

ME2115/TME2115

Mechanics of Machines

OVERVIEW FOR PART II

Course information

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Principle of Work and Energy

- How work done by external forces on a rigid body changes its kinetic energy.
- Understand that work done by conservative forces can be regarded as potential energy.

Newton's methods in vibration

- 1-DOF system, e.g. spring-mass damper system.
- Using Newton's and Energy methods to derive the equation of motion (*EOM*).
- Understanding the characteristics and response of the free and forced vibrations of a 1-DOF system.

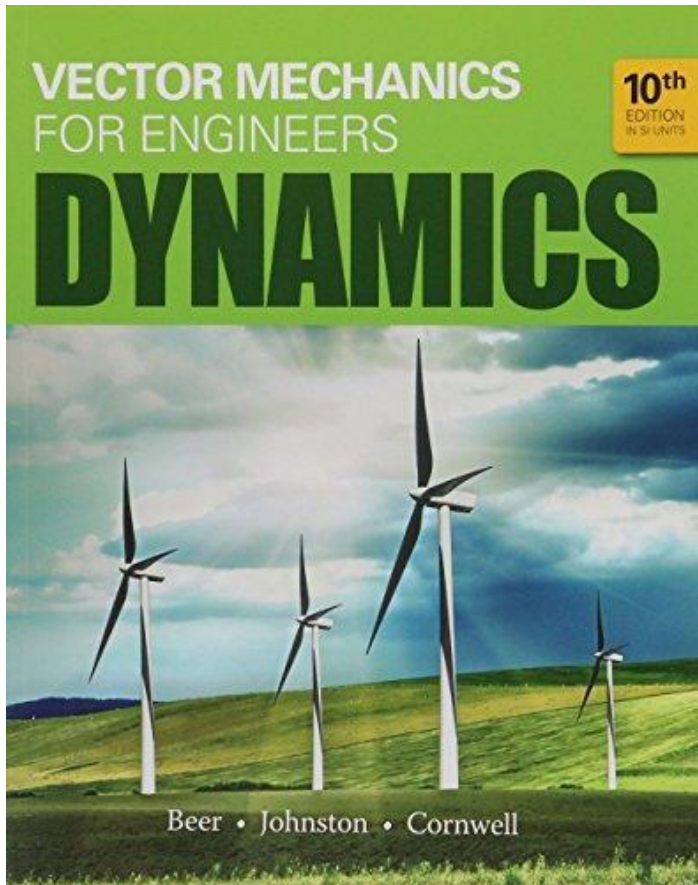
Simulation of mechanisms using Solidwork - motion study

- Introduction to mechanism simulations via Solidworks – motion study.
- One take-home assignment (20%).

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Week No.	Topics to be covered
7	Review on Basic Mechanics Briefing on Solidworks - motion study
8	Principle Work and Energy
9	Free vibration without damping
10	Free vibration with damping
11	No class on Monday (Deepavali Public Holiday) Free vibration with damping – tutorial
12	Forced harmonic vibration
13	Forced harmonic vibration – tutorial (Monday) No class on Wednesday
⋮	Final Exam on 22nd Nov, 9 - 11 am

Course information...



- Beer, Johnston and Cornwell, “Vector Mechanics for Engineers: Dynamics, SI edition”.
 - Principle of Work and Energy (Chapter 13.2 - 13.4, 13.7 - 13.8, and 17.1 – 17.6 only)
 - Mechanical Vibrations (Chapter 19, except 19.4 and 19.10).

Assessing SOLIDWORKS

- You can assess SOLIDWORKS at eitu PC clusters @ E2-03-06 to E2-03-09.
- Or you can login into NUS network, and then download the software from <https://sm05.stf.nus.edu.sg/solidworks/>

SolidWorks AY2020-2021 Student Engineering Kit (SEK) Installation Guide

Please access this link through [webVPN](#) if you are outside of NUS' network.
Please login using your NUSNET ID: nusstu\UserID

Below is the web link to download the Solidworks SEK 2021_22.
<https://sm05.stf.nus.edu.sg/solidworks/>

Step 1: Download installation folder and unzip files on your computer.

Step 2: Locate the file [StartSWInstall.hta](#) and launch the file.

Step 3: Click on the "[Install SolidWorks products now](#)" button to start installation. (The SolidWorks Serial Number is embedded)