - Hardness of water - Temporary and permanent hardness - Estimation of hardness by EDTA Method - Analysis of water - Dissolved oxygen - Disadvantages of hard water - Methods of treatment of water for domestic purpose - Sterilization - Chlorination -Ozonisation.

Water for industrial purpose: Water for steam making - Boiler troubles - Priming and foaming - Boiler corrosion - Scales and sludge - Caustic embrittlement - Water treatment - Internal treatment - Colloidal - Phosphate - Calgon - Carbonate - Sodium aluminate conditioning of water

- External treatment - Ion - exchange process - Demineralization of brackish water – Reverse osmosis.

## **UNIT - 2: Science of Corrosion**

Definition - Types of corrosion - Dry corrosion - (Direct chemical attack) - Wet corrosion - Theories of corrosion and mechanism - Electro chemical theory of corrosion - Galvanic corrosion - Concentration cell corrosion - Oxygen absorption type - Factors influencing corrosion - Control of corrosion - Cathodic protection - Sacrificial anode and impressed current.

## **UNIT - 3: Polymers**

Polymerization reactions - Basic concepts - Types of polymerization - Addition and condensation polymerization - Plastics -Thermosetting and thermoplastics - Composition - Properties - Engineering uses of teflon, bakelite, nylon and rubber - Processing of natural rubber and compounding .

Elastomers: Buna S - Buna N - Polyurethane Rubber and Silicone Rubber.

## **UNIT - 4: Phase rule, Structural materials and Refractories**

Phase rule:Definition - Terms involved in phase rule - Phase rule equation - Phase diagrams - One component system (water system) - Two component system (lead- silver system).

Structural materials:Cement - Composition of Portland cement - Analysis - Setting and hardening of cement (reactions).

Refractories:Definition - Classification with examples - Criteria of a good refractory material - Causes for the failure of refractory materials.

## **UNIT - 5: Lubricants and Electro chemistry**

Lubricants:Principles and function of lubricants - Classification and properties of lubricants - Viscosity - Flash and fire points - Cloud and pour points - Aniline point - Neutralization number and mechanical strength.

Electro Chemistry:Conductance - Equivalent conductance - Molar conductance – Conductometric titrations - Conductivity Measurements.

Fuel cells: hydrogen oxygen fuel cell and methanol fuel cell

**Text books:**

1. Chemistry for Engineers, 4/e, 2009, Prof. K. N. Jayaveera, Dr. G. V. Subba Reddy and Dr. C. Ramachandraiah, Tata McGraw Hill Publishers, New Delhi.
2. Text book of Engineering Chemistry, 15/e, 2008, Jain and Jain, Dhanpat Rai Publishing Company, New Delhi.
3. Text book of Engineering Chemistry, 18/e, 2008, S. S. Dara, S. Chand & Co, New Delhi.

**Reference books:**

1. Engineering Chemistry, 5/e, 2009, Dr. K. B. Chandrasekhar, Dr. U.N. Dash, Dr. Sujatha Mishra, Scitech Publications(India) Pvt. Ltd, Hyderabad.
2. Fuel Cells Principles and Applications, 4/e, 2008, B. Viswanath, M. Aulice Scibioh, Universities press, Hyderabad.
3. Chemistry of Engineering Materials, 3/e, 2008, C.V. Agarwal, Tara Publication, Varanasi.
4. Physical Chemistry, 12/e, 2009, Glasston & Lewis, Dhanpat Rai Publishers, New Delhi.
5. Engineering Chemistry (Vol.1&2), 5/e, 2004, J. C. Kuriacose and J. Rajaram, Tata McGraw Hill Publishers, New Delhi.

# SREENIVASA INSTITUTE OF TECHNOLOGY AND MANAGEMENT STUDIES

(Autonomous)

I B. TECH – II SEMESTER

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## 16SAH115 ENGINEERING PHYSICS AND ENGINEERING CHEMISTRY LAB (Common to all Branches)

### Course Objectives:

- To introduce different experiments to test basic understanding of physics concepts applied in optics, thermal physics and properties of matter.

### Course Outcomes:

- The students will be conversant with hands-on knowledge in the quantitative chemical analysis of water quality related parameters, corrosion measurement and cement analysis.

### ENGINEERING PHYSICS LAB:

#### The following Experiments must be done during Semester.

1. Diffraction grating - Measurement of wavelength of given Laser.
2. Determination of magnetic field along the axis of a current carrying circular coil - Stewart Gees method.
3. Determination of numerical aperture and acceptance angle of an optical fiber.
4. Determination of particle size using a laser source.
5. Parallel fringes – Determination of thickness of thin object using wedge method.
6. Newton's rings – Determination of radius of curvature of given plano convex lens.
7. B-H curve – Determination of hysteresis loss for a given magnetic material.
8. Determination of Energy band gap of semiconductor.

### Course Outcomes:

- The students will have the ability to test materials by using their knowledge of applied physics principles in optics and properties of matter.

