

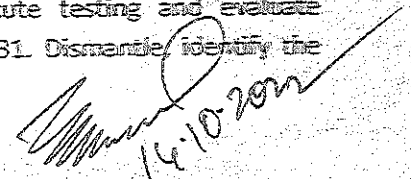
1

दूरे से संबंधित पाठ्यक्रम

Directorate of Skill Development
Govt. of Madhya Pradesh
Recruitment-2022 Syllabus for Training Officer

Syllabus for Training Officer - Electronics Mechanic:

1. Perform basic workshop operations using suitable tools for fitting, riveting, drilling etc. observing suitable care & safety following safety precautions. (NOS: ELE/N1002)
2. Select and perform electrical/electronic measurement of single range meters and calibrate the instrument. ELE/N9401
3. Test & service different batteries used in electronic applications and record the data to estimate repair cost. (NOS: ELE/N7001)
4. Measure AC/DC using proper measuring instruments and compare the data using standard parameter. ELE/N9402
5. Measure the various parameters by DSO and execute the result with standard one. ELE/N9403
6. Plan and execute soldering & de-soldering of various electrical components like Switches, PCB & Transformers for electronic circuits. (NOS: ELE/N7812)
7. Test various electronic components using proper measuring instruments and compare the data using standard parameter. (NOS: ELE/N5804)
8. Assemble simple electronic power supply circuit and test for functioning. (NOS: ELE/N5804)
9. Construct, test and verify the input/ output characteristics of various analog circuits. ELE/N9404
10. Plan and construct different power electronic circuits and analyse the circuit functioning. ELE/N1201
11. Select the appropriate opto electronics components and verify the characteristics in different circuit. ELE/N6102
12. Assemble, test and troubleshoot various digital circuits. (NOS: ELE/N1201)
13. Simulate and analyze the analog and digital circuits using Electronic simulator software. (NOS: ELE/N6102)
14. Construct and test different circuits using ICs 741 operational amplifiers & ICs 555 linear integrated circuits. ELE/N9405
15. Read and apply engineering drawing for different application in the field of work. CSC/N9401
16. Demonstrate basic mathematical concept and principles to perform practical operations. Understand and explain basic science in the field of study. CSC/N9402
17. Prepare, crimp, terminate and test various cables used in different electronics industries. (NOS: ELE/N6307)
18. Install, configure, interconnect given computer system(s) and demonstrate & utilize application packages for different application. (NOS: ELE/N4614)
19. Identify, place, solder and desolder and test different SMD discrete components and ICs package with due care and following safety norms using proper tools/setup. (NOS: ELE/N5102)
20. Rework on PCB after identifying defects from SMD soldering and de-soldering. (NOS: ELE/N5102)
21. Construct different electrical control circuits and test for their proper functioning with due care and safety. ELE/N9407
22. Assemble and test a commercial AM/ FM receiver and evaluate performance. ELE/N9408
23. Test, service and troubleshoot the various components of different domestic/ industrial programmable systems. ELE/N9802
24. Execute the operation of different sensors, identify, wire & test various transducers of IoT Applications. ELE/N9409
25. Identify different IoT Applications with IoT architecture. ELE/N3102
26. Plan and carry out the selection of a project, assemble the project and evaluate performance for a domestic/commercial application. (NOS: ELE/N9802)
27. Prepare fibre optic setup and execute transmission and reception. ELE/N5902
28. Plan and interface the LCD, LED DPM panels to various circuits and evaluate performance. ELE/N8107
29. Detect the faults and troubleshoot SMPS, UPS and inverter. (NOS: ELE/N7202)
30. Identify, Test and verify characteristics of Photovoltaic cells, Modules, Batteries and Charge controllers. Install a solar panel, execute testing and evaluate performance by connecting the panel to the inverter. (NOS: ELE/N5902)
31. Dismantle/ identify the


14.10.2022

②

various parts and interface of a cell phone to a PC. Estimate and troubleshoot. (NOS: ELE/N8107) 32. Check the various parts of a LED lights & stacks and troubleshoot. (NOS: ELE/N9302) 33. Identify, operate various controls, troubleshoot and replace modules of the LCD/LED TV & its remote. (NOS: ELE/N3102) 34. Read and apply engineering drawing for different application in the field of work. CSC/N9401 35. Demonstrate basic mathematical concept and principles to perform practical operations. Understand and explain basic science in the field of study. CSC/N9402

M. D. ...
14.10.2012

Syllabus for Training Officer - REFRIGERATION AND AIR CONDITIONING TECHNICIAN:

