

Mechanical Engineering, Master's programme

120 credits

Mechanical Engineering, masterprogram

6MMEC

Valid from:

Determined by

Board of Studies for Mechanical Engineering and Design

Date determined

2015-01-16

Introduction

For the complete syllabus, also see "Tekniska högskolans studiehandbok": http://kdb-5.liu.se/liu/lith/studiehandboken/enutbplan.lasso? &up_year=2017&up_ladokkod=6MMEC

Entry requirements

Degree in Swedish

Master of Science (120 credits) with a major in Mechanical Engineering

Degree in English

Master of Science (two years) with a major in Mechanical Engineering



Curriculum

Semester 2 (Spring 2017)

| Period 1 TMAL51 Aircraft Conceptual Design 6 A1X 2 E TMHL41 Continuum Mechanics 6 A1X 2 E TMHL62 The Finite Element Method; advanced course 6 A1X 4 E TMKM40 Engineering Materials - New Materials 6 A1X 2 E TMKT48 Design Optimization 6 A1X 3 E TMMS30 Multi Body Dynamics and Robotics 6 A1X 1 E TMMV08 Computational Fluid Dynamics 6 A1X 1 E TMPS42 Production System Automation 6 A1X 1 E TMQU31 Statistical Quality Control 6 A1X 2 E TMHL61 Damage Mechanics and Life Analysis 6 A1X 1 E TMKM09 Engineering Materials for Lightweight Applications 6 A1X 3 E TMKM09 Engineering Materials, Welding and Manufacturing Technology 6 A1X 3 E TMKM18 Engineering Materials, Welding and Manufacturing Technology 6 A1X 1 E TMMS10 Fluid Power Systems and Transmissions 6 A1X 1 E TMMS10 Fluid Power Systems and Transmissions 6 A1X 2 E TMMN510 Fluid Power Systems and Transmissions 6 A1X 2 E TMMN527 Production Systems 6 A1X 3 E TMMV56 Aerodynamics, Continued Course 6 A1X 3 E TMMV57 Production Systems 6 A1X 3 E TMMV57 Production Systems 6 A1X 3 E TMMV57 Production Systems 6 A1X 3 E TMMS27 Production Systems 6 A1X 3 E TMMS30 Analysing and Improving Manufacturing 6 A1X 3 E TMM004 Six Sigma Quality 6 A1X 3 E TPMM06 Operations TSFS03 Vehicle Propulsion Systems 6 A1X 3 E | Course code | Course name | Credits | Level | Timetable module | ECV |
|---|----------------|--|---------|-------|---------------------|-----|
| TMHL41 Continuum Mechanics 6 A1X 2 E TMHL62 The Finite Element Method; advanced course 6 A1X 4 E TMKM40 Engineering Materials - New Materials 6 A1X 2 E TMKT48 Design Optimization 6 A1X 3 E TMMS30 Multi Body Dynamics and Robotics 6 A1X 3 E TMMV08 Computational Fluid Dynamics 6 A1X 1 E TMPS42 Production System Automation 6 A1X 1 E TMQU31 Statistical Quality Control 6 A1X 2 E TPPE54 Advanced Planning and Scheduling 6 A1X 1 E Period 2 TMHL61 Damage Mechanics and Life Analysis 6 A1X 2 E TMKM09 Engineering Materials for Lightweight Applications 6 A1X 3 E TMKM09 Engineering Materials, Welding and Manufacturing Technology 6 A1X 3 E TMKT57 Product Modelling 6 A1X 3 E TMMS10 Fluid Power Systems and Transmissions 6 A1X 2 E TMMS10 Fluid Power Systems and Transmissions 6 A1X 2 E TMMV07 Computational Fluid Dynamics, advanced course 6 A1X 3 E TMMV56 Aerodynamics, Continued Course 6 A1X 3 E TMMV56 Aerodynamics, Continued Course 6 A1X 3 E TMQU04 Six Sigma Quality 6 A1X 2 E TPMM06 Analysing and Improving Manufacturing 6 A1X 2 E TPMM06 Analysing and Improving Manufacturing 6 A1X 3 E TPMM06 Analysing and Improving Manufacturing 6 A1X 3 E | Period 1 | | | | | |
