SHRI VISHNU ENGINEERING COLLEGE FOR WOMEN::BHIMAVARAM

(AUTONOMOUS)

DEPARTMENT OF MECHANICAL ENGINEERING

CAD/CAM LAB

Laboratory In-charge **:** Mr.U.D.S.PRATHAP VARMA

Laboratory Technician : Ms.G.MOUNIKA

OBJECTIVE:

"Develop comprehensive proficiency in a range of Engineering design, analysis, and manufacturing software including AutoCAD, Cero, CATIA, SOLIDWORKS, MATLAB, CNC training, and ANSYS to efficiently design, simulate, and optimize complex engineering systems and processes."

List of software's and Equipments

S.No	NAME	COST
1	SOLID EDGE ST - 4	3,93,750/-
2	FEMAP V 10.3.1	
3	CAM EXPRESS V – 8.0	
4	ANSYS 17.0	6,25,000/-
5	SOLIDWORKS	5,07,150/-
6	CREO 3.0	5,10,000/-
7	CATIA V6	16,57,150/-
8	DELMIA V6	
9	3D PRINTER(Replicator +)	3,30,400/-
10	3D PRINTER(Replicator Z18)	9,35,000/-
11	CNC MILLING MACHINE	7,83,522/-
12	WORKSTATIONS (30)	11,49,370/-
13	SERVER (1)	
14	LED MONITORS 22" (30)	2,67,000/-
15	COMUTERS (10)	3,00,000/-
16	UPS & BATTERIES	1,15,256/-
	TOTAL	**75,73,598/-**

SURFACE MODELING AND SHEET METAL WORKING

LIST OF EXPERIMENTS

SURFACE MODELING EXPERIMENTS	
1	Experiment – 1: CFL Bulb
2	Experiment – 2: Water bottle
3	Experiment – 3: Propeller
4	Experiment – 4: Computer Mouse
5	Experiment – 5: Badminton Rocket
6	Experiment – 6: Hair Drier Cover
7	Experiment – 7: Exhaust Manifold
8	Experiment – 8: Blower Case
9	Experiment – 9: Car Bonnet
SHEET METAL EXPERIMENTS	
1	Experiment – 1: Mounting Brackets
2	Experiment – 2: Hopper
3	Experiment – 3: Hinge
4	Experiment – 4: CPU Outer Case
5	Experiment – 5: Electrical Enclosure
6	Experiment – 6: Seat Locking Belt
7	Experiment – 7: Car Bonnet
8	Experiment – 8: Electrical Wire Crimp Connector
9	Experiment – 9: Radiator
10	Experiment – 10: Steel kitchen sink

PRODUCT DESIGN DEVELOPMENT & SIMULATION LAB

LIST OF EXPERIMENTS

PART - A	
1	Make a toy using any given Kinematic motion mechanism
2	Fabricate Fuel Tank using sheet metal for a given capacity
3	Fabricate a Nut and Bolt
4	Fabrication of a pin profile for friction sir welding
5	Fabricate front grill of a car
PART - B	
6	Write a MATLAB program for a 1-Dimensional Steady State Heat Conduction
7	Write a MATLAB program to plot the deflection of a Beam
8	Write a MATLAB program to plot the tensions of the cables for a given truss element
9	Write a MATLAB program to calculate and plot the position, velocity, and acceleration of a piston of a slider crank mechanism
10	Write a MATLAB program to plot the response of an undammed single-degree spring-mass system when subjected to given initial conditions
11	Write a MATLAB program to plot the response of a spring mass system with damping when subjected to given initial conditions
12	Write a MATLAB program to plot the Break Power, Specific Fuel Consumption, and Break Thermal Efficiency Vs Speed of an Engine

DESIGN ANALYSIS LAB

LIST OF EXPERIMENTS

1	EXP1: Structural analysis of stepped bar and tapered bar
2	EXP2: Determine the nodal deflections, reaction forces, and stress for the truss system using Ansys simulation
3	EXP3:Structural Analysis of a 2D Plane Stress Bracket
4	EXP4:Structural Analysis in beams with different loads (UVL, UDL).
5	EXP5:Stress analysis of axi-symmetric components
6	EXP6:Analyze the Mode frequency analysis of beams
7	EXP7: Fatigue analysis of two dimensional components
8	EXP8: Analyze the temperature distribution of a simple 2D plate with mixed boundary
9	EXP9: Analyze the temperature distribution of a transient conduction problem with varying thermal conductivity and internal Heat generation
10	EXP10:Analyze the temperature distribution of a Composite slabs/cylinders/spheres problem
11	EXP11:Coupled analysis of a beam using Ansys simulation.
12	EXP12:Buckling of Columns with Effects of Boundary Conditions

COMPUTER AIDED PART MODELING &ASSEMBLY LAB

LIST OF EXPERIMENTS

1	EXP 1: Part Modeling *a.* Fork *b.* Anchor Bracket
2	EXP 2: Part Modeling *a.* Sliding Support *b.* Centering Bearing
3	EXP 3: Part Modeling *a.* U bend Pipe *b.* Shaft Bracket
4	EXP 4: Part Modeling *a.* Belt roller support *b.* Wrench
5	EXP 5: Assembly Modeling *a.* Universal Coupling *b.* Oldham Coupling *c.* Screw jack *d.* Knuckle Joint *e.* Stuffing Box *f.* Belt roller support assembly *g.* G-clamp assembly *h.* Wrench assembly

COMPUTER AIDED MANUFACTURING AND 3D PRINTING LAB

LIST OF EXPERIMENTS

PART-A	
1	Linear And Circular Interpolation
2	Circular Pocketing
3	Rectangular Pocketing
4	Peck Drilling
5	Mirroring
6	Plain Turning and Facing Operation
7	Step Turning Operation
8	Pattern Repeated Cycle
9	Thread Cutting
10	Circular Interpolation
PART-B	
1	To Study of 3d Printing
2	How to create a Simple Box
3	To Design a Basic Hex Nut
4	To Design a U Bracket Sheet Metal
5	To Design a Stepped cone Pulley

COMPUTER AIDED ENGINEERING DRAWING

LIST OF EXPERIMENTS

1	Study of capabilities of software for Drafting and Modeling – Coordinate systems (absolute, relative, polar, etc.) – Creation of simple figures like polygon and general multi-line figures.
2	Drawing of 2D wire frame modeling.
3	Drawing of front view and top view of simple solids like Prism, Pyramid, Cylinder, Cone, etc.
4	Drawing sectional views of Prism, Pyramid, Cylinder, Cone, etc,
5	Draw projections, true shape of section and development of surfaces of Solid (Prism, Pyramid, Cylinder, Cone, etc).
6	Drawing of front view, top view and side view of objects from the given pictorial views (eg. V-block, Simple stool, Objects with hole and curves).
7	Drawing Isometric View of simple objects
8	Creation of 3-D models of simple objects and obtaining 2-D multi-view drawings from 3-D model.
9	Drawing of Isometric projections, orthographic projections of isometric projections, Modeling of Machines & Machine Parts (1^{st} Angle Orthogonal Projection Views).
10	Drawing of Isometric projections, orthographic projections of isometric projections, Modeling of Machines & Machine Parts (3^{rd} Angle Orthogonal Projection Views).
11	Drawing of Typical Features in Isometric Pictorial drawings – Fillets, Rounded Edges, Threads, Sectioning