1. Identify trade related hazards and safety procedures following safety precautions. NOS: ELE/N 1002 2. Produce fitting jobs as per drawing (Range of operations: marking, sawing, filing, drilling, reaming, tapping and dieing etc.). NOS: ELE/N3114 3. Produce Sheet metal components (range of operation – marking, metal cutting, bending, riveting and soldering etc.). NOS: ELE/N3114 4. Identify electrical safety. Join different wire, measure power, currents, volts and earth resistance etc. Connect single phase, 3 phase motors i.e. star and delta connections. NOS: ELE/N 1002 5. Identify the electronic components and their colour code i.e. transistor, capacitor, diode, amplifier, I.C and able to work soldering. NOS: ELE/N3112 6. Perform gas welding, brazing, soldering observing related safety. NOS: ELE/N3112 7. Identify RAC tools and equipment and recognise different parts of RAC system. Perform copper tube cutting, flaring, swaging, brazing. NOS ELE/N 3108 8. Test mechanical & electrical components. Perform leak test, vacuuming, gas charging, wiring & installation of refrigerator. NOS: ELE/N3112 9. Identify electrical and mechanical components of a refrigerator. NOS: ELE/N3112 10. Test compressor motor terminal, start compressor Direct with relay & without relay, technique of flushing, leak testing, replacing capillary & filter drier, evacuation & gas charging. NOS: ELE/N3112 11. Check components of frost-free refrigerator (electrical / mechanical), wiring of frost-free freeze & air distribution in refrigerator sector. Leak detection, evacuators & gas charging. NOS: ELE/N3112 12. Dismantle, repair and assemble hermetic, fixed and variable speed compressor, and test performance. NOS: ELE/N3112 13. Identify the terminals of sealed compressor and their wiring and measure current, volts, watts and use of DOL starter with different types of motors. NOS: ELE/N3112 14. Perform selection of Hermetic compressor for different appliances, starting methods, testing controls & safety cut out used in sealed compressor. NOS: ELE/N3112 15. Identify the components of control system of inverter A.C and wiring of control system NOS ELE/N3114 5. LEARNING OUTCOME 12 Refrigeration and Air Conditioning Technician 16. Perform servicing & de-scaling of condenser (internals & externals) used in different appliances NOS ELE/N3114 17. Perform fitting & adjustment of drier, filter & refrigerant controls used in different refrigeration system. NOS: CSC/N9413 18. Perform servicing of different evaporator used in different appliances. NOS: CSC/N9414 19. Carry out Recovery and Recycling of Refrigerant used, alternative of CFC, HFC recover, transfer & handling of gas cylinders. NOS ELE/N3114 20. Retrofit CFC/HFC machine with ozone friendly refrigerant with understanding of the compatibility. NOS ELE/N3114 21. Pack thermal insulation and prevent cooling leakage. NOS ELE/N3114 22. Install window AC, test Electrical & electronics components & Fault diagnosis & remedial measures. NOS ELE/N3114 23. Perform servicing of electrical & electronic control test, installation, wiring, fault finding & remedial measures of different split AC. NOS ELE/N3114 24. Perform servicing of car AC. Fault diagnosis & remedial measures NOS ELE/N3114 25. Read and apply engineering drawing for different application in the field of work. NOS CSC/N9401 26. Demonstrate basic mathematical concept and principles to perform practical operations. Understand and explain basic science in the field of study. NOS CSC/N9402, 27. Carry out servicing, dismantling, checking different parts of different types of commercial compressor, re-placing worn out parts, Check lubrication system. Assemble & check performance. NOS- ELE/N3140 28. Perform servicing of different types of water-cooled condenser. NOS- ELE/N3140 29. Perform servicing and performance test of Cooling tower NOS- ELE/N3141 30. Conduct Servicing, backwash & re-generate Water treatment plant of circulating water. NOS CSC/N9415 31. Perform Fitting of expansion valve, adjustment of refrigerant

[Handwritten Signature]
14/10/2022

Syllabus for Training Officer - MECHANIC DIESEL:

1. Check & perform Measuring & marking by using various Measuring & Marking tools (Vernier Callipers, Micrometre, Telescope gauges, Dial bore gauges, Dial indicators, straightedge, feeler gauge, thread pitch gauge, vacuum gauge, tire pressure gauge.) Following safety precautions. ASC/N9401

2. Plan & perform basic fastening & fitting operation by using correct hand tools, Machine tools & equipment. CSC/N0304

3. Trace and Test all Electrical & Electronic components & circuits and assemble circuit to ensure functionality of system. ELE/N9412

4. Join components by using Arc & Gas welding. CSC/N0304

5. Trace & Test Hydraulic and Pneumatic components. CSC/N9404

6. Check & Interpret Vehicle Specification data and VIN. Select & operate various Service Station equipment. ASC/N9402

7. Dismantle & assemble of Diesel Engine from vehicle (LMV/HMV) along with other accessories (torqueing methods, handling parts). ASC/N9403

8. Overhaul, service and testing Diesel Engine, its parts and check functionality. ASC/N9404

9. Trace, Test & Repair Cooling and Lubrication System of engine (types of coolants and oils relevant to the engines). ASC/N9405

10. Trace & Test Intake and Exhaust system of engine. (cleaning egr valves, exhaust inlet valves, ports and manifolds) ASC/N9406

11. Service Diesel Fuel System and check proper functionality (calibration of mechanical and electronic pumps, checking injectors, filters) ASC/N9404

12. Plan & overhaul the stationary engine and Governor and check functionality. ASC/N9404

13. Monitor emission of vehicle and execute different operation to obtain optimum pollution as per emission norms. ASC/N9407

