ANNEXURE- VIII

Scheme & Syllabus of

Bachelor of Vocational (B.Voc.)

in

Electrical Technician

(Batch 2026 & Onwards)

By

Board of Studies Electrical Engineering

Department of Academics

I.K. Gujral Punjab Technical University Jalandhar

Objectives

[1]. To provide judicious mix of skills relating to a profession and appropriate content of General Education.
[2]. To ensure that the students have adequate knowledge and skills, so that they are work ready at each exit point of the programme.
[3]. To provide flexibility to the students by means of pre-defined entry and multiple exit points.
[4]. To integrate NSQF within the undergraduate level of higher education to enhance employability of the students and meet industry requirements. Such student apart from meeting the needs of local and national industry are also expected to be equipped to become part of the global workforce.
[5]. To provide vertical mobility to students admitted in such Vocational courses.
[6]. The certification levels will lead to Diploma/Advanced Diploma/B. Voc.
[7]. Students may be awarded Level Diploma/Advance Diploma /Degree as out-lined in the Table below:

Award	Duration after class XII
Diploma	1 Year
Advanced Diploma	2Years
B. Voc Degree	3 Year

Contents

Section 1: Introduction to B.Voc. in Electrical Technician

Our life would be unthinkable without the use of electrical energy. The growing utilisation of the latter is a decisive prerequisite for a rapid development of industry and agriculture.

A few examples will show the importance of electrical energy. Thus, electrical lighting is indispensable for working during the dark hours of the day. With increasing industrialization, a growing proportion of electrical energy is used for the lighting of shops, offices, dwellings and for outdoor lighting. Man is relieved from heavy physical labour by the use of electrical devices. The drive of machines, hoisting gear and lifts is enabled in a simple form by the electromotor which in railway transport also has the advantage over internal combustion engines. There are many buildings where an air-conditioning system including heating, cooling and ventilation is installed for the operation of which electrical energy is required. At higher ambient temperatures, foodstuffs can only be kept for a prolonged period of time in refrigerators or cold-storage rooms which usually are also operated with electrical energy.

Without electrical energy, there would be no broadcasting and television systems, no telephone communication or telegraphy. In order to arrange automatic sequences of operation in production, devices of control and regulation engineering are required which, today, are driven almost exclusively by electrical energy.

Now taking broadly about B. Voc courses, In India the enrolment in vocational courses has increased from 554 in 2013-14 to more than 30,000 in 2018-19 as per reports published in Times of India. To summarise, the advantages of B.Voc courses are that they help ensure the learners have adequate skills, make them work-ready and enhance the employability of the graduate students. A unique feature of the curriculum is the blend of vocational and business management concepts. This higher education system incorporates the requirements of various industries in a flexible manner which develops holistic and well – groomed graduates thus meeting the emerging needs of the economy.

B. Voc in Electrical Technician also contributes in the GOI program of skill Development. Our Department of Electrical Engineering is already committed towards Skill development program, as we are already providing skill development courses under PMKVY-TI in nearly about five courses. Our main aim for B. Voc Electrical Technician is to provide practical skills in parallel with theory classes.

Core area will be assembling, evaluating, testing, and maintaining electrical or electronic wiring, equipment, appliances, and apparatus. Troubleshooting and repairing malfunctioning equipment, appliances, and apparatus. Constructing and fabricating parts, using hand tools and specifications.

Section 2: Job Areas for Electrical technician

Electrical Technician has wide working area. They can work with any organization or can work independently. Some of the areas are:

1. Electrical Installations
2. Maintenance/Manufacturing
3. Repair electrical power
4. Communications
5. Lighting
6. Control systems.

Section 3: Curriculum

I[st] semester

	Code	Educational Component	L	T	P	H	Credits	Marks		
								Int	Ext	Total
Semester I	ET.101	Self Awareness & Safety Rules	4	0	0	4	4	20	30	50
	ET.102	Basics of Computers	4	0	0	4	4	20	30	50
	ET.103	Basics of Electrical Systems	4	0	0	4	4	20	30	50
	ET.104	Applied Physics	4	0	0	4	4	20	30	50
	ET.105	Basic Electrical Lab	0	0	2	2	1	30	20	50
	UGDM-101-26	Disaster management and preparedness	1	0	2	3	Non-credit	100	0	100
	ET.106	On-Job-Training (OJT)Qualification packs – Repair & Maintenance of Electrical Devices	0	0	12	12	6	100	150	250
Total			**17**	**0**	**16**	**33**	**23**	**310**	**290**	**600**

