

## COURSE SYLLABUS AND COURSE REQUIREMENTS

### ACADEMIC YEAR 2024/2025 SEMESTER SECOND

|                              |                                                 |
|------------------------------|-------------------------------------------------|
| <b>Course title</b>          | INTERNET TECHNOLOGY                             |
| <b>Course Code</b>           | IVB167AN                                        |
| <b>Hours/Week: le/pr/lab</b> | 2/0/0                                           |
| <b>Credits</b>               | 3                                               |
| <b>Degree Programme</b>      | Computer Science Engineering BSC                |
| <b>Study Mode</b>            |                                                 |
| <b>Requirements</b>          | final exam                                      |
| <b>Teaching Period</b>       | 03.02.2025. – 10.05.2025                        |
| <b>Prerequisites</b>         | Computer networks                               |
| <b>Department(s)</b>         | Department of Systems and Software Technologies |
| <b>Course Director</b>       | Dr. Zsolt Ercsey                                |
| <b>Teaching Staff</b>        | Dr. Zsolt Ercsey                                |

## COURSE DESCRIPTION

A short description of the course (max. 10 sentences).

Neptun: Instruction/Subjects/Subject Details/Basic data/Subject description

During this course students will get know the characteristics of internet technologies and gain insight to some basic applications. The history of internet together with recent trends will be reviewed. Business model of the android and ios will be compared and freemium model will be discussed in details. The concept of IOT, industry 4.0 as well as models from B2B to M2M will be introduced. With the help of industrial examples general characteristics and basic hardware equipment of the internet industry will be examined. Basic network science issues will be discussed. Smart glasses and some technical details, for example scalability will be considered as separate topics. Roles, process user story, task lists and their practical usage together with some collaborative techniques offered in virtual space will be discussed to support application developments. Agile development, scrum and waterfall models will be compared.

## SYLLABUS

Neptun: Instruction/Subjects/Subject Details/Syllabus

### 1. GOALS AND OBJECTIVES

Goals, student learning outcome.

Neptun: Instruction/Subjects/Subject Details/Syllabus/Goal of Instruction

After the course, students will

- know the main areas of internet technology,
- have a glance into the current trends,
- know basic rules behind the various business models,
- understand some technical issues.

In this course, the students will get familiar with the most fundamental knowledge for understanding internet technology related issues.

The Course includes:

- Regular (every two weeks) lectures.
- Continuously communication and discussion between the Lecturer and the Students. Common evaluation.
- Multiple homework by the Students based on the instructions of the Lecturer.
- 1 test.
- Exam in two stages (after the Schedule of the Course).

Methods:

- Lectures about the fields of artificial intelligence.
- Discussion of event cases, situations.
- A short oral presentation by the Students at a fixed time during the semester.

- Tests by the Students at a fixed time during the semester.

The course is based on continuous discussions; examine of case studies, actual topics, conventional and non-conventional situations. The students' verbal feedback is required.

Methods:

- Lectures about the fields of internet technology.
- Invited speakers from IT companies with special interests and specific topics.
- Discussion of event cases, situations.
- Homework research and evaluation of specific topics by the students.
- A short oral presentation by the Students at a fixed time during the semester.
- Tests by the Students at a fixed time during the semester.

## 2. COURSE CONTENT

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

### TOPICS

#### LECTURE PRACTICE

1. Introduction.
2. General concept and definitions of internet technology.
3. IoT concept.
4. Evolution of the web. Business model canvas.
5. Business model of android.
6. Business model of ios.
7. Freemium.
8. From B2B to M2M.
9. Industry 4.0.
10. Cloud.
11. Data storage in the cloud.
12. Network science.
13. Application development task lists.

#### LABORATORY PRACTICE

1. topic
2. etc.

## DETAILED SYLLABUS AND COURSE SCHEDULE

*ACADEMIC HOLIDAYS INCLUDED*

Specific schedule of 2024/2025 Second

### LECTURE, PRACTICE, LABORATORY PRACTICE

| week | Date, time, place             | Topic                                                                              |
|------|-------------------------------|------------------------------------------------------------------------------------|
| 1.   | 3 February 2025, 15:00, B224  | Introduction. General concept and definitions of internet technology. IoT concept. |
| 3.   | 17 February 2025, 15:00, A118 | Evolution of the web. Business model canvas. Business model of android.            |
| 5.   | 3 March 2025, 15:00, A118     | Business model of ios. Freemium.                                                   |
| 7.   | 17 March 2025, 15:00, A118    | From B2B to M2M. Industry 4.0. Cloud. Data storage in the cloud.                   |
| 9.   | 31 March 2025, 15:00, A118    | Application development task lists.                                                |
| 11.  | 14 April 2025, 15:00, A118    | Agile development, scrum, waterfall model.                                         |
| 13.  | 28 April 2025, 15:00, A118    | Test                                                                               |

## 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.*

According to the university code.