| TMHL62 The Finite Element Method; advanced course 6 A1X 4 E TMKM40 Engineering Materials - New Materials 6 A1X 2 E TMKT48 Design Optimization 6 A1X 3 E TMMS30 Multi Body Dynamics and Robotics 6 A1X 3 E TMMV08 Computational Fluid Dynamics 6 A1X 1 E TMPS42 Production System Automation 6 A1X 1 E TMQU31 Statistical Quality Control 6 A1X 2 E TPE54 Advanced Planning and Scheduling 6 A1X 1 E Period 2 TMHL61 Damage Mechanics and Life Analysis 6 A1X 2 E TMKM09 Engineering Materials for Lightweight Applications 6 A1X 3 E TMKM18 Engineering Materials, Welding and Manufacturing Technology 6 A1X 3 E TMKT57 Product Modelling 6 A1X 1 E TMMS10 Fluid Power Systems and Transmissions 6 A1X 2 E TMMS10 Fluid Power Systems and Transmissions 6 A1X 2 E TMMV07 Computational Fluid Dynamics, advanced course 6 A1X 3 E TMMV07 Computational Fluid Dynamics, advanced 6 A1X 3 E TMMV07 Production Systems 6 A1X 3 E TMMV08 Aerodynamics, Continued Course 6 A1X 3 E TMMV09 Aralysing and Improving Manufacturing 6 A1X 2 E TMMV00 Analysing and Improving Manufacturing 6 A1X 2 E TPMM06 Analysing and Improving Manufacturing 6 A1X 3 E | TMAL51 | Aircraft Conceptual Design | 6 | A1X | 2 | E |
| TMKM40 Engineering Materials - New Materials 6 A1X 2 E TMKT48 Design Optimization 6 A1X 3 E TMMS30 Multi Body Dynamics and Robotics 6 A1X 3 E TMMV08 Computational Fluid Dynamics 6 A1X 1 E TMPS42 Production System Automation 6 A1X 1 E TMQU31 Statistical Quality Control 6 A1X 2 E TPPE54 Advanced Planning and Scheduling 6 A1X 1 E Period 2 TMHL61 Damage Mechanics and Life Analysis 6 A1X 2 E TMKM09 Engineering Materials for Lightweight Applications 6 A1X 3 E TMKM18 Engineering Materials, Welding and Manufacturing Technology 6 A1X 3 E TMKT57 Product Modelling 6 A1X 1 E TMMS10 Fluid Power Systems and Transmissions 6 A1X 2 E TMMV07 Computational Fluid Dynamics, advanced course 6 A1X 3 E TMMV07 Computational Fluid Dynamics, advanced 6 A1X 3 E TMMV56 Aerodynamics, Continued Course 6 A1X 3 E TMQU04 Six Sigma Quality 6 A1X 2 E TPMM06 Analysing and Improving Manufacturing 6 A1X 3 E | TMHL41 | Continuum Mechanics | 6 | A1X | 2 | E |
| TMKT48 Design Optimization 6 A1X 3 E TMMS30 Multi Body Dynamics and Robotics 6 A1X 3 E TMMV08 Computational Fluid Dynamics 6 A1X 1 E TMPS42 Production System Automation 6 A1X 1 E TMQU31 Statistical Quality Control 6 A1X 2 E TPPE54 Advanced Planning and Scheduling 6 A1X 1 E Period 2 TMHL61 Damage Mechanics and Life Analysis 6 A1X 2 E TMKM09 Engineering Materials for Lightweight Applications 6 A1X 3 E TMKM18 Engineering Materials, Welding and Manufacturing Technology 6 A1X 3 E TMKT57 Product Modelling 6 A1X 3 E TMMS10 Fluid Power Systems and Transmissions 6 A1X 2 E TMMS10 Fluid Power Systems and Transmissions 6 A1X 2 E TMMV07 Computational Fluid Dynamics, advanced course 6 A1X 3 E TMMV56 Aerodynamics, Continued Course 6 A1X 3 E TMQU04 Six Sigma Quality 6 A1X 3 E TPMM06 Analysing and Improving Manufacturing 6 A1X 3 E | TMHL62 | The Finite Element Method; advanced course | 6 | A1X | 4 | E |