II[nd] semester

	Code	Educational Component	L	T	P	H	Credits	Marks		
								Int	Ext	Total
Semester II	ET.201	Applied Maths	4	0	0	4	4	20	30	50
	ET.202	Electrical Engineering Drawing	4	0	0	4	4	20	30	50
	ET.203	Basics of Electronic Systems	4	0	0	4	4	20	30	50
	ET.204	Entrepreneurship Development	4	0	0	4	4	20	30	50
	ET.205	Basic Electronics Lab	0	0	2	2	1	30	20	50
	EMC101-25	Entrepreneurship Setup and Launch*	0	0	4	4	2	60	40	100
	ET.206	Qualification Packs – Electrical and Electronics Sub-System (ELE/Q6301)	0	0	12	12	6	100	150	250
Total			**16**	**0**	**12**	**34**	**25**	**270**	**330**	**600**

Detailed Curriculum
(Semester I)

ET.101	**Self Awareness & Safety Rules**	**4L:0T:0P**	**4 credits**

Internal Marks: 20 **External Marks: 30** **Total Marks: 50**

Course Outcomes: After completing this course, students will be able to

1. Develop self-awareness and professional behaviour in workplace settings.
2. Identify hazards and follow basic electrical safety rules.
3. Apply proper safety practices while working with electrical systems.
4. Respond effectively to emergencies and provide basic first aid.
5. Promote a culture of safety and responsibility in the workplace.

Module 1: Self Awareness & Personal Development
Meaning and importance of self-awareness, Understanding strengths, weaknesses, and personality traits,Goal setting and time management,Emotional intelligence and stress management,Professional ethics and workplace behavior.

Module 2: Basics of Safety in Electrical Work
Importance of safety in electrical field, Types of hazards: electrical, fire, mechanical, environmental, Basic safety symbols and warning signs, Safe handling of electrical tools and equipment, Introduction to safety standards and regulations.

Module 3: Electrical Safety Practices
Causes and prevention of electric shock, Earthling and grounding concepts , Use of Personal Protective Equipment (PPE) Lockout/Tag out (LOTO) procedures , First aid for electrical accidents (shock, burns, etc.)

Module 4: Workplace Safety & Emergency Preparedness
Fire safety: types of fire and fire extinguishers, Emergency response and evacuation procedures, Accident reporting and documentation, Safety audits and risk assessment basics, Sustainable and safe work practices.

Reference Books

1. ***Electrical Safety, Fire Safety Engineering & Safety Management*** - S. Rao, R.K. Jain, H.L. Saluja, Khanna Publishers, 2nd Edition, 2012.
2. ***Electrical Safety*** - D.R. Nagpal, Standard Publishers Distributors, 1st Edition, 2018.
3. ***Electrical Workshop: A Textbook*** - R.P. Singh, I.K. International Publishing House, 2nd Revised Edition, 2010.
4. ***Industrial Safety & Environment*** - Anupama Prashar, S.K. Kataria & Sons, 2nd Edition, 2007.
5. ***Electrical Safety Handbook*** - Dennis K. Neitzel, John Cadick, McGraw Hill Education, 4th Edition, 2012.

ET.102	Basics of Computers	4L:0T:0P	4 credits

Internal Marks: 20 **External Marks: 30** **Total Marks: 50**

Course Outcomes: After completing this course, students will be able to

1. Explain basic computer concepts and components.
2. Identify computer hardware and software.
3. Use basic operating system functions.
4. Apply safe practices while using internet and computers.

Module 1: Introduction to Computers

Definition of computer, Characteristics and applications of computers, Evolution of computer generations, Types of computers -desktop, laptop, tablet, mobile, Hardware vs software, Block diagram of computer system.

Module 2: Computer Hardware

Input devices (keyboard, mouse, scanner), Output devices (monitor, printer, speakers), CPU:ALU, Control Unit, registers (basic idea), Memory types: RAM, ROM, Secondary storage: HDD, SSD, pen drive, CD/DVD.

Module 3: Software & Operating Systems

System software and application software, Operating system: functions & types, Examples of OS (Windows, Linux, Android), File and folder management, Basics of computer booting.

