

**Ramgarhia Polytechnic College,**  
**Phagwara**



**Electronics and Communication**  
**Engineering Department**

Head of Department:	Er. Simranjit Singh Kahlon
Name of the Faculty:	Er. Simranjit Singh Kahlon
Discipline:	ECE Department
Semester:	1 <sup>ST</sup>
Subject:	ELECTRONICS WORKSHOP-I
Lesson Plan Duration:	16 Weeks

**RATIONALE**














In order to have a balanced overall development of diploma engineers, it is necessary to integrate theory with practice. General workshop practices are included in the curriculum in order to provide hands-on experience about use of different tools and basic manufacturing practices. This subject aims at developing general manual and

machining skills in the students. In addition, the development of dignity of labour, safety at work place, team working and development of right attitude are the other objectives.

## LEARNING OUTCOMES

After undergoing the subject, student will be able to:

- CO1. Identify tools and equipment used and their respective functions.
- CO2. Identify different types of materials and their basic properties.
- CO3. Use and take measurements with the help of basic measuring tools/equipment.
- CO4. Select proper tools for a particular operation.
- CO5. Select materials, tools, and sequence of operations to make a job as per given specification/drawing.
- CO6. Prepare independently simple jobs and inspect the same.
- CO7. Follow safety procedures and measures.
- CO8. Use safety equipment.

PO 	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO 							
CO1							
CO2							
CO3							
CO4							
CO5							
CO6							
CO7							
CO8							

## Syllabus

Units	Details	
1.	Identification and familiarization with the following tools used in electronic shop: Tweezers, Screw drivers (different sizes), Insulated Pliers, Cutter, Sniper, Philips Screw Driver (Star Screw Driver), L- Keys, Soldering Iron and their demonstration and uses.	
2.	<p>2.1 Demonstrate the jointing methods. mounting and dismantling as well as uses of the items mentioned below:</p> <p>2.1.2 Various types of single, multi-cored insulated screened power, audio video, co-axial, general purpose wires/cables</p> <p>2.1.3 Various types of plugs, sockets connectors suitable for general purpose audio and video use, 2 and 3 pin mains plug and sockets.</p> <p>Banana-plugs, and sockets, BNG, RCA, DIN, UHF, Ear phone speaker connector, telephone jacks and similar male and female connectors and terminal strips.</p> <p>2.1.4 Various types of switches such as normal/miniature toggle, slide, push button, piano key, rotary, micro switches, SPST, SPDT, DPST, DPDT, band selector, multi way Master Mains Switch.</p> <p>2.1.5 Various types of protective devices such as: Wire fuse, cartridge fuse, slow acting/fast acting fuse, HRC fuse, thermal fuse, single/multiple circuit breakers, over and under current relays.</p>	
3.	<p>Job Practice</p> <p>Job I To make perfect solder joints and exposure to modern soldering and re-soldering process.</p> <p>Job II To make soldering on PCBs and to remove components/wires by desoldering.</p> <p>Job III Cut, strip, connect/solder/crimp different kinds of wires/cables (including coaxial and shielded cable) to different types of power/general purpose/ audio video/ telephone plugs, sockets jacks, terminal, binding, posts, terminal strips, connectors.</p> <p>Job IV Identification and familiarisation with various types of switches, protective devices such as- wire fuse, cartridge fuse etc. and relays.</p> <p>Job V Safety precautions to be observed in the electronic shops.</p>	

## Reference Books:

1.Workshop Technology I,II,III, by SK Hajra, Choudhary and AK Choudhary; Media Promoters and Publishers Pvt. Ltd. Mumbai.

2.Workshop Technology Vol. I, II, III by Manchanda; India Publishing House, Jalandhar.

3.Workshop Training Manual Vol. I, II by S.S. Ubhi; Katson Publishers, Ludhiana.

4.Manual on Workshop Practice by K Venkata Reddy; MacMillan India Ltd., New Delhi

5.Basic Workshop Practice Manual by T Jeyapoovan; Vikas Publishing House (P) Ltd., New Delhi

## Delivery/Instructional Methodologies

Sr.No.	Description
1.	Chalk and Talk
2.	NA

## Assessment Methodologies

Sr. No.	Description	Type
1.	Student Assignment	Direct
2.	PROJECT WORK	Direct
3.	Student Feedback	Direct

## Gaps in the syllabus - to meet industry/profession requirements

S.NO.	DESCRIPTION	PROPOSED ACTIONS	PO MAPPING
	N/A	N/A	N/A

### **Topics beyond syllabus/advanced topics**

Units	Details	Hours
N/A	N/A	N/A

### **Web Source References**

Sr. No.	URL
1.	<a href="https://nptel.ac.in/">https://nptel.ac.in/</a>

## Lesson Plan

Week	Theory		Practical	
	Lecture Day		Practical Day	
1 <sup>st</sup>	1 <sup>st</sup>	NA	1.	Identification and familiarization with the following tools used in electronic shop: Tweezers, Screw drivers (different sizes), Insulated Pliers, Cutter, Sniper, Philips Screw Driver (Star Screw Driver), L- Keys, Soldering Iron and their demonstration and uses.
	2 <sup>nd</sup>			
	3 <sup>rd</sup>			
2 <sup>nd</sup>	4 <sup>th</sup>	NA	2.	Various types of single, multi-cored insulated screened power, audio video, co-axial, general purpose wires/cables
	5 <sup>th</sup>			
	6 <sup>th</sup>			
3 <sup>rd</sup>	7 <sup>th</sup>	NA	3.	Various types of plugs, sockets connectors suitable for general purpose audio and video use, 2 and 3 pin mains plug and sockets.  Banana-plugs, and sockets, BNG, RCA, DIN, UHF, Ear phone speaker connector, telephone jacks and similar male and female connectors and terminal strips.
	8 <sup>th</sup>			
	9 <sup>th</sup>			

