

**GOVERNMENT I.T.I (GIRLS), VENKATESWARAPURAM, NELLORE
S.P.S.R.NELLORE (DISTRICT)**

Available Instrument Machanic Trade Machinery / Equipment (As per Syllabus)

A. TRAINEES TOOL KIT

SL NO	Name of the Tools/Equipment/Machinery	Quantity per Unit	No. of Units	Total Quantity
1	Steel Rule 150 mm (metric and English Marking)	21 Nos.	2(1+1)Unit	42 Nos.
2	Watch maker screw driver (set of six)	21 Nos.	2(1+1)Unit	42 Nos
3	Plier flat Nose 100 mm	21 Nos.	2(1+1)Unit	42 Nos
4	Hammer ball pain 250 gms. With handle	21 Nos.	2(1+1)Unit	42 Nos
5	Twiser fine point 125 mm	21 Nos.	2(1+1)Unit	42 Nos
6	File hand smooth 200 mm	21 Nos.	2(1+1)Unit	42 Nos
7	File Flat 2 nd cut 200 mm	21 Nos.	2(1+1)Unit	42 Nos
8	Screw driver set of 5 pieces	21 Nos.	2(1+1)Unit	42 Nos
9	Adjustable spanner	21 Nos.	2(1+1)Unit	42 os

B.TRAINEES TOOL KIT

SL NO	Name of the Tools/Equipment/Machinery	Quantity per Unit	No. of Units	Total Quantity
1	Try square hardened blade 100 mm	4 Nos.	2(1+1)Unit	4 Nos.
2	Neon (phase) tester 230 volt	4 Nos.	2(1+1)Unit	4 Nos.
3	Eye glass 3” focus watch maker	4 Nos.	2(1+1)Unit	4 Nos.
4	Surface plate 400×400 mm	2 Nos.	2(1+1)Unit	2 Nos.
5	Universal scribing block 250 mm plier	2 Nos.	2(1+1)Unit	2 Nos.
6	Angle plate 150×100	2 Nos.	2(1+1)Unit	2 Nos.
7	Vee block with clamp pair	2 Nos.	2(1+1)Unit	2 Nos.
8	Punch frame set 2 mm	2 Nos.	2(1+1)Unit	2 Nos.
9	Hacksaw frame adjustable 200 – 300 mm	8 Nos.	2(1+1)Unit	8 Nos.
10	Hammer ball pain 450 gms, with handle	2 Nos.	2(1+1)Unit	2 Nos.
11	Electric soldering iron 6 watt pencil tip	4 Nos.	2(1+1)Unit	4 Nos.
12	Vice bench jaw 100 mm	4 Nos.	2(1+1)Unit	4 Nos.
13	Pointer extractors (puller)	4 Nos.	2(1+1)Unit	4 Nos.
14	Screw pitch gauge B.A. & metric each	1 Each	2(1+1)Unit	1 Each
15	Punch center 100×10 mm	2 Nos.	2(1+1)Unit	2 Nos.
16	Tool maker’s clamps 65×15×25 mm opening	2 Nos.	2(1+1)Unit	2 Nos.
17	Plier side cutting 150 mm	2 Nos.	2(1+1)Unit	2 Nos.
18	Sine bar 125 mm plate	1 No.	2(1+1)Unit	1 No.
19	Flaring tool set	1 Set	2(1+1)Unit	1 Set
20	Micrometer outside 0 to 25 mm	2 Nos.	2(1+1)Unit	2 Nos.
21	Micrometer outside 25 to 50 mm	1 No.	2(1+1)Unit	1 No.
22	Vernier height gauge 300 mm	2 Nos.	2(1+1)Unit	2 Nos.
23	Combination set 300 mm	1 No.	2(1+1)Unit	1 No.
24	Vernier caliper 150 mm	2 Nos.	2(1+1)Unit	2 Nos.
25	Standard wire gauge	1 No.	2(1+1)Unit	1 No.
26	Feeler gauge leaf type, 26 blades, eng.& metric	1 No.	2(1+1)Unit	1 No.
27	Radius gauge leaf type 1 to 15 mm	1 No.	2(1+1)Unit	1 No.
28	Dial test indicator in mm with accessories.	1 No.	2(1+1)Unit	1 No.
29	Micrometer inside 25 mm with extension up to 150 mm	1 Nos.	2(1+1)Unit	1 Nos.
30	Combination plier heavy duty 150 mm	6 No.	2(1+1)Unit	6 No.
31	Fire buckets	4 No.	2(1+1)Unit	4 No.
32	Tube cutter	1 No.	2(1+1)Unit	1 No.
33	Tube bender	1 No.	2(1+1)Unit	1 No.
34	Pinching tool	1 No.	2(1+1)Unit	1 No.
35	Allen key set (metric)	2 Sets.	2(1+1)Unit	2 Sets.
36	Allen key se (English)	2 Sets	2(1+1)Unit	2 Sets
37	Soldering station (temp. controlled)	2 Nos.	2(1+1)Unit	2 Nos.
38	Screw driver 200 mm	3 Nos.	2(1+1)Unit	3 Nos.
39	Philips screw driver 200 mm	2 Sets.	2(1+1)Unit	2 Sets.
40	Round nose plier 150 mm	4 Nos.	2(1+1)Unit	4 Nos.
41	Magnifying glass 75 mm	2 Nos.	2(1+1)Unit	2 Nos.
42	Slip Gauges (workshop grade)	2 Nos	2(1+1)Unit	2 Nos
43	Fire extinguishers	2 Nos	2(1+1)Unit	2 No s