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

An attendance sheet is used. Attending is required according to the university's attendance code. Attending is required to all classes where invited speaker from a leading company is presenting. In case of unexcused absences from more than 30% of the total number of lesson will be grounds for failing the class. To be in class at the beginning time and stay until the scheduled end of the lesson is required, tardiness of more than 20 minutes will be counted as an absence. In the case of an illness or family emergency, the student must present a valid excuse, such as a doctor's note.

**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-unit with final examination****Mid-term assessments, performance evaluation and their weighting as a pre-requisite for taking the final exam**

(The samples in the table to be deleted.)

| Type          | Assessment                  | Weighting as a proportion of the pre-requisite for taking the exam |
|---------------|-----------------------------|--------------------------------------------------------------------|
| 1. Homework 1 | acceptable / not acceptable |                                                                    |
| 2. Homework 2 | acceptable / not acceptable |                                                                    |
| 3. Homework 3 | acceptable / not acceptable |                                                                    |
| 4. Test       | acceptable above 40%        |                                                                    |

**Requirements for the end-of-semester signature**

(Eg.: mid-term assessment of 40%)

Homework by the students.

Each student receives multiple topics. The themes should be worked on at home, independently and documents summarising the findings have to be handed in due time.

Each student is assigned to a company from Fortune 500 list (available in neptun/teams). The student should write a document with the following content. i) An introduction about the company, 1(-3) pages, should be written. ii) A department / product / service of the company should be selected and its introduction should be written, 1(-3) pages. iii) The business model canvas of point 2, 1(-3) pages, should be given by the student. Total task: 3(-9) pages.

Each student is assigned to a topic related to cloud infrastructure and/ or services (available in neptun/teams). The student should write a 3-10 pages long document about the topic. Among the topics there are for example, IBM cloud solutions, the relationship between plagiarism and the use of GPT.

Further, the homework of the students may be presented in front of everybody at a specific date. Presentations should be 10 minutes long (min. 10 slides).

Criteria of evaluation:

- The scale of the presentation
- Clear verbal and visual communication
- Observance of the available time interval
- After the presentations, common evaluation!
- Which presentation was the highest quality and why?
- How was the project represented?
- How the presented projects could be taken further?

In case the presentation is missed or it is not successfully performed, it is neglected. Presentations can only be complemented during the Study Period.

Tests by the students. All tests are in writing. Tests are evaluated by points. Tests covers all or some of the main topics of the Course. In case the performance is below 40%, the test is said to be failed. In case the test is missed it is calculated as 0 points. No external aids are allowed to be used. Should the average of the tests be below 40%, the Student cannot enter the Exam Period, ie it is grounds for failing the course.

**Re-takes for the end-of-semester signature** (PTE TVSz 50§(2))

*The specific regulations for grade betterment and re-take must be read and applied according to the general Code of Studies and Examinations. E.g.: all the tests and the records to be submitted can be repeated/improved each 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.*

According to the general Code of Studies and Examinations. All the tests and the records to be submitted can be repeated/improved each at the end of the semester, and home assignments, i.e. the presentation can be repeated/improved in the first week of the examination period latest.

**Type of examination** (written, oral): **written and oral**

Pre-exam of the Students can be done during the Study Period in case the Student has met the requirements of the attendance and successfully performed the presentation. Pre-exams are equal to Exams taken in the Exam Period.

Exams of the Students can be done during the Exam Period. The exam will test the Students' knowledge and problem-solving skills on all preceding lectures of the Course as well as the Presentations held by other Students'. The exam has a written part, it is approximately 60 mins. It covers all or some of the main topics of the Course. In case the performance is below 40%, the exam is said to be failed. In case the achievement is above 40%, then the oral part of the exam is entered automatically.

No external aids are allowed to be used.

**The exam is successful if the result is minimum 40 %.** (The minimum cannot exceed 40%.)

**Calculation of the grade** (TVSz 47§ (3))

The mid-term performance accounts for **0** %, the performance at the exam accounts for **100** % in the calculation of the final grade.

**Calculation of the final grade based on aggregate performance in percentage.**

| 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] Subject materials on Teams.
- [2] Alexander Osterwalder, Yves Pigneur. Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers. ISBN-13: 978-0470876411. (In Hungarian: ISBN9789632782201)
- [3] Andrew Reichman. File Storage Costs Less In The Cloud Than In-House. August 2011. Forrester.
- [4] B. Furht, A. Escalante (eds.), Handbook of Cloud Computing. ISBN 978-1-4419-6523-3 Springer Science+Business Media, LLC 2010.
- [5] Dave Evans. The Internet of Things. White paper. Cisco Internet Business Solutions Group (IBSG). April 2011.
- [6] NIST. SP800-145.
- [7] NIST. SP800-144.
- [8] NIST. SP500-292.
- [9] Securing the Cloud for the Enterprise. A Joint White Paper from Symantec and VMware. May 2011.
- [10] Albert-László Barabási: Network Science. Cambridge University Press 2016. ISBN-13: 978-1107076266. (In Hungarian: Libri, 2016., ISBN 978-963-310-787-4.)

**RECOMMENDED LITERATURE AND AVAILABILITY**