4 <sup>th</sup>	10 <sup>th</sup>	NA	4.	Various types of switches such as normal/miniature toggle, slide, push button, piano key, rotary, micro switches, SPST, SPDT, DPST, DPDT, band selector, multi way Master Mains Switch.
	11 <sup>th</sup>			
	12 <sup>th</sup>			
5 <sup>th</sup>	13 <sup>th</sup>	NA	5.	REVISION
	14 <sup>th</sup>			
	15 <sup>th</sup>			
6 <sup>th</sup>	16 <sup>th</sup>	NA	6.	Various types of protective devices such as: Wire fuse, cartridge fuse, slow acting/fast acting fuse, HRC fuse, thermal fuse, single/multiple circuit breakers, over and under current relays.
	17 <sup>th</sup>			
	18 <sup>th</sup>			
7 <sup>th</sup>	19 <sup>th</sup>	NA	7.	Job I :To make perfect solder joints and exposure to modern soldering and re-soldering process.
	20 <sup>th</sup>			
	21 <sup>th</sup>			
8 <sup>th</sup>	22 <sup>nd</sup>	NA	8.	PRACTICAL PERFORMANCE TEST OF FIRST JOB
	23 <sup>rd</sup>			
	24 <sup>th</sup>			

9 <sup>th</sup>	25 <sup>th</sup>	NA	9.	To make soldering on PCBs and to remove components/wires by desoldering.
	26 <sup>th</sup>			
	27 <sup>th</sup>			
10 <sup>th</sup>	28 <sup>th</sup>	NA	10.	PRACTICAL PERFORMANCE TEST OF SECOND JOB
	29 <sup>th</sup>			
	30 <sup>th</sup>			
11 <sup>th</sup>	31 <sup>st</sup>	NA	11.	Cut, strip, connect/solder/crimp different kinds of wires/cables (including coaxial and shielded cable) to different types of power/general purpose/ audio video/ telephone plugs, sockets jacks, terminal, binding, posts, terminal strips, connectors.
	32 <sup>nd</sup>			
	33 <sup>rd</sup>			
12 <sup>th</sup>	34 <sup>th</sup>	NA	12.	Identification and familiarisation with various types of switches, protective devices such as- wire fuse, cartridge fuse etc. and relays.
	35 <sup>th</sup>			
	36 <sup>th</sup>			



13 <sup>th</sup>	37 <sup>th</sup>	NA	13.	PRACTICAL PERFORMANCE TEST OF THIRD JOB
	38 <sup>th</sup>			
	39 <sup>th</sup>			
14 <sup>th</sup>	40 <sup>th</sup>	NA	14.	Safety precautions to be observed in the electronic shops.
	41 <sup>th</sup>			
	42 <sup>nd</sup>			
15 <sup>th</sup>	43 <sup>rd</sup>	NA	15.	<b>REVISION</b>
	44 <sup>th</sup>			
	45 <sup>th</sup>			
16 <sup>th</sup>	46 <sup>th</sup>	NA	16.	<b>REVISION</b>
	47 <sup>th</sup>			
	48 <sup>th</sup>			

**NBA has defined the following seven POs for an Engineering diploma graduate:**

- i) **Basic and Discipline specific knowledge:** Apply knowledge of basic mathematics, science and engineering fundamentals and engineering specialization to solve the engineering problems.
- ii) **Problem analysis:** Identify and analyze well-defined engineering problems using codified standard methods.
- iii) **Design/ development of solutions:** Design solutions for well-defined technical problems and assist with the design of systems components or processes to meet specified needs.
- iv) **Engineering Tools, Experimentation and Testing:** Apply modern engineering tools and appropriate technique to conduct standard tests and measurements.
- v) **Engineering practices for society, sustainability and environment:** Apply appropriate technology in context of society, sustainability, environment and ethical practices.
- vi) **Project Management:** Use engineering management principles individually, as a team member or a leader to manage projects and effectively communicate about well-defined engineering activities.
- vii) **Life-long learning:** Ability to analyze individual needs and engage in updating in the context of technological changes.

### **Program Specific Outcomes (PSOs)**

PSOs are a statement that describes what students are expected to know and be able to do in a specialized area of discipline upon graduation from a program. Program may specify 2-4 program specific outcomes, if required.

These are the statements, which are specific to the particular 11 program. They are beyond POs. Program Curriculum and other activities during the program must help in the achievement of PSOs along with POs.