| TMMS30 Multi Body Dynamics and Robotics 6 A1X 3 E TMMV08 Computational Fluid Dynamics 6 A1X 1 E TMPS42 Production System Automation 6 A1X 1 E TMQU31 Statistical Quality Control 6 A1X 2 E TPPE54 Advanced Planning and Scheduling 6 A1X 1 E Period 2 TMHL61 Damage Mechanics and Life Analysis 6 A1X 2 E TMKM09 Engineering Materials for Lightweight Applications 6 A1X 3 E TMKM18 Engineering Materials, Welding and Manufacturing Technology 6 A1X 3 E TMKT57 Product Modelling 6 A1X 3 E TMME11 Road Vehicle Dynamics 6 A1X 1 E TMMS10 Fluid Power Systems and Transmissions 6 A1X 2 E TMMV07 Computational Fluid Dynamics, advanced course 6 A1X 3 E TMMV56 Aerodynamics, Continued Course 6 A1X 3 E TMQU04 Six Sigma Quality 6 A1X 2 E TPMM06 Analysing and Improving Manufacturing 6 A1X 3 E | TMKM40 | Engineering Materials - New Materials | 6 | A1X | 2 | Е |
| TMMV08 Computational Fluid Dynamics 6 A1X 1 E TMPS42 Production System Automation 6 A1X 1 E TMQU31 Statistical Quality Control 6 A1X 2 E TPPE54 Advanced Planning and Scheduling 6 A1X 1 E Period 2 TMHL61 Damage Mechanics and Life Analysis 6 A1X 2 E TMKM09 Engineering Materials for Lightweight Applications 6 A1X 3 E TMKM18 Engineering Materials, Welding and Manufacturing Technology 6 A1X 3 E TMKT57 Product Modelling 6 A1X 3 E TMME11 Road Vehicle Dynamics 6 A1X 1 E TMMS10 Fluid Power Systems and Transmissions 6 A1X 2 E TMMV07 Computational Fluid Dynamics, advanced course 6 A1X 4 E TMMV56 Aerodynamics, Continued Course 6 A1X 3 E TMMV57 Production Systems 6 A1X 3 E TMMQU04 Six Sigma Quality 6 A1X 2 E TPMM06 Analysing and Improving Manufacturing 6 A1X 3 E | TMKT48 | Design Optimization | 6 | A1X | 3 | E |
| TMPS42 Production System Automation 6 A1X 1 E TMQU31 Statistical Quality Control 6 A1X 2 E TPPE54 Advanced Planning and Scheduling 6 A1X 1 E Period 2 TMHL61 Damage Mechanics and Life Analysis 6 A1X 2 E TMKM09 Engineering Materials for Lightweight Applications 6 A1X 3 E TMKM18 Engineering Materials, Welding and Manufacturing Technology 6 A1X 3 E TMKT57 Product Modelling 6 A1X 3 E TMME11 Road Vehicle Dynamics 6 A1X 1 E TMMS10 Fluid Power Systems and Transmissions 6 A1X 2 E TMMV07 Computational Fluid Dynamics, advanced course 6 A1X 3 E TMMV56 Aerodynamics, Continued Course 6 A1X 3 E TMMV56 Aerodynamics, Continued Course 6 A1X 3 E TMQU04 Six Sigma Quality 6 A1X 2 E TPMM06 Analysing and Improving Manufacturing Operations 6 A1X 3 E | TMMS30 | Multi Body Dynamics and Robotics | 6 | A1X | 3 | E |
