Course description

1 General information

Course name	Software (IT) systems for production enterprises
Course code	M6-IT
Level of study (B.Sc, M.Sc., Ph.D.)	B.Sc.
ECTS	4
Course manager	Dr inż. Janusz Pobożniak Chair of Engineering and Production Automation
Course length	One (1) semester
Coordinator for international programs	erasmus@mech.pk.edu.pl

2 Prerequisites

- Basic knowledge on organization of enterprises

2 Program

Type	Lectures	Classes	Labs	Computer labs	Project	Seminar
Hours	315			15	15	

3 Contents

Lectures		
No.		Hours
1	Basic definitions: data, information, algorithm, program, system, information system, computer system	2
2	Computer systems for engineering works support: CAD, CAE, CAPP, CAM, CAQ	2
	Transactional computer systems supporting the operation of production: operation cycles, main databases, complex procedures, order processing including material reservation, complexation procedures	3
3	Integrated IT systems: models and functional characteristics of MRP/MRPII, ERP, CRM, WMS, SCM subsystems.	6
4	Using the reports for operational management. Reporting and data administration.	2

Computer labs		
No.		Hours
1	Basic database creation in ERP system: functional and organization structure of enterprise, material directories, material templates, warehouse structures. Generation of trade documents, warehouse documents, basic report generation	2
2	Procedure for complex order processing:: injury, order for purchase, warehouse reservation, purchase invoice, warehouse income, warehouse outcome, internal income, internal outcome, correction of internal income and internal outcome, invoice	4
3	Completion procedure: in ERP system technical documentation analysis , creation of design and manufacturing product structures, multi-variant manufacturing processes, resource calculation, automatic cost calculation, warehouse management, reservations,	3
4	Production planning in ERP system: manufacturing route definition, selection of machines for operations, time related analysis, resource schedule, manufacturing execution reports	4
5	Final test	2

Projects		
No.		Hours
	Project description: implementation of computer system supporting the management and operation of the given production company	2

1	Characteristic of company: production portfolio, profile, size, employees, location, departments	3
2	Analysis of the production costs with computer systems for selected product: design structure, manufacturing structure of the product, operations, unit costs	3
3	Preparation of documents supporting the delivery of material and outsourced services	3
4	Generation of manufacturing documentation for the shop floor and production registration, generation of warehouse and sale documents	2
6		

3 Learning Outcomes (skills and knowledge):

- Knowledge on structure of IT systems for enterprise management
- Skills to select the appropriate system depending on features of enterprise
- Practical knowledge on organizational document processing using software system
- Overview of use of integrated IT system for operation management
- Basic knowledge on administration of integrated IT system

4 Assessment policy (examination):

- Tests on theoretical knowledge
- Practical tests on execution of specified procedures in computer system

5 Literature

1. Thomas H. Lee, Shoji Shiba, Robert Chapman Wood, Integrated Management Systems: A Practical Approach to Transforming Organizations 1st Edition, Willey Publishing
2. Ellen Monk, Bret Wagner, Concepts in Enterprise Resource Planning, Cengage Learning
3. Shaun Snapp, Process Industry Manufacturing Software: ERP, Planning, Recipe, MES & Process Control, SCM Focus