

Course Unit Description - (EEME)

(Motion and Time Analysis)

(Mestrado em Engenharia Electrotécnica e de Computadores)

Academic year: 2008/2009



Subject group: Automação e Robótica

	Semestral	Compulsory	
Mode of study	Diurno	Hours/Week	T-Teórica 2
Year	1 ^o		PL-Prática-Laboratorial 2
Semester	2 ^o		OT-Orientação Tutorial 1

ECTS 6

Objectives

Motion and time analysis is associated with the study of work organization and the study of industrial and service operations. This course has the objective of training students in the principles involved in the study of work methods and in the measurement of operations. Aspects related to production lines balancing will also be addressed.

This way, it is intended to make the students familiar with the involved terminology and create on them a knowledge base that allows the identification of possible problems that may exist in a specific industrial operation and also the possible improvements that may be conducted, bearing in mind the possible advantages and disadvantages that may exist. It is also an objective of this course to supply tools that may help the study of the work.

Course Contents

- 1 – Process – Concepts and Fundamentals
- 2 – Motion Analysis and Work Simplification
- 3 – Work Time Analysis
- 4 – New Methodologies for Process Reengineering

Recommended reading

- [1] Ralph M. Barnes, "Motion and Time Study – Design and Measurement of Work", John Wiley & Sons, Inc., Higher Education – 7th Ed., 1980.
- [2] Heizer, J. & Render, B., "Operations Management", Prentice Hall, 2001.
- [3] James B. Dilworth, "Operations Management, Design, Planning and Control for Manufacturing and Services", McGraw-Hill, 1992.
- [4] Imai, Masaaki, "Gemba Kaizen - Estratégias e Técnicas do Kaizen no Piso de Fabrica", Iman, 2000.
- [5] Ishiwata, J. IE for the Shop Floor - Productivity Through Process Analysis, Productivity Press, 1991.
- [6] Lawrence S. Aft, "Work Measurement and Methods Improvement", Wiley-Interscience, 1st edition, 2000.
- [7] Fred E. Meyers and Jim R. Stewart, "Motion and Time Study for Lean Manufacturing, 3/E", Prentice Hall, 3rd edition, 2001.

Teaching Methods

Theoretical classes:

- Presentation of the theoretical subjects by the teacher;
- Power Point slides used in the classes will be given to the students.

Tutorial classes:

- Support to a research work developed by groups of three/four students.

Laboratory classes:

- Solving some selected exercises
- Case studies
- Performance of didactic games.

Assessment methods

Assessment during the classes

Continuous assessment during the classes. With this purpose the teacher will evaluate the research work developed by the students, which will be presented in the classes, and also the work developed in the laboratories.

In the week before Queima das Fitas, students must deliver to the teachers a printout of the work developed up until that point. The objective is to make an intermediate verification of the work development in order to avoid late beginning. This intermediate assessment of the work status will have a value of 20% in the final classification of the work. The final grade given to this work will have a component based in the teacher assessment and a component based in other group student's assessment.

Techniques, instruments and assessment criteria – Exam assessment

Written exam, with theoretical and practical exercises, covering all the studied subjects.

Final course classification

Final course classification = $x.CA + y.WE$

$x = 0.5$; Min NFREQ = 5.0 (minimum continuous assessment)

$y = 0.5$; Min PE = 5.0 (minimum exam assessment)

The continuous assessment classification and exam classification will be published with decimal values. Rounding will only be done in the final classification values.

Grade improvement (Assessment)

Written exam, with theoretical and practical exercises, covering all the studied subjects and by an oral examination covering the works developed by the students during the semester.

In this case, the final course classification after improvement will be = $x.WE + y.OE$

$x = 0,5$

$y = 0,5$

	Name
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Lecturer:	Manuel Fernando dos Santos Silva (MSS) Paulo Antonio da Silva Avila (PSA)