

HSC Vocational : 1.Electronics Technology

Introduction-

Electronics Technology is one of the important Higher Secondary vocational course under Engineering and Technological group introduced by the state government from the academic year 1988-1989. The state board revised syllabus as per NVEQF (National Vocational Education Qualification Policy). This policy is decided by National Skill Development Corporation (NSDC) under HRD ministry of Government of India to nurture technological advancement & Skill development for job opportunities in various Electronic sectors.

The syllabus of Electronics Technology sector has been evolved in such a way that after completion of the course of two years (Std. XI) [L3] and (Std. XII) [L4] The student would acquire good working skills suited to work as a skilled person in industry. He would also gain knowledge for electronic technician, electronics sales & service.

What is the job : The job to install, maintain and repair a wide range of commercial, Home and business equipment, including: TV, Mobile, DVD Player, Electronic toys , photographic fax , Xerox , and inkjet printers, Lesser printers, LCD Monitors, scanners, ups, invertors, large format printers flex machine , digital color labs, washing machines, micro ovens, AC installation etc.

Accordingly wage and self employment opportunities suggested are

µWage Employment Opportunities: रोजगाराच्या संधी

1. Assembly
2. Testing
3. Maintenance & repair
4. Electronic Laboratory
5. Installation, operation & maintenance of AV equipment
6. Installation, operation & maintenance of medical lab equipment
7. Installation, operation & maintenance of industrial equipment
8. Installation, operation & maintenance of communication network
9. Installation, operation & maintenance of electronic equipment associated with Motor vehicles

µSelf Employment Opportunities: स्वयं रोजगाराच्या संधी

1. Sales & service
2. Manufacture & maintenance of battery charger, Stabilizer, invertors, UPS, mini emergency light, electronic toys.
3. Mobile service centre
4. Run Communication system centre
5. Maintenance of electronic equipments
6. Sale & service of dish antenna & accessories
7. Elementary hardware maintenance of computer lab equipments

FURTHER EDUCATION:

If student desires, he can take admission to First year of BA, B.Com, B.C.S., B.C.A., B.Sc & Direct 2nd Year Diploma of any branch of Electronics.

μSkills : या अभ्यासक्रमात आत्मसात करावयाची अपेक्षित कौशल्ये

1. Read, write, understand & use electronic symbols
 2. Read, write, understand & use, units (interchange units) & specifications of Components, Equipments.
 3. Draw, trace electronic circuits, and understand the signal flowchart.
 4. Know safety Rules
 5. Able to measure AC, DC voltages, currents, frequency , L,C,R values
 6. Able to handle the following equipment: DVM, oscilloscopes, recorders, hand tools, such as soldering irons, hand crimpers, screwdrivers, wrenches, and pliers.
 7. Able to identify different components, devices and equipments
 8. Able to find values /numbers of different components, devices and equipments
 9. Able to test good & bad components, devices and equipments
 10. Able to connect circuits as per circuit diagram
 11. Connection skill
 - a) Direct wire connection
 - b) Soldering method on GP board
 - c) Soldering method on tag board
 - d) Assemble Various Circuits on bread board
 - e) Soldering method on PCB
 12. De soldering skill using pump
 13. Able to understand different stages of given assembled circuit
 14. Able to understand different test points of given assembled circuit.
 15. Able to compare test point voltage /current/frequency different stages of given assembled circuit with manual circuit.
 16. Able to locate faulty stage/components of the given equipment
 17. Able to replace faulty component /part
 18. Read data sheet & find equivalent component /device.
 19. Able to operate given circuit as per manual.
 20. Able to make adjustment of presets
 21. Clean the equipment /place of work
 22. Able to communicate with teacher for necessary assistance
 23. Able to write up laboratory report
 24. Able to install newly purchased equipment by reading manual.
 25. Able to make cutting, drilling, filing, painting, labeling operation
 26. Able to sell product
 27. Able to demonstrate product.
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HSC Vocational Course : 2.Electrical Technology

Introduction

All India Council for Technical Education, (AICTE), the apex body for making and maintaining the norms of Technical Education in the country has framed a National Vocational Education Qualification Framework (NVEQF) for the polytechnics and Engineering Colleges.

NVEQF is introduced by Government in order to formally integrate vocational education together with its current conventional educational streams across school and higher education space and provide an opportunity and incentive to students to explore a large universe of opportunity.

