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**ENGINEERING WORKSHOP & IT WORKSHOP (R13114)**

**Prerequisite Course:** Basic Knowledge on workshop tools is required.

**Course Learning Objectives:**

CO	Course Outcomes	POs
1	Use marking tools, measuring tools, cutting tools available in carpentry and fitting trades to prepare basic carpentry and fitting joints.	3
2	Prepare black smithy jobs using furnace, hammers, chisels, anvil and flatteners & fabricate tin smithy jobs using snips, stakes and wooden mallet.	4
3	Connect & check the basic house wiring circuit connections for various applications.	2
4	Identify the computer hardware components and demonstrate the trouble shooting of both software and hardware of the computer system.	5
5	Demonstrate about Networking infrastructure and internet tools.	4
6	Explain the purpose and usage of various Microsoft tools such as Word, Excel and Power Point for documentation, mathematical problem solving and presentations.	3

**Syllabus:**

**ENGINEERING WORKSHOP:**

**Course Objective:** To impart hands-on practice on basic engineering trades and skills.

Note: At least two exercises to be done from each trade.

**Trade:**

Carpentry

1. T-Lap Joint
2. Cross Lap Joint
3. Dovetail Joint
4. Mortise and Tennon Joint

Fitting

1. Vee Fit
2. Square Fit
3. Half Round Fit
4. Dovetail Fit



- Black Smithy
1. Round rod to Square
  2. S-Hook
  3. Round Rod to Flat Ring
  4. Round Rod to Square headed bolt

- House Wiring
1. Parallel / Series Connection of three bulbs
  2. Stair Case wiring
  3. Florescent Lamp Fitting
  4. Measurement of Earth Resistance

- Tin Smithy
1. Taper Tray
  2. Square Box without lid
  3. Open Scoop
  4. Funnel

### **IT WORKSHOP:**

Objectives: Enabling the student to understand basic hardware and software tools through practical exposure.

#### **PC Hardware:**

Identification of basic peripherals, assembling a PC, installation of system software like MS Windows, device drivers. Troubleshooting Hardware and software \_ some tips and tricks. Internet & World Wide Web: Different ways of hooking the PC on to the internet from home and workplace and effectively usage of the internet, web browsers, email, newsgroups and discussion forums .Awareness of cyber hygiene (protecting the personal computer from getting infected with the viruses), worms and other cyber attacks

**Productivity tools** Crafting professional word documents; excel spread sheets, power point presentations and personal web sites using the Microsoft suite of office tools.

**(Note: Student should be thoroughly exposed to minimum of 12 Tasks)**

#### **PC Hardware**

**Task 1:** Identification of the peripherals of a computer. To prepare a report containing the block diagram of the CPU along with the configuration of each peripheral and its functions. Description of various I/O Devices.

**Task 2 (Optional):** A practice on disassembling the components of a PC and assembling them to back to working condition.

**Task 3:** Examples of Operating systems- DOS, MS Windows, Installation of MS windows on a PC.

**Task 4:** Introduction to Memory and Storage Devices, I/O Port, Device Drivers, Assemblers, Compilers, Interpreters, Linkers, Loaders.



**Task 5:**

**Hardware Troubleshooting (Demonstration):**

Identification of a problem and fixing a defective PC(improper assembly or defective peripherals).

**Software Troubleshooting (Demonstration):** Identification of a problem and fixing the PC for any software issues.

**Internet & Networking Infrastructure**

**Task 6:** Demonstrating Importance of Networking, Transmission Media, Networking Devices- Gateway, Routers, Hub, Bridge, NIC, Bluetooth Technology, Wireless Technology, Modem, DSL, and Dialup Connection.

**Orientation & Connectivity Boot Camp and web browsing:** Students are trained to configure the network settings to connect to the Internet. They are Electrical and Electronics Engineering 40 trained to demonstrate the same through web browsing (including all tool bar options) and email access.

**Task 7: Search Engines & Netiquette:** Students are enabled to use search engines for simple search, academic search and any other context based search (Bing, Google etc). Students are acquainted to the principles of micro-blogging, wiki, collaboration using social networks, participating in online technology forums. **Task 8: Cyber Hygiene (Demonstration):** Awareness of various threats on the internet. Importance of security patches updates and anti-virus solutions. Ethical Hacking, Firewalls, Multi-factor authentication techniques including Smartcard, Biometrics are also practiced.

**Word**

**Task 9: MS Word Orientation:** Accessing, overview of toolbars, saving files, Using help and resources, rulers, formatting ,Drop Cap , Applying Text effects, Using Character Spacing, OLE in Word, using templates, Borders and Colors, Inserting Header and Footer, Using Date and Time option, security features in word, converting documents while saving.

**Task 10: Creating project :** Abstract Features to be covered:-Formatting Styles, Inserting table, Bullets and Numbering, Changing Text Direction, Cell alignment, Footnote, Hyperlink, Symbols, Spell Check , Track Changes, Images from files and clipart, Drawing toolbar and Word Art, Formatting Images, Textboxes and Paragraphs.

**Excel**

**Task 11:** Using spread sheet features of EXCEL including the macros, formulae, pivot tables, graphical representations. Creating a Scheduler - Features to be covered:- Gridlines, Format Cells, Summation, auto fill, Formatting Text.

**LOOKUP/VLOOKUP**

**Task 12:** Performance Analysis - Features to be covered:- Split cells, freeze panes, group and outline, Sorting, Boolean and logical operators, Conditional formatting. Power Point



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KAKINADA–533003, AndhraPradesh, India

R-13 Syllabus for ECE .JNTUK

**Task 13:** 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, Tables and Charts in PowerPoint.

**Task 14:** Focusing on the power and potential of Microsoft power point. Helps them learn best practices in designing and preparing power point presentation. Topic covered during this week includes: - Master Layouts (slide, template, and notes), Types of views (basic, presentation, slide slotter, notes etc), Inserting – Background, textures, Design Templates, Hidden slides, OLE in PPT.

### TEXT BOOK:

Faculty to consolidate the workshop manuals using the following references

1. Computer Fundamentals, Anita Goel, Pearson.
2. Scott Mueller's Upgrading and Repairing PCs, 18/e, Scott. Mueller,QUE, Pearson, 2008.
3. Information Technology Workshop, 3e, G Praveen Babu, MV Narayana BS Publications.
4. Comdex Information Technology, Vikas Gupta, dreamtech.

### REFERENCE BOOK:

1. Essential Computer and IT Fundamentals for Engineering and Science Students, Dr. N.B. Venkateswarlu.