Module 4: Introduction to Artificial Intelligence (AI)

Basic Concept of AI, Applications of AI (chatbots, recommendation systems, voice assistants), Advantages and Limitations of AI, AI in Daily Life.

Reference Books

1. ***Fundamentals of Computers*** - V. Rajaraman, PHI Learning Pvt. Ltd., 6th Edition, 2014.
2. ***Computer Fundamentals*** - P.K. Sinha & Priti Sinha, BPB Publications, 6th Edition, 2013.
3. ***Introduction to Computers*** - Peter Norton, McGraw Hill Education, 7th Edition, 2017.
4. ***Computer Fundamentals and Information Technology*** - A. Goel, Pearson Education India, 1st Edition, 2010.
5. ***Artificial Intelligence: A Modern Approach*** - Stuart Russell & Peter Norvig, Pearson Education, 4th Edition, 2021.

ET.103	**Basics of Electrical Systems**	**4L:0T:0P**	**4 credits**

Internal Marks: 20 **External Marks: 30** **Total Marks: 50**

Course Outcomes: After completing this course, students will be able to

1. Understand basic electrical quantities and units.
2. Identify common electrical components and their uses.
3. Apply Ohm's law to simple DC circuits and explain basic AC concepts and domestic power supply.
4. Follow electrical safety practices.

Module 1: Fundamentals of Electricity
Definition of electricity, Electric charge, current, voltage, AC and DC (difference & examples), Electric circuit and its elements, Electrical symbols and units.

Module 2: Electrical Components
Resistor, capacitor, inductor, Switches, fuses, MCB, RCCB, Batteries and their maintenance,Lamps and heaters, Types of wires and cables, Basic Introduction to Relays and Smart Switching Devices.

Module 3: DC Circuits and AC Fundamentals
Ohm's law, Resistance and factors affecting it, Series and parallel circuits, Electric power and energy,Electrical Units and their Calculations (Volt, Ampere, Watt, kWh, etc.) ,Basic Numerical Problems on Power and Energy Consumption, Alternating current concept, AC waveform (sine wave), RMS and average value (No derivations), Frequency and time period, Single-phase supply (domestic supply).

Module 4: Electrical Safety & Applications
Electrical hazards and safety rules, Earthing and grounding, Electric shock and protection, Basics of electrical wiring, Domestic and industrial applications, Basic Load Calculations (Household Load, Connected Load, Energy Consumption), Estimation of Electricity Bill (Simple Calculations), Safety practices against fire.

Reference Books

1. ***Basic Electrical Engineering*** - V.K. Mehta & Rohit Mehta, S. Chand Publishing, 2nd Revised Edition, 2019.

2. ***A Textbook of Electrical Technology (Vol. I – Basic Electrical Engineering)*** - B.L. Theraja & A.K. Theraja, S. Chand Publishing, Multicolour Revised Edition, 2014.
3. ***Fundamentals of Electrical Engineering*** - Rajendra Prasad, PHI Learning Pvt. Ltd., 3rd Edition, 2014.
4. ***Basic Electrical Engineering*** - D.P. Kothari & I.J. Nagrath, McGraw Hill Education, 3rd Edition, 2019.
5. ***Electrical Wiring, Estimating and Costing*** - S.L. Uppal & G.C. Garg, Khanna Publishers, 5th Edition, 2017.

ET.104	Applied Physics	4L:0T:0P	4 credits

Internal Marks: 20 **External Marks: 30** **Total Marks: 50**

Course Outcomes: After the completion of this course, students will be able to

1. Identify basic physical quantities, units, and measurements.
2. Apply fundamental laws of mechanics to simple problems.
3. Understand heat & thermodynamics.
4. Use elementary electrical laws in simple circuits.
5. Solve basic numerical problems in applied physics

Module 1: Basics of Physics & Measurements
Scope & applications of physics in daily life, Physical quantities: fundamental & derived quantities, Units and systems of units (SI units), Scalars and vectors, Errors in measurement (simple types), Significant figures.

Module 2: Mechanics (Motion & Forces)
Rest and motion, Distance & displacement, Speed and velocity, Acceleration, Newton's laws of motion, Force, mass, weight, Work, power and energy (concept only).

