Course description

1 General information

Course name	Operations Management and ERP Systems
Course code	
Level of study (B.Sc, M.Sc., Ph.D.)	M.Sc.
ECTS	6
Course manager	Ph.D. Eng. Jacek HABEL, Institute of Production Engineering M6
Course length	One (1) semester
Coordinator for international programs	erasmus@mech.pk.edu.pl

2 Prerequisites

- Medium level in MS Excel or relevant spreadsheet application
- Basic level of understanding databases

2 Program

Type	Lectures	Classes	Labs	Computer labs	Project	Seminar
Hours	30			30	30	

3 Contents

Lectures		
No.		Hours
1	Introduction to Operations Management. The overview of the IFS ERP system.	4
2	The structure of manufacturing process.	2
3	The BOM structure of final product. The assembly process planning.	4
4	The machining process planning for selected methods. Worktime standard calculation.	4
5	The structure of APICS Operations Planning. Characteristic of 5-level planning.	2
6	The sale historical data analysis and sale forecast. Methods of safety stock calculations.	4
7	The master schedule planning and MPS calculations.	2
8	The material requirements planning and MRP calculations.	4
9	The inventory management.	4

Project		
No.		Hours
1	The project of manufacturing process plan (including assembly and selected machining)	10
2	The project of operations planning, including: BOM, sale forecast, safety stock calculation, SOP, MPS and MRP plan.	15
3	The project of inventory management.	5

Computer Labs		
No.		Hours
1	IFS ERP workshops, part I: Defining planning calendar, units of measure and site	5
2	IFS ERP workshops, part II: Defining persons (IFS users) and inventory parts	5
3	IFS ERP workshops, part III: Defining warehouses, suppliers and customers	5
4	IFS ERP workshops, part IV: Defining production system, product structures and routings	5
5	IFS ERP workshops, part V: Manual management of customer orders	5
6	IFS ERP workshops, part VI: Executing customer orders using MRP method	5

3 Learning Outcomes (skills and knowledge):

- The student knows the structure of manufacturing processes, including assembly and machining
- The student knows the APICS structure of operations planning
- The student can design assembly process plan
- The student can design operational plan for selected machining methods
- The student can analyse the sale historical data and make sale forecast, calculate safety stocks
- The student can create MPS and MRP plan for product given by BOM structure
- The student can operate the IFS ERP system

4 Assessment policy (examination):

- Passed laboratory/project reports
- Passed theoretical (lecture) exam in the form of multiple choice test
- The final grade is evaluated as the weighted average of grades

5 Literature

1. P. Jonsson & S.A. Mattsson, *Manufacturing, Planning and Control*, New York: McGraw-Hill Education, 2009.
2. W. J. Stevenson, *Production/Operations Management*, V ed., USA: IRWIN, 1996.
3. D. Waters, *Logistics. An Introduction to Supply Chain Management*, New York: Palgrave MacMillan, 2003.
4. S.A. Kumar, *Operations Management*, New Age International Publishers, New Delhi, 2009.
5. S.A. Kumar & N. Suresh, *Production and Operations Management*, New Age International Publishers, New Delhi, 2008.
6. M. Sumner, *Enterprise Resource Planning*, Pearson; 1st edition, 2004.
7. M. Bradford, *Modern ERP: Select, Implement, and Use Today's Advanced Business Systems*, LuLu; 3rd edition, 2016.
8. J. Collins, *Modern ERP: Good to Great: Why Some Companies Make the Leap and Others Don't*, HarperBusiness; 1st edition, 2001.
9. A.J. Worster & T.R. Weirich & F.J.C. Andera, *Maximizing Return on Investment Using ERP Applications*, John Wiley & Sons; Har/Psc edition, 2012.
10. S.R. Magal & J. Word, *Integrated Business Processes with ERP Systems*, Wiley; 1st edition, 2011.