C.MECHANICAL PRECISION INSTRUMENTS

SL NO	Name of the Tools/Equipment/Machinery	Quantity per Unit	No. of Units	Total Quantity
1	2	3	4	5
1	Plug gauge	2 Nos.	2(1+1)Unit	2 Nos.
2	Ring gauge	1 No.	2(1+1)Unit	1 No.
3	Snap gauge	1 No.	2(1+1)Unit	1 No.
4	Surface gauge	2 Nos.	2(1+1)Unit	2 Nos.
5	Telescopic gauge	1 No.	2(1+1)Unit	1 No.
6	Vernier bevel protractor	2 Nos.	2(1+1)Unit	2 Nos.
7	Dividers, 250 mm	3 Nos.	2(1+1)Unit	3 Nos.
8	Gauge blocks	3 Nos.	2(1+1)Unit	3 Nos.
9	Monochromatic light source	1 No.	2(1+1)Unit	1no.
10	Wire type strain gauge (load cell/cantilever beam) instrument	4 Nos. (Each 2 No)	2(1+1)Unit	4 Nos. (Each 2 No)
11	Vibrometer sensing elements	2 Nos.	2(1+1)Unit	2 Nos.
12	Accelometer	1 No	2(1+1)Unit	1 No
13	Sesmic instruments	2 Nos.	2(1+1)Unit	2 Nos.
14	Load cells of various ranges	2 Nos.	2(1+1)Unit	2 Nos.

D.ROTATIONAL/VELOCITY INSTRUMENTS

SL NO	Name of the Tools/Equipment/Machinery	Quantity per Unit	No. of Units	Total Quantity
1	Speedometers (at least four different popular make) with adopters of various sizes	1 No. each.	1 Unit	1 No. each.
2	Centrifugal type tachometer	1 No	2(1+1)Unit	1 No
3	Drag cup type tachometer	1 No	2(1+1)Unit	1 No
4	Electrical tachometer	1 No	2(1+1)Unit	1 No
5	Chronometric type tachometer	1 No	2(1+1)Unit	1 No
6	Digital type tachometer	1 No	2(1+1)Unit	1No
7	Stroboscope	1 No	2(1+1)Unit	1 No