Module 3: Heat & Thermodynamics
Temperature and heat, Modes of heat transfer: conduction, convection, radiation, Thermal expansion, Specific heat capacity, Change of state (melting, boiling), Basics of thermodynamics (First law).

Module 4: Electricity & Electronics (Introductory)
Electric charge and current, Ohm's law, Resistance and factors affecting it, Series and parallel circuits, Electric power & energy, Introduction to semiconductors, Diode, LED, transistor (basic idea & use).

Reference Books

1. ***Concepts of Physics (Volume 1 & 2)*** - H.C. Verma, Bharati Bhawan Publishers, Revised Edition, 2017.
2. ***Engineering Physics*** - R.K. Gaur & S.L. Gupta, Dhanpat Rai Publications, 8th Edition, 2013.
3. ***Applied Physics*** - P.K. Palanisamy, Scitech Publications, 4th Edition, 2014.
4. ***Fundamentals of Physics*** - Halliday, Resnick & Walker, Wiley India Pvt. Ltd., 10th Edition, 2015.
5. ***Basic Applied Physics*** - R.K. Rajput, Laxmi Publications, Revised Edition, 2016.

ET.105	Basic Electrical Lab	0L:0T:2P	1 credits

Internal Marks: 30 **External Marks: 20** **Total Marks: 50**

Course Outcomes: After completing this laboratory course, students will be able to

1. Identify basic electrical components, tools, and safety practices.
2. Verify fundamental electrical laws using simple DC circuits.
3. Measure electrical parameters such as voltage, current, resistance, and power.
4. Analyze basic series and parallel electrical circuits through experiments.
5. Demonstrate safe handling of electrical equipment and instruments.

Aims of Experiments

1. To study and identify basic electrical safety tools, symbols, and components.
2. To verify Ohm's law by establishing the relationship between voltage and current in a DC circuit.
3. To study the behaviour of current and voltage in series and parallel DC circuits.
4. To determine the resistance of a given conductor using the voltmeter–ammeter method.
5. To study the construction and use of basic electrical measuring instruments.
6. To verify Kirchhoff's Voltage Law for a given electrical network.
7. To measure electric power in a DC circuit using electrical measuring instruments.
8. To study a single-phase AC supply and measure its voltage using a multimeter.
9. To study the operation of a single-phase transformer and measure primary and secondary voltages.
10. To study the importance and method of electrical earthing for safety.
11. To study the construction, working, and applications of electrical relays (basic understanding and operation).
12. To perform measurements of voltage, current, and resistance using a digital multimeter.
13. To study and demonstrate smart switching systems (basic concept and operation using sensors or remote control).
14. To study the construction, working, and connection of a smart energy meter.

ET.106	**On-Job-Training (OJT)/Qualification Packs – Repair & Maintenance of Electrical Devices**	**0L:0T:12P**	**6 credits**

Internal Marks: 100 **External Marks: 150** **Total Marks: 250**

Course Outcomes: After the completion of this course, students will be able to

1. Identify the construction, working principles, and common faults of household electrical appliances such as fans, electric iron, heater, kettle, mixer grinder, and water pump.
2. Perform repair, servicing, and testing of household electrical appliances using appropriate tools and safety procedures.
3. Demonstrate basic knowledge of motor winding, maintenance practices, and troubleshooting techniques for electrical devices.
4. Carry out inspection, cleaning, lubrication, and replacement of faulty components to ensure efficient functioning of appliances.
5. Apply preventive maintenance techniques and safe working practices for improving the reliability and life of electrical equipment.

Contents

Repair and servicing of household electrical appliances: Fans (ceiling/table/exhaust), Electric iron, heater, kettle, Mixer grinder, water pump.

Motor winding basics and maintenance, Inspection, cleaning, lubrication of devices, Replacement of faulty components, Preventive maintenance techniques.

Semester-II

ET.201	**Applied Maths**	**4L:0T:0P**	**4 credits**

Internal Marks: 20 **External Marks: 30** **Total Marks: 50**

Course Outcomes: After the completion of this course, students will be able to

1. Apply basic algebraic techniques to solve engineering problems.
2. Use trigonometric relations in practical calculations.
3. Apply integration methods to simple engineering problems.
4. Solve systems of equations using matrices and determinants.

Module 1: Basics of Algebra
Laws of indices and logarithms, Linear equations and simultaneous equations, Quadratic equations, Matrices & Determinants (Basics).

