SILVER OAK UNIVERSITY

College of Technology
Bachelor of Technology
Information Technology
Course Name: Workshop Technology
Course Code: 1010123115
Semester: 1st

Prerequisite:

Zeal to learn the subject

Course Objectives:

1. This course is the backbone of the real industrial environment which helps to develop and enhance relevant technical hand skills required by the technician working in the various engineering industries and workshops.
2. To provide basic knowledge of fundamentals of Civil Engineering
3. This course deals with basic introduction of system components of electrical and electronic systems, and provides hands-on practice in assembling, interconnecting, testing, and repairing systems by making use of various tools used in electrical and electronic workshops.
4. Students will be acquainted with the IT ecosystem including Multimedia and Emerging Technologies. Along with concept understanding, students will be well versed with the applicability of the concepts after proper evaluation in real-world situations.

Teaching Scheme:

Teaching Scheme				
L	T	P	Contact Hours	Credit
0	0	4	4	2

Contents:

Unit	Topics	Teaching Hours	Weightage %
1	**Mechanical Manufacturing Techniques: Conventional Machining Process**: lathe machine, drilling machine, milling machine, Grinding Machine, Slotting machine and other sharp cutting tools. Advanced Conventional Machining Process: CNC Machine Metal Joining Process: Types of Welding Process, Basic Principle of Welding, Working principle of Arc Welding and Gas Welding processes, Demonstration of TIG and MIG welding processes.	15	25

2	**Introduction to Civil Engineering:** **Surveying:** Measurements of horizontal, vertical and angular distances. **Building components:** Foundation, Damp Proof Course, Plinth Beam, Floor, Slab, Roof, Staircase, Lintel, Sill, Doors & Windows **Brick masonry:** Classification, Types of Bond Elements of Building **Construction:** Layout of residential & industrial buildings, Introduction to Plan, Elevation & Section of Residential Building	15	25
3	**Introduction to Electrical Engineering:** **Electrical Equipments:** Symbols, Cost & specification for different electrical & electronics equipment including Function Generator, CRO, Power Supply, Soldering iron etc. **Electrical Safety**: Electrical Safety precautions, Electrical protection device Fuse, MCB, ELCB, etc **Electrical Layout:** Different domestic wiring diagram such as Ceiling fan & Tube light, Two-way control switch etc. **Electrical Circuit Design:** Breadboard & PCB connections for electronic circuits, Arduino Microcontroller & its applications (Project).	15	25
4	**Guided Transmission Media :** Twisted pair, Coaxial cable, Optical Fiber **Networking devices :** LAN, MAN,WAN,Basic of OSI Model-Switches and Routers, **Word , Presentation , Spreadsheet :** Basics, Format Documents, different layouts, Watermarks and Borders, Insert headers and footers in Word, Applying Animations in Presentation , Inserting Charts in Presentation & Spreadsheet , Tables in Presentation. Understanding Different Formats, Formulas, and Logics in Spreadsheet.	9	15
5	**HTML Tags and CSS with JS :** Basic Web page creation, Introduction to Validations, Bootstrap	6	10

Course Outcomes:

Sr.No.	CO Statement	Unit
CO-1	Demonstrate the mechanical machines and Basic concept of Mechanical processes	1
CO-2	Understand the basics of civil engineering and know various types of building components	2
CO-3	Explain the basics of electrical engineering and various types of electrical and electronics components and their performance	3
CO-4	Describe the computer components and networking concepts along with the knowledge of word processor, spreadsheet and presentation.	4

Teaching & Learning Methodology:

1. Direct Instruction
2. Flipped Classrooms
3. Kinesthetic Learning

List of Experiments: Total Hours: 28

Sr. No.	Practical Name
1	To study the basic workshop practices and its general safety rules
2	Study of Machine tools: Lathes, drilling, milling, slotter and shaper machine
3	Job making on Lathe machine
4	Job Making on Milling, Drilling and Shaper Machine
5	Demonstration of a CNC machine.
6	Demonstration of Arc welding and Gas cutting
7	Demonstration of TIG and MIG Welding.
8	Introduction to Civil engineering
9	Linear and angular measurements (Chain and Compass) (in field with instrument)
10	Prepare chart on Foundation, plinth, floor and slab
11	Prepare chart on different type of Doors, Windows & Staircase
12	Chart preparation on Types of Bricks
13	Model preparation and demonstration of Brick Bonds
14	Planning of a residential building (plan, elevation & section of simple 1 room)
15	To study symbols, approximation cost & specification for different electrical & electronics devices
16	To study Function Generator & Cathode Ray Oscilloscope and perform measurement for different signal measurement.
17	To study i) Safety precautions ii) Electrical protection device MCB, ELCB & Fuse
18	To study preparation of wiring diagram for i) Ceiling fan & Tube light ii) Two-way control switch.
19	To study breadboard & PCB connections for electronic circuits.
20	To study Soldering & De- soldering techniques for electronic circuits
21	To study Arduino Microcontroller & its applications (Project).

22	Study different types of cabling mechanisms
23	Study different types of Networking devices.
24	Study various functionalities of Word application
25	Study various functionalities of PowerPoint applications.
26	Working with a spreadsheet.
27	Working with basic html and CSS tags.

Major Equipment:

1. Lathe Machine
2. Milling Machine
3. Grinding Machine
4. Shaper Machine
5. Arc Welding
6. TIG and MIG Welding Machine
7. CNC Machine
8. Electrical and Electronics Circuit Components
9. Electrical Controlled Supply Systems
10. Various Electrical Parameter Measuring Instruments
11. LAN Cables and Crimping Tools
12. Labs with PC and Microsoft Office
13. Chain, Measuring Tape & Compass

Books Recommended:

1. K C John , “Mechanical Workshop Practice”, PHI Learning
2. Dr. Umesh Rathore, Naresh Kumar Sharma, “A Textbook of Electrical Workshop Practices ” S.K. Kataria & Sons
3. Ms. J. Glory Priyadharshini ,“Engineering Workshop Practice on Electrical & Electronics Engineering”, Notion Press.
4. Dorothy House,“Microsoft Word, Excel, and PowerPoint: Just for Beginners”,Outskirts Press
5. Behrouz A Forouzan,”Data Communications And Networking 4th Edition” ,TMH
6. “Head First HTML and CSS”, O'Reilly Media
7. Dr. R.K. Jain and Dr. P.P. Lodha , “Elements of Civil Engineering” McGraw Hill Education, India Pvt. Ltd.
8. Dr. B. C. Punmia, Ashokkumar Jain, Arunkumar Jai, “Building Construction” Laxmi Pub. Delhi

List of Open-Source Software/learning website:

1. https://csfirst.withgoogle.com/c/cs-first/en/interactive-presentation/overview.html
2. https://docs.microsoft.com/en-us/learn/certifications/browse/
3. https://www.youtube.com/c/SilverOakUni

CO-PO-PSO Matrix:

CO No.	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO-1	2	1	1	2	2				1	2			1	1
CO-2	2	1	2	2	2		1		1	2			1	1
CO-3	2	1	2	2	2				1	2			1	1
CO-4	2	1	2	2	2				1	2		1	1	2