14. Carryout overhauling of Alternator and Starter Motor. ASC/N9408

15. Diagnose & rectify the defects in LMV/HMV to ensure functionality of vehicle. ASC/N9409

16. Read and apply engineering drawing for different application in the field of work. CSC/N9401

17. Demonstrate basic mathematical concept and principles to perform practical operations. Understand and explain basic science in the field of study. CSC/N9402

M. M. D.
14.10.2022

flow according to heat load. NOS- ELE/N3140 32. Perform servicing of evaporator & chillers. NOS- ELE/N3140 33. Carry out servicing and retrofit of Water cooler and dispenser. NOS CSC/N9416 34. Service, retrofit of visible cooler and bottle cooler and test performance. NOS CSC/N9417 35. Conduct servicing of deep freezer and test performance. NOS CSC/N9418 36. Install, service, repair, gas charging and testing performance of Ice Cube machine. NOS CSC/N9419 37. Repair, servicing & retrofit of ice candy plant. NOS CSC/N9420 13 Refrigeration and Air Conditioning Technician 38. Perform servicing of Ice plant and evaporative condenser. NOS CSC/N9421 39. Perform Servicing and preventive maintenance of walk in cooler & cold storage. NOS CSC/N9422 40. Study psychrometric chart and measure psychrometric properties using psychrometric, anemometer i.e. DBT, WBT, RH, air flow etc. NOS- ELE/N3140 41. Perform servicing of motor and blowers used in different air conditioning system. NOSELE/N3141 42. Construct, install, pack thermal and acoustic insulation of different air ducts. NOSELE/N3141 43. Perform servicing and maintenance of different types of air filters. NOS- ELE/N3141 44. Perform servicing, installation, fault diagnosis and remedial measures on Package AC with Air cooled condenser. NOS CSC/N9423 45. Carry out Servicing, installation, fault diagnosis and remedial measures in Package A.C. with water cooled condenser. NOS- ELE/N3140 46. Identify the various components of central AC test electrical components and make wiring. Servicing of A.H.U, damper, check air flow, Descaling of condenser and CT servicing. NOS- ELE/N3141 47. Pump down the system, top up oil and gas and check temperature and pressure. NOSELE/N3140 48. Identify components of DX system. Test components, make wiring of DX system. Test leak and evacuate, gas charge the system and check the performance. Maintenance, trouble shoot and operate the plant. NOS- ELE/N3140 49. Identify the different parts of VRF/VRV system, check and service VRF/VRV system. NOSELE/N3141 50. Identify different parts of indirect or chillers system. Check components and make wiring, leak test, evacuate and gas charge/ top up. Servicing the plant and trouble shoot. NOS- ELE/N3141 51. Identify chilled water pipe line. Servicing of dampers, FCU and water control valves. NOS- ELE/N3141 52. Troubles shoot both Central A.C. plant DX and indirect system. Check different control system, installation of other major components, servicing of all parts including cooling tower and water treatment plant. NOS- ELE/N3141 53. Perform Servicing, fault diagnosis, repair and maintenance of mobile A.C. leak test, evacuation, gas charging, check magnetic clutch and make wiring. Test performance after start. NOS- ELE/N3141 54. Perform preventive maintenance of different plants. Maintain log book based on daily operation. NOS- ELE/N3141 14 Refrigeration and Air Conditioning Technician 55. Read and apply engineering drawing for different application in the field of work. NOS CSC/N9401 56. Demonstrate basic mathematical concept and principles to perform practical operations. Understand and explain basic science in the field of study. NOS CSC/N9402

[Handwritten Signature]
14-10-2022

Syllabus for Training Officer - DRAUGHTSMAN MECHANICAL:

1. Construct different Geometrical figures using drawing Instruments following safety precautions. (CSC/NO402) 2. Draw orthographic Projections giving proper dimensioning with title block and heading using appropriate line type and scale. (CSC/NO402) 3. Construct free hand sketches of simple machine parts with correct proportions. (CSC/NO402) 4. Construct plain scale, comparative scale, diagonal scale and vernier scale. (CSC/NO402) 5. Draw Sectional views showing orthographic projections. (CSC/NO402) 6. Develop surface and interpenetration of solid in orthographic projection. (CSC/NO402) 7. Draw isometric projection from orthographic views (and vice-versa) and draw oblique projection from orthographic views. (CSC/NO402) 8. Draw and indicate the specification of different types of fasteners, welds and locking devices as per SP-46:2003 (CSC/NO402) 9. Acquire basic knowledge on tools and equipment of Allied trades viz. Fitter, Turner, Machinist, Sheet Metal Worker, Welder, Foundry man, Electrician and Maintenance Motor Vehicles. (CSC/NO402) 10. Construct different types of gears, couplings and bearings with tolerance dimension and indicating surface finish symbol. (CSC/NO402) 11. Perform computer application and Create 2D objects on CAD drawing space using commands from ribbon, menu bar, toolbars and by typing in command prompt. (CSC/NO402) 12. Demonstrate basic mathematical concept and principles to perform practical operations. Understand and explain basic science in the field of study. (CSC/NO402), 13. Construct projection views of geometrical figures with dimension and annotation on CAD in model space and viewport in layout space. (CSC/NO402) 14. Draw in CAD detail and assembly drawing of machine parts viz., Pulleys, Pipe fittings, Gears and Cams applying range of cognitive and practical skills. (CSC/NO402) 5. LEARNING OUTCOME 12 Draughtsman Mechanical 15. Construct drawing of engine parts with detailed and assembly in template layout applying quality concept in CAD. (CSC/NO402) 16. Create 3D solid by switching to 3D modeling workspace in CAD, generate views, Print Preview and Plotting. (CSC/NO402) 17. Construct detailed and assembled drawing applying conventional sign & symbols using CAD. (CSC/NO402) 18. Prepare drawing of machine part by measuring with gauges and measuring instruments. (CSC/NO402) 19. Draw a machine shop layout considering process path and ergonomics (human factor). (CSC/NO402) 20. Create and plot assembly and detail views of machine part with Dimensions, Annotations, Title Block and Bill of materials in SolidWorks/AutoCAD Inventor/ 3D Modeling. (CSC/NO402) 21. Create production drawing of machine part. (CSC/NO402) 22. Demonstrate basic mathematical concept and principles to perform practical operations. Understand and explain basic science in the field of study (CSC/NO402)

