GOVERNMENT POLYTECHNIC, BALASORE

Government of Odisha

ସରକାରୀ ବହୁବୃତ୍ତି ଅନୁଷ୍ଠାନ, ବାଲେଶ୍ୱର

ACADEMIC LESSON PLAN FOR 2024-25(W)

Discipline: Mechanical Engg.	Semester:1st	Name of the Teaching Faculty : Sangeeta Das
Subject: ENGINEERING MECHANICS	No of Days /Per week class allotted	Semester from 2024-25(W) 16/08/24 to No of week:15
Week	Class day	Theory/Practical topics
1St	1st	Basic of Mechanics and force System, definition, concepts
	2nd	Significance and relevance of Mechanics
	3rd	Applied mechanics, Statics, Dynamics.
	4th	Space, time, mass, particle, flexible body and rigid body
2nd	1st	Scalar and vector quantity, Units of measurement (SI units) - Fundamental units and derived units.
	2nd	Force – unit, representation as a vector and by Bow's notation
	3rd	Characteristics and effects of a force, Principle of transmissibility of force, Force system and its classification
	4th	Resolution of a force - Orthogonal components of a force, moment of a force,
3rd	1st	Avignon's Theorem.
	2nd	Composition of forces – Resultant,
	3rd	Analytical method for determination of resultant for concurrent
	4th	Non-concurrent and parallel co-planar force systems
4th	1st	Law of triangle
	2nd	Parallelogram
	3rd	Polygon of forces.
	4th	Problem on above theory
5th	1st	Equilibrium, Equilibrium and Equilibrant, Free body and Free body diagram
	2nd	Analytical and graphical methods of analysing equilibrium
	3rd	Lami's Theorem – statement and explanation
	4th	Application for various engineering problems.
6th	1st	Types of beam, supports (simple, hinged, roller and fixed)
	2nd	Loads acting on beam (vertical and inclined point load, uniformly distributed load, couple),
	3rd	Beam reaction for cantilever with problem solved
	4th	Simply supported beam with or without overhang with problem solved
7th	1st	SSB subjected to combination of Point load and uniformly distributed load.
	2nd	Beam reaction graphically for simply supported beam subjected to vertical point loads only.
	3rd	Beam reaction graphically for simply supported beam subjected to vertical point loads only.
	4th	-do-

	4th	Input/output Processing and Programming
9th	1st	Mnemonics
	2nd	Master and Jump Controllers
	3rd	Introduction to Numerical Control of machines and CAD
	4th	Introduction to Numerical Control of machines and CAM
10th	1st	NC machines
	2nd	CNC machines
	3rd	CAD/CAM
	4th	CAD CAM Software
11th	1st	hardware for CAD/CAM
	2nd	Functioning of CAD system
	3rd	Functioning of CAM system
	4th	Features and characteristics of CAM system
12th	1st	Features and characteristics of CAD system
	2nd	Application areas for CAD/CAM
	3rd	elements of CNC machines
	4th	Introduction Machine Structure Guideways/Slide ways
13th	1st	Introduction and Types of Guideways
	2nd	Factors of design of guideways
	3rd	Factors of design of guideways
	4th	Drives
14th	1st	Spindle drives Feed drive
	2nd	Spindle and Spindle Bearings
	3rd	Definition robotics
	4th	Function and laws of
15th	1st	Types of industrial robots
	2nd	Robotic systems
	3rd	Advantages of robots
	4th	Disadvantages of robots

H.O.D

MECHANICAL ENGG

SANGEETA DAS

(GF IN MECHANICAL)