

# GUJARAT COUNCIL OF VOCATIONAL TRAINING GANDHINAGAR

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1. Name of Course :

VMC Operator (Milling)

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


2. Engineering OR Non-Engineering : Engineering
3. No. of students per batch : 10
4. Duration in hours /Month : 4 Week  
+ 10 hrs Soft skill
5. Duration in Day : @ 4 Hours/ Day
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 Theory	20	50	20	10
Subject-2	Practical	60	150	90	50

6. Entry Qualification for Trainee :

Minimum entry qualification (Essential):	S.S.C. Pass with 1 year suitable field Exp.
Desirable :	ITI P&M(BBBT), TR, MH, FT, GM Trades or DME/BE in Mechanical, Prod. Engg.

6. Minimum Qualification for Trainer :


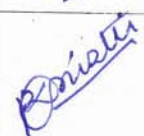
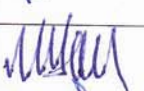
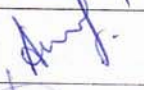


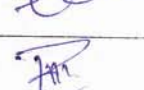
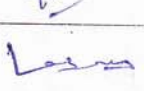
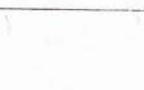
Minimum entry qualification (Essential):	DME with 1-year experience in CNC Filed <b>(Special in programming)</b>
Desirable :	B.E. Mechanical or Production



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7. Syllabus Committee Members :

Sr. No.	Name	Organization	Designation	Technical Qualification	Experience in Years	Signature
1	Shri Kamlesh Gandhi	Jyoti CNC automation pvt. Metoda Rajkot.	G M M/C Shop.	B.E. Mech. Engg.	20	
2	Shri Pranav Mistri	Jyoti CNC automation pvt. Metoda Rajkot.	Senior Engineer	B.E. Mech. Engg	05	
3	Shri N.K.Paneri	Fine Wirecut Rajkot	Director	DAE / DEE	30	
4	Shri A.A.Borania	J-Cam Engg. Corp. Rajkot	Director	DME	20	
5	Shri Jay Mavani	Mavani Industries	Director	DME	20	
6	Shri S.A.Pandav	DE&T Gandhinagar	RDD Rajkot	BE Civil	28	
7	Shri P.L.Raval	DE&T Gandhinagar	Principal ITI Rajkot	DTM	30	
8	Shri R.M.Varu	DE&T Gandhinagar	Tech. Officer	DAE	28	
9	Shri K.R.Borania	ITI Rajkot	SI CNC	DME / DTE	26	

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

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

- 1 Development in CNC technology
- 2 How to utilize CNC m/c in a Best way
- 3 Work and Tool setting
- 4 CNC Milling Operating
- 5 Soft Skill –How to Face Interview & Personality Development



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

10. Area required Practical / Workshop for one batch :

11. Minimum Power connection required :

14.1 No. of items in Standard list of Machinery :   
14.1.1 Page No. form..... to .....

14.2 No. of items in Standard list of Machinery :   
14.2.1 Page No. form..... to .....

\*\*\*\*\* For official use \*\*\*\*\*

Approved by GCVT in Governing Body meeting  on:

Syllabus implemented w.e.f. admission session :

Revision History (1) Revision No.....Revision Date  
(2) Revision No.....Revision Date  
(3) Revision No.....Revision Date

Ref. : Syllabus nearer to MES code : MAN308 on page no. 22



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Standard List of Machinery-Equipment & Shop-outfit for

Trade:- VMC Operator (Milling)

**Syllabus for VMC Operator (Milling)**

NAME: **VMC Operator (Milling)**

SECTOR: **MECHANICAL**

TERMINAL COMPRTANCY: The successful candidates should be able to:

- Identify CNC Machining Centre Machine Elements.
- Know the CNC control panel keys and Menu structure.
- Start the CNC Machine and Reference it and move the Machine Slides (Axes) in JOG/INC/MPG Modes.
- Start Spindle ON/OFF, Coolant On/Off, Tool Changing and do axes positioning in JOG/MDI Modes.
- Load Parts in Work holding devices and Tools in tools Magazine/ATC & Spindle. Input/edit Part Programs in the CNC Control and do Graphic Simulation to Verify /Check Part Programs. Can only edit basic changes in part program
- Do Machining operations like Face Milling, End Milling, Pocket Milling, using Automatic / Memory Modes with block search and Repositioning/Restart procedure. Given by programmer.

Underpinning Knowledge (Theory)	Practical Competencies
Safety Precautions	Demo on Personal and Industrial Safety..
Development in CNC technology Explain working principle of CNC Machine	Study of CNC Machining centre, key board & specifications.
Parts of VMC machine	Demonstrate Machine starting & operating in Reference Point, JOG, and Incremental Modes.
Application of VMC machine Advantages & Disadvantages of CNC M/C.	Demonstration of machine over travel limits and emergency stops.,
Salient features of VMC M/C How to utilize VMC M/c in a Best way	Demonstrate Work and tool setting. Carryout Automatic Mode operation.
Comparison between conventional Milling M/C & VMC M/C	Practical on Face Milling . Given by the programmer. Carryout Linear interpolation & Circular interpolation assignments and simulations.-Milling



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Basic G Codes & M Codes for CNC milling programming.(Function & Application)	Demonstrate Work off set measurement and Tool off set measurement entry in CNC Control and editing.
Fundamentals of VMC milling	Carryout Part program preparation, Simulation & Automatic Mode Execution of CNC Machine for the practical on Chamfering and end milling with CRC
Basic VMC Programming concepts	Demonstrate Tool change in CNC milling & JOG, INC, MPG mode operation.
VMC Tooling and its uses.	Manual Data Input (MDI) mode operations and checking of zero offsets and tool offsets.
Selection of cutting speed, Feed & Depth of cut for CNC M/C Basic introduction.	Geometry and wear offset correction.
Basic Trouble shooting in VMC m/c.	Practical on Chamfer and counter-sink drilling. Given by programmer
Reading of part drawing, dimensional & geometrical accuracy.	Practical on Deep hole drilling G 83 Given by programmer
Introduction & application of basic measuring instrument.	Practical on tapping G 84 Given by Programmer
Machine operating documentation .	. Automatic mode execution of With Block Search and restart.
Daily maintenance of VMC m/c.	Measurement of finish and semi finish component.



*(Signature)*

*(Signature)*