### ENGINEERING CHEMISTRY LAB:

#### Course Objectives:

- To make the student acquire practical skills in the wet chemical and instrumental methods for quantitative estimation of hardness, alkalinity, metal ion content, corrosion in metals and cement analysis.

#### The following Experiments must be done during Semester.

1. Preparation of Standard Potassium Dichromate and Estimation of Ferrous Iron.
2. Preparation of Standard Potassium Dichromate and Estimation of Copper by Iodometry.
3. Preparation of Standard EDTA solution and Estimation of Hardness of Water.

4. Preparation of Standard EDTA and Estimation of Copper.
5. Determination of Manganese in Steel and Iron in Cement.
6. Determination of strength of the given Hydrochloric acid against standard sodium hydroxide Solution by Conductometric titration.
7. Determination of viscosity of the given oils through Redwood viscometer.
8. Estimation of dissolved oxygen in given water sample.
9. Determination of  $P^H$  of a given solution by  $P^H$  meter.
10. Estimation of alkalinity of water.
11. Estimation of acidity.
12. Determination of corrosion rate and inhibition efficiency of an inhibitor for mild steel in hydrochloric acid medium.

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**I B. TECH – II SEMESTER**

**L T P C**  
**0 0 3 2**

**16CSE122**

**DATA STRUCTURES LAB**  
**(Common to CSE,ECE&EEE)**

**Exercise 1**

Write a c program using dynamic memory allocation.

**Exercise 2**

Write a c program that uses functions to perform the following operations on singly linked list.

i)Creation ii)Insertion iii)Deletion iv)Traversal

**Exercise 3**

Write a c program that uses functions to perform the following operations on doubly linked list.

i)Creation ii)Insertion iii)Deletion iv)Traversal

**Exercise 4**

Write a c program that implement stack operations using Arrays.

**Exercise 5**

Write a c program that implement stack operations using Linked List.

**Exercise 6**

Write a c program that uses stack operations to perform the following

i) Converting Infix expression to Postfix expression.

ii) Evaluating the Postfix expression.

**Exercise 7**

Write a c program that implement Queue operations using Arrays.

**Exercise 8**

Write a c program that implement Queue operations using Linked List.

**Exercise 9**

Write a c program that implement Dequeue operations using Arrays.

### Exercise 10

Write a c program that use both recursive and non recursive functions to perform the following searching operations for a key value in a given list of integers.

- i)Linear search
- ii)Binary search

### Exercise 11

Write a c program that implements the following sorting methods to sort a given list of integers in ascending order.

- i)Selection sort
- ii)Bubble sort

### Exercise 12

Write a c program that implements the following sorting methods to sort a given list of integers in ascending order.

- i)Quick sort
- ii)Merge sort

### Exercise 13

Write a c program that uses functions to perform the following Binary Tree Traversals

- i) Inorder
- ii)Preorder
- iii)Postorder

### Exercise 14

Write a c program to implement the Binary Search Tree.

### Text Books:

1. Mark Allen Weiss, “Data Structures and Algorithm Analysis in C”, 2nd Edition, Pearson Education, 1997.
2. Programming in C and Data Structures, 2010, J.R.Hanly, Ashok N. Kamthane and A. Ananda Rao, Pearson Education, Chennai

### Reference Books:

1. Programming in C and Data Structures, 2/e, 2012, E.Balaguruswamy, Tata McGraw Hill, New Delhi.
2. Mark Allen Weiss, “Data Structures and Algorithm Analysis in C”, 2nd Edition, Pearson Education, 1997.
3. ReemaThareja, “Data Structures Using C”, Oxford University Press, 2011.
4. Aho, Hopcroft and Ullman, “Data Structures and Algorithms”, Pearson Education,1983.



# SREENIVASA INSTITUTE OF TECHNOLOGY AND MANAGEMENT STUDIES

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## I B. TECH – II SEMESTER

L T P C

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16 MEC112

**ENGINEERING WORKSHOP AND IT WORKSHOP LAB**

(Common to all Branches)

### Course Objectives:

- To provide exposure to the students with hands on experience on various basic engineering practices in Civil, Mechanical and Electrical Engineering.

### ENGINEERING WORKSHOP:

#### ➤ TRADES FOR EXERCISES:

#### Cycle-I

1. **Carpentry:** Two jobs (exercises) from: Making middle T lap joint - Dove tail lap joint - Mortise and tenon joint from out of 300 x 50 x 35 mm soft wood stock.
2. **Sheet Metal:** Two jobs (exercises) from: Square tray – Open scoop - Frustum of pyramid out of 22 or 20 gauge G.I. sheet.

#### Cycle-II

3. **Fitting:** Two jobs (exercises) from: Square joint - V joint - Dove tail joint from out of 50 x 50 x 5 mm M.S. flat piece.
4. **House Wiring:** Two jobs (exercises) from: Two lamps controlled by one switch in series and parallel - One lamp controlled by 2 two way switches (stair case) - Wiring for fluorescent lamp.
5. **Plumbing:** Two jobs (exercises) from: Basic pipe connections – Mixed pipe material connection – Pipe connections with different joining components.