E. PRECISION INSTRUMENT

SL NO	Name of the Tools/Equipment/Machinery	Quantity per Unit	No. of Units	Total Quantity
1	Digital panel meters, 4 digit	6 Nos.	2(1+1)Unit	6 Nos.
2	Digital line frequency indicator	2 Nos.	2(1+1)Unit	2 Nos.
3	D.C. regulated power supply (+/-15V / +/- 30V)	2 Nos.	2(1+1)Unit	2 Nos.
4	Digital multi signal generator (1 MHz) with frequency counter (8 digit or 10 MHz)	1No.	2(1+1)Unit	1No.
5	Digital function generator	1No.	2(1+1)Unit	1No.
6	Pulse generator	1No.	2(1+1)Unit	1No.
7	Digital insulation tester	1No.	2(1+1)Unit	1No.
8	Digital multimeter	2Nos.	2(1+1)Unit	2Nos
9	Analog multimeter	1 No	2(1+1)Unit	1 No
10	Digital L.C.R. bridge	1 No	2(1+1)Unit	1 No
11	Digital I.C. tester	1 No	2(1+1)Unit	1 No
12	Analog dual trace CRO 30MHz	1 No	2(1+1)Unit	1 No
13	Decade resistance boxes	1 No	2(1+1)Unit	1 No
14	Decade capacitance boxes	1 No	2(1+1)Unit	1 No
15	Decade inductance boxes	1 No	2(1+1)Unit	1 No
16	Transistor tester	1 No	2(1+1)Unit	1 No

F. GENERAL EQUIPMENT TRAINERS FOR INSTRUMENTATION

SL.NO	Name of the Tools/Equipment/Machinery	Quantity per Unit	No. of Units	Total Quantity
1.	Instrumentation amplifier trainer	1 No.	2(1+1)Unit	1 No.
2.	Trainers on network circuits i.e. Kirchoff's law resonance		2(1+1)Unit	
3.	Electromagnetic and transformer	1 No.	2(1+1)Unit	1 No.
4.	Trainers on linear circuits i.e. operational amplifiers	1 No.	2(1+1)Unit	1 No.
5.	Trainer on basic digital electronics i.e. logic gates Boolean Expression adder subtractor flip flop counter register converter etc	1 No.	2(1+1)Unit	1 No.
6.	Trainers on power supplier's half wave rectifier full wave		2(1+1)Unit	
7.	Rectifier bridge rectifier and power supply regulated power supply	1 No.	2(1+1)Unit	1 No.
8.	SCR driven/controlled power supply trainer	1 No.	2(1+1)Unit	1 No.
9.	Discreet component trainer	1 No.	2(1+1)Unit	1 No.
10.	Trainer on RS485 to RS232 converter.	1 No. Each	2(1+1)Unit	1 No. Each

G. ELECTRICAL INSTRUMENTS

SL NO	Name of the Tools/Equipment/Machinery	Quantity per Unit	No. of Units	Total Quantity
1.	DC moving coil miliammeters (various ranges)	3 Nos.	2(1+1)Unit	3 Nos.
2.	Centre zero galvanometers	2 Nos.	2(1+1)Unit	2 Nos.
3.	AC moving iron type voltmeter (various ranges)	3 Nos.	2(1+1)Unit	3 Nos.
4.	AC moving iron type ammeter (various ranges)	3 Nos.	2(1+1)Unit	3 Nos.
5.	Wattmeter dynamometer type	1 No.	2(1+1)Unit	1 No.
6.	Power factor meter	1 No.	2(1+1)Unit	1 No.
7.	Watt hour meter induction type 1 ph	2 Nos.	2(1+1)Unit	2 Nos.
8.	Ampere hour meter	1 No.	2(1+1)Unit	1 No.
9.	Ohm meter	2 Nos.	2(1+1)Unit	2 Nos.
10.	Synchroscope	1 No	2(1+1)Unit	1 No
11.	Potentiometer / thermocouple test set	1 No.	2(1+1)Unit	1 No.
12.	Autotransformer	2 Nos.	2(1+1)Unit	2 Nos.
13.	Calibration test bench for AC and DC voltmeter, AC and DC Ammeter, ohmmeter	1 No	2(1+1)Unit	1 No

