

## Manufacturing Planning and Control (E076221)

Course size (nominal values; actual values may depend on programme)  
 Credits 6.0 Study time 180 h Contact hrs 60.0 h

### Course offerings and teaching methods in academic year 2018-2019

Offering	Language	Teaching Method	Hours
A (semester 1)	English	lecture	25.0 h
		seminar: coached	20.0 h
		exercises	
		practicum	10.0 h
		guided self-study	5.0 h
B (semester 1)	Dutch	guided self-study	30.0 h
		practicum	10.0 h
		seminar: coached	20.0 h
		exercises	

### Lecturers in academic year 2018-2019

Raa, Birger TW18 lecturer-in-charge

Offered in the following programmes in 2018-2019	crdts	offering
Master of Science in Electrical Engineering (main subject Communication and Information Technology )	6	A, B
Master of Science in Electromechanical Engineering (main subject Control Engineering and Automation)	6	A, B
Master of Science in Electromechanical Engineering (main subject Control Engineering and Automation)	6	B
Master of Science in Electromechanical Engineering (main subject Electrical Power Engineering)	6	A, B
Master of Science in Electromechanical Engineering (main subject Electrical Power Engineering)	6	B
Master of Science in Electrical Engineering (main subject Electronic Circuits and Systems)	6	A, B
Master of Science in Electromechanical Engineering (main subject Maritime Engineering)	6	A, B
Master of Science in Electromechanical Engineering (main subject Maritime Engineering)	6	B
Master of Science in Electromechanical Engineering (main subject Mechanical Construction)	6	A, B
Master of Science in Electromechanical Engineering (main subject Mechanical Construction)	6	B
Master of Science in Electromechanical Engineering (main subject Mechanical Energy Engineering)	6	A, B
Master of Science in Electromechanical Engineering (main subject Mechanical Energy Engineering)	6	B
Master of Science in Biomedical Engineering	6	A
Master of Science in Biomedical Engineering	6	A, B
Master of Science in Industrial Engineering and Operations Research	6	B
Master of Science in Chemical Engineering	6	A, B
Master of Science in Civil Engineering	6	A, B
Master of Science in Computer Science Engineering	6	A, B
Master of Science in Computer Science Engineering	6	A, B
Master of Science in Industrial Engineering and Operations Research	6	A
Master of Science in Sustainable Materials Engineering	6	A, B
Master of Science in Chemical Engineering	6	A, B

#### Teaching languages

Dutch, English

#### Keywords

operations management, production planning and control

#### Position of the course

The most important manufacturing planning and control methods are discussed in detail. The course contains mainly lectures, supplemented with some seminars by speakers from industry.

#### Contents

- Manufacturing planning:
  - 'Master Production Scheduling' and 'Sales and Operations Planning'
  - MRP, MRP-II, ERP
  - Scheduling
  - Inventory management
  - Forecasting
- Shop floor control:
  - Factory Physics
  - Shop Floor Control
- Operations management:
  - Manufacturing strategy
  - Lean Manufacturing, Six Sigma and Theory of Constraints

#### Initial competences

No prerequisites.

#### Final competences

- 1 indicate the strategic importance of production planning and control for a company
- 2 analyse and control complex production systems by using mathematical models
- 3 quantify the impact of variability on the performance of a production system
- 4 distinguish and correctly apply methods and tools for planning production and inventory at strategic, tactical and operational level
- 5 assess the usefulness of the different methods and tools for shop floor control in varying situations

#### Conditions for credit contract

Access to this course unit via a credit contract is determined after successful competences assessment

#### Conditions for exam contract

This course unit cannot be taken via an exam contract

#### Teaching methods

Guided self-study, lecture, practicum, seminar: coached exercises

#### Learning materials and price

Lecture slides, exercises, case studies and background reading material are made available via Minerva.

#### References

- F.R. Jacobs, W. Berry, D. Whybark, T. Vollmann (2011), "Manufacturing Planning and Control for Supply Chain Management (6/e)", McGraw-Hill, ISBN 978-0071313933.
- W. Hopp, M. Spearman (2008), "Factory Physics (3/e)", McGraw-Hill, ISBN 978-0071232463.
- J.R.T. Arnold, S.N. Chapman, L.M. Clive (2014), "Introduction to Materials Management (7/e)", Pearson, ISBN: 978-1292021089.
- H. Lödging (2013), "Handbook of Manufacturing Control", Springer, ISBN: 978-3642244575.

#### Course content-related study coaching

Teacher and assistants are available upon request.

Course material is available on Minerva.

Evaluation methods

end-of-term evaluation

Examination methods in case of periodic evaluation during the first examination period

Written examination

Examination methods in case of periodic evaluation during the second examination period

Written examination

Examination methods in case of permanent evaluation

Possibilities of retake in case of permanent evaluation

not applicable

Extra information on the examination methods

Written exam with comprehensive questions and exercises

Calculation of the examination mark

50% of the final mark: comprehensive theory questions

50% of the final mark: exercises

A minimum score of 40% for both theory and exercises must be obtained in order to pass.

Final score F is determined as follows (with T score for theory out of 10, E score voor exercises out of 10):

if  $(T < 4 \text{ or } E < 4)$  then  $F = \min(T + E; 9)$

else  $F = T + E$