IAM preparatory packages

Offered by
Department of Mathematics

Language
English

Primarily interesting for
All students, but most relevant for non-mathematics students wishing to pursue with the Master Industrial and Applied Mathematics

Prerequisites
Required courses: Depends on courses
Recommended courses: Depends on courses

Contact person
Dr. A. Di Bucchianico (a.d.bucchianico@tue.nl)

Content and composition
The following elective packages are intended for bachelor students who do not study Applied Mathematics. The courses are meant to find out if you really like mathematics and whether you have the necessary skills to enroll into a mathematics program. They can serve as a premaster program for the Master’s program Industrial and Applied Mathematics (IAM).

Students study Elective package IAM step 1 and choose one of the follow-up packages (Steps 2a, 2b or 2c). These latter packages prepare for the various specific profiles in IAM, see below.

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Level classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>2WF40</td>
<td>Set theory and algebra</td>
<td>-</td>
</tr>
<tr>
<td>2WA30</td>
<td>Analysis 1</td>
<td>-</td>
</tr>
<tr>
<td>2WS20</td>
<td>Probability theory</td>
<td>-</td>
</tr>
</tbody>
</table>

Elective package IAM Step 2a: preparing for IAM-CSE (profile Computational Science and Engineering).
Choose three out of the following courses:

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Level classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>2WA90</td>
<td>Partial differential equations</td>
<td>-</td>
</tr>
<tr>
<td>2WAF0</td>
<td>Functional analysis</td>
<td>-</td>
</tr>
<tr>
<td>2WAG0</td>
<td>Measure, integration and probability theory</td>
<td>-</td>
</tr>
<tr>
<td>2WN20</td>
<td>Introduction to numerical analysis</td>
<td>-</td>
</tr>
<tr>
<td>2WN40</td>
<td>Numerical linear algebra</td>
<td>-</td>
</tr>
</tbody>
</table>

Elective package IAM Step 2b: preparing for IAM-DMA (profile Discrete Mathematics and Applications)
### IAM preparatory packages

#### Elective package

**Course code** | **Course name** | **Level classification**
--- | --- | ---
2WF50 | Algebra and discrete mathematics | -

**Two of the following courses**

- 2WF60 | Graph theory and combinatorics | -
- 2WF70 | Algorithmic algebra and number theory | -
- 2WF80 | Introduction to cryptology | -
- 2WO20 | Linear optimization | -

**Elective package IAM Step 2c: preparing for IAM-SPOR (profile Statistics, Probability and Operations Research) or IAM-DSE (Data Science in Engineering)**

**Course code** | **Course name** | **Level classification**
--- | --- | ---
2WS30 | Mathematical statistics | -

**Two of the following courses**

- 2WB40 | Queueing systems | -
- 2WB50 | Stochastic simulation | -
- 2WS40 | Linear statistical models | -
- 2WS60 | Extreme values and other catastrophes | -
- 2WS70 | Advanced statistical models | -

**Course description**

Descriptions of the various courses can be found in Osiris. The elective package IAM Step 1 introduces students to three different branches of mathematics in a rigorous way, typical for mathematics. The follow-up packages give the flavor of various directions in mathematics corresponding to the profiles in the master program Industrial and Applied Mathematics (IAM)