

**BILL OF MATERIAL REQUIRED FOR EACH TRAINEE FOR THE FOLLOWING
TRADES DURING THE ALL INDIA TRADE TEST OF CRAFTSMEN (ANNUAL PATTERN)
UNDER CRAFTSMAN TRAINING SCHEME TO BE HELD IN THE MONTH OF DECEMBER 2021**

421. COMPUTER OPERATOR PROGRAMMING ASSISTANT*

515. MECHANIC DIESEL

- i. 12 volt Lead acid Battery
- ii. Multi meter
- iii. Battery charger
- iv. Multi cylinder Diesel engine
- v. Light motor vehicle
- vi. Multi Scan tool
- vii. Auto electrical test bench
- viii. Injector testing set (Hand Tester)
- ix. Injector cleaning unit
- x. Battery wires with lugs & Crocodile clips
- xi. Cotton waste : As required
- xii. Waste cloth : As required
- xiii. Diesel Injector
- xiv. Diesel : As required

991. DRAUGHTSMAN CIVIL (1st YEAR)

- i. A2 size drawing sheet
- ii. A4 size sheets
- iii. Auto level with tripod
- iv. Telescopic staff
- v. Metric Chain with arrows
- vi. Ranging rods
- vii. Peg
- viii. Mallet
- ix. Tape

DRAUGHTSMAN CIVIL (2nd YEAR)

- i. Personal computer with AutoCAD software
- ii. A3Sheet
- iii. A4Sheet

442. ELECTRICIAN (1st YEAR)

- i. Cutting plier 150 mm
- ii. Screw driver 150 mm
- iii. MC Voltmeter 0-15V
- iv. MC Ammeter 0-10
- v. Hydrometer
- vi. High rate discharge tester
- vii. Battery charger for 12V
- viii. Variable resistor 10 ohms, 5A capacity
- ix. Battery 12V lead acid type
- x. Petroleum jelly : As required
- xi. Distilled water - 1 bottle (450ml) : As required
- xii. Test leads with crocodile clips - 1 pair

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| xiii. | Concentrated sulphuric acid | : | As required |
| xiv. | Cotton Waste | : | As required |
| xv. | Soda bi-carbonate | : | As required |
| xvi. | Wattmeter 500V/5A, 3 KW | | |
| xvii. | M.I. Voltmeter 0-500 V | | |
| xviii. | M.I. Ammeter 0-5A | | |
| xix. | P.F Meter | | |
| xx. | 3 ϕ Load setup(3 ϕ Motor / 3 ϕ lamp Load) | | |
| xxi. | 200W, 250V lamps | : | 03 Nos. |
| xxii. | 100W, 250 lamps | : | 03 Nos. |
| xxiii. | Connecting leads | : | As required |
| xxiv. | Pendent-holders 6A 250V | : | 06 Nos. |
| xxv. | Voltmeter M.I. 0 - 250/300V | : | 02 Nos. |
| xxvi. | Ohmmeter (0 - 500 ohms) | | |
| xxvii. | Ammeter M.I. type (0 - 10 Amp) | | |
| xxviii. | Ammeter M.I. 100 mA | | |
| xxix. | Voltmeter M.C. 0-15V | | |
| xxx. | D.C. supply 12 volts | | |
| xxxi. | Single phase transformer 115/230 volts, 1KVA | | |
| xxxii. | Auto-transformer (IP-240V) OP 0-270V, 5A | | |
| xxxiii. | Knife switch DPST 16A 250V | | |
| xxxiv. | Connecting cables | : | As required |

ELECTRICIAN (2nd YEAR)

