

INDU 421 Facilities Design and Material Handling Systems

1. General Information

- **Andrea Schiffauerova, Ph.D.**
 - Concordia Institute for Information Systems Engineering (CIISE)
 - Office: EV 7.628 extension 3307, andrea@ciise.concordia.ca
 - Office hours: Wednesdays from 14:00 to 16:00 in EV 7.628
- Course information will be provided on the web:
<http://users.encs.concordia.ca/~andrea/indu421.html>

2. Course Description

- This course is designed to provide some fundamental concepts, theory and procedures for the study of facilities location, physical layouts, material flow, and material handling. Analytical procedures are developed to enhance the decision-making process in the design, rationalization and improvement of manufacturing or service facilities. The knowledge learned in this course will be integrated with knowledge from related courses in the final project.
- Prerequisite: INDU 320 Production Engineering

3. Class, Tutorials and Labs Schedule

| Section | Date | Time | Location | Name | E-mail |
|----------|--------------------|------------------------|----------|----------------------|--|
| Lecture | Wednesday & Friday | 08:45-10:00 SGW | H- 429 | Andrea Schiffauerova | andrea@ciise.concordia.ca |
| Tutorial | Friday | 14:15-15:05 SGW | H- 429 | Arman Sadreddin | a_sadre@encs.concordia.ca |
| Lab YI | Tuesday | 17:45-19:35 SGW (1) | H- 819 | Wissam Nakhle | w_nakhle@hotmail.com |
| Lab YJ | Tuesday | 17:45-19:35 SGW (2) | H- 819 | Wissam Nakhle | w_nakhle@hotmail.com |
| Lab YK | Thursday | 08:45-10:35 SGW (1) | H- 819 | Wissam Nakhle | w_nakhle@hotmail.com |

There are neither labs nor tutorials in the first week. The second week (starting September 9) is a week #1 for the labs.

4. Course Content

- Introduction: Concepts of manufacturing and facilities planning
- Product, process and schedule design
- Machine and personal requirements
- Space requirements
- Flow, space and activity relationships
- Material handling: principles, equipment and analytical procedures
- Layout planning models and design algorithms
- Overview of computer-aided layout procedures
- Evaluation and selection of facility plans
- Facility location
- Warehouse operations

This course emphasizes and develops the CEAB graduate attribute of problem analysis. You will learn to use appropriate knowledge and skills to identify, formulate, analyze, and solve complex engineering problems related to facility planning in order to reach substantiated conclusions in terms of the facility layout, its location and the material handling systems design. You will be evaluated on the problem analysis attribute by means of assignments, quizzes, exams, labs and the project.

5. Course materials

- Textbook: **Facilities Planning**
 - Authors: James A. Tompkins, John A. White, Yavuz A. Bozer, and J.M.A. Tanchoco
 - Publisher: John Wiley & Sons; 4th edition (2010)
 - There is a newer edition, which is also good
 - Available:
 - Concordia University bookstore
 - Webster Library (call number: TS 177 T67) – the 3rd and 4th editions of the book are at the library reserve

6. Grading

- **Grading**
 - Midterm exam 20%
 - Final exam 45%
 - Design project 10%
 - Quizzes 20%
 - Labs 5%

- **In order to pass the course both your cumulative score and your final examination score should be above 50%!!!**
 - You need to receive a passing mark on the coursework to be eligible for a medical deferral of the final exam should the need arise.

- **Midterm exam: (20%)**
 - The midterm is optional: if you take the midterm then it can count towards your final mark if it will improve your mark. If you do not take the midterm or do not do well in it, then it will not be included in your final mark.

- **Final Exam: (45%)**
 - Final exam will cover all the material given during the course
 - It will take place during the examination period at the end of the semester. Students should not make any specific arrangements to leave the city until the final exam date is posted.
 - Minimum passing score for the final exam is 50%

- **Quizzes (20%)**
 - There will be 4 quizzes (5% of the final grade each). Quizzes will be given in the lectures. Solutions of the quizzes will be covered in tutorials.

- **Assignments (0%)**
 - Assignments will be posted on the web page. **The assignments will not be marked** but the questions from the assignments will be similar to those in the Quizzes; it is thus very useful to attempt them. Solutions of the assignments will be covered in tutorials.

- **Facility Design Project (project report + presentation) (10%)**
 - Teams will work on the projects during the whole semester.
 - In the last two weeks, each team will submit a report and make a presentation (each team member has to participate during the presentation).

- **Labs (attendance + lab project) (5%)**
 - Labs are mandatory and the attendance will be checked regularly (100% attendance is required)
 - There will be an individual project completed during the lab sessions, which will be evaluated

7. Academic Code of Conduct

Academic Integrity

Any form of cheating, plagiarism, personation, falsification of a document as well as any other form of dishonest behaviour related to the obtention of academic gain or the avoidance of evaluative exercises committed by a student is an academic offence under the Academic Code of Conduct and **may lead to severe penalties up to and including suspension and expulsion.**

As examples only, you are not permitted to:

- Copy from anywhere without indicating where it came from
- Let another student copy your work and then submit it as his/her own
- Hand in the same assignment in more than one class
- Have unauthorized material or devices in an exam. Note that you do not have to be caught using them – just having them is an offence
- Copy from someone's else exam
- Communicate with another student during an exam
- Add or remove pages from an examination booklet or take the booklet out of an exam room
- Acquire exam or assignment answers or questions
- Write an exam for someone else or have someone write an exam for you
- Submit false documents such as medical notes or student records
- Falsify data or research results

You are subject to the Academic Code of Conduct. Take the time to learn more at <http://provost.concordia.ca/academicintegrity/>

8. Student's Responsibilities

- Students are expected to attend every class. Some material may only be covered in class and not made available on the course website. Students are expected to read the assigned material and to actively participate in class discussions.
- Students are expected to be respectful of other people's opinions and to express their own views in a calm and reasonable way. Disruptive behaviour will not be tolerated.
- Students are expected to be familiar with the Code of Rights and Responsibilities: <http://rights.concordia.ca>