Code	INI392	Prerequisites	INI307
Name	Production Design Systems II	Co- requisites	INI392L

Credits	Contact hours
04	44
Categorization of credits	
Math and basic science	
Engineering topic	X
Other	

Coordinator's name	Jose Gabriel Lavayen Cruz

Text book
Tompkins, J., While, J., Bozer, Y., & Tanchoco, JM (2011). Facilities Planning (4th. Edition). Cengage Learning. Meyers, FE, Stephens, MP, & Brito, JE (2006). Design of manufacturing facilities and material handling. PearsonEducation. Heizer, J. & Render, B. (2014). Principles of Operations Management – Fifth Edition. Pearson Education.
Other supplementary materials
Orozco, E.E., & Cervera, J.E. (2013). Design and Distribution of Industrial Facilities supported by the use of Process Simulation. Research and Innovation in Engineering, 1(1). Hernandez, JC and Vizán, A. (2013). Lean Manufacturing Concepts, Techniques and Implementation. EOI Foundation Lunau, S. (2009). Design for Six Sigma + Lean Toolset. Springer.

Description	
Through this subject it is intended that the student develops the ability to design a facility, applying material flow concepts for said facility (manufacturing and services) and the optimal location of the different components of the system.	
Type of course	☒ Required ☐Elective _

Specific goals for the course	
Outcomes of instruction	1. Define the problem by identifying all its key internal aspects: objectives, metrics, process flow that contains the problem, inputs and outputs of each stage of the process, among others.

	2. Select the best solution by using complex methods (as needed), according to the problem definition and within multiple previously identified alternatives. 3. Prepare sufficient arguments to justify the selected solution where a strong correlation between the arguments and the criteria established in the definition of the problem is evidenced. 4. Generate sufficient alternatives with a high level of correlation with the established criteria and restrictions, in accordance with the engineering sciences and considering health, welfare and safety. 5. Select the best alternative by effectively applying decision-making methodologies and based on the established design constraints. 6. Create the plans, procedures, specifications, as well as other means of communication of the design, following norms or standards of engineering in general.
Student _ outcomes	SO1. Identify, formulate, and solve complex engineering problems by applying the principles of engineering, science, and mathematics. SO5. Function effectively in a team whose members together provide leadership, create a collaborative and inclusive environment, set goals, plan tasks, and meet objectives. SO6. Develops and conducts appropriate experimentation, in which they analyze and interpret data, as well as use engineering criteria to draw conclusions.

Topics
Unit I. Introduction
Unit II. Design of Products, Processes and Programs
Unit III. The Flow, Space and Relationships of Activities
Unit IV. Personnel Requirements
Unit V. Material Handling
Unit VI. Design Layout Planning Models
Unit VII. Warehouse Operations
Unit VIII. Facility Location