| | | | |
|--------|---|---|-------------|
| i. | Insulated combination plier 200mm | | |
| ii. | Insulated screw driver 200mm with 4mm blade | | |
| iii. | DE spanner set 5 mm to 20mm | | |
| iv. | MI volt meter 0-300 V | | |
| v. | MI volt meter 0-500 V | | |
| vi. | Test lamp 240V, 60 Watts | : | 02 Nos. |
| vii. | AC 3 phase squirrel cage induction motor –3HP / 5HP, 3-Phase, 415V, 50Hz | | |
| viii. | PVC Insulated copper cable 1.5 sq mm | : | 04 m. |
| ix. | Pendent lamp-holder 240V 6A | : | 02 Nos. |
| x. | Oscilloscope, 20MHz, dual trace | | |
| xi. | Voltmeter MC 0-30V | | |
| xii. | Multimeter | | |
| xiii. | Soldering iron 25W 240V | | |
| xiv. | Function generator | | |
| xv. | Lug board General purpose 5 points | | |
| xvi. | Diode IN4007 | : | 4 Nos. |
| xvii. | Resistor 470 Ω | | |
| xviii. | Step-down transformer, 240V 24V 500Ma or 12V 500mA | | |
| xix. | Multi strand wire, red, blue 19/0.3 of 600V grade | : | As required |
| xx. | Base board -(Laminated board 30 x 15 x 3mm) | | |
| xxi. | Nuts, bolts and washers | : | As required |
| xxii. | 3 Pin plug 6A 250V | | |
| xxiii. | Resin core solder 60/40 | : | As required |
| xxiv. | Hook-up wires | : | As required |
| xxv. | Graph sheet | | |
| xxvi. | Insulated cutting pliers 200mm | | |
| xxvii. | Screwdriver 200mm | | |

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| xxviii. | Electrician's knife (100 mm) | | |
| xxix. | M.C. ammeter 0-1A | | |
| xxx. | M.C. voltmeter 0-300V | | |
| xxxi. | Tachometer 300-3000 r.p.m. | | |
| xxxii. | Megger - 500V | | |
| xxxiii. | Test lamp | | |
| xxxiv. | M.C. ammeter 0 to 15A | | |
| xxxv. | DC shunt motor 220V 3HP | | |
| xxxvi. | Rheostat 220 ohms 1 amp | | |
| xxxvii. | 3 point starter 15A 220V | | |
| xxxviii. | P.V.C. Insulated multi-strand copper cable 2.5 sq mm 600V grade | : | As required |
| xxxix. | Fuse wire 15 Amps | : | As required |
| xl. | EC 1000 μ f / 63V | : | 02 Nos. |

446. ELECTRONIC MECHANIC (1st YEAR)

| | | | |
|-------|------------------------------------|---|-------------|
| i. | Analog multimeter | | |
| ii. | Assorted type of Diodes | : | 05 Nos. |
| iii. | Regulated DC power supply 0-30V/2A | | |
| iv. | Digital multimeter | | |
| v. | CRO Dual trace 0-20 MHz | | |
| vi. | Signal Generator | | |
| vii. | IC 741 | | |
| viii. | Resistor 1k Ω , 1/4 W/CR25 | | |
| ix. | Diode 1N4007 | : | 02 Nos. |
| x. | Breadboard | | |
| xi. | IC-7408 | : | 04 Nos. |
| xii. | IC-7404 | : | 04 Nos. |
| xiii. | LED 5mm Red | : | 04 Nos. |
| xiv. | Resistor 330 Ω 1/4 W/CR25 | : | 04 Nos. |
| xv. | Miniature toggle switch SPDT | : | 02 Nos. |
| xvi. | Hook up wires | : | As required |

ELECTRONIC MECHANIC (2nd YEAR)

| | | | |
|--------|---|---|----------|
| i. | RJ45 Crimping tool | | |
| ii. | Network cable tester | | |
| iii. | Personal computer | : | 02 Nos. |
| iv. | 8 port network switch | | |
| v. | Cable stripper | | |
| vi. | CAT6 cable | : | 02 meter |
| vii. | RJ45 plug | : | 02 Nos. |
| viii. | Regulated DC power supply 0-30V/2A | | |
| ix. | Digital multimeter | | |
| x. | Audio generator | | |
| xi. | RF generator | | |
| xii. | CRO dual trace 0-20MHz with probe kit | | |
| xiii. | Soldering iron -25W/240V | | |
| xiv. | General purpose PCB | | |
| xv. | Transistor BF 195C or equivalent | | |
| xvi. | Capacitor ceramic 0.01 μ F, 0.1 μ F, 0.001 μ F/25 VDC | | |
| xvii. | Resistor 10K Ω 1/4 W/CR25 | : | 03 Nos. |
| xviii. | Resistor 21 K Ω / 20 K Ω | | |

