General Information:

Name of Course: # IP BASED SYSTEMS AND APPLICATIONS

Course Code: IVB369ANMI
Semester: **4**th
Number of Credits: 6
Allotment of Hours per Week: 2 Lectures, 3 Lab classes /Week
Evaluation: Exam (with grade)
Prerequisites: **Introduction to Computer Networks**

Instructor: **Gábor GYURÁK, assistant lecturer**
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Introduction, General Course Description:

This course is intended to help students understand the mechanisms of upper OSI layers.
We will focus on an overview of network, transport and application layers. Students who successfully complete this course will have a concept and knowledge building, operating and managing computer networks. Students will also have hands-on experience in building computer networks, configuring active network devices, switches, routers through lab sessions.

Learning Objectives:

Students who successfully complete this course will have a comprehensive overview of computer networks as well as more in depth understanding of a number of focus areas that they select throughout the course. Furthermore, students will have hands-on experiences in computer networks. At the end of the semester, the students will be able to:

- design physical and logical plans of LAN networks,
- calculate with IP addresses, making subnets,
- select devices appropriate to the network requirements,
- build and configure SOHO networks,
- build and configure enterprise networks,
- configure routing and switching.

Methodology:

- **Lectures**: discussion and lectures on computer networks theory.
- **Practical class**: will give an introduction of planning, building, programming, operating and troubleshooting computer networks.

Schedule:

Week	Lecture	Practical class
Week 1	Course introduction, orientation	CMS registration, lab guide
Week 2	Internet architecture	Network simulation
Week 3	Application layer I.	IPv4 protocol and addressing scheme
Week 4	Application layer II.	Network devices
Week 5	Application layer III.	Routing I.
Week 6	Preparation for the test, consultation, probe test	
Week 7	Midterm test theory part (***T11***)	Midterm test practical part (***T12***)
Week 8	Transport layer I.	Routing II.
Week 9	Transport layer II.	Routing III.
Week 10	Fall break – no classes	
Week 11	Transport layer II.	Core services

Week 12	*Easter monday – no classes*	
Week 13	Homework presentation	
Week 14	Midterm test theory part (***T21***)	Midterm test practical part (***T22***)
Week 15	Pre-exam* (**PE**)	Retake test (***RT***)
Exam period	Exam(s) (**E**)	

* Pre-exam can be done during the Study Period in case the Student has met the requirements of midterm tests and successfully performed the homework presentation.

Attendance:
Unexcused absences will adversely affect the grade, and in case of absence 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 notify the lecturer as soon as possible and must present a valid excuse, such as a doctor's note.

Evaluation + Grading:
The course grade is determined as a combination of study-period performance (midterm tests and homework) and the exam (in some cases exam is replaceable with pre-exam).
All exams and tests are closed-book and closed-notes. Any students who do not take the examination at the scheduled time will receive a zero score.

The 1st midterm test consists of two parts: T11 is the theory part and T12 is the practical part. The result of T1 is the average of T11 and T12. → T1 = (T11+T12)/2

The 2nd midterm test consists of two parts: T21 is the theory part and T22 is the practical part. The result of T2 is the average of T21 and T22. → T2 = (T21+T22)/2

The study period performance is successful and the student get a signature if
- the average of T1 and T2 is greater than or equals to 50% → (T1+T2)/2 >= 50%
    - if the average is less than 50% the student can retake the tests with <u>one</u> complex (theory+practice) retake-test (RT) scheduled to the last week.
        - student can get a signature as the following: (((T1+T2)/2)+RT)/2>=50%
- and the student solved and presented the homework

This course ends with an exam (E) or a pre-exam (PE):
- Both the exam and the pre-exam can be taken only after a successful study period, only if the student got the signature
- Pre-exam can be taken only if the student got the signature without retake-test
    - pre-exam is scheduled on the last week of the study period
    - pre-exam does not decrease the number of possible exams
- Exam can be taken if the student got the signature with or without retake-test
    - exam can be taken only during the exam period
- The course grade is calculated by the average of the study period performance and the result of the exam/pre-exam.

<u>Course performance evaluation:</u>
- Without retake-test: Performance=((T1+T2)/2+PE)/2
  or Performance=((T1+T2)/2+E)/2
- With retake-test: Performance=((((T1+T2)/2)+RT)/2+E)/2

Grade:	5	4	3	2	1
Evaluation in percent:	81%-100%	71%-80%	61%-70%	51%-60%	0-50%

PTE Grading Policy:
Information on PTE's grading policy can be found at the following location:
www.pte.hu

Students with Special Needs:

Students with a disability and needs to request special accommodations, please, notify the Deans Office. Proper documentation of disability will be required. All attempts to provide an equal learning environment for all will be made.

Readings and Reference Materials:
Required:

1. Presentation slides (Moodle CMS)
2. James F. Kurose, Keith W. Ross - Computer Networking: A Top-Down Approach 6th Edition, 2012. (ISBN-10: 0132856204)

More:

1. Andrew S. Tanenbaum, David J. Wetherall - Computer Networks (5th Edition), 2010. (ISBN-10: 0132126958)
2. Larry L. Peterson, Bruce S. Davie - Computer Networks: A System Approach, 2011. (ISBN-10: 0123850592)