

Govt. Polytechnic Mandkola, Palwal
Lesson Plan

5th Semester Mechanical Engg.2026

CNC Machine & Automation

1. First Week:30.07.2026 to 07.08-2026

Introduction to NC, Basic components of NC, binary coding Input devices, Advantages, disadvantage of NC Machine over Conventional Machine.

2. Second week: 10.08.2026 to14.08.2026

CNC, DNC, their types, their relative advantage dis-advantages. Advantage control systems selection of parts of to be machined on a CNC machine, problem with Conventional NC, PLC, Type of Applications classification of NC systems.

3. Third week: 17.08.2026 to 21.08.2026

Part programming and basic procedure of part programming, Rules for axis identification, NC words, Blocks, part programming formats, simple programming for rotational components point to point, straight line, curved surface

4. Week forth: 24.08.2026 to28.08.2026

Tool offset sets, cutter radius compensation and wear compensation comparative study of Fanuc controller and G-code codes.

5. Week fifth: 31.08.2026 to 04.09.2026

Needs of special Mech design features for CNC, specification chart of CNC Machine, types of slides, ball, roller, motors

6. Sixth week: 07.09.2026 to 11.09.2026

Chip removal, safety and guarding devices various cutting tools for CNC, tool holder, ATC system, tool Change cycle, types of tool magazine, tool room

7. Seventh week 14.09.2026 to 18.09.2026

Conduct of 1st session Test

8. Eighth Week:21.09.2026 to 25.09.2026

Control system transducers and sensors, characteristics of sensors, Tachometer, LVDT, photo interrupters, potentiometer, for Linear & angular position, encoder, Actuators, Axis Drives.

9. Ninth Week:28.09.2026 to 02.10.2026

Common problem in Mech, Electrical, pneumatic, electronics and PCX components of NC machines. diagnostic study of common process and remedies.

10. Tenth week: 05.10.2026 to 09.10.2026

Use of online fault finding diagnosis tools in CNC Machines, Methods of using discussion forms

11. Eleventh week:12.10.2026 to 16.10.2026

Conduct of 2nd Sessional Test

12. Twelveth Week:19.10.2026 to 23.10.2026

Automation suitability of production system to automation, types, Automatic assembly, manufacture of printed circuit, boards (PCB).

13. Thirteenweek:26.10.2026 to 30.10.2026

Manufacture of integrated circuits, overview of FMS, AGV, types ,ASRS, Group Technology CAD/CAM, CIM

14. FourteenWeek:02.11.2026 to 06.11.2026

Automated inspection off line, on line, Contact, non contact, Coordinate Measuring machine, Machine vision, concept of AI and its application in manufacturing.

15. Fifteenth week: 09.11.2026 to 13.11.2026

Robotics, nomenclature of joint, motion

16. Sixteenweek:16.11.2026 to 20.11.2026

Conduct of 3rd sessional test