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| 1 | Name of Syllabus | C.C.IN GENERAL MACHINE OPERATOR (For Physically Handicapped) (303136) | | | | | | |
| 2 | Max.Nos of Student | 25 Students | | | | | | |
| 3 | Duration | Six months | | | | | | |
| 4 | Type | Full Time | | | | | | |
| 5 | Nos Of Days / Week | 6 Days | | | | | | |
| 6 | Nos Of Hours /Days | 7 hrs. | | | | | | |
| 7 | Space Required | 1) Workshop = 400 sqfeet 2) Class Room = 200 sqfeet TOTAL = 600 sqfeet | | | | | | |
| 8 | Entry Qualification | 8 th Pass | | | | | | |
| 9 | Objective Of Syllabus/ introduction | Introduction – the syllabus of C.C.In general machine operator (for physically handicapped) such a way that after completion of course of 1 year , the student would acquire good working skill suited to work as Machinist/Technician in workshop he would also gain confidence to operate machines such as lathe machine drilling machine , milling machine & press machine etc. Objective:- 1) Develop skills in Bench fitting work 2) Develop skills in job inspection with the help of precision measuring instrument and gauges. 3) Provide a sound working operational knowledge of different types of machine such as lathe machine drilling machine , milling machine & press machine etc. 4)Handling & uses of different types of tools used in sheet metal work. | | | | | | |
| 10 | Employment Opportunity | Self Employment:- To start his own/small workshop to undertake job involving repetitive Skills in milling, tapping, turning, shaping and Hand Press. Employment : To Work as an operator in the industries in public and private sector on jobs Involving repetitive skills required in production | | | | | | |
| 11 | Teacher's Qualification | ITI- NCTVT Passed (In Turner & Machine with two years experience in Industry of in a production workshop | | | | | | |
| 12 | Training System | Training System Per Week | | | | | | |
| | | Theory | | Practical | | Total | | |
| | | 12hrs | | 30 hrs | | 42hrs | | |
| 13 | Exam. System | Sr. No. | Paper Code | Name of Subject | TH/PR | Hours | Max. Marks | Mini. Marks |
| | | 1 | 30313611 | General Fitting work & Machinist | TH I | 3 hrs. | 100 | 35 |
| | | 2 | 30313621 | Fitting | PR-I | 3 hrs. | 100 | 50 |
| | | 3 | 30313622 | Machinist | PR-II | 6 hrs. | 200 | 100 |
| | | | | Total | | | 400 | 185 |

THEORY PAPER – I, General Fitting Work & Machinist

- (1) Introduction of institute & Technical Trades, General Rules & precautions to be observed in the workshop. Importance of Trade in the Development of Industrial Economy of the county. Related instructions, achievements to be made, importance of trade training, machinery used in the trade, safety equipments and its uses. Linear measurements and its units. Scribers method with examples, divider dot punch construction and its uses. Use of marking media, Hammer-type s and its uses. Surface plate & its uses and care. V-block, Engineering Square constructions and its uses. Bench vice, clamp hacksaw frame, function, type uses care and maintenance, method of using hacksaw, files const. types and uses convexity of files and its results, right method of fixing the file in handle. Angle plate parallel block, chisels types and uses.
- (2) Properties and uses of Ferrous and Non Ferrous metal and its alloys (brief information)
- (3) Introduction of Drill M/c. and its construction types, uses of different types of drills, drilling method, drilling M/c types of drives, capacity of drilling m/c. special future and care. Speed changing system and precaution observed while drilling. Portable drilling M/c. Introduction in brief. Speed and feed required for drilling M/c. on various material.
- (4) Detail information of (1) Micro Meter (2) Vernier (3) Depth and other gauges (4) Scale. Tape etc. Calculation related in the measuring instrument.
- (5) Uses of wrenches, spanners, conversion problems.
- (6) Combination set, bevel protector – construction uses and care. Reamer types and die/types uses and care. Types of coolants its necessity causes of breaking taps. Method of removing of broken taps. Fundamental concept of heat treatment and basic heat treatment process
- (7) External trading – button dies – types uses and care. Threading lubrication, setting of threading dies by screw. Description of fastening – (1) Permanent (2) Semi Permanent (3) Temporary devices, types of washers and uses. Detailed information of heat treatment processes i.e tempering, hardening and normalizing
- (8) Uses of various types of Machines (1) Centre Lathe (2) Shaping M/c. (3) Milling M/c. (4) Hand Press (5) Power Press (6) Grinding M/c. (7) Drilling M/c. (8) Power Hacksaw
- 9) Lathe Tools: Importance of Grinding lathe tools in the workshop. Die and punches, General Turning Operation, Holding Tool in Tool Post, Various types of operations on shaping M/c. Method of holding dies and taps. Brief information of power press.
- 10) Nut bolt types and its uses. Study of various gauges and its uses.
- 11) Detailed information of shaping machine and its future, construction, operation, controls, uses and care, lubrication etc.
- 12) Detailed information about Milling M/c. i.e features, construction, operation, controls, uses and care.
- 13) Detailed information of Hand Press and Power Press
- 14) Introduction of Shearing M/c.
- 15) Detailed information of Press Tools i.e. Die and Punches, Stroke adjustments and die setting
- 16) Principle of co-operative formation of co-operative society for a small enterprise, Rules and regulation of co-operative act.
- 17) Briefing of preparation of project report.

