Óbuda University Bánki Donát Faculty of Mechanical and Safety Engineering	Institute of Mechatronics and Vehicle Engineering

Subject title and code: **IT Networks *BMVIHE6BNF*** **Credits:** *5*

Full-time study *2025/2026 ac. year* 2 *semester*

The course is available at: Mechatronics Engineering BSc

Supervised by: Prof. Dr. Ludányi-Laufer Edit **Instructors:** Lourdes Ruiz Salvador

Prerequisite (neptun code): Informatics I, BMXIA1HBNE

Weekly number of lessons

Lecture: 2	Group seminar: 0	Lab: 1	Consultation:

Way of assessment: Midterm mark

Online consultation *(in case it is required): ... (BBB link)*

Edu. goal: This course provides mechatronic engineering students with the critical knowledge of industrial and enterprise networking principles, focusing on the practical implementation, configuration, and security of communication protocols and hardware in automated systems, robotics, and smart factories. The curriculum emphasizes the connection between physical automation (PLCs, sensors, actuators) and digital infrastructure, preparing students to design and maintain reliable, integrated control systems.

Schedule

Education week	**Topics**
1.	Introduction to IT Networks and Network Components
2.	Media Transmission and Network Devices
3.	OSI and TCP/IP Model
4.	IPv4 and IPv6
5.	Designing a network/ Industrial Networks/ Homework Assignment
6.	**Test 1**
7.	DHCP
8.	Internet Control Message Protocol - ICMP
9.	TCP vs UDP
10.	DNS, World Wide Web
11.	Modern Networking Technologies
12.	Networking Technologies in Mechatronic Systems
13.	**Test 2**
14.	**Test Retake**

Mid-semester requirements

Test		Assignment to be submitted		Lab measurement	
amount	dates	amount	deadlines	amount	dates
2	weeks 6,13	1	week 13	8	weeks 2,3,4,5,7,8,9,11

According to HKR, attendance at group seminars and lab exercises is mandatory.

Other requirements for participation in sessions not covered by the regulations and restrictions on substitutions:

During the semester, in accordance with the schedule above, a student can make up one of the midterms if they have a valid official absence note (from a doctor or from a coach). The makeup test will take place during the semester at a time assigned separately.

Midterm, Final Exam		Assignment to be submitted		Lab measurement	
maximum points available	minimum score required to pass /test	maximum points available	minimum score required to pass / assignment	maximum points available	minimum score required to pass /lab
60 points	30 points	30 points	15 points	10 points	- points

Total number of points achievable in semester: …points				
Grading thresholds	**satisfactory** 40 % and above	**average** 55% and above	**good** 70 % and above	**excellent** 85 % and above
Percentage contribution to the final grade: Test 1 30%, Test 2 30%, Assignment 30%. Lab Attendance and Exercises 10%				
Receive a signature denied entry:	The signature will be denied to that student who misses a midterm and has no absence note to justify their non-attendance, fails to submit the project assignment, or misses more classes than allowed by HKR.			
Required references:				
Recommended references:	Moodle Lecture Notes, Cisco Networking Academy			
Quality assurance methods of the subject:				

Things that are not included can be found in the regulations of Óbuda University.