

Code	INI-378	Prerequisites	INI-310, INI-393, INI-393L
Name	Systems Planning and Control	Co- requisites	None

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

Coordinator's Name	Alfredo Vicioso
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Textbook
Chase, RB, Aquilano, NJ, Jacobs, FR (2006). Production and Operations Management, for a competitive advantage. (10th edition). McGraw Hill. Gaither, N., Frazier, G. (2005). Production and Operations Management. (8th edition) Thomson. Heizer, J., Render, B. (2001). Production Management: tactical decisions. (6th edition). Prentice Hall. Nahmias, S. (2007). Analysis of production and operations. (5th edition). McGraw Hill. Schroeder, R.G. (2006). Operations Management: Concepts and contemporary cases. (2nd edition). McGraw Hill. Vollmann, T. E., Berry, W. L., Whybark, D. (2005). Production Planning and Control: Supply Chain Management. (5th edition). McGraw Hill.
Other supplementary materials
YouTube audiovisual material related to the program.

Description	
The system planning and control subject provides the necessary tools for the student to be able to design, implement, manage, and control production systems for both manufacturing and services. At the end of the course, the student is expected to be able to calculate, create demand forecasting models, identify opportunities in a manufacturing and service planning and control system, design materials planning systems, make improvements to the supply chain, from the planning of each one of the elements that intervene in it.	
Type of course	<input checked="" type="checkbox"/> Required <input type="checkbox"/> Elective

Specific goals for the course	
Outcomes of instruction	1. Systemically define the problem, identify all internal and external aspects, such as: impact of the problem on other areas,

	<p>interested parties and their requirements, functions required to solve the problem, among others.</p> <p>2. Evaluate the effectiveness of alternatives using the appropriate information and techniques.</p> <p>3. Select the best alternative by effectively applying decision-making methodologies and based on the established design constraints</p> <p>4. Identify needs and transform them into objectives, criteria, and restrictions with a high level of compatibility, using tools, methods and/or engineering systems</p> <p>5. Interact with team members appropriately, encouraging and considering other members' ideas, while applying strategies to avoid, mediate, and resolve conflicts.</p> <p>6. Interpret the data from the intensive use of multiple analysis tools.</p>
Student outcomes	<p>SO1. Identify, formulate, and solve complex engineering problems by applying the principles of engineering, science, and mathematics.</p> <p>SO2. Apply the engineering design process to produce solutions that meet specific needs considering public health, safety and welfare, as well as global, cultural, social, environmental and economic factors.</p> <p>SO5. Function effectively in a team whose members together provide leadership, create a collaborative and inclusive environment, set goals, plan tasks, and meet objectives.</p> <p>SO6. Develops and conducts appropriate experimentation, in which they analyze and interpret data, as well as use engineering criteria to draw conclusions.</p>

Topics
<p>Unit I. Introduction to Operations Planning and Control</p> <p>Unit II. Forecasts</p> <p>Unit III. Inventory Management for Independent Demand models</p> <p>Unit IV. Manufacturing Planning</p> <p>Unit V. Material Requirements Planning (MRP)</p> <p>Unit VI. Just-in-Time (JIT) Production Systems</p>