M. S. D.
14/10/2022

Syllabus for Training Officer - DRAUGHTSMAN CIVIL:

1. Draw free hand sketches of hand tools used in civil work following safety precautions. (NOS: IES/N9401) 2. Draw plane figures applying drawing instruments with proper layout and the method of folding drawing sheets. (NOS: IES/N9402) 3. Construct plain scale, comparative scale, diagonal scale and vernier scale. (NOS: IES/N9403) 4. Draw orthographic projections of different objects with proper lines, lettering and dimensioning. (NOS: IES/N9404) 5. Draw Isometric / Oblique / Perspective views of different solid / hollow / cut sections with proper lines, lettering and dimensioning. (NOS: IES/N9405) 6. Draw component parts of a single storied residential building with suitable symbols and scales. (NOS: IES/N9406) 7. Draw different types of stone and brick masonry. (NOS: IES/N9407) 8. Draw different types of shallow and deep foundation. (NOS: IES/N9408) 9. Draw different types of shoring, scaffolding, underpinning, framework and timbering. (NOS: IES/N9409) 10. Draw different types of Damp proofing in different position. (NOS: IES/N9410) 11. Drawing of different types of arches and lintels with chajja. (NOS: IES/N9411) 12. Perform site survey with plane table and prepare a map. (NOS: IES/N9412) 13. Make topography map by contours with leveling instrument. (NOS: IES/N9413) 14. Perform site survey with Theodolite and prepare site plan. (NOS: IES/N9414) 15. Drawing of different types of carpentry joints. (NOS: IES/N9415) 16. Draw different types of doors and windows according to manner of construction, Arrangement of component, and working operation. (NOS: IES/N9416) 17. Perform site survey with chain / tape and prepare site plan. (NOS: IES/N9417) 18. Perform site survey with prismatic compass and prepare site plan. (NOS: IES/N9418) 19. Prepare the detailed drawing of electrical wiring system. (NOS: IES/N9419) 20. Draw types of ground and upper floors. (NOS: IES/N9420) 21. Draw different types of vertical movement according to shape, location, materials in stair, lift, ramp and escalator. (NOS: IES/N9421) 22. LEARNING OUTCOME 11 Draughtsman Civil 22. Draw different types of roofs, truss according to shape, construction, purpose and span. (NOS: IES/N9422) 23. Demonstrate basic mathematical concept and principles to perform practical operations. Understand and explain basic science in the field of study. (NOS: IES/N9423) 24. Draw single storied building site plan layout. (NOS: CON/N1302) 25. Create objects on CAD workspace using Toolbars, Commands, Menus, formatting layer and style. (NOS: CON/N1302) 26. Draw a sanction plan of double storied flat roof residential building by using CAD. (NOS: CON/N1302) 27. Create objects on 3D modeling concept in CAD. (NOS: IES/N9424) 28. Prepare a drawing of public building detailing with roof and columns by frame structures using CAD. (NOS: CON/N1302) 29. Prepare detailed drawing of RCC structures using CAD and prepare bar bending schedule. (NOS: IES/N9425) 30. Draw the details of a framed structure and portal frame of a residential building using CAD. (NOS: IES/N9426) 31. Draw the different types of steel sections, rivets and bolts using CAD. (NOS: CON/N1302) 32. Draw the details of girders, roof trusses and steel stanchions using CAD. (NOS: CON/N1302) 33. Prepare the detailed drawing showing the different types of sanitary fittings, arrangements of manholes, details of septic tank using CAD. (NOS: IES/N9427) 34. Draw the details flow diagram of water treatment plant (WTP) and Sewerage Treatment plant (STP). (NOS: IES/N9428) 35. Draw the cross sectional view of different types of roads showing component parts using CAD. (NOS: IES/N9429) 36. Draw the details of different types of culverts using CAD. (NOS: IES/N9430) 37. Prepare detailed drawing a bridge using CAD. (NOS: IES/N9431) 38. Draw the typical cross section of rail sections, railway tracks in cutting and embankment using CAD. (NOS: IES/N9432) 39. Prepare detailed drawing of typical cross sections of Dam, barrages, weir and Cross drainage works using CAD. (NOS: IES/N9433) 40. Draw the schematic diagram of different structures of Hydro electric project using CAD. (NOS: IES/N9434) 12 Draughtsman Civil 41. Prepare detailed estimate and cost analysis of

