COURSE SYLLABUS AND COURSE REQUIREMENTS
ACADEMIC YEAR 2022/23 SEMESTER 2

Course title	*Programming 4*
Course Code	*IVB003AN*
Hours/Week: le/pr/lab	*3 laboratory + 2 lecture*
Credits	*4*
Degree Programme	*mandatory*
Study Mode	*lecture*
Requirements	*-*
Teaching Period	*2022/23/2*
Prerequisites	*-*
Department(s)	
Course Director	*MIK-MS*

COURSE DESCRIPTION

A short description of the course (max. 10 sentences).
Neptun: Instruction/Subjects/Subject Details/Basic data/Subject description

Use of Java-based Spring Boot framework. Students get to know the basics of the Spring Boot framework, learn how to use and configure the subsystems. They will be able to develop web-based applications using the Thymeleaf web framework. They learn how to use the REST interface and acquire basic database management solutions based on JPA.

SYLLABUS

Neptun: Instruction/Subjects/Subject Details/Syllabus

1. GOALS AND OBJECTIVES

Goals, student learning outcome.
Neptun: Instruction/Subjects/Subject Details/Syllabus/Goal of Instruction

Independent design, programming, testing, configuration and deployment of a Spring Boot application.

2. COURSE CONTENT

Neptun: Instruction/Subjects/Subject Details/Syllabus/Subject content

	TOPICS
LABORATORY PRACTICE	1. *Introduction* 2. *Description of necessary tools (Maven, XML, JSON)* 3. *Using POJO, Lombok operation* 4. *Operation and use of annotations* 5. *Design patterns* 6. *Use of JPA* 7. *Servlet* 8. *WEB interface, JSP, JSF* 9. *Spring boot basics* 10. *Rest interface* 11. *Thyme leaf* 12. *Security* 13. *Docker, containerization* 14. *Semester task*

DETAILED SYLLABUS AND COURSE SCHEDULE

ACADEMIC HOLIDAYS INCLUDED

PRACTICE, LABORATORY PRACTICE

week	**Topic**	**Compulsory reading; page number (from ... to ...)**	**Required tasks (assignments, tests, etc.)**	**Completion date, due date**
1.				
2.	Introduction, subject requirements		-	
3.	XML, JSON Java tools, Maven	Shared slides/files	-	
4.	Using POJO, Lombok	Shared slides	-	
5.	Annotation, JSON-XML export	Shared slides	-	
6.	MVC, Singleton, Builder patterns	Shared slides	-	
7.	Using JPA, sample application	Shared slides	Home assignment 1	
8.	Servlet creation, configuration	Shared slides	-	
9.	WEB interface, JSP, JSF		-	
10.	Spring Boot basics as an application	Shared slides		
11.	Rest interface implementation	Shared slides	-	
12.	Web interface implementation with Thymeleaf	Shared slides	-	
13.	Security configuration	Shared slides	-	
14.	Creating a Docker image from your own application	Shared slides	-	
15.	Discussion of semester assignment		Home assignment 2	

3. ASSESSMENT AND EVALUATION

(Neptun: Instruction/Subjects/Subject Details/Syllabus/Examination and Evaluation System)

ATTENDANCE

In accordance with the Code of Studies and Examinations of the University of Pécs, Article 45 (2) and Annex 9. (Article 3) a student may be refused a grade or qualification in the given full-time course if the number of class absences exceeds 30% of the contact hours stipulated in the course description.

Method for monitoring attendance *(e.g.: attendance sheet / online test/ register, etc.)*

attendance sheet

ASSESSMENT

Cells of the appropriate type of requirement is to be filled out (course-units resulting in mid-term grade or examination). Cells of the other type can be deleted.

Course resulting in mid-term grade *(PTE TVSz 40§(3))*

Mid-term assessments, performance evaluation and their ratio in the final grade *(The samples in the table to be deleted.)*

Type	Assessment	Ratio in the final grade
Home assignment 1	*max 40 points*	*40 %*
Home assignment 2	*max 60 points*	*60 %*

Opportunity and procedure for re-takes (PTE TVSz 47§(4))

The specific regulations for improving grades and resitting tests must be read and applied according to the general Code of Studies and Examinations. E.g.: all tests and assessment tasks can be repeated/improved at least once every semester, and the tests and home assignments can be repeated/improved at least once in the first two weeks of the examination period.

Min. 40% on test and home assignments, each cases, and max. 3 unapproved absences

Grade calculation as a percentage

based on the aggregate performance according to the following table

Course grade	Performance in %
excellent (5)	85 % ...
good (4)	70 % ... 85 %
satisfactory (3)	55 % ... 70 %
pass (2)	40 % ... 55 %
fail (1)	below 40 %

The lower limit given at each grade belongs to that grade.

4. SPECIFIED LITERATURE

In order of relevance. (In Neptun ES: Instruction/Subject/Subject details/Syllabus/Literature)

COMPULSORY READING AND AVAILABILITY

1. XML standard
2. JSON
3. Maven reference manual
4. Lombok manual
5. Java annotation
6. Design patterns
7. JPA Manual
8. Java servlet
9. JSP JSF
10. Spring Boot manual
11. REST Api
12. Thymeleaf
13. Spring Security
14. Docker

RECOMMENDED LITERATURE AND AVAILABILITY

1. Mastering Spring Boot
2. JPA Minibook
3. Maven Cookbook
4. The Docker book