It is important that a Vocational Educational Qualification Framework is in place that allow cross mobility of standards and their absorption in Industry with certain skill gained over a fixed period of time or their seamless integration into higher learning that enable them to acquire formal degree and higher skill so that they perform higher level jobs in industry.

The erstwhile Directorate of Vocational Education has gone for NVEQE based curriculum development.

Each curriculum provides a list of Job opportunities (both wage and self) and description of each job. The objective of the course, scheme of studies and examination pattern, syllabus are given.

The present competencies based curriculums on “Maintenance and Repair of Electrical Domestic Appliances - M.R.E.D.A.” and “Repair, Maintenance and Rewinding of Electrical Motors- R.M. & R.E.M. was implemented through Maharashtra State Board of Secondary and Higher Secondary Education, Pune after upgrading them since 2007-08. The two curriculums were falling short to fulfill the needs of Indian as well as foreign industries. To overcome this difficulty different group of expert worked to have a job and self employment generating opportunity by clubbing the two curriculums developed curriculum of Electrical technology vocational H.S.C. course likely to be equivalent to NVQEF level III and IV. The Group of Experts comprised of DVET officials, Experts from industries and Teachers and Instructors teaching to these two curriculums.

The suggestions by the various experts in the field of vocational education and industries will be greatly valued and will go a long way in bringing out a revised version after reviewing by them.

Objectives

- ▶ To make students familiar with shop discipline, layout of electrical shop, safety practice.
- ▶ To acquire knowledge and skills about safety precautions while working. To acquire knowledge about function and use of various electrical tools, equipments and accessories.
- ▶ To acquire with properties and usage of different materials (conducting, insulating, wiring etc.)
- ▶ To know about electrical symbols of commonly used electrical parts.
- ▶ To develop knowledge about the wiring.
- ▶ To get introduced to electrical shop to classify different tools machines and equipments.
- ▶ To acquire skills for wiring methods.
- ▶ To develop knowledge about the wiring.
- ▶ To do any type of wiring such as house, industrial, commercial wiring.
- ▶ To know about planning layout, setting and up keeping of electrical Interactive Lecture, Workshop/Lab, Self-performed.
- ▶ To get knowledge about estimation, costing and billing of wiring.
- ▶ To ACQUIRE the detail knowledge of Electrical, Mechanical, cutting and holding tools various

- machines with their specific use handling and maintenance and precaution while handling.
- ▶ To UNDERSTAND how to work on electrical installation and shop floor safety precautions maintenance and upkeep
 - ▶ To CREATE an awareness about all electrical domestic appliances
 - ▶ To Develop technician skills in the field of dismantling, Servicing, Overhauling, Maintenance, testing and reassembling of electrical appliances.
 - ▶ To ACQUIRE the skill in sales and marketing of the latest domestic appliances, equipment, spare parts and raw materials.
 - ▶ To GAIN the knowledge and skill of motors transformer repairing, servicing and overhauling.
 - ▶ To become a wire man / electrician with the details of installation, repairing and maintenance of commercial / industrial / house wiring.
 - ▶ To obtain the detailed skills of reconditioning, repairing, charging and maintenance of various types of batteries, UPS, Invertors.
 - ▶ To GROW UP as a first generation entrepreneur from non-business family.
 - ▶ To participate in the development of country not as an employee but as an employer
 - ▶ To RISE UP as a TECHNOCRAT with ability to take Higher Vocational Education.
 - ▶ To make students familiar with winding shop discipline, layout of electrical winding shop, safety practice.
 - ▶ To acquire knowledge and skills about safety precautions while winding.
 - ▶ To acquire knowledge about function and use of various electrical machines, instrument equipments and accessories.
 - ▶ To acquire with properties and usage of different materials (conducting, insulating, winding etc).
 - ▶ To develop knowledge about the winding.
 - ▶ To acquire skills for winding methods.
 - ▶ To develop knowledge about the winding.
 - ▶ To do any type of winding such as motor, transformer winding.