M. S. D.
14/10/2022

different types of building and other structures using application software. (NOS: IES/N9435) 42. Prepare rate analysis of different items of work. (NOS: IES/N9436) 43. Problems on preparing preliminary/Approximate estimates for building project. (NOS: IES/N9437) 44. Prepare a map using Total station. (NOS: IES/N9438) 45. Locate the station point using GPS and obtain a set of co-ordinates. (NOS: IES/N9439) 46. Demonstrate basic mathematical concept and principles to perform practical operations. Understand and explain basic science in the field of study (NOS: IES/N9440)

M. J. O.
14.10.2022

Syllabus for Training Officer – (Maths/Drawing) Workshop CALCULATION & SCIENCE and ENGINEERING DRAWING:

Unit, Fractions 1 Classification of Unit System 2 Fundamental and Derived Units F.P.S, C.G.S, M.K.S and SI Units 3 Measurement Units and Conversion 4 Factors, HCF, LCM and Problems 5 Fractions – Addition, Subtraction, Multiplication and Division 6 Decimal Fractions - – Addition, Subtraction, Multiplication and Division, Solving Problems by using calculator II. Square Root: Ratio and Proportions, Percentage, 1 Square and Square Root 2 Simple problems using calculator 3 Application of Pythagoras Theorem and related problems 4 Ratio and Proportions 5 Direct and Indirect proportion 6 Percentage 7 Changing percentage to decimal III. Material Science : 1 Types of metals 2 Physical and Mechanical Properties of metals 3 Types of ferrous and non-ferrous metals 4 Introduction of iron and cast iron 5 Difference between iron and steel, alloy steel and carbon steel 6 Properties and uses of rubber, timber and insulating materials IV. Mass, Weight, Volume, and Density: 1 Mass, volume, density, weight & specific gravity 2 Related problems for mass, volume, density, weight & specific gravity V. Speed and Velocity, Work Power and Energy: 1 Rest, motion, speed, velocity, difference between speed and velocity, acceleration and retardation 2 Related problems on speed and velocity 3 Potential energy, Kinetic Energy and related problems with related problems 4 Work, power, energy, HP, IHP, BHP and efficiency VI. Heat & Temperature and Pressure 12 WORKSHOP CALCULATION & SCIENCE – I 5 1 Concept of heat and temperature, effects of heat, difference between heat and temperature 2 Scales of temperature, Celsius, Fahrenheit, Kelvin and Conversion between scales of temperature 3 Temperature measuring instruments, types of thermometer, pyrometer and transmission of heat - Conduction, convection and radiation 4 Co-efficient of linear expansion and related problems with assignments 5 Problem of Heat loss and heat gain with assignments 6 Thermal conductivity and insulators 7 Boiling point and melting point of different metals and Nonmetals 8 Concept of pressure and its units in different system VII. Basic Electricity: 1 Introduction and uses of electricity, molecule, atom, how electricity is produced, electric current AC, DC and their comparison, voltage, resistance and their units 2 Conductor, Insulator, types of connections- Series and Parallel, Ohm’s Law, relation between VIR & related problems 3 Electrical power, energy and their units, calculation with assignments 4 Magnetic induction, self and mutual inductance and EMF generation 5 Electrical Power, HP, Energy and units of electrical energy VIII. Mensuration: 1 Area and perimeter of square, rectangle and parallelogram 2 Area an Perimeter of Triangle 3 Area and Perimeter of Circle, Semi-circle, circular ring, sector of circle, hexagon and ellipse 4 Surface area and Volume of solids- cube, cuboids, cylinder, sphere and hollow cylinder 5 Finding lateral surface area, total surface area and capacity in liters of hexagonal, conical and cylindrical shaped vessels IX. Levers and Simple Machines 6 1 Simple machines, Effort and load, mechanical advantage, velocity ratio, efficiency of machine, relation between efficiency, velocity ratio and mechanical advantage 2 Lever and its types X. Trigonometry : 1 Measurement of Angle, Trigonometrical Ratios, Trigonometric Table 2 Trigonometry-Application in calculating height and distance (Simple Applications) Friction: 1 Advantages and disadvantages, Laws of friction, co-efficient of friction, angle of friction, simple problems related to friction 2 Friction – Lubrication 3 Co- efficient of friction, application and effects of friction in workshop practice II. Centre of Gravity: 1 Centre of gravity and its practical application III. Area of cut – out regular surfaces and area of irregular surfaces: 1 Area of cut – out regular surfaces – circle, segment and sector of circle 2 Related problems of area of cut – out regular surfaces – circle, segment and sector of circle 3 Area of irregular surfaces and application related to shop problems IV. Algebra