SL NO	Name of the Tools/Equipment/Machinery	Quantity per Unit	No. of Units	Total Quantity
1.	“ U” tube manometers	1 No.	2(1+1)Unit	1 No.
2.	Well type manometer	1 No.	2(1+1)Unit	1 No.
3.	Inclined limb manometers	1 No.	2(1+1)Unit	1 No.
4.	Bourdon tube type gauges of various ranges	5 Nos.	2(1+1)Unit	5 Nos.
5.	Capsule type pressure gauges	3 Nos.	2(1+1)Unit	3 Nos.
6.	Aneroid barometers	1 No.	2(1+1)Unit	1 No.
7.	Dead weight tester	1 No.	2(1+1)Unit	1 No.
8.	Pressure regulators with filter and input & output gauges	1 No.	2(1+1)Unit	1 No.
9.	Differential pressure transmitter (pneumatic)	1 No.	2(1+1)Unit	1 No.
10.	Differential pressure transmitter (electronic -HART/field bus type)	1 No.	2(1+1)Unit	1 No.
11.	Diaphragm type pressure gauges of various ranges	2 Nos.	2(1+1)Unit	2 Nos.
12.	Pressure Transducer training kits Potentiometer Capacitive Reluctive Strain guage LVDT load calls servo type	1 No. each	2(1+1)Unit	1 No. each
13.	Experimental set up for pressure measurement consisting of air compressor pressure vessel pressure transmitter controller recorder and final control element, computer i.e. closed loop system or full scope system i.e. pressure instrumentation process control trainer / simulator	1 No.	2(1+1)Unit	1 No
14. .	HART device communicator and calibrator	1 No.	2(1+1)Unit	1 No.
15. .	Pneumatic calibrator	1 No.	2(1+1)Unit	1 No.

16. .	Electronic (HART/Field bus/profibus type device compatible) calibrator	1 No.	2(1+1)Unit	1 No.
17.	Pressure switches of various ranges	4 Nos .	2(1+1)Unit	4 Nos .
18.	Low pressure measuring gauges such as thermal conductivity gauge and Mcloyd gauge	1 No.	2(1+1)Unit	1 No.
19.	P to I and I to P converters	1 No. each	2(1+1)Unit	1 No. each
20.	Vacuum tester with pump	1 No.each	2(1+1)Unit	1 No.each
21.	Vacuum gauge 100 mm dial bourdon tube type	1 No.	2(1+1)Unit	1 No.

H. low meters / Instruments

SL NO	Name of the Tools/Equipment/Machinery	Quan tity per Unit	No. of Units	Total Quantity
1	Simple tank type quantity meter	1 No.	2(1+1)Unit	1 No.
2	Impeller type flow meter	1 No.	2(1+1)Unit	1 No.
3	Below and liquid seal drum type flow meter	1 No. each	2(1+1)Unit	1 No. each
4	Deflecting and rotating vane type flow meter	1 No. each	2(1+1)Unit	1 No. each
5	Helical and turbine flow meter	1 No.	2(1+1)Unit	1 No.
6	Pitot tube flow meter	1 No.	2(1+1)Unit	1 No.
7	Orifice type flow meter	1 No.	2(1+1)Unit	1 No.
8	Ventury tube flow meter	1 No.	2(1+1)Unit	1 No.
9	Rotameter	1 No.	2(1+1)Unit	1 No.
10	Magnetic flow meter	1 No.	2(1+1)Unit	1 No.
11	Vortex flow meter	1 No.	2(1+1)Unit	1 No.
12	Flow control loop set with flow controller recorder, D.P. transmitter, receiver, unit control valve and impulse line, computer complete experimental set- up for flow measurement	1 No.	2(1+1)Unit	1 No.
13	. Experimental closed loop set up for solid flow measurement and Control with storage vessel, hopper, solid flow sensor, controller, Recorder and final control element	1 No.	2(1+1)Unit	1 No.
14	Coriolis mass flow meter	1 No.	2(1+1)Unit	1 No.
15	Flow nozzle	1 No.	2(1+1)Unit	1 No.

