DEPARTMENT OF MECHANICAL AND INDUSTRIAL ENGINEERING
MECHANICAL ENGINEERING PROGRAM, BSC.

Course Syllabus

1. **Course number and name**
   IE 498 Computer application in Industrial Engineering

2. **Credits and contact hours**
   (3+0) 3 credit hours, 3 contact hours

3. **Course type**
   Face to face Learning Course (3+0)

4. **Instructor's or course coordinator's name**
   Dr. Hanan Saleet

5. **Textbook information**
   -AviX manual

   a. **Other supplemental materials**

- Marc Helmold (2020), Lean Management and Kaizen: Fundamentals from Cases and Examples in Operations and Supply Chain Management, Springer, ISBN 978-3-030-46981-8
- Mikell P. Groover, Work Systems and the Methods, Measurement, and Management of Work, Pearson Education, Inc., 2007. ISBN: 0-13-140650-7
- James A. Tompkins, John A. White, Yavuz A. Bozer, J. M .A. Tanchoco, Facilities Planning, John Wiley & Sons, 2010
- Lean Management Beyond Manufacturing, Sanjay Bhasin, Springer international publishing Switzerland 2015

6. **Specific course information**
   a. **Catalog description**
      AviX is a lean tool. It has many modules that target continuous improvement and development of People – Processes – Products within the manufacturing industry worldwide.
   b. **Prerequisites or co-requisites**
      Pre-requisites: IE 323 Economy & Eng. Management + IE 233 Object Oriented Programming for Industrial Engineering
   c. **The course is:**
      Elective in Industrial Engineering program.

7. **Specific goals for the course**

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a. Course outcomes:

After completion of the course, students are expected to be able to:

CO-(1): Generate the detailed instructions and their reports using AviX
CO-(2): Discuss the balancing reports
CO-(3): Discuss the modules and reports

b. The following student outcomes are addressed by the course:

None

8. Learning Outcomes and their Alignment with Program Educational Objective (PEO's), Methods of Delivery, and Assessment Methods:

Learning Outcomes	Program PEOs	Method of Delivery	Assessment Method
Course Outcomes			
CO-(1): Generate the detailed instructions and their reports using AviX	-	Lectures (Example and Problems)	Exams
CO-(2): Discuss the balancing reports	-	Lectures (Example and Problems)	Assignment
CO-(3): Discuss the modules and reports	-	Lectures (Example and Problems)	Project

9. Weekly Teaching Plan

Week	Lecture	Topic	Method of Delivery
1	Lec_1	AviX® continuous improvements	Lecture
	Lec_2	Value parts and Fasteners	Lecture
	Lec_3	Method Layout	Lecture
2	Lec_4	Task – What is being done?	Lecture
	Lec_5	Creating the factory layout	Lecture
	Lec_6	Creating process tasks	Lecture

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3	Lec_7	Modifying stopwatch measurement	Lecture
	Lec_8	Layout factors (D Delta operations)	Lecture
	Lec_9	Adding parts/tools	Lecture
4	Lec_10	Operations – How it's done	Lecture
	Lec_11	Standard time analysis	Lecture
	Lec_12	Activity analysis	Lecture
5	Lec_13	Extended functionality	Lecture
	Lec_14	Method tree filter	Lecture
	Lec_15	How to add pictures/documents	Lecture
6	Lec_16	Creating work instructions	Lecture
	Lec_17	Standard Exel Export	Lecture
	Lec_18	Extended parts handling	Lecture
7	Lec_19	Product structures	Lecture
	Lec_20	Importing data to AviX®	Lecture
	Lec_21	PRODUCTIVITY & STANDARD TIMES	Lecture
8	Lec_22	COLOUR SYSTEM	Lecture
	Lec_23	ACTIVITIES IN AVIX	Lecture
	Lec_24	OBJECTS & PRODUCTION AIDS	Lecture
9	Lec_25	ALLOTTING STANDARD TIMES TO WORK OPERATIONS	Lecture
	Lec_26	ALLOTTING STANDARD TIMES TO MOVES	Lecture
	Lec_27	AviX Resource Balance	Lecture
10	Lec_28	Variant matrix view	Lecture
	Lec_29	Using Assignees	Lecture
	Lec_30	Starting AviX DFX	Lecture
11	Lec_31	DFA2 method support	Lecture
	Lec_32	Creating the "MBOM"	Lecture
	Lec_33	Performing the DFX analysis	Lecture
12	Lec_34	the Ergo module	Lecture
	Lec_35	Design FMEA	Lecture
	Lec_36	Built in logic and features	Lecture
13	Lec_37	control plan	Lecture
	Lec_38	SMED theory	Lecture
	Lec_39	Startic AviX SMED	Lecture
14	Lec_40	Using AviX SMED	Lecture

	Lec_41	SMED instructions	Lecture
	Lec_42	The SAM module	Lecture
15	Lec_43	MTM-SAM time analysis	Lecture
	Lec_44	SAM reports	Lecture
	Lec_45	MTM UAS data card	Lecture

10. Grade Distribution:

Assessment	Grade	Week No.
- First Exam	20%	
-Second Exam	15%	
-Assignments (Reports /Quizzes/ Seminar / Tutorials/ Home works ….)	15%	1-16th Week
- Final Examination	50%	16th Week

Note: Make-up exams will be offered for valid reasons. It may be different from regular exams in content and format.