GOVT. POLYTECHNIC, NAYAGARH
4TH SEMESTER MECHANICAL ENGINEERING 2025-26(SUMMER)
LESSON PLAN

Subject- PR: 3- CAD/CAM LAB

GROUP: A & B

Name of Faculty: Mrs.Monalisa Sahoo, Sr.Lect Mech.

SEMESTER FROM: 22/12/2025 to 18/04/2026

PERIODS: 4P/WEEK

NO.OFWEEKS:15

Week	Period	Theory/Practical Topics
1st	1st	Introduction to CAD software interface, Applications of CAD in manufacturing &File handling, coordinate systems
	2nd	Part modelling concept, Datum plane: XY, YZ, ZX&Sketch plane selection
	3rd	Sketch tools: line, circle, arc, rectangle &Constraints: geometric & dimensional
	4th	Dimensioning methods, Fully constrained sketches& Practice sketches
2nd	1st	Sketch-based features overview &Simple 2D to 3D conversion practice
	2nd	Extrude (protrusion & cut)&Practical exercise
	3rd	Revolve feature&Axis selection & applications
	4th	Sweep feature&Path and profile concepts
3rd	1st	Blend / Loft feature&Multiple sections
	2nd	Rib and shell features&Thickness control
	3rd	Hole features (simple, counter bore, countersink)
	4th	Rounds and chamfers&Edge treatment standards
4th	1st	Copy, mirror, pattern tools
	2nd	Editing features&Regeneration errors
	3rd	Practice exercise using all features
	4th	Introduction to assembly modelling& Assembly constraints
5th	1st	Align and orient components&Sub-assemblies
	2nd	Exploded views&Bill of Materials (BOM)
	3rd	Drafting from 3D models&Orthographic views
	4th	Sectional views & annotations
6th	1st	Geneva Wheel – Part modeling & assembly
	2nd	Geneva Wheel – Part modeling & assembly
	3rd	Bearing Block – Modeling & drafting
	4th	Bearing Block – Modeling & drafting
7th	1st	'ushed Bearing – Assembly & sectional view
	2nd	Bushed Bearing – Assembly & sectional view
	3rd	Gibb and Cotter Joint – Assembly
	4th	Screw Jack – Assembly modeling
8th	1st	Connecting Rod – Modeling
	2nd	Printing orthographic & sectional views& Review & assessment (PART–A)
	3rd	Introduction to CNC&CNC lathe & milling machine overview
	4th	Machine axes, coordinate systems&Tooling basics

9th	1st	International standard codes&G-codes introduction
	2nd	M-codes & auxiliary functions
	3rd	Program structure & safety procedures
	4th	Program format&Dimensioning methods (absolute & incremental
10th	1st	Turning simulator – interface & commands.
	2nd	Milling simulator – interface & commands
	3rd	Editing programs in CNC machines
	4th	Dry run & program verification
11th	1st	Linear interpolation (G01)&Facing & straight turning
	2nd	Circular interpolation (G02, G03)
	3rd	Stock removal cycle (rough turning)
	4th	Multiple turning operations using cycles
12th	1st	Execute program & produce component, Print CNC program
	2nd	Thread cutting cycle
	3rd	Grooving cycle
	4th	Combined canned cycle program
13th	1st	Machining component on CNC lathe.
	2nd	Inspection & troubleshooting
	3rd	Linear interpolation milling&Slotting & profiling
	4th	Circular interpolation milling& Grooving
14th	1st	Execute milling program & produce component
	2nd	Canned cycle – drilling
	3rd	Tapping & countersinking cycles
	4th	Subprogram concept
15th	1st	Mirroring using subprograms
	2nd	Machining mirrored components
	3rd	Printing CNC programs& Component inspection
	4th	Final practical evaluation&Viva & course review

REFERENCES:

1. Machine Drawing – P.S. Gill S. K. Kataria & Sons, Delhi.17th Revised edition, 2001
2. Mechanical Draughtsmanship - G.L. Tamta Dhanpat Rai & Sons, Delhi, 1992
3. Inside AutoCAD – D. Raker and H. Rice, BPB Publications, New Delhi, 1985
4. CAD/CAM/CIM – P. Radhakrishnan, S. Subramaniyan & V. Raju, New Age International Pvt. Ltd. New Delhi, 3rd Edition,
5. Engineering AutoCAD, A.P. Gautam & Pradeep Jain, Khanna Book Publishing Co., Delhi

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