

## Course Syllabi

### 1. INDU-00009 PROCESS ENGINEERING

#### 2. 144 credits hours.

#### 3. Bibliography

- Ergonomía, Mondelo, Pedro, 2015
- Ingeniería industrial: métodos, estándares y diseño del trabajo, NIEBEL, Benjamín W. , 2014
- Guía para una Gestión basada en Procesos, Instituto Andaluz de Tecnología., 2015
- Administración de Operaciones: Producción y cadena de suministro, CHASE, Richard et al, 2009
- Administración de la Producción, Pearson, 2009
- <https://www.ergonautas.upv.es/> ERGONAUTAS, Universidad Técnica de Valencia, 2021

#### 4. Specific Course Information

- a. Process Engineering in conjunction with Labour Ergonomics is the part of Industrial Engineering that focuses on the analysis and improvement of processes and procedures that occur in companies generating goods and/or services, considering aspects related to quality, human factor and economy in the use of resources for the achievement of business objectives. The subject contributes to the student's discharge profile in: 1. Develops and conducts appropriate experimentation GDR 6 ABET. 2. Recognizes 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. GDR 4 ABET
- b. Prerequisites:
  - MAES-00090 NUMERICAL METHODS
  - MAES-00091 STATISTICAL INFERENCE TECHNIQUES

#### 5. Learning Objectives of the Course

- a. Analyze the production processes that take place in manufacturing companies and/or services to propose and develop simpler and more efficient working methods that contribute to the increase of productivity, quality and protection of the human factor of the organization.
  - Analyze a work process, using the systemic approach, identifying the components of the company system, with emphasis on the application of Process Engineering in the Production system.
  - Apply the Management methodology by Processes in a manufacturing organization and/or services.
  - Apply the KAIZEN procedure (Continuous Improvement) in processes in companies generating goods and services.
  - Design and evaluate ergonomic workstations, with a focus on productivity, safety and quality with an emphasis on worker welfare.
  - Conduct time and movement studies.
- b. Learning Outcomes
  - It applies the graphical procedures of methods engineering and/or process management for the description and analysis of the processes of production of goods and services, analyzing and interpreting the data, to use the engineering criterion to obtain solutions.
  - It prepares an improvement proposal for a process of work in the company or industry, based on the identification and elimination of the causes of problems, considering the impact of these proposals in global, economic, environmental and social contexts.
  - It designs and evaluates ergonomic workstations that promote productivity with an emphasis on

worker care, with the appropriate experimentation to analyze data and propose engineering solutions.  
gdr 4, gdr 6 abet.

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- Conducts time and movement studies in the work processes of companies or industries analyzes and interprets the data and uses engineering criteria to propose rda 6 abet solutions
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gdr 4, gdr 6 abet.
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## **6. Course Topics**

- Introduction to the company system
- Process management
- Engineering of methods
- Measurement of work