SL NO	Name of the Tools/Equipment/Machinery	Quantity per Unit	No. of Units	Total Quantity
1.	Integrated direct level indicator trainer (Hooktype, sight type, float type level indicator)	1 No.	2(1+1)Unit	1 No.
2.	Static pressure and air purge type level indicator	1 No.	2(1+1)Unit	1 No.
3.	Level transmitter (interface)(HART/Field bus/profibus compatible)	1 No. each	2(1+1)Unit	1 No. each
4.	Level control set up with level transmitters level recorder Controller & control valve complete Experimental set up or level simulator	1 No.	2(1+1)Unit	1 No.
5.	Level measurement equipments for solid, sonic solid level, microwave, capacitance probes, diaphragm switches, nuclear gauge, sonic and microwave solid level detectors point level detector, conductivity type	1 No. each	2(1+1)Unit	1 No. each

I. Temperature Instruments

SL NO	Name of the Tools/Equipment/Machinery	Quantity per Unit	No. of Units	Total Quantity
1.	Mercury in glass thermometer (various ranges)	3 No	2(1+1)Unit	3 No
2.	Alcohol or other liquid in glass thermometers (consumable item)	2 No	2(1+1)Unit	2 Nos
3.	Stem and dial type bimetallic thermometer(various ranges)	2 Nos	2(1+1)Unit	2 Nos.
4.	Mercury in steel remote indicating thermometers	2 Nos	2(1+1)Unit	2 Nos
5.	Resistance bulb Wheatstone bridge type	2 Nos	2(1+1)Unit	2 Nos
6.	Thermocouple type pyrometer with milivoltmeter (with different types of thermocouples)	1 No.	2(1+1)Unit	1 No.
7.	Optical pyrometer with all accessories	1 No.	2(1+1)Unit	1 No.
8.	Radiation Pyrometer with all accessories	1 No.	2(1+1)Unit	1 No.
9.	Vapour pressure thermometer	2 No.	2(1+1)Unit	2 No.
10.	Temperature transmitter, pneumatic	1 No.	2(1+1)Unit	1 No.
11.	Temperature transmitter electronic((input RTD ,TC)	1 No.	2(1+1)Unit	1 No.
12.	Experimental set up for measuring and controlling of temperature- Consisting of measuring, controlling, indicating, recording and final controlling elements, complete closed loop system with simulator	1 No.	2(1+1)Unit	1 No.
13.	Digital temperature calibrator, mV/mA injector and measuring unit	1 No.	2(1+1)Unit	1 No.

L. RECORDERS

SL NO	Name of the Tools/Equipment/Machinery	Quantity per Unit	No. of Units	Total Quantity
1.	Pneumatic and electronic recorders (single point and multi point) both circular and strip chart types	1 No. each	2(1+1)Unit	1 No. each
2.	Paperless LCD/LED recorder setup	1 No..	2(1+1)Unit	1 No.

SL NO	Name of the Tools/Equipment/Machinery	Quantity per Unit	No. of Units	Total Quantity
1	PID controller trainer consisting of instrument panel, digital computer and interface system	1 No.	2(1+1)Unit	1 No.
2	Real PID controller training kit	1 No.	2(1+1)Unit	1 No.
3	With HART/Field bus devices, consisting operations of feed forward, cascade, ratio controlling		2(1+1)Unit	
4	Programmable logic controller (micro PLC) trainer	1 No.	2(1+1)Unit	1 No.
5	HART/field bus communicator	1 No.	2(1+1)Unit	1 No.
6	HART/Field devices (pressure/ flow/level)	1 no. each.	2(1+1)Unit	1 no. each.
7	Multifunction process control system consisting of level, flow , Temperature, pressure with remote set point control, ratio, cascade and feed forward with feedback loops with computer interface and software	1 No.	2(1+1)Unit	1 No.