Job Opportunities

Wage Employment-

- ▶ Technician in local government bodies Corporation, Star Hotels, Electricity Board, co-generation plants, factories, Industries, Townships.
- ▶ Wire Man
- ▶ Electrician
- ▶ Instructor in technical institution
- ▶ DG Set Operator
- ▶ Lift Operator
- ▶ Electrical Supervisor
- ▶ Technical writer
- ▶ Technician in Banks, IT Industries, General Industries
- ▶ Electrical domestic Appliances Assembler
- ▶ Electrical Domestic Appliances Tester
- ▶ Electrical domestic Appliances repairer
- ▶ Electrical Domestic Appliances Service Technician
- ▶ Electrical Domestic Appliances salesman
- ▶ Electrical Domestic Appliances Demonstrator

- ▶ Insurance Surveyor
- ▶ Lifts-hoists service Technician
- ▶ Pump Mechanic
- ▶ Motor rewinder
- ▶ Wireman Panel wiring
- ▶ Industrial Insurance Surveyor

Self-employment-

- ▶ Dealership and agency of MNC-EDA
- ▶ Owner of EDA Repair shop
- ▶ Owner of after sales shop
- ▶ Owner Assembly shop of o Electrical Appliances
- ▶ Proprietor Service centre for electrical appliances
- ▶ Proprietor Service centre for Electric motors
- ▶ Free-lance Service Technician
- ▶ Proprietor Installation and maintenance services of electrical Machines
- ▶ Contractor of domestic, industrial, hotels, banks, hospital, commercial shop, BPO, ITCompany, Mobile Tower Maintenance
- ▶ Sales shop of electrical items, Batteries
- ▶ Owner Generator Set
- ▶ Servicing of UPS / Invertors / Batteries
- ▶ Owner Generator Set
- ▶ Servicing of UPS / Invertors / Batteries
- ▶ Licensed electrical Contractor

FURTHER EDUCATION:

If student desires, he can take admission to First year of If student desires, he can take admission to First year of BA, B.Com, B.C.S., B.C.A., B.Sc & Direct 2nd Year Diploma of Electrical Engineering.



HSC Vocational Course: 3. MEDICAL LABORATORY TECHNICIAN

INTRODUCTION

Diagnostics play prominent role in the field of Medicine. Without proper diagnosis, proper conclusions regarding Medical treatment cannot be given. Thus Medical Lab Technician Course is gaining importance. This course is designed to train manpower to carry out medical laboratory technical work in various departments in medical and pharmacy colleges, peripheral laboratories, research and diagnostic centers, etc.

The healthcare industry is always changing, so as the Laboratory Medicine. The old manual methods used before are replaced by modern technologies. Automation has become an integral part of every laboratory. The diseases which were common before are obsolete now. At the same time many new diseases are emerging. There are new pieces of equipment or new tests to deliver better care. Hence it was absolutely essential to update the syllabus so as to make the students knowledgeable and efficient to work in the advanced laboratories.

OBJECTIVES

This course aims to educate and train students who have passed Std. 10th or equivalent examination.

1. To fulfill the manpower need of the health service in the country.
2. To carry out routine laboratory test on blood, urine, stool, sputum, etc. and various bacteriological, serological and biochemical tests.
3. To assist physician in the diagnosis and prognosis of a disease.
4. To carry out technical work in various departments of medical colleges, peripheral laboratories, research and diagnostic centers.
5. To understand principles of Laboratory Management and Ethics.
6. To handle, use and care of various laboratory equipments.
7. To develop expertise to perform and interpret various tests.
8. To understand organization of hospitals, research institutes, manufacturing companies of various reagents, laboratories of Primary Health Centers and District Hospitals to avail employment opportunities.

JOB OPPORTUNITIES

1. Lab technician in Biochemistry, microbiology, pathology, blood banking department.
2. Lab Assistant in Municipal hospitals.
3. Lab technician in Home science teaching college laboratory.
4. Lab technician/lab assistant in Dental college, Pharmacy college, Veterinary college, Fisheries college.
5. Laboratory technician in primary health center.
6. Laboratory technician in district hospitals.
7. Laboratory technician in private hospitals, nursing homes and diagnostic labs.
8. Technicians in various firms manufacturing vaccines, antisera and diagnostic kits.
9. Technician in dairy industries.
10. Technician in Municipal water labs.
11. Technician in Pharmaceutical labs.

SELF EMPLOYMENT

1. Diagnostic laboratory /collection center after completing govt. norms.
2. Preparation and sale of ready-made reagents/kit/media.
3. Distributor of laboratory chemicals.
4. Distributor of laboratory wares, equipment and spare parts.

FURTHER EDUCATION:

If student desires, he can take admission to First year of BA, B.Com, B.C.S., B.C.A., B.Sc with Chemistry, Botany , MicroBio, Technology, Forensic Science and Zoology.
