

Machine Components (E741032)

Course size (nominal values; actual values may depend on programme)

Credits 5.0 Study time 150 h Contact hrs 48.0 h

Course offerings and teaching methods in academic year 2018-2019

A (semester 1)	Dutch	seminar: coached	24.0 h
		exercises	
		lecture	24.0 h

Lecturers in academic year 2018-2019

De Pauw, Jan	TW08	staff member
De Baets, Patrick	TW08	lecturer-in-charge

Offered in the following programmes in 2018-2019

	crdts	offering
Bachelor of Science in Engineering Technology (main subject Electromechanical Engineering Technology)	5	A
Bachelor of Science in Electromechanical Engineering Technology	5	A
Linking Course Master of Science in Electromechanical Engineering Technology	5	A

Teaching languages

Dutch

Keywords

machine parts, design calculations, control calculations

Position of the course

The course aims to provide an insight into the main machine elements used in mechanical construction. Attention is paid to the operation, the design, the construction and the dimensioning of the machine elements.

The emphasis is on the one hand on the basic understanding of the physical background of the operation of such machine elements and on the other hand on the preliminary dimensioning of machine elements in a design context.

The detailed dimensioning, taking into account several correction factors, is beyond the scope of this course.

Contents

- General topics: dimensional accuracy, surface accuracy, allowable stresses (static / dynamic)
- Power transmission: shafts, shaft couplings, belts, chains, gears
- Tribotechnics: rolling bearings, seals
- Connection technology: key and pin connection, press fit, screw connection

Initial competences

Fundamentals of materials and strength of materials.

Final competences

- 1 Knowing important machine elements
- 2 Understanding the operation of important machine elements
- 3 Being able to select machine elements based on functionality
- 4 Dimensioning of machine elements
- 5 Interpreting of and applying catalogue information

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

Lecture, seminar: coached exercises

Extra information on the teaching methods

In the lectures the basic concepts of various machine elements are explained. Their operation is described and simple analytical models to dimension them are proposed. The guided exercises illustrate the manner in which these models can be used for the preliminary dimensioning of machine components. Detailed dimensioning considering numerical and / or empirical correction factors are beyond the scope of the course. The exercises are design-oriented. That is, the student learns to formulate design requirements, to make assumptions and decisions necessary for the purpose of the preliminary design. He will make use of standards, design tables, and catalogue information.

Learning materials and price

- Syllabus 'Machineonderdelen (in Dutch)', distributed by Acco
- Documentation on Minerva
- Lesson presentations

References

The purchase of the theory and tables book Machineonderdelen, Roloff & Matek, Academic Services, Schoonhoven is highly recommended.

Course content-related study coaching

teacher is available if questions arise

Evaluation methods

end-of-term evaluation

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

Written examination, open book examination

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

Written examination, open book examination

Examination methods in case of permanent evaluation

Possibilities of retake in case of permanent evaluation

examination during the second examination period is possible

Extra information on the examination methods

theory is closed book exam
exercises are open book exam

Calculation of the examination mark

theory: 60%
exercises: 40%

A weighted average is used to compute the final score for a training item.