



## FACULTY OF ENGINEERING & TECHNOLOGY

Effective from Academic Batch: 2022-23

**Programme:** Bachelor of Technology (Artificial Intelligence (AI) and Data Science)

**Semester:** I

**Course Code:** 202001209

**Course Title:** Engineering Workshop

**Course Group:** Engineering Science Courses

**Course Objectives:** Engineering Workshop will help the students to get acquainted with various basic trades and develop and enhance relevant trades required in the various engineering industries and workshops.

### Teaching & Examination Scheme:

Contact hours per week			Course Credits	Examination Marks (Maximum / Passing)					
Lecture	Tutorial	Practical		Theory		J/V/P*		Total	
				Internal	External	Internal	External		
0	0	4	2	NA	NA	50 / 18	50 / 17	100 / 35	

\* J: Jury; V: Viva; P: Practical

### List of Practicals / Tutorials:

1	<b>Machine shop:</b> Demonstration of job on Lathe machine, Demonstration of job on Drilling machine, measuring instruments, marking and measurement.
2	<b>Fitting shop:</b> Hands on Practice and job making in Fitting shop
3	<b>Carpentry:</b> Hands on Practice and job making in Carpentry shop
4	<b>Welding shop:</b> Hands on Practice and job making using Electric arc Welding / Resistance welding process, Hands on Practice and job making using Soldering process
5	<b>Casting:</b> Demonstration of Pattern Making by sand moulding
6	<b>Plumbing and its fitting:</b> Types of Pipes and Fittings, Joints (PVC and Metal), Plumbers tools and equipment's Plumbing symbols, Sanitary Pipes and Fittings, Joints
7	<b>Smithy:</b> Hands on Practice and job making in Smithy/ Tin smithy shop
8	<b>Masonry Work:</b> Plumbing and fittings, Casting of concrete and mortar cubes and its testing



9	<p><b>Electrical:</b> Understanding of various electrical components(wires, cables, switches, batteries, connectors and sockets) and measuring instruments (voltmeters, ammeters, watt-meters, power factor meters, frequency meters, DMM, CRO). Measurement of voltage, current, frequency, phase difference, power and power factor for single &amp; three-phase supply. Domestic wiring (fan, tube light, staircase wiring, godown wiring, etc.) Lay out of instrument panel with various accessories as per standards. Construction and operation of fuse, MCB and ELCB. Preparing the drawing for wiring a newly built room along with a bill of materials with specifications; the room may be a class-room, an office, a shop, a clinic, a small workshop etc. Drawing of electrical circuit diagram using IEEE standard symbols. Identify and rectify open circuit and short circuit faults in electrical systems. Hands on Practice on Electrical Quantities Measuring Instruments &amp; Components. Preparing the drawing for wiring a newly built room, without any electrical wiring along with a bill of materials with specifications; the room may be a class-room, an office, a shop, a clinic, a small workshop etc. &amp; switching devices like MCB, ELCB, RCCB Introduction soldering techniques and analysis of electronic circuits.</p>
10	<p><b>Electronics:</b> Hands on Practice on Electronic Devices, its characteristics &amp; Instruments R,L,C Circuits, its troubleshooting and analysis using basic theorems PCB Designing Process with Hands on</p>
11	<p><b>Internet-of-Things:</b> Hands on using Arduino boards. Hands on using Node MCU</p>
12	<p><b>Software Tools &amp; OS Commands:</b> Web development using HTML LINUX, JAVA Script based applications and commands Student has to build his own Web Site consisting of basic profile about his department, his own personal profile and basic Institute details. Student has to learn working with Two OS Windows and Linux and acquire familiarity with basic commands</p>

### Reference Books:

1	"Elements of Workshop Technology", Vol. I 2008 and Vol. II 2010, Hajra Choudhury S.K., Hajra Choudhury A.K. and Nirjhar Roy S.K., , Media promoters and publishers private limited, Mumbai.
2	"Manufacturing Technology", Vol. I and Vol. II, 2017, Rao P.N., Tata McGraw Hill House
3	"Workshop Technology" Vol. 1 and 2,1998 by Raghuvanshi B.S. Dhanpat Rai & Sons
4	"Workshop Technology", 1998, Chapman W.A. J and Arnold E. Viva low priced student edition
5	"Workshop Practices", 2009, H S Bawa, Tata McGraw-Hill

### Supplementary learning Material:

1	NPTEL resources
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### Pedagogy:

- Continuous assessment
- Interactive methods
- Course Projects

### Suggested Specification table with Marks (Theory) (Revised Bloom's Taxonomy):

Distribution of Theory Marks in %						R: Remembering; U: Understanding; A: Applying; N: Analyzing; E: Evaluating; C: Creating
R	U	A	N	E	C	
-	-	-	-	-	-	

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

### Course Outcomes (CO):

Sr.	Course Outcome Statements	%weightage
CO-1	Get acquainted with workshop layouts, safety norms, different shops, basic machines, trades and basic measuring instruments.	15
CO-2	Get hands on experience for different job making practices.	35
CO-3	Measure different electrical quantities and trouble shoot electrical and electronics appliances	45
CO-4	Use basic commands of computer operating systems	05

### Curriculum Revision:

Version:	2.0
Drafted on (Month-Year):	June-2022
Last Reviewed on (Month-Year):	-
Next Review on (Month-Year):	June-2025