

## Course Syllabi

### 1. INGE-00013 MACHINE DESIGN

### 2. 96 credits hours.

### 3. Bibliography

- Máquinas prontuario: Técnicas, máquinas, herramientas, Larburu, N., 2003
- Diseño de Elementos de Máquinas, Mott, R.L., 2006
- SHIGLEY'S MECHANICAL ENGINEERING DESIGN, Budynas R., Keit, N., 2015

### 4. Specific Course Information

- The Machine Design material provides the theoretical and practical foundations of the design and selection of different mechanical elements of common use in the industry, such as calculations and dimensioning in tight joints and tolerances, bolted joints and power screws, spring design, axle design, flexible mechanical elements and selection of bearing bearings. This material contributes to the knowledge of different elements that form part of the machine that is part of the foundation. tal in the operations and processes of an industrial plant. It contributes to: RA1. Problem solvingIdentifies, formulates and solves complex engineering problems by applying RA2 engineering, science and mathematics principles.DesignApplys engineering design to produce solutions that meet specific needs taking into account public health, safety and well-being, as well as global, cultural, social, environmental and economic factors RA6. Experimentation. appropriate mining, analyses and interprets data and uses engineering criteria to draw conclusions
- Corequisites:
  - INDU-00006 COMPUTER-AIDED INDUSTRIAL DESIGN
- Prerequisites:
  - CCFF-00034 HEAT TRANSFER
  - CCFF-00035 FLUID TRANSPORT
  - INDU-00022 TECHNOLOGY OF MATERIALS

### 5. Learning Objectives of the Course

- To develop skills that allow to identify, select, calculate and evaluate common elements in the machines present in the industry
  - known as “machine elements”, with technical, economic and technological criteria.
  - To identify elements of machines used in different industrial equipment.
  - To apply calculation criteria to size and select elements of machines.
  - To interpret experimental results for the evolution of elements of machines.
- Learning Outcomes
  - Rda2. apply calculation and dimensioning criteria to evaluate the functioning of unions present in some machines
  - Rda3. determine criteria for the selection and purchase of commercially available machine elements.
  - Rda3. determine criteria for the selection and purchase of commercially available machine elements.
  - Rda1. identify the different elements of machines used in industrial equipment

### 6. Course Topics

- Introduction to the design. effects in the elements of machines
- Meetings by appropriate and tolerances of measures in trees and agricultures
- Design screws, subjectors and unions

- Design of resorts
- Design of flexible mechanical elements
- Design of ajes and trees
- Trees supports. rounding cojinets