| TMQU31 Statistical Quality Control 6 A1X 2 E TPPE54 Advanced Planning and Scheduling 6 A1X 1 E Period 2 TMHL61 Damage Mechanics and Life Analysis 6 A1X 2 E TMKM09 Engineering Materials for Lightweight Applications 6 A1X 3 E TMKM18 Engineering Materials, Welding and Manufacturing Technology 6 A1X 3 E TMKT57 Product Modelling 6 A1X 3 E TMME11 Road Vehicle Dynamics 6 A1X 1 E TMMS10 Fluid Power Systems and Transmissions 6 A1X 2 E TMMV07 Computational Fluid Dynamics, advanced course 6 A1X 3 E TMMV56 Aerodynamics, Continued Course 6 A1X 3 E TMPS27 Production Systems 6 A1X 3 E TMQU04 Six Sigma Quality 6 A1X 2 E TPMM06 Analysing and Improving Manufacturing Operations 6 A1X 3 E | TMMV08 | Computational Fluid Dynamics | 6 | A1X | 1 | E |
| TPPE54 Advanced Planning and Scheduling 6 A1X 1 E Period 2 TMHL61 Damage Mechanics and Life Analysis 6 A1X 2 E TMKM09 Engineering Materials for Lightweight Applications 6 A1X 3 E TMKM18 Engineering Materials, Welding and Manufacturing Technology 6 G2X 2 E TMKT57 Product Modelling 6 A1X 3 E TMME11 Road Vehicle Dynamics 6 A1X 1 E TMMS10 Fluid Power Systems and Transmissions 6 A1X 2 E TMMV07 Computational Fluid Dynamics, advanced course 6 A1X 3 E TMMV07 Computational Fluid Dynamics, advanced course 6 A1X 3 E TMMV56 Aerodynamics, Continued Course 6 A1X 3 E TMPS27 Production Systems 6 A1X 2 E TMQU04 Six Sigma Quality 6 A1X 2 E TPMM06 Analysing and Improving Manufacturing Operations 6 A1X 3 E | TMPS42 | Production System Automation | 6 | A1X | 1 | E |
| Period 2 TMHL61 Damage Mechanics and Life Analysis 6 A1X 2 E TMKM09 Engineering Materials for Lightweight Applications 6 A1X 3 E TMKM18 Engineering Materials, Welding and Manufacturing Technology 6 G2X 2 E TMKT57 Product Modelling 6 A1X 3 E TMME11 Road Vehicle Dynamics 6 A1X 1 E TMMS10 Fluid Power Systems and Transmissions 6 A1X 2 E TMMV07 Computational Fluid Dynamics, advanced course 6 A1X 4 E TMMV56 Aerodynamics, Continued Course 6 A1X 3 E TMPS27 Production Systems 6 A1X 3 E TMQU04 Six Sigma Quality 6 A1X 2 E TPMM06 Analysing and Improving Manufacturing Operations 6 A1X 3 E | TMQU31 | Statistical Quality Control | 6 | A1X | 2 | E |
| TMHL61Damage Mechanics and Life Analysis6A1X2ETMKM09Engineering Materials for Lightweight Applications6A1X3ETMKM18Engineering Materials, Welding and Manufacturing Technology6G2X2ETMKT57Product Modelling6A1X3ETMME11Road Vehicle Dynamics6A1X1ETMMS10Fluid Power Systems and Transmissions6A1X2ETMMV07Computational Fluid Dynamics, advanced course6A1X4ETMMV56Aerodynamics, Continued Course6A1X3ETMQU04Six Sigma Quality6A1X2ETPMM06Analysing and Improving Manufacturing Operations6A1X3E | TPPE54 | Advanced Planning and Scheduling | 6 | A1X | 1 | Е |
| TMKM09 Engineering Materials for Lightweight Applications Engineering Materials, Welding and Manufacturing Technology Engineering Materials for Lightweight 6 A1X 3 E TMKM18 Engineering Materials, Welding and Manufacturing 6 A2X 2 E Engineering Materials for Lightweight 6 A2X 2 E Engineering Materials for Lightweight 6 A2X 2 E Engineering Materials for Lightweight 6 A1X 3 E TMMT19 Product Modelling 6 A1X 1 E TMMS10 Fluid Power Systems and Transmissions 6 A1X 2 E TMMV07 Computational Fluid Dynamics, advanced 6 A1X 3 E TMMV56 Aerodynamics, Continued Course 6 A1X 3 E TMPS27 Production Systems 6 A1X 3 E TMQU04 Six Sigma Quality 6 A1X 2 E TPMM06 Analysing and Improving Manufacturing Operations | Period 2 | | | | | |