PRACTICAL – I, FITTING

1. Marking and filing with file balancing
2. Practicing of filing
3. Cutting practice for balancing hacksaw
4. Cutting with dimension
5. Filing with dimension
6. Preparation of round from square flat
7. Preparation of triangle from round
8. Cutting and filing with dimension
9. Filing with different shaped files
10. Right angle filing
11. Drilling Practice with straight and taper shank drill.
12. Tapping Practice Metric and B.S.W. tap

PRACTICAL – II, MACHINIST

Bending Die and Punch Setting and Operating on Hand Press

Blanking die punch setting and operating on Power Press

Cutting Practice of Power Hacksaw

pipng Practice by Tapping attachment

1. 90 degree shaping practice
2. Step Shaping Practice
3. Angular Shaping practice
4. Facing and Turning Practice on Lathe M/c.
5. Knurling Practice on lathe M/c.
6. Drilling Practice of Lathe M/c
7. Boring Practice on lathe M/c.
8. Key Way Practice on Milling M/c

List Of Tool's & Equipment :-

| Sr.No. | Description | Qty. |
|--------|---|---------|
| 1 | Steel Rule 30 cm | 8 Nos. |
| 2 | Try Square 10 cm blade | 8 Nos. |
| 3 | Outside Caliper 15 cm spring | 8 Nos. |
| 4 | Inside Caliper 15 cm spring | 8 Nos. |
| 5 | Hermaphrodite caliper 15cm | 8 Nos. |
| 6 | Spring Divider 15 cm | 8 Nos. |
| 7 | Scriber 15 cm | 8 Nos. |
| 8 | Centre Punch 10 cm | 8 Nos. |
| 9 | Ball Pen Hammer 4.5 kg | 8 Nos. |
| 10 | Flat Filet 25 cm second cut | 8 Nos. |
| 11 | Flat File 25 cm smooth | 8 Nos. |
| 12 | Half round File 2 nd cut 15 cm | 8 Nos. |
| 13 | Hacksaw frame adjustable 20-30 cm | 8 Nos. |
| 14 | Safety gogal | 8 Nos. |
| 15 | Dot punch | 8 Nos. |
| | GENERAL SHOP OUT FIT PER UNIT ALONG WITH TOLLS AND INSTRUMENTS | |
| 16 | Surface Plate 45 cm x 45 cm | |
| 17 | Marking Table 9'x91cm x122 cm | 1 No. |
| 18 | Universal Scribing Block 20 cm | 1 No. |
| 19 | V Block (pair) 7 cm 15 cm with clamps | 1 No. |
| 20 | Adjustable Square 15 cm blade | 1 No. |
| 21 | Angle plate 10 x 15 cm | 1 No. |
| 22 | Letter punch 3mm set | 1 No. |
| 23 | Portable Hand Drill machine (electrical) | 1 No. |
| 24 | Twist Drill s/s 8 mm to 15 mm | 1 No. |
| 25 | Twist Drill S/s ¼" to ½" | 1 Set |
| 26 | Taps and dies complete set of box with worth | 1 Set |
| 27 | Taps and dies complete set in box (Metric) | 1 Set |
| 28 | Knife edge File 15 cm smooth | 1 Set |
| 29 | Feather edge 15 cm smooth | 1 No. |
| 30 | Triangular File 15 cm smooth | 2 No. |
| 31 | Round File 15 cm smooth | 2 No. |
| 32 | Square File 25 cm second cut | 2 No. |
| 33 | Square File 25cm smooth | 2 No. |
| 34 | Adjustable spanner 15 cm | 2 No. |
| 35 | Reamer adjustable maximum 9mm -12 mm set of 3 | 2 No. |
| 36 | Reamer Tapper 4 mm -9 mm set of 4 | 1 set |
| 37 | Reamer parallel 16mm -12mm set of 5 | 1 no. |
| 38 | Combination set 30 cm | 21 nos. |
| 39 | Micrometer 0-25mm | 1 no. |
| 40 | Micrometer 0-25mm | 1 no. |
| 41 | Vernier Height gauge 30 cm with | 1 no. |
| 42 | Vernier caliper 30 cm | 1 no. |
| 43 | Depth gauge 0-150mm (2 Nos.) | 1 no. |
| 44 | Steel Rule 150 mm with | 1 set |
| 45 | Spanner –adjustable 200 mm | 4 No. |

