

(Textile Engineering Department)

Undergraduate

Course Title: **Special Topics in Work & Time Study & Production Line Balancing**

Prerequisite: Engineering statistics and probabilities, Technology of Clothing Manufacture (I)

Number of Credits: 3

Lecturer: Dr. Reza Ghasemi Yaghin

Course Topics:

- What is productivity and its elements Types of productivity factors influencing productivity
- Methods of recording as-if status via quantitative approach, numerical tables and charts (OPC, FPC, FD, ...) Man-machine charts and quantitative modelling Real examples
- Work study and stages of work study analysis Therblig and its elements, Examples of Therbligs
- Work segment, Reasons for dividing operations into work segments
- Natural performance level of operator Allowed idleness and factors influencing in determination of its percentage
- Configuration of work time Controlling of work time in order to increase production efficiency
- Number of observed cycle times
- Work sampling techniques A weaving industry example
- Standard data Motion study
- MOST techniques
- Production line balancing Concepts Types of production lines and layout
- Line balancing techniques (manual and computerized techniques) Several numerical examples of line balancing techniques
- Predetermined time systems
- Introduction to learning curve and Operator Training

Reading Resources:

- Niebel's Methods, Standards, and Work Design, by Freivalds, A., Niebel, B.W. & McGraw-Hill, 13th Edition, 2014.
- Introduction to Work Study, (1992). International Labour Org; 4th Edition.
- Work Systems and the Methods, Measurement, and Management of Work, by Groover, M., Pearson-Prentice Hall, 2007.