| TMKM09 Applications Engineering Materials, Welding and Manufacturing Technology TMKT57 Product Modelling 6 A1X 3 E TMME11 Road Vehicle Dynamics 6 A1X 1 E TMMS10 Fluid Power Systems and Transmissions 6 A1X 2 E TMMV07 Computational Fluid Dynamics, advanced course TMMV56 Aerodynamics, Continued Course 6 A1X 3 E TMPS27 Production Systems 7 Funduous Six Sigma Quality 7 Analysing and Improving Manufacturing Operations 6 A1X 3 E | TMHL61 | Damage Mechanics and Life Analysis | 6 | A1X | 2 | E |
| TMKT57 Product Modelling 6 A1X 3 E TMME11 Road Vehicle Dynamics 6 A1X 1 E TMMS10 Fluid Power Systems and Transmissions 6 A1X 2 E TMMV07 Computational Fluid Dynamics, advanced course 6 A1X 4 E TMMV56 Aerodynamics, Continued Course 6 A1X 3 E TMPS27 Production Systems 6 A1X 3 E TMQU04 Six Sigma Quality 6 A1X 2 E TPMM06 Analysing and Improving Manufacturing Operations 6 A1X 3 E | ТМКМ09 | | 6 | A1X | 3 | E |
| TMME11 Road Vehicle Dynamics 6 A1X 1 E TMMS10 Fluid Power Systems and Transmissions 6 A1X 2 E TMMV07 Computational Fluid Dynamics, advanced course 6 A1X 4 E TMMV56 Aerodynamics, Continued Course 6 A1X 3 E TMPS27 Production Systems 6 A1X 3 E TMQU04 Six Sigma Quality 6 A1X 2 E TPMM06 Analysing and Improving Manufacturing Operations 6 A1X 3 E | TMKM18 | | 6 | G2X | 2 | E |
| TMMS10Fluid Power Systems and Transmissions6A1X2ETMMV07Computational Fluid Dynamics, advanced course6A1X4ETMMV56Aerodynamics, Continued Course6A1X3ETMPS27Production Systems6A1X3ETMQU04Six Sigma Quality6A1X2ETPMM06Analysing and Improving Manufacturing Operations6A1X3E | TMKT57 | Product Modelling | 6 | A1X | 3 | E |
| TMMV07 Computational Fluid Dynamics, advanced course 6 A1X 4 E TMMV56 Aerodynamics, Continued Course 6 A1X 3 E TMPS27 Production Systems 6 A1X 3 E TMQU04 Six Sigma Quality 6 A1X 2 E TPMM06 Analysing and Improving Manufacturing Operations 6 A1X 3 E | TMME11 | Road Vehicle Dynamics | 6 | A1X | 1 | E |
| TMMV07 course TMMV56 Aerodynamics, Continued Course 6 A1X 3 E TMPS27 Production Systems 6 A1X 3 E TMQU04 Six Sigma Quality 6 A1X 2 E TPMM06 Analysing and Improving Manufacturing Operations 6 A1X 3 E | TMMS10 | Fluid Power Systems and Transmissions | 6 | A1X | 2 | E |
| TMPS27 Production Systems 6 A1X 3 E TMQU04 Six Sigma Quality 6 A1X 2 E TPMM06 Analysing and Improving Manufacturing Operations 6 A1X 3 E | TMMV07 | • | 6 | A1X | 4 | E |
| TMQU04 Six Sigma Quality 6 A1X 2 E TPMM06 Analysing and Improving Manufacturing Operations 6 A1X 3 E | TMMV56 | Aerodynamics, Continued Course | 6 | A1X | 3 | Е |
| TPMM06 Analysing and Improving Manufacturing 6 A1X 3 E Operations | TMPS27 | Production Systems | 6 | A1X | 3 | E |
| Operations 6 AIX 3 E | TMQU04 | Six Sigma Quality | 6 | A1X | 2 | E |
| TSFS03 Vehicle Propulsion Systems 6 A1X 3 F | ТРММ06 | | 6 | A1X | 3 | E |
| | TSFS03 | Vehicle Propulsion Systems | 6 | A1X | 3 | E |