#### ➤ TRADES FOR DEMONSTRATION:

- a. Drilling Machine.
- b. Lathe Machine.
- c. Grinding Machine.

### Course Outcomes:

- Ability to fabricate carpentry components and pipe connections including plumbing works.
- Ability to use basic operations on machine tools.
- Ability to fabricate electrical circuits.

## **ITWORKSHOP:**

### **Course Objectives:**

- The objective of this course include training on PC Hardware, Internet & World Wide Web and Productivity tools including Word, Excel and Power Point.
- PC Hardware introduces the students to a personal computer and its basic peripherals, the process of assembling a personal computer, installation of system software like MS Windows, Linux and the required device drivers. In addition hardware and software level troubleshooting process, tips and tricks would be covered. The students should work on working PC to disassemble and assemble to working condition and install Windows and Linux operating systems on the same PC. Students are suggested to work similar tasks in the Laptop scenario wherever possible.
- Internet & World Wide Web module introduces the different ways of hooking the PC on to the internet from home and workplace and effectively usage of the internet. Usage of web browsers, email, newsgroups and discussion forums would be covered. In addition, awareness of cyber hygiene, i.e., protecting the personal computer from getting infected with the viruses, worms and other cyber-attacks would be introduced.
- Productivity tools module would enable the students in crafting professional word documents, excel spread sheets and power point presentations using the Microsoft suite of office tools.

(Recommended to use Microsoft office 2007 in place of MS Office 2003)

### **PC Hardware**

Week 1: Identify the peripherals of a computer, components in a CPU and its functions. Draw the block diagram of the CPU along with the configuration of each peripheral and submit to your instructor.

Week 2: Every student should disassemble and assemble the PC back to working condition. Lab instructors should verify the work and follow it up with a Viva. Also students need to go through the video which shows the process of assembling a PC. A video would be given as part of the course content.

Week 3: Every student should individually install MS windows on the personal computer. Lab instructor should verify the installation and follow it up with a Viva.

Week 4: Every student should install Linux on the computer. This computer should have windows installed. The system should be configured as dual boot with both windows and Linux.

Lab instructors should verify the installation and follow it up with a Viva

### **MS-Word**

Week 5 – Word Orientation: The mentor needs to give an overview of Microsoft (MS) office 2007: Importance of and MS office 2007 Word as word Processors, Details of the three tasks and features that would be covered in using word – Accessing, overview of toolbars, saving files, Using help and resources, rulers, format painter.

Task 5.1: Using Word to create project certificate. Features to be covered:-Formatting Fonts in word, Drop Cap in word, Applying Text effects, Using Character Spacing, Borders and Colors, Inserting Header and Footer, Using Date and Time option in Word.

Week 6: Creating project document: Features to be covered:-Formatting Styles, Inserting table, Bullets and Numbering, Changing Text Direction, Cell alignment, Footnote, Hyperlink, Symbols, Spell Check, Track Changes.

Week 7: Creating a Newsletter : Features to be covered:- Table of Content, newspaper columns, Images from files and clipart, Drawing toolbar and Word Art, Formatting Images, Textboxes, Paragraphs and Mail Merge in word.

### **Excel**

Week 8 – Excel Orientation: The mentor needs to tell the importance of MS office 2007 Excel as a Spreadsheet tool, give the details of the two tasks and features that would be covered in each. Using Excel – Accessing, overview of toolbars, saving excel files, Using help and resources.

Task 8.1: Calculating GPA – Features to be covered:- Gridlines, Format Cells, Summation, auto fill, Formatting Text. Cell Referencing, Formulae in excel – average, std. deviation, Charts, Renaming and Inserting worksheets, Hyper linking, Count function, Sorting.

### **Power Point**

Week 9: Students will be working on basic power point utilities and tools which help them create basic power point presentation. Topic covered during this week includes :- PPT Orientation, Slide Layouts, Inserting Text, Word Art, Formatting Text, Bullets and Numbering, Auto Shapes, Lines and Arrows Hyperlinks, Inserting –Images, Clip Art, Audio, Video, Objects, Tables and Charts

### **Course Outcomes:**

- At the end of the course, student should be able to have basic understanding of Hardware, Software, and some experience on MS office tools.

**Reference Books:**

1. Introduction to Information Technology, ITL Education Solutions limited, Pearson Education.
2. Introduction to Computers, Peter Norton, 6/e McGraw Hill
3. Upgrading and Repairing, PC's 18th e, Scott Muller QUE, Pearson Education
4. Comdex Information Technology course tool kit Vikas Gupta, WILEY Dreamtech
5. IT Essentials PC Hardware and Software Companion Guide Third Edition by David Anfinson and Ken Quamme. – CISCO Press, Pearson.

SITAMS, CHITTOOR