The mission of the Department of Industrial and Information Management is to Cultivate quality professionals with enthusiasm and global perspectives.

**General Program Learning Goals** (goals covered by this course are indicated):

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<tr>
<td>✓</td>
<td>1 Graduates should be able to communicate effectively verbally and in writing.</td>
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<td>2 Graduates should solve strategic problems with a creative and innovative approach.</td>
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<td>3 Graduates should demonstrate leadership skills demanded of a person in authority.</td>
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<td>4 Graduates should possess a global economic and management perspective.</td>
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<td>5 Graduates should possess the necessary skills and values demanded of a true professional.</td>
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**Instructor:**

Professor Shine-Der Lee  
Phone: #53146  
Email: sdlee@mail.ncku.edu.tw  
Class hours: Tentative (Monday 9:00-11:00AM, Wednesday 9:00-10:00AM)  
Office hours: To be announced (Monday 4:00-5:30PM, Wednesday 10:00-11:30AM, or by appointment)

**Course Description:**

The knowledge of facility planning is useful, if not essential; to anyone pursuing graduate works in the area of industrial engineering and management science fields. Students who work on supply chain, warehousing, product (process) design, and operations management should also benefit from this course. Tentative topics include: strategic planning, material handling systems, layout analysis, computer aided layout, manufacturing layout, warehouse, conveyor models, facilities system, and layout evaluation. New research opportunities and perspectives will be highlighted.

**Course Objectives:**

The objective of this course is to provide students with formal concepts and underlying theories for the design and planning of facilities. The course is problem oriented and the methodological aspects of the planning process are observed. The interplay of facility layout problem, model formulation, solution methods, and post analysis/evaluation are also stressed to show the iterative nature of facility planning process. The primary goals of this course are:

- To demonstrate the interplay of iterative facility planning process, including problem formulation, model building and analysis, solution procedures, and implementation,
using well-established design and analysis techniques.

- To introduce various facility planning models and algorithms for solving a variety of industrial problems in manufacturing, production, logistic, and warehousing sectors.
- To establish a solid foundation for advanced study in facility layout, warehousing, supply chain, and manufacturing system fields.

Content Summary:

Topics included but are not limited to:
- Administration and introduction (1) (1 week)
- Strategic planning, product, process, and schedule design (1+2) (1 week)
- Flow and activities (3+4) (3) (2 weeks)
- Material handling systems (5) (2 weeks)
- Layout models and algorithms (6) (3 weeks)
- Quadratic assignment problem (QAP, 10.3) (1 week)
- Uni-directional, unicyclic network layout (1 week)
- Bi-directional linear flow layout (Handout) (1 week)
- Manufacturing cell layout (10.4) (1 week)
- Warehouse layout (7+10.5-7) (1 week)
- Facilities system (9) (1 week)
- Layout evaluation (11) (2 weeks)

Course Requirement:

- Class rules will be strictly enforced, turn off your electronic devices.
- Homework will be assigned every week. It is due in the first meeting of the coming week. Submit your homework with letter or A4 size papers. No late or sloppy homework will be accepted.
- A term project (An on-hand study) in a group of four students is designed to complete the course requirement. It is used to re-enforce the learning and the understanding of complex iterative process in facility planning. Both a complete written report and an oral presentation will be scheduled in the last week.
- No make up exams

Textbook:

Recommended references:
- D. Sule, (1992) Manufacturing facilities, PWS publishing company, Boston, MA
- Selected papers and handouts from the literature

Grading policy:
✿ Homework 30%
✿ Mid-term Exam 30%
✿ Final Exam 30%
✿ Term project 10%,
✿ Q&A, performance improvement ±5%

- Grading Policy/评估方式:

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<th>Midterms 30%</th>
<th>Project 10%</th>
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