[Handwritten Signature]
13/10/2022

Addition, Subtraction, Multiplication & Divisions 2 Algebra – Theory of indices, Algebraic formula, related problems V. Elasticity: 1 Elastic, plastic materials, stress, strains and their units and young modulus 2 Ultimate stress and working stress VI. Heat Treatment: 1 Heat treatment and advantages 2. Different heat treatment process – Hardening, Tempering, Annealing, Normalising, Case Hardening VII. Profit and Loss: 1 Simple problems on profit & loss: Simple and compound interest VIII. Estimation and Costing: 1 Simple estimation of the requirement of material etc., as applicable to the trade 2 Problems on estimation and costing

Engineering Drawing – Introduction to Engineering Drawing and Drawing Instruments – • Conventions • Viewing of engineering drawing sheets. • Method of Folding of printed Drawing sheet as per BIS SP: 46-2003 2. Drawing Instrument • Drawing board, T-square, Drafter (Drafting M/c), Set squares, Protector, Drawing Instrument Box (Compass, Dividers, Scale, Diagonal Scales etc.), pencils of different grades, Drawing pins/ Clips. 3. Free hand drawing of – • Lines, polygons, ellipse etc. • Geometrical figures and blocks with dimension • Transferring measurement from the given object to the free hand sketches. • Solid objects – Cube, Cuboids, Cone, Prism, Pyramid, Frustum of Cone with dimensions. • Free hand drawing of hand tools and measuring tools, simple fasteners (nuts, bolts, rivets etc.) trade related sketches 4. Lines • Definition, types and applications in drawing as per BIS: 46-2003 • Classification of lines (Hidden, centre, construction, extension, Dimension, Section) • Drawing lines of given length (Straight, curved) • Drawing of parallel lines, perpendicular line • Methods of Division of line segment 5. Drawing of Geometrical figures: Definition, nomenclature and practice of – • Angle: Measurement and its types, method of bisecting. • Triangle: different types • Rectangle, Square, Rhombus, Parallelogram. • Circle and its elements • Different polygon and their values of included angles. Inscribed and circumscribed polygons 8 6. Lettering & Numbering – • Single Stroke, Double Stroke, Inclined. 7. Dimensioning and its Practice • Definition, types and methods of dimensioning (functional, nonfunctional and auxiliary) • Position of dimensioning (Unidirectional, Aligned) 7 • Types of arrowhead • Leader line with text • Symbols preceding the value of dimension and dimensional tolerance. 8. Sizes and layout of drawing sheets • Selection of sizes • Title Block, its position and content • Item Reference on Drawing Sheet (Item list) 9. Method of presentation of Engg. Drawing • Pictorial View • Orthographic View • Isometric View 10. Symbolic representation – different symbols used in the trades • Fastener (Rivets, Bolts and Nuts) • Bars and profile sections • Weld, Brazed and soldered joints • Electrical and electronics element • Piping joints and fitting 11. Projections • Concept of axes plane and quadrant • Orthographic projections • Method of first angle and third angle projections (definition and difference) • Symbol of 1st angle and 3rd angle projection in 3rd angle. 12. Orthographic projection from isometric projection 13. Reading of fabrication drawing

1. Construction of scales and diagonal scales 2. Conic sections (Ellipse and Parabola) 3. Sketches of nuts, bolt, screw thread, different types of locking devices e.g. Double nut, Castle nut, Pin, etc. 4. Sketches of foundation 5. Rivets and rivetted joints, welded joints 6. Sketches of pipes and pipe joints 7. Assembly view of Vee blocks, Bush & Bearing, Different types of Coupling viz., Muff coupling, Half Lap Coupling, Flange coupling, etc. Simple work holding device e.g. vice Drawing details of two mating blocks and assembled view 8. Sketch of shaft and pulley, belt, gear, gear drives

M. S. D.
13/10/2022

1. Sign and Symbols of Electrical, Electronics and related trades
2. Sketch of Electrical and Electronics/ trade related components
3. Electrical and Electronics wiring diagram/ trade related Layout diagram
4. Electrical earthing diagram - Drawing the schematic diagram of plate and pipe earthing.
5. Electrical, Electronics/ trade related circuit diagram
6. Block diagram of Instruments/ equipment of related trades

[Handwritten Signature]
13.10.2022

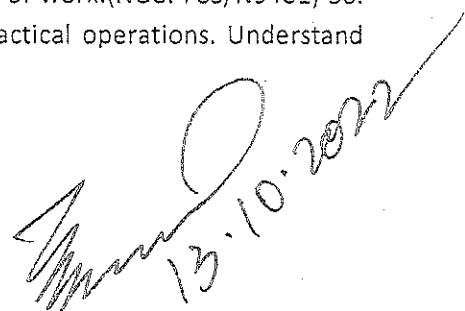
Syllabus for Training Officer - Computer Operator and Programming Assistant:

