Course Specifications
Valid in the academic year 2019-2020

Web Technologies (E761026)

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

<table>
<thead>
<tr>
<th>Credits</th>
<th>Study time</th>
<th>Contact hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.0</td>
<td>180 h</td>
<td>60.0 h</td>
</tr>
</tbody>
</table>

Course offerings and teaching methods in academic year 2019-2020

<table>
<thead>
<tr>
<th>A (semester 1)</th>
<th>Dutch</th>
<th>lecture</th>
<th>24.0 h</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>seminar: practical PC</td>
<td>36.0 h</td>
</tr>
<tr>
<td></td>
<td></td>
<td>room classes</td>
<td></td>
</tr>
</tbody>
</table>

Lecturers in academic year 2019-2020

<table>
<thead>
<tr>
<th>Ongenae, Veerle</th>
<th>TW05</th>
<th>lecturer-in-charge</th>
</tr>
</thead>
</table>

Offered in the following programmes in 2019-2020 crdts offering

| Bachelor of Science in Engineering Technology (main subject Information Engineering Technology) | 6 | A |
| Preparatory Course Master of Science in Information Engineering Technology | 6 | A |

Teaching languages

Dutch

Keywords

Web Technology, Web Applications, MVC, .NET framework, J2EE, REST, jQuery, javascript, ASP.NET MVC, AJAX, HTML5, Angular, Swagger (OAS), nodeJS, HTTP, OAuth, Websockets, Computer science (P170), Informatics (P175), Computer technology (T120)

Position of the course

The purpose of this course is to teach students the basic principles of the architecture, the functionality and the development of a web application.

Contents

- HTML5
- javascript
- DOM
- jQuery
- HTTP
- Angular
- J2EE-platform: servlets
- AJAX, REST, OAS (Swagger)
- MVC: ASP.NET MVC, nodeJS
- MVC client side: Angular
- Securing web applications: OAuth, CORS, HTML injection, XSS, XSRF
- Websockets
- Software architecture of web applications

Initial competences

- Mastering basic principles of computer networks
- Being able to program and design in an object oriented way on an advanced level (in java)
- To be followed at the same time: programming in C#

Final competences

1. To be able to develop REST webservices using the .NET framework, the J2EE framework and nodeJS.
2. To be able to develop a web application using the .NET framework and nodeJS.
3. To be able to develop a client side web application using javascript, jQuery, Angular

(Approved)
and AJAX.
4 To have insight in the architecture, basic principles of a web application and the underlying protocols.
5 To know and use the MVC principle in a web application, both client side and server side.

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: practical PC room classes
Extra information on the teaching methods
- Lectures (24 hrs)
- Labs (36 hrs): individual work on PC; presence required.

Learning materials and price
The teacher's course (Dutch). Lecture notes, slides, examples and tutorials on the internet.
References
"Advanced Game Design with HTML5 and JavaScript", Rex van der Spuy, Apress, 2015
"Pro Angular", Adam Freeman, Marc J. Collins, Apress, 2017
"Pro PHP and jQuery", Jason Lengstorf, Apress, 2010
"Head First JavaScript Programming", Eric T. Freeman, Elisabeth Robson, O'Reilly Media, 2014
"Professional Rich Internet Applications: AJAX and Beyond", Dana Moore, Raymond Budd, Edward Benson, Wrox, 2007
"Professional Java for Web Applications", Nicholas S. Williams, Wrox, 2014
"Head First jQuery", Ryan Benedetti, Ronan Cranley, O'Reilly Media, 2011
"Professional ASP.NET MVC 4", Jon Galloway, Phil Haack, Brad Wilson, K. Scott Allen, Wrox, 2012

Course content-related study coaching
The student can always make an appointment with the teachers.

Evaluation methods
end-of-term evaluation and continuous assessment
Examination methods in case of periodic evaluation during the first examination period
Oral examination
Examination methods in case of periodic evaluation during the second examination period
Oral examination
Examination methods in case of permanent evaluation
Skills test
Possibilities of retake in case of permanent evaluation
examination during the second examination period is possible in modified form
Extra information on the examination methods
Several computer tests on PC during the labs. If you do not pass the course and didn't pass the NPE, you will complete one test on all lab assignments in the second exam period. These points replace the quotation for the NPE.

Calculation of the examination mark
Lectures: 50% (oral examination)
Exercises/Labs: 50% (tests)