Module 2: Arithmetic & Geometric Progressions
Progressions (Arithmetic & Geometric) - n^{th} term, Sum of n terms, Arithmetic & Geometric means.

Module 3: Statistics
Collection and Classification of Data, Measures of Central Tendency -Mean, Median, Mode, Measures of Dispersion- Range, Variance, and Standard Deviation.

Module 4: Trigonometry
Trigonometric functions and identities, Trigonometric equations, Inverse trigonometric functions (basic), Applications of trigonometry.

Reference Books

1. Higher Engineering Mathematics - B.S. Grewal, Khanna Publishers, 44th Edition, 2017.
2. Engineering Mathematics - H.K. Dass, S. Chand Publishing, Revised Edition, 2018.
3. Advanced Engineering Mathematics - Erwin Kreyszig, Wiley India Pvt. Ltd., 10th Edition, 2015.
4. A Textbook of Engineering Mathematics - N.P. Bali & Manish Goyal, Laxmi Publications, 9th Edition, 2014.
5. Engineering Mathematics - B.V. Ramana, McGraw Hill Education, 1st Edition, 2010.

ET.202	**Electrical Engineering Drawing**	**4L:0T:0P**	**4 credits**

Internal Marks: 20 **External Marks: 30** **Total Marks: 50**

Course Outcomes: After completing this course, students will be able to

1. Understand basic engineering drawing standards and symbols.
2. Draw simple electrical circuit diagrams.
3. Prepare basic wiring and installation layouts.
4. Interpret drawings of electrical machines and systems.
5. Develop basic drafting skills for electrical applications.

Module 1: Basics of Engineering Drawing

Drawing instruments and their use, Types of lines and lettering, Scales and dimensioning, Introduction to electrical drawing standards, Basic electrical symbols.

Module 2: Electrical Symbols and Circuit Diagrams

Standard electrical symbols (IEC / BIS), Circuit diagrams of basic electrical components, Series and parallel circuits, Lighting circuit diagrams, Wiring diagrams.

Module 3: Wiring Layout Drawings

Domestic wiring layouts, Switchboards and distribution boards, Lighting and power circuits, Earthing layout, Conduit and casing wiring diagrams.

Module 4: Electrical Machines Drawings

Basic layout of DC machines, Basic layout of transformers, Single-line diagrams of electrical systems, Motor installation layout.

Reference Books

1. ***Electrical Drafting and Design*** - Surjit Singh, Dhanpat Rai Publications, 1st Edition, 2012.
2. ***A Textbook of Electrical Technology (Vol. IV – Electrical Design Drawing & Estimating)*** - B.L. Theraja, S. Chand Publishing, Revised Edition, 2015.
3. ***Electrical Wiring, Estimating and Costing*** - S.L. Uppal & G.C. Garg, Khanna Publishers, 5th Edition, 2017.
4. ***Engineering Drawing*** - N.D. Bhatt & V.M. Panchal, Charotar Publishing House, 53rd Edition, 2016.
5. ***Electrical Engineering Drawing*** - K.B. Raina, New Age International Publishers, 1st Edition, 2010.

ET.203	Basics of Electronic Systems	4L:0T:0P	4 credits

Internal Marks: 20 **External Marks: 30** **Total Marks: 50**

Course Outcomes: After completing this course, students will be able to

1. Understand basic concepts of electronic systems and components.
2. Identify common electronic components and their functions.
3. Explain basic rectifier and power supply systems.
4. Describe introductory amplifier and digital concepts.
5. Relate electronic systems to real-life applications.

Module 1: Introduction to Electronics

Definition and scope of electronics, Electronic systems and applications, Difference between electrical and electronic systems, Active and passive components, Basic electronic symbols.

Module 2: Electronic Components

Resistors, capacitors, inductors, Diodes: PN junction, rectifier, LED, Zener diode (basic idea), Transistor (BJT) – introduction, Integrated circuits (ICs).

Module 3: Power Supplies & Rectifiers

AC to DC conversion, Half-wave and full-wave rectifiers, Filters – basic, Regulated power supply (block diagram), Applications of power supplies.

Module 4: Amplifiers & Oscillators (Introductory)

Need for amplification, Transistor as an amplifier, Types of amplifiers, Feedback- basic, Oscillators and applications.

