

## DESCRIPTION OF THE COURSE

Name of the course: <b>Production Operation Management</b>	Code: BIE48	Semesters: 5
Type of teaching: Lectures and tutorials	Lessons per week: L – 1.5 hours; T – 1 hour	Number of credits: 3

**COURSE STATUS IN THE CURRICULUM:** Compulsory for the students specialty Industrial Engineering BEng programme of the English Language Faculty of Engineering.

**AIMS AND OBJECTIVES OF THE COURSE:** To give knowledge about the main problems domains and activities associated with P/OM in manufacturing and service organisations. To introduce quantitative models and techniques of Operations Research/Management Science which are used in P/OM, and to illustrate their application.

**DESCRIPTION OF THE COURSE:** The main topics concern: Introduction to functional areas and problems in P/OM; Data representation and analysis in P/OM; Forecasting Techniques; Decisions under Risk – Expected Value criteria, Aspiration Level Criterion, Decision Trees, Bayes's Approach; Decisions under Uncertainty – Laplace, Minimax, Savage, Hurwicz criteria; Markovian Decision Process – Markov Chains, Steady-state Probabilities, Exhaustive Enumeration Method; Queuing Models – Specialised Poisson Queues, Non-Poisson Queues; Queuing Decision Models – Cost Models, Aspiration-Level Models; Inventory Models – ABC system, Deterministic Models; Productivity and Quality; Productivity Measurement; Managing Quality; Long -Term Planning and Decision Making – Strategic Planning, Product Design and Development, Capacity Planning; Process Technology and Automation – Process and Equipment Selection, CAD/CAE, FMS, CAM; Process Design and Facility Layout – Design of Product, Process and Groups Layouts; Just-in-Time Production; Aggregate Production Planning and Master, Batch and Job-Shop Scheduling.

**PREREQUISITES:** Mathematics I-IV, Operations Research, Elements of Industrial Automation, Computing I and II, Industrial Manufacturing Systems I, II.

**TEACHING METHODS:** Lectures, using slides, case studies, tutorials, home works and course work preparation using teaching software, and protocols.

**METHOD OF ASSESSMENT:** Three tasks (home works) are assigned during the semester 5. One four-hour written test at the end of semester 5 (50% of the final marks), one three-hours written exam at the end of semester 6 (50% of the final marks).

**INSTRUCTIONAL LANGUAGE:** English.

### **BIBLIOGRAPHY:**

1. Evans J. Applied production and operations management. WPC, 1990;
2. Vonderembse M.A. Operations management. WPC, 1991;
3. Evans J. Solutions manner to accompany applied production and operations management. WPC, 1990;
4. Tomes A. Operations management. PHI, 1993.