### COURSE DESCRIPTION

<table>
<thead>
<tr>
<th>Nr</th>
<th>Learning outcomes description</th>
<th>Method of assessment</th>
<th>Teaching methods</th>
<th>Learning outcomes reference code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Knowledge and ability to use object persistence</td>
<td>written test, laboratory task</td>
<td>lecture, laboratory</td>
<td>K_W12, K_U23</td>
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<tr>
<td>2.</td>
<td>Knowledge and ability to create EJB components</td>
<td>written test, laboratory task</td>
<td>lecture, laboratory</td>
<td>K_W12, K_U23</td>
</tr>
<tr>
<td>3.</td>
<td>Knowledge and ability to create web application using Java Servlets specification</td>
<td>written test, laboratory task</td>
<td>lecture, laboratory</td>
<td>K_W12, K_U23</td>
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<tr>
<td>4.</td>
<td>Knowledge and ability to design web GUI with JSP, JSTL and custom tags</td>
<td>written test, laboratory task</td>
<td>lecture, laboratory</td>
<td>K_W12, K_U14</td>
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<tr>
<td>5.</td>
<td>Knowledge and ability to use GWT library</td>
<td>written test, laboratory task</td>
<td>lecture, laboratory</td>
<td>K_W12, K_U14</td>
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</tbody>
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### 16. Course objectives:

This course learns using Java technology for enterprise computing and web programming. The set of exercises introduces to programming for web servers and application servers. The course lets develop and deploy Java web applications and application server components.

### 17. Description of learning outcomes:

**Lecture / BA / MA Seminar / Class / Project / Laboratory**

Lecture - 15 h, Class - , Laboratory – 30 h
19. Syllabus description:

Lectures includes the following topics:
1. Genesis of ORM frameworks. Database applications using JPA.
3. Controlling web applications with servlets.
5. From distributed computing to service-oriented architectures.
6. Asynchronous JavaScript. Implementations for Java EE.
7. Design patterns for Java EE Platform.

The laboratories covers the following topics:
1. Java Persistence API
2. Enterprise Java Beans
3. Java Servlets
4. Java Server Pages, JSTL and custom tags
5. Google Web Toolkit

20. Examination: no

21. Primary sources:
- The Java Platform, EE7 (http://www.oracle.com/technetwork/java/javaee/overview/index.html)

22. Secondary sources:
- R. Hanson, A. Tacy.. GWT in Action. Manning Publication Co. 2007.

23. Total workload required to achieve learning outcomes

<table>
<thead>
<tr>
<th>Lp.</th>
<th>Teaching mode</th>
<th>Contact hours / Student workload hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Lecture</td>
<td>15 / -</td>
</tr>
<tr>
<td>2</td>
<td>Classes</td>
<td>- / -</td>
</tr>
<tr>
<td>3</td>
<td>Laboratory</td>
<td>30 / 15</td>
</tr>
<tr>
<td>4</td>
<td>Project</td>
<td>- / -</td>
</tr>
<tr>
<td>5</td>
<td>BA/ MA Seminar</td>
<td>- / -</td>
</tr>
<tr>
<td>6</td>
<td>Other</td>
<td>- / -</td>
</tr>
<tr>
<td></td>
<td>Total number of hours</td>
<td>45 / 15</td>
</tr>
</tbody>
</table>

24. Total hours: 60

25. Number of ECTS credits: 2

26. Number of ECTS credits allocated for contact hours: 1.5

27. Number of ECTS credits allocated for in-practice hours (laboratory classes, projects): 1.5

26. Comments:
There is the ability to develop a part of the engineering work during laboratory classes.

Approved:

(date, Instructor’s signature) (date, the Director of the Faculty Unit signature)