

Correlation between Expected Learning Outcomes (ELO) and Program Disciplines (DISC)

University: Technical University of Cluj-Napoca

Faculty: Electronics, Telecommunications and Information Technology

Fundamental field: Engineering Sciences

Field of study: Electronic Engineering, Telecommunications, and Information Technologies

Study program: TELECOMMUNICATIONS

No.	EXPECTED LEARNING OUTCOMES			Examples of disciplines that can contribute to achieving learning outcomes
	Knowledge	Skills	Responsibility and autonomy	
1.	K1. The student/ graduate identifies and describes advanced concepts, principles, and methods for the analysis, design, testing, and evaluation of complex telecommunication systems	S1. The student/ graduate uses hardware and software tools to design and test systems in public, private, and hybrid clouds.	R1. The student/ graduate critically approaches technical-scientific information and commits to the continuous updating of professional competencies. R2. The student/ graduate employs logical reasoning, evaluation, and self-evaluation in decision-making. R3. The student/ graduate acts autonomously in defining directions for analysis or research within complex technological contexts.	- CUC - CM - DMAD - TCSTI - IPT - PRR - SSIT
		S2. The student/ graduate develops and implements hardware solutions using Software-Defined Networking (SDN) and Software-Defined Radio (SDR).		- CUC - SW - ANT - CM - PRR
		S3. The student/ graduate uses advanced software tools to prepare technical project documentation for implementation.		- PC1, PC2, PC3 - ACP1 - ACP2 - ACP3 - ACP4 - Dissertation Project Work - Field Specific Research for M.Sc. Th. - Ethics and Academic Integrity
		S4. The student/ graduate applies modern project management and decision-making techniques, including within a multidisciplinary framework.		- PC1, PC2, PC3 - ACP1 - ACP2 - ACP3

				- ACP4 - Dissertation Project Work - Field Specific Research for M.Sc. Th.
2.	K2. The student/graduate possesses in-depth knowledge regarding the modeling and planning of complex telecommunications networks.	S5. The student/ graduate uses software tools for the modeling, design, simulation, and advanced emulation of complex telecommunication networks.	R4. The student/graduate manages design activities under conditions of high complexity. R5. The student/graduate assumes responsibility for the technical decisions made regarding implementation outcomes.	- CUC - SW - CM - DMAD - CSNGN - TCSTI - IPT - PRR
		S6. The student/ graduate uses advanced software tools to prepare technical project documentation for implementation.		- PC1, PC2, PC3 - ACP1 - ACP2 - ACP3 - ACP4 - Dissertation Project Work - Field Specific Research for M.Sc. Th. - Ethics and Academic Integrity
		S7. The student/ graduate applies modern project management and decision-making techniques, including within a multidisciplinary framework.		- SRT - CM - DMAD - TCSTI - IPT - PRR - SSIT
3.	K3. The student/graduate is familiar with advanced methodologies for the installation, configuration,	S8. The student/ graduate designs and applies advanced testing methods and strategies for the installation, configuration, operation, and maintenance of complex telecommunications networks.	R6. The student/ graduate contributes to the development of professional practices and to ensuring the quality of technical assessment processes. R7. The student/ graduate actively participates in the implementation of research or experimental development	- SRT - CUC - CM - CSNGN - PRR

	operation, and hardware and software maintenance of complex telecommunications networks.	S9. The student/ graduate implements diagnostic tools for information and communication technology (ICT) networks.	activities and assumes coordination responsibilities within technical teams.	- CUC - SW - CM - DMAD - CSNGN - TCSTI - IPT - SSIT
		S10. The student/ graduate interprets experimental results and validates models or technical solutions.		- PC1, PC2, PC3 - ACP1 - ACP2 - ACP3 - ACP4 - Dissertation Project Work - Field Specific Research for M.Sc. Th.
		S11. The student/ graduate prepares technical-scientific reports and specialized documentation.		- PC1, PC2, PC3 - ACP1 - ACP2 - ACP3 - ACP4 - Dissertation Project Work - Field Specific Research for M.Sc. Th. - Ethics and Academic Integrity
4.	K4. The student/graduate possesses specialized knowledge regarding the design of advanced modulation and encryption systems.	S12. The student/ graduate designs and implements advanced modulation and encryption systems.	R8. The student/ graduate makes strategic decisions in complex and unpredictable professional contexts. R9. The student/ graduate participates in the technical direction of projects and ensures compliance with applicable standards.	- SRT - SW - ANT - BTDDBR - CM - TCSTI - PRR - SSIT
		S13. The student/ graduate ensures compliance with organizational information and communication technology (ICT) standards.		- CUC - SW - ANT - CM - TCSTI

				- PRR
		S14. The student/graduate evaluates the technical, economic, and operational implications of the developed solutions.		- PC1, PC2, PC3 - ACP1 - ACP2 - ACP3 - ACP4 - Dissertation Project Work - Field Specific Research for M.Sc. Th.
5.	K5. The student/graduate is familiar with advanced concepts regarding the development of secure software applications for telecommunications using web technologies.	S15. The student/ graduate evaluates, based on specific performance criteria, the type of computing system, its architecture, and the usage method required to efficiently solve specific problems.	R10. The student/ graduate assumes responsibility for leading teams and evaluating their performance. R11. The student/ graduate demonstrates professional autonomy, interdisciplinary flexibility, and a commitment to continuous learning..	- SRT - CUC - BTDDBR - CM - DMAD - CSNGN - IPT - SSIT
		S16. The student/ graduate specifies requirements, develops programs using general-purpose (C, etc.) and/or object-oriented (C++, Java, etc.) programming languages, and executes, debugs, and interprets the results of the programs created to solve a specific problem.		- SRT - SW - DMAD - CSNGN - IPT - SSIT
		S17. The student/ graduate modifies the scope of an information and communication technology (ICT) system by adding or reallocating additional ICT system components—such as network components, servers, or storage media—to meet capacity or volume demands.		- CUC - SW - BTDDBR - CM - TCSTI - IPT - PRR - SSIT

Responsible for M.Sc. in Telecommunications – English Language

Professor Virgil DOBROTA, Ph.D.