IE 4391: Production Planning and Inventory Control Systems (ONLINE)
CRN: 17019
Fall 2020

Dr. Jaime Sanchez
Office E226C
Class meets in Blackboard Collaborate Ultra on Tuesdays and Thursdays 10:30 am to 11:50 am
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Office Hours Skype: Tuesday from 9:00 to 10:20 am, Wednesday from 4:30 to 6:00 pm and Thursday from 12 noon to 1:30 pm or By Appointments

Course Description
This course emphasizes traditional production and inventory control techniques for operations management and includes topics in forecasting, inventory control with known (deterministic) and unknown (stochastic) demand, lot sizing, supply chain management, scheduling, Materials Requirement Planning (MRP), just-in-time models, pull control systems and aggregate planning.

Surveys the design, development, implementation and management of production planning systems, including master production scheduling, aggregate planning, material requirements planning, capacity and inventory planning and production activity control. Students will be exposed to contemporary approaches such as just-in-time, theory of constraints and the relationship of enterprise-level planning and control systems to the overall materials flow.

Course Objectives or Expected Learning Outcomes
At the end of this course, students will be able to:

- Discuss the strategic role of the supply chain and the key strategic drivers of its performance by identifying Facilities, Inventory, Transportation, Sourcing, Information and Pricing.
- Focus on the analytical decision support tools (both models and applications) as well as on the organizational models that successfully allow companies to develop, implement and sustain supplier management and collaborative strategies.
- Analyze and develop inventory management policies under deterministic and stochastic environments.
- Develop aggregate production plans and detailed schedules through simple policies and more sophisticated mathematical models.
- Identify dynamic interactions among different elements of a supply chain system.
Required Materials


Regular access to a computer, Blackboard, Minitab 18 from My Apps and your UTEP email account.

Course Assignments and Grading

Grade Distribution:
- First Exam 20%
- Second Exam 25%
- Third Exam 30%
- Quizzes 5%
- Assignments 20%
- Term project 10%
- Final Exam to Improve average
- 90-100 = A 80-89 = B 70-79 = C 60-69 = D 59 and Below = F

Major Assignments: problems and/or cases will be assigned every week. They are due one week later after they have been assigned and will be graded. Assignments will not be accepted after the due date and Solution to the problems must include computer outputs as well as the conclusions and result interpretations.

Participation: for this online course, students will be required to participate in have a collection of smaller assignments that consist on posting comments about videos and reading assignments. Each of these activities will be given point values and will be part of the assignments. These points cannot be made up.

The student is required to take all examinations and to conduct and present a report of a practical project that can be assigned by the professor or can be selected from the student’s job, when he or she are working a related field previous professor approval. Also the student ought to submit at least 10 of 12 assignments and take the two quizzes during the semester.

The term project is performed in teams of up to five people. Two written interim project reports are required, along with a final written project report. Due dates will be announced during lecture time. The
term project consists of literature review from research journals, topics include but are not limited to, forecasting lumpy demand, product sustainability, RFID applications in inventory control, Kanban systems, Lean Manufacturing, Just in Time, etc. It is advised that the students review the following journals for selecting a topic:

- Journal of Operations Management
- International Journal of Operations and Production Management
- International Journal of Production Research
- Production and Inventory Management Journal
- Interfaces

Submit a one page project proposal by (Sep 26) and submit a final typed report (~10 pages, in word format, 1.5 spacing, Times New Roman 11, due (Dec 7)

Attendance Policy
Because this is an online course, attendance is determined by class participation online. Students must be prepared, participate in online individual/group discussions. To preserve a student’s GPA, he/she WILL be dropped from the course for failure to turn in three or more major assignments.

Technology Requirements
Course content is delivered via the Internet through the Blackboard learning management system (LMS). Ensure your UTEP e-mail account is working and that you have access to the Web. You may use any of the primary Web browsers—Explorer, Google Chrome, Firefox, Safari, etc. When having technical difficulties, try switching to another browser.

You will need to have or have access to a computer/laptop, printer, scanner, a webcam, and a microphone. You will need to purchase a USB (flash drive). You will need to download or update the following software: Microsoft Office, Adobe, Flash Player, Windows Media Player, QuickTime, and Java. Check that your computer hardware and software are up-to-date and able to access all parts of the course. If you encounter technical difficulties of any kind, contact the Help Desk.

Online Etiquette (Netetiquette)

- Always consider audience. Remember that members of the class and the instructor will be reading any postings.
- Respect and courtesy must be provided to classmates and to instructor at all times. No harassment or inappropriate postings will be tolerated.
- When reacting to someone else’s message, address the ideas, not the person. Post only what anyone would comfortably state in a F2F situation.
- Blackboard is not a public internet venue; all postings to it should be considered private and confidential. Whatever is posted on in these online spaces is intended for classmates and professor only. Please do not copy documents and paste them to a publicly accessible website, blog, or other space. If students wish to do so, they have the ethical obligation to first request the permission of the writer(s).
Late Work Policy

Major Assignments

- Major assignments will be due on Thursdays at midnight (11:59 PM). No late work will be accepted after a week of due date. No submitted assignments will graded with zero.

Quiz and Discussion Assignments

- All quiz, and discussion board assignments will be due on Monday at midnight (11:59 PM). No late work will be accepted.

Drop Policy

To drop this class, please contact the Registrar’s Office to initiate the drop process. If you cannot complete this course for whatever reason, please contact me. If you do not, you are at risk of receiving an “F” for the course.

