

American University of Beirut
Faculty of Engineering and Architecture
Industrial Engineering and Management Department

INDE 402: Facilities Planning and Material Handling

Spring 2017: 9:30 am – 11:00 am, Tues & Thur, Irani Oxy Engineering Complex, Rm 224B

Instructor:

Dr. Saif Al-Qaisi

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Phone Ext.: 3479

Office: Bechtel 533

Office Hours: directly after class; Wed 9:30 am – 12:30 pm; and/or by appointment

Catalogue Course Description: Inter-relationships between facilities, process design, systematic layout procedures, computer aided layout, location analysis models, material handling analysis and concepts, warehousing storage and retrieval systems.

Pre-requisite: INDE 302 and INDE 303

Learning Outcomes:

By the end of the course, students will be able to:

- Know the facility layout design process.
- Apply algorithms and analytical procedures for facilities layout planning.
- Apply fundamental principles of material flow and handling.
- Design layouts incorporating product, process, and personnel requirements.
- Calculate the number of machines required to meet a desired production capacity.
- Prepare from-to charts to measure and analyze quantitative flow requirements.
- Prepare a relationship chart to analyze qualitative relationships between departments.
- Determine space requirements for equipment, materials, and people.

Textbook: Tompkins, J.A., White, J.A., Bozer, Y.A., and Tanchoco, J.M.A. (2010). Facilities Planning. Fourth Edition, Hoboken, NJ: John Wiley & Sons, Inc.

Chapters of textbook:

Part I: Defining requirements

1. Introduction
2. Product, process, and schedule design
3. Flow systems, activity relationships, and space requirements
4. Personnel requirements

Part II: Developing alternatives: concepts and techniques

5. Material handling
6. Layout planning models and design algorithms

Part III: Facility design for various facilities functions

7. Warehouse operations
8. Manufacturing systems
9. Facilities systems

Part IV: Developing alternatives: quantitative approaches

10. Quantitative facilities planning models

Part V: Evaluating, selecting, preparing, presenting, implementing, and maintaining

11. Evaluating and selecting the facilities plan
12. Preparing, presenting, implementing, and maintaining the facilities plan

Final Grade is weighted as follows:

Pop-Quiz	7%
Homework	8%
Mid-Term Exam	40%
Final Exam	<u>45%</u>
	100%

Pop-Quiz/Participation

On random days during the semester, I will announce that there will be a quiz by the end of the class. The quiz will only cover material taught on that day. Students must be attentive in order to perform well. If you do not understand a topic, ask because it may be on the quiz. These quizzes are designed to encourage in-class participation and enhance your learning experience.

Homework

Homework's will be assigned periodically concerning the course material. Typically, they will be questions from the chapter review sections of the textbook.

Exams

There will be two exams in this course, mid-term and final exam. No make-up exams will be granted.

Late/Missed Work Policy

As future engineers, you must learn to be prompt and capable of meeting deadlines. Assignments will be due at the beginning of the class period. Assignments may be turned in late with the following penalties:

Turned in **after the class has begun**: -10%

Turned in **1 day late**: -10%

Turned in **2 or more days late**: Assignment not accepted, unless a university-approved excuse is provided.

Accommodation for Disability

AUB strives to make learning experiences as accessible as possible. If you anticipate or experience academic barriers due to a disability (including mental health, chronic or temporary medical conditions), please inform me immediately so that we can privately discuss options. In order to help establish reasonable accommodations and facilitate a smooth accommodations process, you are encouraged to contact the Accessible Education Office: accessibility@aub.edu.lb; +961-1-350000, x3246; West Hall, 314

Tips for Success: Below are some suggestions of things you can do to increase your success in this course.

- Come to class, every class. If you absolutely must miss class, get notes from another student.
- Read the book chapter(s) before class and take good notes during class. The book complements class activities and may explain difficult concepts in a different manner. Complete homework sets, and work on additional problems. This is one of the best ways to prepare for an exam.
- Use office hours to ask questions about homework, concepts, etc.
- "Cramming" at the last minute will result in lower learning levels than spreading your study time over the entire semester.