

Course Syllabi

1. INDU-00006 COMPUTER-AIDED INDUSTRIAL DESIGN

2. 144 credits hours.

3. Bibliography

- Distribución en Planta, Muther R, 1970
- Technical Drawing- Fundamentals Cad Design, Goetsch D., Nelson J. & Chalk W., 2011
- Fundamentos de dibujo técnico y diseño asistido, María del Mar Espinosa Escudero, Manuel Domínguez Somonte, 2002
- Diseño de instalaciones de manufactura y manejo de materiales, Meyers F. Y Stephens M. , 2006
- Distribución en planta/ https://sgb.ucuenca.edu.ec/cgi-bin/koha/opac-detail.pl?biblionumber=121692&query_desc=kw%2Cwrdl%3A%20DISTRIBUCI%C3%93N%20DE%20PLANTA, Pierre Michel, 1968

4. Specific Course Information

- a. The subject of Industrial Design CAD introduces the student to the management of Assisted Design tools, also known as CAD tools Computer Aided Design. This will be done by reviewing elements and standards of technical drawing, as well as a graphic definition of industrial parts and processes. Using a software will work with different coordinates, representation systems, drawing commands, concept of layers, among others. In addition this subject will be used. will focus its study on plant distribution; studying the planning and design of industrial facilities from the correct selection of machinery, the proper handling of materials, the necessary amount of direct and indirect personnel to harmonize an adequate flow of production with the best quality design and competitiveness. The subject contributes to the student's discharge profile in developing learning results associated with: Applying engineering design to produce solutions that sati there are specific needs taking into account public health, safety and well-being, as well as global, cultural, social, environmental and economic factors (RDA 2 ABET). Communicate professional issues to a range of effective audiences (RDA 3 ABET). Recognize ethical and professional responsibilities in engineering situations to make informed judgments that should consider the impact of engineering solutions in global, economic, environmental and social contexts (RDA 4 AB) Developing and conducting appropriate experimentation, analysing and interpreting data and using engineering criteria for conclusions (RDA 6 ABET) Acquiring and applying new knowledge as required, using appropriate learning strategies (RDA 7 ABET).
- b. Corequisites:
 - INGE-00013 MACHINE DESIGN
- c. Prerequisites:
 - MAES-00090 NUMERICAL METHODS

5. Learning Objectives of the Course

- a. Represents, designs and interprets machinery, equipment, instrumentation and distribution of industrial plants using the best techniques.
 - Handle the basic concepts related to drawing
 - Handle computer assisted drawing (CAD), as a working tool
 - Design a manufacturing system with a synchronized flow of production through an optimal location of the machinery

- Determine needs of facilities, machinery, labor, service areas, warehouses, among others and allow competitive production of the company's production needs in an optimized manner

b. Learning Outcomes

- It properly designs and presents an optimal plant distribution that allows the production to operate with a harmonious and synchronized flow; optimizing machinery, labor and raw material, as well as considering safety factors and technical regulations. (rda 2 abet). (rda 3 abet). (rda 7 abet).
- It manages with ethical and professional responsibility the international standards regarding technical drawing applied to industrial engineering and industrial design. (rda 4 abet).
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- Manages and applies computer assisted drawing (cad), as a working tool in industrial engineering. (rda 7 abet).
- Calculates quantity, represents and interprets space, machinery and equipment needs through the technical drawing applied to industrial engineering. (rda 6 abet).
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- Calculates quantity, represents and interprets space, machinery and equipment needs through the technical drawing applied to industrial engineering. (rda 6 abet).
- Manages and applies computer assisted drawing (cad), as a working tool in industrial engineering. (rda 7 abet).
- It manages with ethical and professional responsibility the international standards regarding technical drawing applied to industrial engineering and industrial design. (rda 4 abet).

6. Course Topics

- Unit 1: introduction
- Unity 2: autocad and fusion software 360
- Unit 3: driving and graphical representation
- Unit 4: normative and use of exp
- Unit 5: plant distribution
- Unity 6: factors for a good distribution – 4emes
- Unit 7: elaboration of plant distribution — project