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| xix. | Resistor 100K Ω $\frac{1}{4}$ W/CR25 | | |
| xx. | Solder, flux, wires | : | As required |
| xxi. | Magnifier lens | | |
| xxii. | Cleaning brush | | |
| xxiii. | IPA cleaning solution | | |
| xxiv. | Cell phone/ Smart phone | | |
| xxv. | Precision screw driver set | | |
| xxvi. | Soldering and desoldering station | | |
| xxvii. | Digital multimeter | | |
| xxviii. | Spare components | : | As required |
| xxix. | Jumper wire | : | As required |

502. MECHANIC MOTOR VEHICAL (1st YEAR)

| | | | |
|--------|---|---|-------------|
| i. | Cylinder bore dial gauge complete set | | |
| ii. | Micrometer 0.01mm | | |
| iii. | The cylinder bore standard size | | |
| iv. | Oil can | : | As required |
| v. | Cotton waste | : | As required |
| vi. | Banian cloth | : | As required |
| vii. | Engine oil | : | As required |
| viii. | A four cylinder engine block | | |
| ix. | Torque wrench | | |
| x. | Straight edge | | |
| xi. | Feeler gauge | | |
| xii. | Cylinder head gasket kit | | |
| xiii. | Diesel | : | As required |
| xiv. | A four cylinder diesel engine | | |
| xv. | Multimeter | | |
| xvi. | Auto wire in different sizes | : | As required |
| xvii. | Wire connectors in different sizes | : | As required |
| xviii. | A running condition four Cylinder diesel vehicle/engine | | |

MECHANIC MOTOR VEHICAL (2nd YEAR)

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|-------|---|---|-------------|
| i. | Scan tool | | |
| ii. | Spark plug gaug | | |
| iii. | Timing light | | |
| iv. | Multimeter | | |
| v. | A running condition four cylinder petrol engine | | |
| vi. | SPARK PLUG | : | 04 Nos. |
| vii. | Engine support stand | | |
| viii. | Vehicle lift | | |
| ix. | Hydraulic jack | | |
| x. | Clutch plate aligning tool | | |
| xi. | Engine rope | : | As required |
| xii. | Flywheel holder | | |
| xiii. | Wooden mallet | | |

- xiv. Steel rule
- xv. Vernier caliper 300 mm in size
- xvi. Cotton waste : As required
- xvii. Banian cloth : As required
- xviii. Clutch plate
- xix. Clutch cover assembly
- xx. Release bearing
- xxi. Engine gas analyser
- xxii. EGR VALVE

503. MECHANIC REFRIGERATION & AIR - CONDITIONING TECHNICIAN (1st YEAR)

- i. Clamping hose
- ii. Flaring block and yoke
- iii. Hammer Ball peen
- iv. Measuring Tape
- v. Tube cutter-3to16mm Dia
- vi. Spanner set
- vii. Cutting plier
- viii. Nose plier
- ix. Screw Driver 250mmlength
- x. Spark lighter
- xi. Butane gas can
- xii. Spelter
- xiii. Dry Nitrogen Cylinder with pressure regulating valves
- xiv. Silver rod
- xv. Silver flux
- xvi. Static Condenser
- xvii. Static Evaporator

MECHANIC REFRIGERATION & AIR - CONDITIONING TECHNICIAN (2nd YEAR)

- i. Cleaning solution
- ii. Cleaning brush.
- iii. Cotton Waste. : As required
- iv. De scaling brush for condenser
- v. Cooling tower, water pump, clean sump

592. WIREMAN (1st YEAR)

- i. Insulated combination pliers 200mm
- ii. Double blade Knife 100mm
- iii. Long nose pliers 150mm
- iv. Electrician screw driver 200mm
- v. Connector screw driver 100mm
- vi. Wire stripper 150mm
- vii. Neon line tester 150mm, 500V
- viii. Regulated power supply (RPS) unit 0-30V, 5 A
- ix. MI voltmeter 0 – 300V
- x. MC ammeter 0 – 500mA
- xi. Digital Multi meter 4½ digit
- xii. MI ammeter 0-1A

