Approved in 44th BoA Meeting (24-11-2021)

Course number	**: IC240**
Course Name	**: Mechanics of Rigid Bodies**
Credit Distribution	**: 1.5-1.5-0-3**
Intended for	**: UG all branches**
Prerequisite	**: None**
Mutual Exclusion	**: None**

Preamble: Students learn to analyze the interactions of rigid bodies and be able to apply the principles in practical situations.

Course Content

Equilibrium: System isolation and the free body diagram, equilibrium conditions (7 hours)

Structures: Introduction, plane trusses, method of joints and method of sections, frames and machines. (7 hours)

Applications of friction (6 hours)

Kinematics of Rigid Bodies: Introduction, rotation, absolute motion, relative velocity, instantaneous center of zero velocity, relative acceleration, motion relative to rotating axes. (10 hours)

Kinetics of Rigid Bodies: Introduction, general equations of motion, translation, fixed axis rotation, general plane motion, Work-energy relations, virtual work, Impulse momentum equations. (12 hours)

Text Books:

1. J. L. Meriam, L.G. Kraige; Engineering Mechanics: Statics; Willey India Pvt. Ltd.
2. J. L. Meriam, L.G. Kraige; Engineering Mechanics: Dynamics; Willey India Pvt. Ltd.

References:

1. Beer, Johnston, Eisenberg, Sarubbi; Vector Mechanics for Engineers Statics and Dynamics; McGraw Hill Company
2. S. P. Timoshenko, D.H. Young; *Engineering Mechanics*, McGraw-Hill Book Company.
3. R.C. Hibbeler; Engineering Mechanics Statics and Dynamics, Prentice Hall.

Similarity Content declaration with existing courses: NIL (0%)

S. No.	Course Code	Similarity Content	Approx. % of Content
1.			

6. Justification of new course proposal if cumulative similarity content is >30%: