



## COURSE SYLLABUS

# Computer Programming for Design Automation, 6 credits

*Programmering för automatiserad konstruktion, 6 högskolepoäng*

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<b>Course Code:</b>	TPAR27	<b>Education Cycle:</b>	Second-cycle level
<b>Confirmed by:</b>	Dean Mar 1, 2016	<b>Disciplinary domain:</b>	Technology (95%) and social sciences (5%)
<b>Valid From:</b>	Jan 1, 2017	<b>Subject group:</b>	MT1
<b>Version:</b>	1	<b>Specialised in:</b>	A1N
<b>Reg number:</b>	JTH 2016/609-313	<b>Main field of study:</b>	Product Development

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### Intended Learning Outcomes (ILO)

After completing the course, the student shall

Knowledge and understanding

- displaying knowledge of concepts and methods used when automating engineering design

Skills and abilities

- demonstrating ability to writing computer programs to automate simple engineering task
- demonstrating ability to connect software through API-programming
- demonstrating ability to develop simple databases and to use SQL-commands.

### Contents

Design engineers handle big amount of digital information about the products they are developing. The information is stored in a variety of formats and is processed using a number of applications (such as Excel, MathCAD, Access, CATIA, and SolidWorks). Some of the work engineers have to do to handle the information can be automated cutting time-to-market and increasing product quality. This course aims to give the students basic knowledge and skills to automate engineering design activities through computer programming.

The course includes the following topics

#### *Automated engineering design*

- Knowledge representation
- Inference mechanisms
- Example systems

#### *Computer programming*

- Basic programming commands
- Functions
- Object oriented programming
- Graphical programming
- Event handling
- API-programming

- Databases and SQL.

### Type of instruction

Lectures and exercises.

The teaching is conducted in English.

### Prerequisites

Passed courses 180 credits in first cycle, at least 90 credits within the major subject Mechanical Engineering or Computer Engineering, and 21 credits Mathematics, and English Language requirements corresponding to English 6 or English B in the Swedish upper secondary school (or the equivalent).

### Examination and grades

The course is graded 5,4,3 or Fail.

Registration of examination:

Name of the Test	Value	Grading
Examination <sup>1</sup>	3 credits	5/4/3/U
Assignments	3 credits	U/G

<sup>1</sup> Determines the final grade of the course, which is issued only when all course units have been passed.

### Other information

Exemption from entry requirement allowed according to the selection groups of the program, where the course is included.

### Course literature

Literature

The literature is preliminary until one month before the course starts.

Electronic literature distributed through PingPong.