1. Install and setup operating system and related software in a computer following safety precautions. (NOS: SSC/N3022)
2. Create, format and edit document using word processing application software. (NOS: SSC/N3022)
3. Create, format, edit and develop a workbook by using spreadsheet application software. (NOS: SSC/N3022)
4. Create and customize slides for presentation. (NOS: SSC/N3022)
5. Create and manage database file using MySQL. (NOS: SSC/N9401)
6. Install, setup/configure, troubleshoot and secure computer network including Internet. (NOS: SSC/N3022)
7. Develop web pages using HTML and CSS. (NOS: SSC/N0503, SSC/N0501)
8. Develop web pages using Java Script. (NOS: SSC/N0503, SSC/N0501)
9. Create workbooks with advanced formulae, macros, charts, pivot tables and demonstrate ability to use Power tools. (NOS: SSC/N9402)
10. Browse, select and transact using E commerce websites. (NOS: SSC/N9403)
11. Secure information from Internet by using cyber security concept. (NOS: SSC/N9404)
12. Explain Cloud concepts & services. (NOS: SSC/N9405)
13. Write programs using Python / Java language. (NOS: SSC/N9406, SSC/N9407)

Mand
13.10.2022

Syllabus for Training Officer - Electrician:

Prepare profile with an appropriate accuracy as per drawing following safety precautions. (NOS: PSS/N2001) 2. Prepare electrical wire joints; carry out soldering, crimping and measure insulation resistance of underground cable. (NOS: PSS/N0108) 3. Verify characteristics of electrical and magnetic circuits. (NOS: PSS/N6001, PSS/N6003) 4. Install, test and maintenance of batteries and solar cell. (NOS: PSS/N6001) 5. Estimate, Assemble, install and test wiring system. (NOS: PSS/N6001) 6. Plan and prepare Earthing installation. (NOS: PSS/N6002) 7. Plan and execute electrical illumination system and test. (NOS: PSS/N9403) 8. Select and perform measurements using analog / digital instruments and install/diagnose smart meters. (NOS: PSS/N1707) 9. Perform testing, verify errors and calibrate instruments. (NOS: PSS/N9404) 10. Plan and carry out installation, fault detection and repairing of domestic appliances. (NOS: PSS/N6003) 11. Execute testing, evaluate performance and maintenance of transformer. (NOS: PSS/N2406, PSS/N2407) 12. Read and apply engineering drawing for different application in the field of work. (NOS: PSS/N9401) 13. Demonstrate basic mathematical concept and principles to perform practical operations. Understand and explain basic science in the field of study. (NOS: PSS/N9402), 14. Plan, execute commissioning and evaluate performance of DC machines. (NOS: PSS/N4402) 15. Execute testing, and maintenance of DC machines and motor starters. (NOS: PSS/N4402) 16. Plan, execute commissioning and evaluate performance of AC motors. (NOS: PSS/N1709) 17. Execute testing, and maintenance of AC motors and starters. (NOS: PSS/N1709) 12 18. Plan, execute testing, evaluate performance and carry out maintenance of Alternator / MG set. (NOS: PSS/PSS/N9405) 19. Execute parallel operation of alternators. (NOS: PSS/N9405) 20. Distinguish, organise and perform motor winding. (NOS: PSS/N4402) 21. Assemble simple electronic circuits and test for functioning. (NOS: PSS/N9406) 22. Assemble accessories and carry out wiring of control cabinets and equipment. (NOS: PSS/N9407) 23. Perform speed control of AC and DC motors by using solid state devices. (NOS: PSS/N9408) 24. Detect the faults and troubleshoot inverter, stabilizer, battery charger, emergency light and UPS etc. (NOS: PSS/N6002) 25. Plan, assemble and install solar panel. (NOS: PSS/N9409) 26. Erect overhead domestic service line, outline various power plant layout and explain smart distribution grid and its components. (NOS: PSS/N0106) 27. Examine the faults and carry out repairing of circuit breakers. (NOS: PSS/N7001) 28. Install and troubleshoot Electric Vehicle charging stations. (NOS: PSS/N9410) 29. Read and apply engineering drawing for different application in the field of work. (NOS: PSS/N9401) 30. Demonstrate basic mathematical concept and principles to perform practical operations. Understand and explain basic science in the field of study. (NOS: PSS/N9402)


13.10.2022

Syllabus for Training Officer - Fitter:

1. Plan and organize the work to make job as per specification applying different types of basic fitting operation and Check for dimensional accuracy following safety precautions. [Basic fitting operation – Marking, Hacksawing, Chiselling, Filing, Drilling, Taping and Grinding etc. Accuracy: $\pm 0.25\text{mm}$] CSC/N0304

2. Manufacture simple sheet metal items as per drawing and join them by soldering, brazing and riveting. CSC/N03001

3. Join metal components by riveting observing standard procedure. CSC/N0304

4. Join metal component by arc welding observing standard procedure. CSC/N0304

5. Cut and join metal component by gas (oxyacetylene) CSC/N0304

6. Produce components by different operations and check accuracy using appropriate measuring instruments. [Different Operations - Drilling, Reaming, Taping, Dieing; Appropriate Measuring Instrument – Vernier, Screw Gauge, Micrometer] CSC/N0304

7. Make different fit of components for assembling as per required tolerance observing principle of interchange ability and check for functionality. [Different Fit – Sliding, Angular, Step fit, 'T' fit, Square fit and Profile fit; Required tolerance: $\pm 0.04\text{ mm}$, angular tolerance: 30 min.] CSC/N0304

