



1. Subject name **Communications, Navigation and Surveillance (CNS) II.**

2. Subject name in Hungarian Communications, Navigation and Surveillance (CNS) II.

3. Code	BMEKOKKM239	4. Evaluation type	exam grade	5. Credits	4
----------------	--------------------	---------------------------	-------------------	-------------------	----------

6. Weekly contact hours	3 (14) Lecture	0 (0) Practice	0 (0) Lab
--------------------------------	-----------------------	-----------------------	------------------

7. Curriculum	Transportation Engineering MSc (K)	8. Role	Specialization (sp) at Transportation Engineering MSc (K)
----------------------	---	----------------	--

9. Working hours for fulfilling the requirements of the subject **120**

Contact hours	42	Preparation for seminars	6	Homework	0
----------------------	----	---------------------------------	---	-----------------	---

Reading written materials	51	Midterm preparation	6	Exam preparation	15
----------------------------------	----	----------------------------	---	-------------------------	----

10. Department **Department of Transport Technology and Economics**

11. Responsible lecturer Dr. Markovits-Somogyi Rita

12. Lecturers Dr. Markovits-Somogyi Rita

13. Prerequisites **strong: KOKAM226 - Communications, Navigation and Surveillance (CNS) I.**

14. Description of lectures

Communication (COM)
 Introduction to voice communication
 Air to ground communication (communication elements on the CWP, objectives and operation of these elements, future trends, CPDLC)
 Ground to ground communication (communication elements on the CWP, tasks of the communication centre, MFC, ATS Qsig, VoIP, future trends)
 Data communications (basics of the data communication, aviation specific networks and protocols, OLDI-FMTP, AFTN-AMHS, PENS)
 Data processing
 Introduction of the data processing
 General functions of the FDP and SDP
 Basics of SDP (plot processing, track processing (single/multi track))
 Basics of FDP (FPL data processing, coupling)
 FDP (IFPS, route processing, code/callsign correlation, code assignement, track labelling)
 HMI
 Surveillance (SUR)
 Theory and practice of multilateration (LAM, WAM).

15. Description of practices

16. Description of laboratory practices

17. Learning outcomes

- A. Knowledge
 - Knows and can enumerate the CNS COM systems.
 - Knows the basic operational principles of the CNS COM systems.
 - Knows the practical areas of usage of CNS COM systems.
- B. Skills
 - capable to distinguish between air to ground és a ground to ground systems.
 - is able to carry out market analysis as based on his/her knowledge.
- C. Attitudes
 - Able to work independently and autonomously.

D. Autonomy and Responsibility

- The student becomes sufficiently aware of flight safety and security.
- Is able to determine his/her borders of responsibility, can determine what he/she may take responsibility for.

18. Requirements, way to determine a grade (obtain a signature)

The signature can be successfully achieved by completing one written test at at least 50%. The final grade equals to the result of oral exam.

19. Opportunity for repeat/retake and delayed completion

The written test, if unsuccessful, can be rewritten once.

20. Learning materials

Slides from the presentations.

Effective date	10 October 2019	This Subject Datasheet is valid for	Inactive courses
-----------------------	-----------------	--	------------------
