# CONCORDIA UNIVERSITY

# DEPARTMENT OF MECHANICAL, INDUSTRIAL & AEROSPACE ENGINEERING

# INDU 211/2-X Introduction to Production and Manufacturing Systems (Credits: 3.0)

### Fall 2019

Instructor: Dr. M. Chen, Office: EV004-169, Phone: 3134, Email:mychen@encs.concordia.ca

Classes: Tuesday and Thursday, 1:15-2:30pm

Class Room: FG C080

Office Hours: Wednesday, 3:00-5:00pm, or by appointment

<u>Text Book:</u> Introduction to Industrial and Systems Engineering, W.C. Turner, J.H. Mize, K.E. Case, J.W. Nazametz, Third Edition, Prentice Hall, 1993, ISBN: 0-13-481789-3.

References: Engineers Canada Documents, IISE Publications

<u>Course Description</u>: History of industrial engineering; Role of industrial engineers; Types of manufacturing and production systems; Job design and work measurement; Quality control and management; Introduction to solution methodologies for problems which relate to the design and operation of integrated production systems of humans, machines, information, and materials.

<u>Learning Objectives:</u> To provide the student with general knowledge on industrial engineering, manufacturing and production systems. To introduce fundamental principles and practical tools for process analysis, design and improvement in manufacturing and service systems.

<u>Syllabus</u>

	Lecture Topics	Est. Number of Lectures	Reference To Text	
1	Introduction to Engineering, Industrial Engineering	3	Chapters 1,2,3	
	and Manufacturing Engineering		_	
2	Facilities Location and Layout, Material Handling,	2	Chapters 4,5	
	Distribution, and Routing			
3	Work Design and Work Measurement	2	Chapter 6	
4	Operations Planning and Control	2	Chapter 7	
5	Quality Control and Quality Improvement	3	Chapter 8	
	Midterm Exam	1		
6	Human Factors and Related Issues	2	Chapter 11	
7	Deterministic Operations Research Models	3	Chapter 14	
8	Probabilistic Operations Research Models	3	Chapter 15,16	
9	Project Management	2	Chapter 17	
10	Other Related Topics	1	-	
11	Project/term paper presentation	2	-	
Total		26	-	

# Grading:

Assignments	10%
Midterm Exam	25%
Term paper/Group project	15%
Final Exam	50%
Total	100%

### Passing Requirement:

- 50% or higher of the final exam paper
- 50% or higher of the total mark
- Completion of the Term paper/Group project

### <u>"R" Grade Rule:</u> The "R" grade will be automatically assigned if the total mark is less than 25%.

Term paper/Group project

• Group project can be conducted by individual student or a group of less than 5 students for manufacturing or service process design/analysis/improvement utilizing the concepts and tools introduced in this course.

<u>Tutors</u>

- Ms. Walaa Ali walaaawadali@gmail.com
- Ms. Michele Honein <u>michelehonein@live.com</u>
- Mr. Kishan Patel <u>kishanpat07@gmail.com</u>

### Conversion from Numerical Marks to Alphabetical Grades (Subject to Revisions):

0-49	50-54	55-58	59-62	63-66	67-70	71-74	75-78	79-82	83-86	87-90	91-100
F	D	D+	C-	С	C+	B-	В	B+	A-	А	A+

### Course Learning Outcomes (CLOs per CEAB Guidelines)

- 1. Recognize various decision-making problems arising in manufacturing and service systems
- 2. Define several concepts, tools, and techniques related to Industrial Engineering
- 3. Apply simple heuristics to solve small decision models arising in facility design, material handling, production planning, among others.
- 4. Demonstrate skills in individual and team work by working on a group term paper/project

### Graduate Attributes provided by Canadian Engineering Accreditation Board (CEAB)

CEAB Graduate Attribute	Level of Coverage $(0-3)$	Related to CLOs
Knowledge base for engineering	2	1, 2, 3
Individual and team work	1	4