8. Produce components involving different operations on lathe observing standard procedure and check for accuracy. [Different Operations – facing, plain turning, step turning, parting, chamfering, shoulder turn, grooving, knurling, boring, taper turning, threading (external 'V' only)] CSC/N0110

9. Plan & perform simple repair, overhauling of different machines and check for functionality. [Different Machines – Drill Machine, Power Saw, Bench Grinder and Lathe]

10. Read and apply engineering drawing for different application in the field of work.

11. Demonstrate basic mathematical concept and principles to perform practical operations. Understand and explain basic science in the field of study,

12. Make & assemble components of different mating surfaces as per required tolerance by different surface finishing operations using different fastening components, tools and check functionality. [Different Mating Surfaces – Dovetail fitting, Radius fitting, Combined fitting; Different surface finishing operations – Scraping, Lapping and Honing; Different fastening components – Dowel pins, screws, bolts, keys and cotters; Different fastening tools-hand operated & power tools, Required tolerance - $\pm 0.02\text{mm}$, angular tolerance $\pm 10\text{ min.}$] CSC/N0304

13. Make different gauges by using standard tools & equipment and checks for specified accuracy. [Different Gauges – Snap gauge, Gap gauge; Specified Accuracy - $\pm 0.02\text{mm}$] CSC/N0304

14. Apply a range of skills to execute pipe joints, dismantle and assemble valves & fittings with pipes and test for leakages. [Range of skills – Cutting, Threading, Flaring, Bending and Joining] CSC/N0304

15. Make drill jig & produce components on drill machine by using jigs and check for correctness. CSC/N0304

16. Plan, dismantle, repair and assemble different damaged mechanical components used for power transmission & check functionality. [Different Damage Mechanical Components – Pulley, Gear, Keys, Jibs and Shafts.] CSC/N0304

17. Identify, dismantle, replace and assemble different pneumatics and hydraulics components. [Different components – Compressor, Pressure Gauge, Filter Regulator Lubricator, Valves and Actuators.]

18. Construct circuit of pneumatics and hydraulics observing standard operating procedure & safety aspect.

19. Plan & perform basic day to day preventive maintenance, repairing and check functionality. [Simple Machines – Drill Machine, Power Saw and Lathe] CSC/N0304

20. Plan, erect simple machine and test machine tool accuracy. [Simple Machines – Drill Machine, Power Saw and Lathe]

21. Read and apply engineering drawing for different application in the field of work.

22. Demonstrate basic mathematical concept and principles to perform practical operations. Understand and explain basic science in the field of study.

[Handwritten Signature]
13.10.2022

Syllabus for Training Officer – Stenographer Secretarial Assistant (Hindi) / आशुलिपिक सचिवीय सहायक (हिंदी):

1. आशुलिपि (शॉर्टहैंड) में निर्देश लेने एवं कंप्यूटर का प्रयोग कर उसे कागज पर रूपांतरित (ट्रांसक्राइब) करने में दक्षता । (NOS: MEP/N0237), 2. कंप्यूटर हार्डवेयर एवं विधियों का ज्ञान कंप्यूटर पर उच्च गति टंकण में दक्षता।(NOS: MEP/N0216) , विभिन्न प्रकार के पत्रों की जानकारी व्यवस्था एक पत्रों पर श्रुति लेखन श्रुति लेख एवं प्रतिलेखन करने की दक्षता।(NOS: MEP/N0237) 4. कंप्यूटर एप्लीकेशन सॉफ्टवेयर एम एस एक्सेल, वर्ल्ड, पावर पॉइंट प्रेजेंटेशन इत्यादि पर कार्य करने एवं इंटरनेट का प्रयोग करने में सक्षम।(NOS: MEP/N0237), (NOS: MEP/N0216), (NOS: MEP/N0225), 5 कार्यालयीन वातावरण आंतरिक सजावट, सफाई, सुरक्षा का महत्व ज्ञान एवं कार्यालय प्रबंधन कार्य एवं कर्तव्य से परिचित ।(NOS: MEP/N0237), (NOS: MEP/N9903), (NOS: MEP/N0224), 6. कार्यालय में डायरी डिस्पैच, स्टेशनरी, दस्तावेजों फाइलिंग प्रबंधन तथा कार्यालय सचिव के कार्य एवम् कर्तव्यों से परिचित ।(NOS: MEP/N0237), (NOS: MEP/N0241), (NOS: MEP/N0201), 7. विभिन्न कार्यालयीन उपकरणों को पहचान कर उनके सही प्रयोग एवं रखरखाव से अवगत ।(NOS: MEP/N0237), (NOS: MEP/N0241), (NOS: MEP/N0216), (NOS: MEP/N0203), 8. विभिन्न डाकघर सेवाओं से परिचित ।(NOS: MEP/N0238) 9. सभी प्रकार के मैन्युअल एवम् ऑनलाइन पत्राचार करने में सक्षम (NOS: MEP/N0216) .

[Handwritten Signature]
13.10.2022

