The Hong Kong University of Science and Technology

UG Course Syllabus

Spring 2026

Design of Logistics and Manufacturing Systems

IEDA4200

3 Credits

Pre-requisite course: IEDA3010

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Course Description

This course is designed to provide some fundamental concepts, theories and procedures for the study of facility location, process and material flow analysis, physical layouts, computerized layout planning, warehouse operations, and material handling.

Intended Learning Outcomes (ILOs)

By the end of **this co**urse, students should be able to:

- Explain the basic principles of facility planning from a supply chain view point
- Construct facility location models
- Design product, process, and production schedules
- Conduct flow and activity relationship analysis
- Determine space requirement and plant layout
- Identify and apply different algorithms used in computer-aided layout design
- Describe a range of methods, equipment and technologies for material handling
- Explain the basic warehouse operations and describe key warehouse layout design principles

Assessment and Grading

This course will be assessed using criterion-referencing and grades will not be assigned using a curve. Detailed rubrics for each assignment are provided below, outlining the criteria used for evaluation.

Assessments:

Assessment Task	Contribution to Overall Course grade (%)	Due Date
Homework assignments + Lab	15%	
Project	10%	
Participation	5%	
Mid-Term	30%	23 March 2026
Final examination	40%	University Examination Week

*Please check the updated due dates of homework assignment submissions on canvas

Course Outline

	Topic
1	Introduction to Facilities Planning
2	Facility Location Models
3	Machine Layout Algorithms
4	Flow & Activity Relationships
5	Layout Design Algorithms
6	Warehouse Layout Models
7	Product, Process and Schedule Design

Course AI Policy

All students are encouraged to use Generative AI wisely in class activities and discussions with proper acknowledgement.

Communication and Feedback

Students who have further questions about the feedback including marks should consult the instructor/TAs within one week after the feedback is received.

Resubmission Policy

To ensure fairness for students who submit assignments on time, a penalty for late submission is listed as follows:

- Late submission within 12 hours, 25% penalty will be applied.
- Late submission between 12 to 24 hours, 50% penalty will be applied.
- Late submission for more than 24 hours will not be accepted.

Reference Books

Tompkins, J.A., White, J.A., Bozer, Y.A., Tanchoco, M.A. (2010). Facilities Planning (4th Ed). Hoboken, NJ: John Wiley and Sons, Inc.

Academic Integrity

Students are expected to adhere to the university's academic integrity policy. Students are expected to uphold HKUST's Academic Honor Code and to maintain the highest standards of academic integrity. The University has zero tolerance of academic misconduct. Please refer to Academic Integrity | HKUST – Academic Registry for the University's definition of plagiarism and ways to avoid cheating and plagiarism.

Group Project Presentation Rubrics

Criteria	Excellent	Good	Satisfactory	Marginal	Fail
Content	Objectives are precise, innovative, and tightly integrated into facility planning's strategic context. Current layout is analyzed with exceptional depth; future needs are forecasted using advanced methodologies. Creative, well-justified alternatives are evaluated rigorously with clear metrics. Insights are nuanced and forward-thinking; suggestions are actionable, innovative, and address long-term operational/sustainability goals.	Objectives are well-defined and aligned with facility planning goals; relevance is strongly justified. Current layout is detailed and contextualized; analysis of current/future needs is thorough and data-supported. Multiple viable alternatives are proposed; evaluation methods are applied effectively. Findings are critically interpreted; practical suggestions are linked to analysis and address key implications.	Objectives are clear but lack depth; relevance to facility planning is established logically. Current layout is described adequately; analysis of current/future needs is logical but lacks critical insight. Alternatives are developed but lack creativity; evaluation methods are appropriate but simplistically applied. Findings are summarized with basic interpretation; suggestions are reasonable but lack innovation.	Objectives are stated but lack clarity; relevance to facility planning is weakly justified. Current layout is briefly described but lacks detail; analysis of needs is superficial or incomplete. Alternatives are underdeveloped; evaluation methods are applied inconsistently or with errors. Findings are listed but not interpreted; suggestions lack practicality or alignment with analysis.	Project objectives are unclear or missing; no connection to facility planning context. Current layout is poorly described or omitted; no analysis of current/future needs. Alternatives are missing or irrelevant; evaluation methods are incorrect or absent. Findings are vague or missing; no meaningful interpretation or suggestions.
Organization	Flawless, professional structure with purposeful sequencing. Engaging introduction, well-paced body, and impactful conclusion. Audience can effortlessly track arguments and insights.	Clear, cohesive structure with smooth transitions. Strong introduction sets context; conclusion summarizes key takeaways. Easy for the audience to follow and retain information.	Logical structure with identifiable introduction, body, and conclusion. Main points are addressed, though some sections feel rushed or repetitive. Audience can follow the presentation with minimal confusion.	Basic structure exists but is inconsistent or unclear. Introduction or conclusion is weak; key points lack focus. Flow is choppy, requiring audience effort to connect ideas.	Presentation lacks logical structure; ideas are disjointed or random. No clear introduction, body, or conclusion. Audience struggles to follow the narrative or purpose.
Delivery	Natural eye contact that connects with the entire audience. Speech is polished, enthusiastic, and tailored to audience understanding.	Consistent eye contact with most of the audience. Speech is articulate, well-paced, and uses vocal variety for emphasis.	Steady eye contact with parts of the audience. Speech is generally clear but lacks vocal variety or emphasis.	Occasional eye contact but relies heavily on notes/slides. Speech is uneven.	Minimal/no eye contact; reads directly from notes/slides. Speech is unclear.