



Gujarat Council of Vocational Training Gandhinagar



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CNC OPERATOR

1. Name of Course

Centre

ITI HANSOT

8152.10

N.C.O. No. for Skills Covered:
(Please refer National Classification of Occupations -2004 available on www.dget.nic.in)

2. Engineering OR Non-engineering & Course objectives

Engineering
To prepare skilled & specialized CNC operator for industry

3. No. of students per batch

10 per batch

4. Duration in Hours.

240 hours

5. Duration in Month

1.5 Months @ 42 hours/Week.

Duration in Month

3 Months @ 22 hours/Week.

6. Examination Scheme:

| No. | Name of Subject | Teaching Hours during full course. | Maximum Marks. (Excluding Sessional) | Minimum Marks required for Passing (Excluding Sessional). | Sessional Marks if any. |
|-----------|-----------------|------------------------------------|--------------------------------------|---|-------------------------|
| Subject-1 | Trade Practical | 144 | 100 | As per GCVT norms | - |
| Subject-2 | Trade Theory | 96 | 300 | As per GCVT norms | - |

| Practical Competencies | Underpinning Knowledge (Theory) |
|--|--|
| <ul style="list-style-type: none"> Demo on 1 Personal and Industrial Safety. 2. Select, Use, clean and store personal protective equipment. * study of CNC Machining centre, key board & specifications. * Demonstrate Machine starting & operating in reference point, JOG and Incremental Modes. * Carryout Absolute, Incremental and polar, co-ordinate points, programming, assignment and | <ul style="list-style-type: none"> * Safety Precautions * State the safe handling of tools, equipments and CNC machines, CNC mill with FANUC CNC CONTROL-SIEMENS latest CNC machine and control specifications. * Describe CNC system organization Fanuc-oi-m Co-ordinates systems and points. * State CNC machines Milling, Types and machine axes. * Describe Machine tools elements, Feed Drives and spindle drives. * Explain the working principle of CNC |



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simulation

- * Demonstrate work and tool setting.
- * carryout automatic mode operation.
- * Practical on Face Milling.
- * Carryout liner interpolation and circular interpolation assignment and simulation milling
- * Demostat tool change in CNC milling and JOJ, INC,MPG mode operation.
- * Manual Data Input (MDI) mode operation and checking of zero offsets and tool offsets.
- * Preparation of part programmes and simulation Automatic mode Execution of CNC Machine for the exercise on end milling with polar co-ordinations an practical on simple drilling G-18.
- * Geomtry and wear offset correction.
- * Part programme preparation, entry an simulation on CNC Mill and on Computers.
- * Practical on Chamfer and counter-sink drilling.
- * Practical Deep hole drilling G-83.
- * Practical on tapping G 84.
- * Practical on Boring cycles G 85-G89.
- * Preparations of part programs for thread milling for CNC Machining centres.
- * Parts program Preparation entry and simulation on CNC Mill & on computers for part program exercises.
- * Automatic mode execution of with Block search and restart,

machine

- * Describe the method of Zero off sets and tool of sets in milling.
- * Measurement of zero offsets and tool offsets.
- * Identify cutting tool materials for CNC Milling and its appliclations, Component Material.
- * State the use of ISO codes for caribide indexable inserts and tool holders for milling.
- * Describe the tooling systems for CNC machining centre.
- * State the purpose of cutter Radius Compensation (CRC).
- * Cutting parameters selection and process planning.
- * Tools layout and process sheet preparation.
- * Using Sub Programs & Cycles in the Main programe .
- * Describe the work piece zero points and ISO/DIN G and M codes for CNC milling.
- * Indicate Machining parameters for milling for face milling and end milling.
- * Work locating priciple and locating devices for CNC milling tool selection.
- * Carry out tool path simulation.
- * Describe the Drilling/Boring cycles in CNC milling.
- * Grooving/Threading Tools Processes and tool selection.
- * Programming for Grooving/Trading on OD/ID in CNC milling.
- * State the importance of Helical interpolation and thread Milling advantages and limitation in CNC Milling.
- * Describe the maching of rectangular/ circular pockets on CNC milling.
- * Explain Drilling, milling patterns on CNC Milling

7. Entry qualification for Trainee:

| | |
|--|------------------------|
| Minimum entry qualification (Essential): | 10 th pass (MATHS/SCI) |
| Desirable: | - |





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3. Minimum qualification for Trainer:

| | |
|------------------------------------|----------------------------------|
| Minimum qualification (Essential): | Diploma in MECHANICAL Engineer . |
| Desirable: | - |

7. Syllabus Committee Member: Will be finalized by Head Office

| Sr. No. | Name | Organization | Designation | Technical Qualification | Experience in Years | Signature |
|---------|-----------------|------------------------------|--------------------|-------------------------|---------------------|-------------|
| 1. | Shri J.A.Mehta | ITI HANSOT | Principal | D.A.E. | 30 yrs | [Signature] |
| 2. | Shri V.D.Vasava | Employment Exchange, Bharuch | Employment Officer | BA | 8 years | [Signature] |
| 3. | | | | | | |
| 4. | | | | | | |
| 5. | | | | | | |
| 6. | | | | | | |
| 7. | | | | | | |

10. Terminal Skills of trainee: (Should be well defined and having reference to NCO):

The trainee, after successful completion of training, will have following skills...

1. Trainee will be able to carry out wiring in residence as well as in industries
2. Will be able to repair motors, generator, etc.
3. Trainee will be able to start self employment venture

(please attach separate sheet, if more space is required)

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11. Approximate cost of Tools / Equipments / Machinery for starting one batch of the course:

Rupees
13 lakh

Reference Year
2011-12

12. Area required for practical / Workshop for one batch.

...60..... Sq. Meter

13. Minimum Power connection required

.....8..... K.W.

14.1 No of items in Standard list of Machinery :

As per list

14.1.1. Page NO from ___ to ___.

14.2 No of items in Standard list of Shop outfit :

-

14.2.1. Page NO from ___ to ___.

14.3 No of items in Standard list of Trainee Toll-Kit :

As per list

14.3.1. Page NO from ___ to ___.

***** FOR OFFICIAL USE *****

Approved by GCVT in Governing Body meeting on

19/01/2012

Syllabus implemented w.e.f. admission session

with immediate effect

Revision History :

- 1. Revision No..... Revision Date.
- 2. Revision No..... Revision Date.
- 3. Revision No..... Revision Date.





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Standard List of Machinery - Equipment / Shop-outfit / or Trainee Toolkit
for Trade of _ CNC OPERATER.

| Sr. No. | Description of Item with detailed specifications | Item type i.e. Machinery / Equipment OR Shop Outfit OR Trainee Toolkit | Quantity Required per one Batch of Students | Quantity Required per one Batch of Students for Instructor | Total Quantity Required (Total of previous two columns) |
|---------|--|--|---|--|---|
| 1. | 3 AXIS CNC Machining Centre with SEMENS/FANUC LATEST CNC CONTROL and necessary tools and equipments. | Machinery | As per requirement | | |
| 2. | SIMULATION software with Computers. | Machinery | As per requirement | | |
| 3. | Turner trade CNC lath | Machinery | As per requirement | | |
| 4. | Milling machine | Machinery | As per requirement | | |

(As many sheets as required should be used to accommodate all items)