Semester 3 (Autumn 2017)



| Course code | Course name | Credits | Level | Timetable module | ECV |
|----------------|--|---------|-------|---------------------|-----|
| Period 1 | | | | | |
| TMKM90 | Engineering Materials - Deformation and Fracture | 6 | A1X | 4 | С |
| TKMJ31 | Biofuels for Transportation | 6 | A1X | 1 | E |
| TMAL02 | Aircraft and Vehicle Design | 6 | G2X | 4 | E |
| TMHL19 | Advanced Material and Computational Mechanics | 6 | A1X | 1 | E |
| TMHP02 | Fluid Power Systems | 6 | G2X | 2 | Е |
| ТМКТ79 | Collaborative Multidisciplinary Design Optimization | 6 | A1X | 2 | E |
| TMME14 | Machine Elements, Second Course | 6 | A1X | 3 | E |
| TMME40 | Vibration Analysis of Structures | 6 | A1X | 3 | E |
| TMMS11 | Models of Mechanics | 6* | A1X | 3 | E |
| TMMS13 | Electro Hydraulic Systems | 6 | A1X | 2 | Е |
| TMMV01 | Aerodynamics | 6 | A1X | 2 | E |
| TMPM05 | Project Course Advanced - Design Engineering and Product Development | 12* | A1X | - | E |
| ТМРМ06 | Project Course Advanced - Mechatronics | 12* | A1X | - | E |
| TMPM07 | Project Course Advanced - Applied Mechanics | 12* | A1X | - | Е |
| TMPM08 | Project Course Advanced - Manufacturing Engineering | 12* | A1X | - | E |
| TMPS33 | Virtual Manufacturing | 6 | A1X | 4 | E |
| Period 2 | | | | | |
| TAMS11 | Probability and Statistics, first course | 6 | G2X | 4 | E |
| TAOP18 | Supply Chain Optimization | 6 | A1X | 1 | E |
| TMHL03 | Mechanics of Light Structures | 6 | A1X | 3 | E |
| TMMS07 | Biomechanics | 6 | A1X | 4 | E |
| TMMS11 | Models of Mechanics | 6* | A1X | 4 | E |
| TMMS20 | Structural Optimization | 6 | A1X | 1 | E |
| TMMV18 | Fluid Mechanics | 6 | A1X | 2 | Е |
| TMMV54 | Computational Heat Transfer | 6 | A1X | 1 | E |
| ТМРМ05 | Project Course Advanced - Design Engineering and Product Development | 12* | A1X | - | E |
| TMPM06 | Project Course Advanced - Mechatronics | 12* | A1X | - | E |



| Course code | Course name | Credits | Level | Timetable module | ECV |
|----------------|--|---------|-------|---------------------|-----|
| TMPM07 | Project Course Advanced - Applied Mechanics | 12* | A1X | - | Е |
| TMPM08 | Project Course Advanced - Manufacturing Engineering | 12* | A1X | - | E |

Semester 4 (Spring 2018)

| Course code | Course name | Credits | Level | Timetable module | ECV |
|-------------|----------------------------------|---------|-------|---------------------|-----|
| Period 1 | | | | | |
| TQXX30 | Degree project - Master's Thesis | 30* | A1X | - | С |
| Period 2 | | | | | |
| TQXX30 | Degree project - Master's Thesis | 30* | A1X | - | С |

ECV = Elective / Compulsory /Voluntary



^{*}The course is divided into several semesters and/or periods