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| 46 | Plier flat nose 150mm- side cutting | 2 No. |
| 47 | Filler gauge 100mm blade metric | 1 No. |
| 48 | Radius gauge 1- 12 mm | 2 set |
| 49 | Center gauge 60 degree and 55 degree | 1 set |
| 50 | Screw pitch gauge with worth and Metric | 2 Nos. |
| 51 | Morse Tapper Sleeve 0-1, 1-2, 2-3, 3-4, 4-5 | 1 set |
| 52 | Drift | 1 set |
| 53 | Drill Chuck 0.6mm capacity with key | 1 No. |
| 54 | Drill Chuck 6-12mm capacity with key | 1 No. |
| 55 | Taps and Die Metric set up to 25mm | 1 No. |
| | Taps and Die BSW up to 1 “ | |
| 58 | Tool Holder R.H & Straight for 6mm square tool it | 1 set |
| 59 | Parting Tool Holder with HSS Blade | 1 set |
| 60 | Tool Bit 12 mm square 150 mm lg | 2 nos. |
| 61 | Boring Tool Holder for 6mm Sq. Bit | 2 set |
| 62 | Oil Can 15 Pint pressure feed suction | 6 No. |
| 63 | M/C Vice for Drill M/c | 2 Nos. |
| 64 | Almeria | 2 Nos. |
| 65 | locker with drawer pigeon hole | 2 Nos. |
| 66 | Oil Stone 150x 50x 25 mm | 1 No. |
| 67 | Universal Vice | 1 No. |
| 68 | Machine Vice 200 swivel base | 1 No. |
| | LIST OF MACHINERIES & EQUIPMENTS REQUIRED | |
| 01 | Lethe S.S. & S.C. (All geared Head Stock) 15cm center ht. to admit 120cm between centers, machine to be motorized and supplied with coolant installation, 4 jaw independent chuck 250 mm , 3 jaw self centric 150mm. Fixed steady, travelling steady, base plate driving plate , 4 way tool post, quick change gear box for two nos. metric/ eng, Threads, live dead centers with T attachments. | 01 |
| 02 | Shaping M/c. 540mm stroke (motorized) with all attachment | 01 |
| 03 | Milling M/c. Universal/Horizontal (motorized) with all attachment | 01 |
| 04 | Power Press 10/30/40 Ton Capacity | 01 |
| 05 | Hand Press No. 4 and No5 | 02 each |
| 06 | Bench Drill M/c upto. 12mm capacity | 1 No. |
| 07 | Power Hacksaw Hydraulic Speed System 400 mm blade size | 1 No. |
| 08 | Grinding M/c. bench type 150 mm dia wheel with wheel guard and vision guard | 1 No. |
| | Forge portable hand blower 375 mm to 450 mm dia | 1 No. |
| | Anvil 50 kg. with stand | 1 No. |

Reference Book's

- 1) Workshop Tech. I&II – Hajara & Chaudhari
- 2) Fitter & Turner and Machinist :- By M. B. Dandgawal