Reference Books

1. ***Principles of Electronics*** - V.K. Mehta & Rohit Mehta, S. Chand Publishing, 11th Edition, 2016.
2. ***Electronic Devices and Circuit Theory*** - Robert L. Boylestad & Louis Nashelsky, Pearson Education, 11th Edition, 2015.
3. ***Basic Electronics*** - B.L. Theraja & A.K. Theraja, S. Chand Publishing, Revised Edition, 2014.
4. ***Electronic Devices and Circuits*** - Salivahanan, Suresh Kumar & Vallavaraj, McGraw Hill Education, 4th Edition, 2018.
5. ***Integrated Electronics*** - Jacob Millman & Christos Halkias, McGraw Hill Education, 2nd Edition, 2017.

ET.204	Entrepreneurship Development	4L:0T:0P	4 credits

Internal Marks: 20 **External Marks: 30** **Total Marks: 50**

Course Outcomes: After completing this course, students will be able to

1. To understand the basic concepts and importance of entrepreneurship.
2. To develop entrepreneurial skills and decision-making abilities.
3. To identify and evaluate new business opportunities.
4. To prepare and implement an effective business plan.
5. To understand financing and management of new ventures including e-commerce.

Module-I: Introduction to Entrepreneurship

Definition of Entrepreneur, Entrepreneurial Traits, and Entrepreneur vs. Manager, Entrepreneur vs. Entrepreneur. The Entrepreneurial decision process. Role of Entrepreneurship in Economic Development, Ethics and Social responsibility of Entrepreneurs. Opportunities for Entrepreneurs in India and abroad. Woman as Entrepreneur.

Module-II: Creating and Starting the Venture

Sources of new Ideas, Methods of generating ideas, creating problem solving, product planning and development process.

Module-III: The Business Plan

Nature and scope of Business plan, Writing Business Plan, Evaluating Business plans, Using and implementing business plans. Marketing plan, financial plan and the organizational plan,Launching formalities.

Module IV: Financing and managing the new venture

Sources of capital, Record keeping, recruitment, motivating and leading teams, financial controls. Marketing and sales controls. E-commerce and Entrepreneurship, Internet advertising.

Reference Books

1. ***Entrepreneurship Development*** - S.S. Khanka, S. Chand Publishing, 2nd Edition, 2013.
2. ***Dynamics of Entrepreneurial Development and Management*** - Vasant Desai, Himalaya Publishing House, 6th Edition, 2011.
3. ***Entrepreneurship Development*** - C.B. Gupta & N.P. Srinivasan, Sultan Chand & Sons, Revised Edition, 2014.
4. ***Entrepreneurship*** - Robert D. Hisrich, Michael P. Peters & Dean A. Shepherd, McGraw Hill Education, 10th Edition, 2017.
5. ***Entrepreneurship Development and Small Business Enterprises*** - Poornima M. Charantimath, Pearson Education India, 2nd Edition, 2014.

ET.205	**Basic Electronics Lab**	**0L:0T:2P**	**1 credit**

Internal Marks: 30 **External Marks: 20** **Total Marks: 50**

Course Outcomes: After completing this laboratory course, students will be able to

1. Identify basic electronic components and measuring instruments.
2. Construct simple electronic circuits using discrete components.
3. Measure basic electronic parameters and characteristics.
4. Analyze the performance of rectifier, regulator, and amplifier circuits.
5. Demonstrate safe handling of electronic equipment and laboratory practices.

Here are aims for a Basic Electronics Lab:

1. To identify basic electronic components and their symbols.
2. To study the use of basic electronic measuring instruments.
3. To plot the V–I characteristics of a PN junction diode.
4. To study the operation of a half-wave rectifier circuit.
5. To study the operation of a full-wave rectifier circuit.
6. To study the Zener diode as a voltage regulator.
7. To study the input and output characteristics of a transistor in CE mode.
8. To study the working of a transistor amplifier.
9. To verify the truth tables of basic logic gates.
10. To observe the basic operation of an oscillator or multivibrator.

EMC-101-25	**Entrepreneurship Setup and Launch (Lab)**	**0L:0T:4P**	**2 credits**

Internal Marks: 60 **External Marks: 40** **Total Marks: 100**

Introduction

This semester lays the foundation for the learner to understand what entrepreneurship is, beyond just starting a business. It introduces key ideas like problem-solving, value creation, and self-awareness. The learner will begin exploring basic business concepts while discovering their own interests and strengths.

