

"PVC" NSSK GOVT POLYTECHNIC BILASPUR
PLANNED PRACTICAL SYLLABUS COVERAGE

Department: Mechanical Engg.				Subject: CAD/CAM LAB		
Semester & Branch: 6TH / Mech. Engg.			Duration: 3 Year			
Teacher: Suresh Kumar						
Syllabus coverage		Total periods:-56			Practical : Yes	
SR. NO	Period no /hrs	UNIT/ Chapter	Details	Instruction Reference	Additional study	Remarks
1	02 hrs	UNIT:-1 /PART A / Introduction to CAD / CAM and 3D drafting	Introduction CAD CAM and Drafting and Design softwares Part modelling; Datum Plane; constraint; sketch; dimensioning; extrude; revolve; sweep; blend; protrusion; extrusion; rib; shell; hole; round; chamfer; copy; mirror; assembly; align; orient.	1. Machine Drawing-P.S .Gill S.K. Kataria & Sons. 2. Inside Auto CAD-D.Raker and H.Rice, BPB Publications. 3. CAD/CAM/CIM-P. Radhakrishnan, S. Subramanyan & V.Raju, New Age International	1. Sidheswar, N.,Kannaiah, P.and Sastry,V.V.S., Machine Drawing, Tata Mc Graw Hill Book Com-pany, New Delhi 2. Kannaih, P.,Production Drawing, New Age International,2009 3. Mechanical Draughtsmanship- G.L .Tamta Dhanpat Rai & Sons,Delhi,1992	
	02 hrs					
	02 hrs					
	02 hrs					
2	04 hrs		Practical:-01: Bearing Block			
3	04 hrs		Practical:-02: Bushed bearing or Geneva Wheel			
4	04 hrs		Practical:-03: Gib and Cotter joint or Connecting Rod			
5	04 hrs		Practical:-04: Screw Jack			
6	04 hrs		Introduction: to CNC Lathe Machine and Simulator. 1). Study of CNC lathe Machine and CNC turning Simulator 2). Study of international standard codes: G Codes and M-Codes; 3). Programming Format -Dimensioning methods; IS practice and various menu and commands 4). Program writing and Editing on Turning simulator. 6). Execute the program in the CNC machine /Simulator;			
7	12 hrs		Exercises: CNC Turning Machine:(Material: Aluminium/Acrylic/Plastic rod) 1. Using Linear and Circular Interpolation-Create a part program and produce component in the Machine: Practical:-05: Write a program and prepare a Job on CNC Lathe Machine / simulator using simple turning operation; Facing operation; tapper turning operation; and Circular Interpolation operation etc; 2. Using Stock removal cycle-Create a part program for multiple turning operations and produce component in the Machine. Practical:-06: Write a program and prepare a Job CNC Lathe Machine / simulator using Stock removal canned cycle like: G90 (Turning canned cycle) ; G94 (Facing canned cycle) ; G71 (Stock removal Turning canned cycle); G72 (Stock removal Facing canned cycle); G73 (Profile canned cycle) etc. 3. Using canned cycle-Create a part program for thread cutting, grooving and produce component in the Machine. Practical:-07: Write a program and prepare a Job CNC Lathe Machine / simulator using canned cycle like: G76 (Threading canned Cycle) ; G75 (Grooving canned Cycle) etc. G81(Drilling canned Cycle) , G83(Peck drilling canned Cycle) and G84 (tapping canned Cycle) etc.			
8	04 hrs		Introduction: to CNC Milling Machine and Simulator. 1). Study of CNC Milling Machine and CNC turning Simulator 2). Study of international standard codes: G Codes and M-Codes; 3). Programming Format -Dimensioning methods; IS practice and various menu and commands 4). Program writing and Editing on Milling simulator. 6). Execute the program in the CNC Milling machine /Simulator;			

9	12 hrs
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**UNIT:-2 /PART B /
CNC Milling Programming and Machining**

Exercises:

CNC Milling Machine (Material: Aluminum/Acrylic/Plastic)

1. Using Linear Interpolation and Circular Interpolation—Create a part program for grooving and produce component in the Machine.
- Practical-08: Write a program and prepare a Job on CNC Milling machine /Simulator using face and end Milling operations.
2. Using canned cycle—Create a part program for drilling, tapping, counter sinking and produce component in the Machine.
- Practical-09: Write a program and prepare a Job on CNC Milling machine /Simulator using canned cycle like: G81(Drilling canned Cycle) , G83(Peck drilling canned Cycle) and G84 (tapping canned Cycle) and G82 (counter sinking canned Cycle) etc.
3. Using sub program—Create a part program for mirroring and produce component in the Machine.
- Practical-10: Write a program and prepare a Job on CNC Milling machine /Simulator using Mirror Command such as: G51.1 X0 or G51.1 Y0 & G50.1.

Approved

Sign HOD/ IOC

[Signature]

*Subject
Teacher*