M. FINAL CONTROLLING ELEMENTS

SL NO	Name of the Tools/Equipment/Machinery	Quantity per Unit	No. of Units	Total Quantity
1.	Electric actuators	1 No.	2(1+1)Unit	1 No.
2.	Pneumatic and hydraulic actuators	1 No.	2(1+1)Unit	1 No.
3.	Different type of control valves such as gate valves, globe valves, Ball valves, diaphragm valves, butterfly valves etc. eclectically actuated, pneumatic actuated and hydraulic actuated	1 No. each.	2(1+1)Unit	1 No. each.
4.	Valve petitioners, booster relays, gland pickings etc.	1 No. each.	2(1+1)Unit	1 No. each.
5.	Cut section models of various type of control valve	1 No. each.	2(1+1)Unit	1 No. each.
6.	FIART/ field bus final control elements(two different type)	1 No. each	2(1+1)Unit	1 No. each

N. EQUIPMENT FOR MICROPROCESSORS

SL NO	Name of the Tools/Equipment/Machinery	Quantity per Unit	No. of Units	Total Quantity
1.	Training kits or trainers as available on microprocessors applicable to process control and instrumentation and accessories	1 No .	2(1+1)Unit	1 No
2.	Data acquisition system (DAS)	1 No	2(1+1)Unit	1 No
3.	ADC to DAC cards	4 Nos	2(1+1)Unit	4 Nos
4.	Digital I/O cards	4 Nos	2(1+1)Unit	4 Nos

O. COMPUTER AND SOFTWARE

SL NO	Name of the Tools/Equipment/Machinery	Quantity per Unit	No. of Units	Total Quantity
1 .	Computers (latest configuration) with tables(For operating various control system trainers)	04 No.	2(1+1)Unit	04 No.
2 .	Lap top (for convenient to field bus system/control system)	02 No.	2(1+1)Unit	02 No.
3 .	Licensed operating system (latest version)	06 No.	2(1+1)Unit	06 No.
4 .	Latest Office (licensed version)	01 No.	2(1+1)Unit	01 No.
5 .	LCD multimedia projector with trolley	01 No.	2(1+1)Unit	01 No.
6 .	Broad band internet connection	01 No.	2(1+1)Unit	01 No.
7 .	Printer (Scan/copy)	01 No.	2(1+1)Unit	01 No.
8 .	Networking tool kit	02 No.	2(1+1)Unit	02 No.

P. EQUIPMENT ON HYDRAULICS AND PNEUMATICS

SL NO	Name of the Tools/Equipment/Machinery	Quantity per Unit	No. of Units	Total Quantity
1.	Hydraulic trainer	1 No	2(1+1)Unit	1 No
2.	Pneumatic trainer	1 No	2(1+1)Unit	1 No

Q. ANALYTICAL EQUIPMENTS

SL NO	Name of the Tools/Equipment/Machinery	Quantity per Unit	No. of Units	Total Quantity
1	2	3	4	5
1.	Conductivity meter	1 No	2(1+1)Unit	1 No
2.	pH meter	1 No	2(1+1)Unit	1 No
3.	Experimental set up for online conductivity measurement	1 No	2(1+1)Unit	1 No
4.	Experimental set up for online pH measurement	1 No	2(1+1)Unit	1 No
5.	Experimental set up for online dissolved oxygen measurement	1 No	2(1+1)Unit	1 No

S.WORKSHOP FURNITURE:

SL NO	Name of the Tools/Equipment/Machinery	Quantity per Unit	No. of Units	Total Quantity
1	2	3	4	5
1	Work benches (1800 x 900 x 900 mm)	4 No s	2(1+1)Unit	4 No s
2	Instrument test bench with cup boards	4 No s	2(1+1)Unit	4 No s
3	Steel cup boards with eight lockers for trainees (100×1200×450 mm)	2 No s	2(1+1)Unit	2 No s
4	Steel cup boards/ almirah 1800×1200×450(with five shelves)	4 No s	2(1+1)Unit	4 No s
5	Steel cup boards with eight lockers for trainees (1800×1200×450mm)	2 No s	2(1+1)Unit	2 No s