Course Outcomes: After successful completion of this course, the students will be able to

1. Understand the core concepts of entrepreneurship through relatable, real-life examples.
2. Begin to see themselves as problem-solvers and creators.
3. Learn about business path sand choose one to try based on interest or local fit.
4. Launch amicro-hustle (online or offline) to earn their first in come.
5. Build confidence and self-belief by doing.

Outcome: By the end of this semester, learners will start a simple business activity, earn their first income, and build belief in their ability to do business.

Guiding Principles / Approach

This syllabus is built on the principles of experiential learning, growth mindset development, and identity-first learning. Drawing from learning science and behavior design, the course shifts students from passive learning to active participation, where they engage in small business activities in real-world contexts. The design enables students not only to learn entrepreneurship but also to begin seeing themselves as entrepreneurs. Emphasis is placed on small wins, peer collaboration, and locally relevant opportunities so that learning remains achievable, meaningful, and connected to students' realities. The curriculum focuses on conceptual understanding without excessive theoretical burden, combining practical action, reflection, and collaboration. By making progress visible and success attainable, the course aims to cultivate self-reliance, initiative, creativity, confidence, and long-term motivation among learners.

Detailed Contents

Week	Learning Goal	Measurable Outcome
1	Understand entrepreneurship and entrepreneurs	Define entrepreneurship and identify local entrepreneurs
2	Connect personal identity with entrepreneurship	Create a personal "Value Map"
3	Learn business paths	Explore content creation, dropshipping, food business, gig economy & services
4	Choose a business idea	Prepare a clear offer and customer approach
5	Take first real action	Pitch/post/sell to a real customer
6	Reflection and peer discussion	Share challenges and improvements
7	Aim for first 100	Modify strategy and earn first income
8	Understand target customer	Conduct customer interaction and identify needs
9	Improve customer service	Refine product/service using feedback
10	Entrepreneurial values	Develop resilience, honesty and effort
11	Consistency in earning	Continue business activity regularly
12	Reflection and future plan	Record earnings and learning experience

Weekly Component:

Component	Duration	Description
Learning Module	1.5hrs	Entrepreneurship concepts , Examples and discussions, Interactive quizzes
ActionLab	2 hrs	Practical entrepreneurial tasks ,Worksheets/templates, Submission of proof of work
Resources	Self-paced	Videos , Startup stories ,Reading material, Tools and templates

Evaluation Criteria

Evaluation Component	Description	Weightage
Weekly Task Completion	Timely submission of weekly tasks including reflections, activities, quizzes etc.	40%
Target Completion	Performance-based evaluation on hitting revenue or profit targets.	30%
Final Project	A comprehensive project.	30%

ET.206	**Qualification Packs – Electrical and Electronics Sub-System (ELE/Q6301)**	**0L:0T:12P**	**6 credits**

Internal Marks: 100 **External Marks: 150** **Total Marks: 250**

Course Outcomes: After successful completion of this course, the students will be able to

1. Understand and interpret work instructions, technical drawings, and standard operating procedures for electrical/electronic sub-system integration.
2. Assemble, inspect, and integrate electrical/electronic components while maintaining required quality and production standards.
3. Apply effective workplace communication, teamwork, and documentation practices in industrial environments.
4. Demonstrate safe working practices, proper handling of tools/equipment, and awareness of sustainability in electrical operations.
5. Develop employability and entrepreneurial skills including professional ethics, IT literacy, and problem-solving abilities relevant to the electrical industry.

Contents

1. Integrate Electrical Sub-System - Understanding work instructions and drawings, Collecting components (PCBs, wires, connectors), Inspection of components for defects, Assembly of electrical/electronic sub-systems, Following SOPs (Standard Operating Procedures), Meeting quality & production targets, Reporting faults and defects.

2. Communication & Coordination - Workplace communication, Team coordination, Reporting issues to supervisors, maintaining documentation.

3. Work Effectively, Sustainably & Safely- Safety procedures in electrical work, Handling tools and equipment, maintaining clean and safe workspace, Environmental and sustainability practices.

4. Employability Skills - Basic communication skills, IT literacy, Workplace ethics, Entrepreneurship basics.