Instructor	: Prof. Dr. Mahmut Ekşioğlu
E-mail	: mahmut.eksioglu@boun.edu.tr Tel. : 0212 359 6483
Office hours	: W: 16.00 – 18.00; TH: 15.00 – 17.00;
Course hours	: TH: 11.00 – 14.00
Classroom	: M: 2171 ve Lab: ErgoLab
Course website	: http://moodle.ie.boun.edu.tr/
Enrollment key	:
Prerequisite	: IE 430 or consent of the instructor

Course Description: This course focuses on physics and physiology of humans at work; biomechanical and physiological modeling, neuromuscular performance, mechanical work capacity, methods to improve work performance, health and safety, workplace and equipment design, shiftwork and rest allocation, cognitive workload, worker selection and training, controlling environmental stress, and bioinstrumentation; special emphasis given to learning about work capacity measurements, instrumentation, and laboratory experimentation.

- Ekşioğlu, M., Work Performance Engineering Lecture Notes, 2017. (Required)
- **Textbook (A copy of th book will be on the Reserve of BU Library):** Chaffin, D.B., Andersson, G.B.J., Martin, B.J., 2006, *Occupational Biomechanics* (4th ed.), John Wiley, NY. (Required)
- **Supplementary textbook (A copy of th book will be on the Reserve of BU Library):** Astrand, P-O., Rodahl, K., Dahl, H.A., and Stromme, S.B. *Textbook of Work Physiology* (4th ed.), Windsor, ON, Human Kinetics, 2003.

Topics
- o   Ergonomics and Engineering of Human Work
- o   Structure and function of musculoskeletal system
- o   Neuromuscular performance
- o   Anthropometry
- o   Biomechanical work capacity
- o   Bioinstrumentation (examination of bioelectric signals and forces)
- o   Biomechanical modeling
- o   Methods of evaluating manual work
- o   Workplace design
- o   Circulatory and respiratory system
- o   Metabolic modeling
- o   Heat stress
- o   Shiftwork, productivity, cognitive workload
- o   Worker selection and training
- o   Additional topics (if time permits)

Grading: Exam 1 (30%) + Final Exam (30%) + Lab Assign. (20%) + Assignments (%10) + Attendance (10%)

85<A≤100; 80<BA≤85; 75<B≤80; 70<CB≤75; 60<C≤70

Provided that (the average of the two exam grades) ≥ (lowest interval value –10) (e.g.; to receive a grade of **B**, the average of the two exams must be at least 75–10 = **65**; otherwise, one lower grade, **CB**, will be given).

Notes: (1) Students missing a lab (i.e., physically did not perform the lab and/or did not submit the report) or an exam will receive a grade of "F" regardless the accumulated points toward the course grade.
(2) No make up exam will be given unless the instructor is informed prior to the exam and a valid evidence is provided.