

	<b>National University of Sciences and Technology</b>	
	<b>Course Description</b>	
<b>Course Title</b> Design of Machine Elements	<b>Course Code</b> DME 828	<b>Credit Hours</b> 3 – 0

**Textbook:**

- Machine Elements in Mechanical Design (sixth edition) by R.L. Mott, E.M. Vavrek, J.W.Wang

**Reference Books:**

- Introduction to Mechanism Design with Computer Applications, by E. Constans, K.B. Dyer
- Mechanical Design of Machine Elements and Machines by J.A. Collins, H. Busby, G. Staab
- Mechanical Design by P.R.N. Childs

**Course Objective:**

- The course is intended to give a thorough understanding of the various basic elements used in mechanical designing and manufacturing of machines starting from simple machines like a can opener and ranging towards relatively complex machinery like a planetary gearbox. The main objective is that students can be enabled to design a robust and reproducible mechanical system if they have been provided by the basic machine elements with an intended objective for commercial applications.

**Course Outline:**

The Nature of Mechanical Design, Materials in Mechanical Design, Stress and Deformation Analysis, Combined Stresses and Stress Transformation, Design for Different Types of Loading, Design for Columns, Belt Drives, Chain Drives, and Wire Rope, Kinematics of Gears, Spur Gear Design, Helical Gears, Bevel Gears and Worm-gearing, Shaft Design, Rolling Contact Bearings, Completion of the Design of a Power Transmission, Design of Springs, Motion Control: Clutches and Brakes

**ASSESSMENTS**

Description	Percentage Weightage (%)
Assignments	10%
Quizzes	15%
Project	10%
Mid Semester Exams	20%
End Semester Exam	40%