Accommodations Policy

The University is committed to providing reasonable accommodations and auxiliary services to students, staff, faculty, job applicants, applicants for admissions, and other beneficiaries of University programs, services and activities with documented disabilities in order to provide them with equal opportunities to participate in programs, services, and activities in compliance with sections 503 and 504 of the Rehabilitation Act of 1973, as amended, and the Americans with Disabilities Act (ADA) of 1990 and the Americans with Disabilities Act Amendments Act (ADAAA) of 2008. Reasonable accommodations will be made unless it is determined that doing so would cause undue hardship on the University. Students requesting an accommodation based on a disability must register with the UTEP Center for Accommodations and Support Services.

Scholastic Integrity

Academic dishonesty is prohibited and is considered a violation of the UTEP Handbook of Operating Procedures. It includes, but is not limited to, cheating, plagiarism, and collusion. Cheating may involve copying from or providing information to another student, possessing unauthorized materials during a test, or falsifying research data on laboratory reports. Plagiarism occurs when someone intentionally or knowingly represents the words or ideas of another as one’s own. Collusion involves collaborating with another person to commit any academically dishonest act. Any act of academic dishonesty attempted by a UTEP student is unacceptable and will not be tolerated. All suspected violations of academic integrity at The University of Texas at El Paso must be reported to the Office of Student Conduct and Conflict Resolution (OSCCR) for possible disciplinary action. To learn more HOOP: Student Conduct and Discipline.

Student Resources

UTEP provides a variety of student services and support:
• **UTEP Library**: Access a wide range of resources including online, full-text access to thousands of journals and eBooks plus reference service and librarian assistance for enrolled students.

• **Help Desk**: Students experiencing technological challenges (email, Blackboard, software, etc.) can submit a ticket to the UTEP Helpdesk for assistance. Contact the Helpdesk via phone, email, chat, website, or in person if on campus.

• **University Writing Center (UWC)**: Submit papers here for assistance with writing style and formatting, ask a tutor for help and explore other writing resources.

• **Math Tutoring Center (MaRCS)**: Ask a tutor for help and explore other available math resources.

• **Military Student Success Center**: UTEP welcomes military-affiliated students to its degree programs, and the Military Student Success Center and its dedicated staff (many of whom are veterans and students themselves) are here to help personnel in any branch of service to reach their educational goals.

• **RefWorks**: A bibliographic citation tool; check out the RefWorks tutorial and Fact Sheet and Quick-Start Guide.

**Other references:**


**ABET**

This course supports the following Industrial Engineering program outcomes, which state that our students will have:

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.

2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.

5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
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<thead>
<tr>
<th>Week</th>
<th>Topics</th>
<th>Reference Reading</th>
<th>Notes</th>
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<tr>
<td>1</td>
<td>Introduction, syllabus, class objectives, ABET criterion, Understanding the Supply Chain, Supply Chain Performance: Achieving Strategic Fit</td>
<td>Chapter 1: Sections 1.2, 1.4 and 1.5</td>
<td>Video, BB Collaborate Ultra Presentations.</td>
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<td>2</td>
<td>Supply Chain Drivers and Metrics</td>
<td>Chapter 1: Sections 1.6, 1.7 and 1.8</td>
<td>BB Collaborate Ultra Presentations.</td>
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<td>Forecasting Quiz 1</td>
<td>Chapter 2: Sections 2.1, 2.2, 2.3 and 2.4</td>
<td>BB Collaborate Ultra Presentations.</td>
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<td>4</td>
<td>Forecasting</td>
<td>Chapter 2: Sections 2.5, 2.6, 2.7, 2.8 and 2.9</td>
<td>BB Collaborate Ultra Presentations.</td>
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<td>5</td>
<td>Sales and Operations Planning and Term project discussion.</td>
<td>Chapter 3: Sections 3.1, 3.2, 3.3, 3.4, and 3.5</td>
<td>BB Collaborate Ultra Presentations.</td>
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<td>6</td>
<td>Inventory control subject to known demand</td>
<td>Chapter 4: Sections 4.1 through 4.5</td>
<td>BB Collaborate Ultra Presentation.</td>
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<td>7</td>
<td>EXAM #1</td>
<td>Sections covered in Chapter 1, 2 and 3</td>
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<td>8</td>
<td>Inventory control subject to known demand</td>
<td>Chapter 4: Sections 4.6, 4.7, 4.8 and 4.9</td>
<td>BB Collaborate Ultra Presentation.</td>
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<td>9</td>
<td>Inventory control subject to unknown demand Quiz 2</td>
<td>Chapter 5: Sections 5.1, 5.2, 5.3 and 5.4</td>
<td>BB Collaborate Ultra Presentation.</td>
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<td>10</td>
<td>Inventory control subject to unknown demand</td>
<td>Chapter 5: Sections 5.5, 5.6 and 5.7</td>
<td>BB Collaborate Ultra Presentation.</td>
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<td>11</td>
<td>Push and Pull production control systems</td>
<td>Chapter 8: Sections 8.1, 8.2, 8.3 and 8.4</td>
<td>BB Collaborate Ultra Presentation.</td>
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<td>12</td>
<td>EXAM #2</td>
<td>Sections covered in chapters 4 and 5</td>
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<td>13</td>
<td>Push and Pull production control systems</td>
<td>Chapter 8: Sections 8.5, 8.6, 8.7 and 8.8</td>
<td>BB Collaborate Ultra Presentation.</td>
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<td>15</td>
<td>EXAM #3</td>
<td>Sections Covered in chapters 8 and 9</td>
<td>BB Collaborate Ultra Presentation.</td>
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<td>16</td>
<td>Final Exam Term project</td>
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<td>BB Collaborate Ultra.</td>
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