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| xiii. | MC voltmeter 0- 50V-1 No | | |
| xiv. | Auto transformer, single phase, 0-270V, 5A 50Hz | | |
| xv. | PVC insulated copper 1.5 Sq mm flexible wire, 650V grade | : | As required |
| xvi. | Fluorescent lamp choke, 40W | | |
| xvii. | Single pole tumbler switch, 240V, 6A with gang box | | |
| xviii. | ICDP switch, 250V, 16A | | |
| xix. | Insulated combination pliers 200mm | | |
| xx. | Double blade Knife 100mm | | |
| xxi. | Long nose pliers 150mm | | |
| xxii. | Electrician screw driver 200mm | | |
| xxiii. | Connector screw driver 100mm | | |
| xxiv. | Wire stripper 150mm | | |
| xxv. | Neon line tester 150mm, 500V | | |
| xxvi. | Poker 200mm-1 No | | |
| xxvii. | Hand drilling machine, 6 mm Capacity with 3mm and 6 mm SS drill bit | : | 01 No. |
| xxviii. | SPT switch, flush type, 250V, 6A with gang box | : | 02 Nos. |
| xxix. | Bakelite batten lamp holder BC type, 250V, 6A | | |
| xxx. | PVC conduit pipe 20mm | : | 3 m |
| xxxi. | PVC elbow 20mm | : | 01 No. |
| xxxii. | PVC Tee 20mm | : | 02 Nos. |
| xxxiii. | PVC saddles 20mm | : | 15 Nos. |
| xxxiv. | Wood screws 20mm, 25mm and 45mm | : | 20 Nos. (each) |
| xxxv. | Incandescent lamp, BC type 100W, 240V | : | 01 No. |
| xxxvi. | PVC round block (90x40mm) | : | 01 No. |
| xxxvii. | HPSV lamp 125W, 250V | : | 01 No. |
| xxxviii. | Choke and ignitor for 125W HPSV lamp | : | 01 No. |
| xxxix. | ICDP switch, 250V, 16A | : | 01 No. |
| xl. | Porcelain screw type lamp holder with bracket for HPSV lamp, 250V | : | 01 No. |

WIREMAN (2nd YEAR)

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| i. | Insulated combination pliers 200mm | | |
| ii. | Double blade Knife 100mm | | |
| iii. | Long nose pliers 150mm | | |
| iv. | Electrician screw driver 200mm | | |
| v. | Connector screw driver 100mm | | |
| vi. | Wire stripper 150mm | | |
| vii. | Neon line tester 150mm, 500V | | |
| viii. | Digital Multi meter 4½ digit | | |
| ix. | Megger 500V | | |
| x. | 3 phase, star connected alternator, 415V, 5KVA, 50Hz, 1500 RPM | | |
| xi. | PVC insulated copper flexible wire, 1.5 sq mm, 650V grade | : | As required |
| xii. | Series test lamp, 2x 100W | : | 01 No. |
| xiii. | DC compound motor, 250V, 5HP with 4 point starter: | : | 01 No. |
| xiv. | MC ammeter, 0-10A | : | 01 No. |
| xv. | MC voltmeter 0-300V | : | 01 No. |
| xvi. | ICDP switch, 250V, 16A | : | 01 No. |
| xvii. | Insulated combination pliers 200mm | : | 01 No. |

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| xviii. | Three phase squirrel cage induction motor, 415V, HP with starter, belt loading arrangement and spring balances | : | 01 No. |
| xix. | MI voltmeter 0-500V | : | 01 No. |
| xx. | MI ammeter 0- 10 A | : | 01 No. |
| xxi. | PVC insulated copper 1.5 Sq mm flexible wire, 650V grade | : | 10 m |
| xxii. | ICTP switch, 500V, 16A | : | 01 No. |
| 453. | FITTER (1st YEAR) | | |
| | i. M.S. Flat 65 x 45 x 8mm | : | 02 Nos. |
| | FITTER (2st YEAR) | | |
| | i. M.S. Flat 80 x 55 x 10 mm | : | 02 Nos. |
| 969. | WELDER | | |
| | i. M.S. Flat 155 x 110 x 10mm | : | 01 No. |
| | ii. M.S. Flat 155 x 60 x 10mm | : | 02 Nos. |
| | iii. M.S. Flat 155 x 45 x 10 mm | : | 01 No. |
| | iv. S.S. Flat 155 x 55 x 06 mm | : | 02 Nos. |
| | v. GMAW Plant with accessories | | |
| | vi. Stainless steel filler rod dia 1.2 mm | | |
| | vii. GTAW plant with accessories (S. S filler rod& argon gas) | | |

Note: *All tools, Instrument and equipment as per syllabus of the trade should be kept ready in working condition.
