

## SYLLABUS CURRICULUM

<b>COURSE</b>	<b>Course Name : ELEMENT OF MACHINE I</b>
	<b>Course Code : TM184414</b>
	<b>Credit : 3 sks</b>
	<b>Semester : IV</b>

### COURSE DESCRIPTION

In this course students will learn to understand the concepts and stages in the design of machine elements ranging from ideas to become products. After that the students are taught how to procedure in designing the machine element which includes the connection of rivet, weld, bolt and designing the shaft with pegs and clutch. In addition, the students also learned to analyze the material strength of various engine elements that have been designed. To know the depth of understanding of the concept of design and the strength of machine elements, students will present examples of cases of failure due to improper design.

### LEARNING OUTCOMES

LO6	Understand the engineering principles in mechanical system to identify, formulate and solve the problem of mechanical engineering.
LO9	Able to find the source of engineering problems in mechanical system through research that includes identification, formulation, analysis, data interpretation based on engineering principles.
LO10	Able to formulate the solution of engineering problem in mechanical system by considering economy, safety, environment and energy conservation.

### COURSE LEARNING OUTCOMES

Students are able to understand well design and engineering concept, analyze joint elements, shaft and its components as well as the failure probability due to static-dynamic load, design joint elements, shaft and its components as well as the failure probability due to static-dynamic load applied, and understand the characteristics of various types of spring, either individually or together in a group.

### MAIN SUBJECT

- The focus of this course are as follows:
- Design and engineering concept
  - Dynamic stress-strain analysis
  - Theorem of static – dynamic load failure
  - Joint elements analysis: rivet, weld, bolt, and nut
  - Shaft and its components analysis
  - Characteristics of key and spring

<b>PREREQUISITES</b>
Material engineering and science, and mechanical of material strength
<b>REFERENCE</b>
1. Shigley, Joseph E., Mechanical Engineering Design, 10th Edition, Mc Graw Hill 2014