

Department of Mechanical Engineering

Semester: 2

Academic year: 2020-21

Subject Code: ME18201

Subject Name: Engineering Mechanics

Teaching Methods	Type of learning
Online resources – Videos	Participative Learning
Use of digital pads	Participative Learning
PowerPoint presentations	Participative Learning
ClassDojo – Gamification	Participative Learning
Assessment Methods	Type of learning
Quizzes	Participative Learning
Descriptive Assignments	Participative Learning
Activity Assignment	Experimental Learning
Application type Assignments	Problem Solving Methodologies

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Head of the Department

Sample Proof for Teaching Methods:

Online resources

Subject – ME18201- Engineering Mechanics

S.No	Topics	Online resources Link	Mapping
1	Newton's First law	https://youtu.be/5oi5j11FkQg	UNIT - 1
2	Free body diagram	https://youtu.be/4Bwwq1munB0	
3	Inertia and Mass	https://youtu.be/YbWjx3LUc0U	
4	Moment of force	https://youtu.be/22VGQM1jCn8	UNIT - 2
5	Torque and Moment difference	https://youtu.be/zXxrAJld9mo	
6	Centroid	https://youtu.be/nqg6VaK02JA	UNIT - 3
7	First Moment and Second Moment of Area	https://youtu.be/p27bIDG-GiQ	
8	Area Moment of Inertia	https://youtu.be/Bls5KnQOWkY	
9	Distance and displacement	https://youtu.be/21BwUNDOQno	UNIT 4
10	Equation of motion	https://youtu.be/xViRvJxTu6k	
11	Static friction	https://youtu.be/9SMp-jnh8lg	UNIT – 5
12	Rolling friction	https://youtu.be/HRe90ySP38U	
13	Momentum	https://youtu.be/CEz3cpkno3Y	

Use of Digital pads in Microsoft OneNote

The screenshot shows a OneNote page titled 'Engg Mechanics' with a problem (P9) and its solution. The problem text is:

In order to move a wrecked truck, two cables are attached at A and pulled by winches B and C as shown. Knowing that the tension is 10 kN in cable AB and 7.5 kN in cable AC.

(a) Determine the magnitude and direction of the resultant of the forces exerted at A by the two cables.

(b) For the same problem, if the system is in equilibrium with considering the weight of the wrecked truck acting vertically downward, what will be the mass of the truck?

The diagram shows a truck at point A. Cable AB is attached to winch B, and cable AC is attached to winch C. Dimensions are given: AB = 15 m, AC = 15 m, and the truck is 6 m from the base. The truck's weight is 12.5 kN.

Handwritten calculations for coordinates:

$$A(0, 0, 0)$$

$$B(-15.58, 6+9=15, +12)$$

$$C(-15.58, 15, 12)$$

$$C(-15.58, 9.6+9=18.6, -15)$$

$$C(-15.58, 18.6, -15)$$

The FBD shows forces F_{AB} and F_{AC} acting on the truck at point A.

Sample Proof for Assessment Methods:

Activity Assignment

Problem 1

Take two photos to do the Activity in your Home. The details of the Photos should have the following requirements:

PHOTO 1:

Should have only Two forces (including reaction force). Indicate the forces by editing your photo

PHOTO 2:

Should have more than two forces (including reaction force). Indicate the forces by editing your photo. Make the picture is clear. Also attaching a sample photo showing two forces for your reference. Need to complete the activity by adding two photos in it.



Problem 2

Take a photo of any door with handle. Indicate its distance from the hinge point and the handle of the door. Find its Moment with respect to the hinge and the door handle. If the door handle has a horizontal force of 20 N. Justify the result, if the Handle distance is reduced?

Application type Assignments

1. Determine the centroid for the sail 1, sail 2 and sail 3 for the sailboat shown.

