

Cultivation Program of Communication Engineering

(080703)

I. Introduction to Communication Engineering Programme

The Communication Engineering Programme was founded in 2003 and was rated A in the comprehensive evaluation of undergraduate programs in Hunan Province in 2019. It was approved as a National First-class Undergraduate Programme Construction Site in 2021. Communication Engineering Programme is designed to satisfy the needs of regional economic development, and cultivate engineering application-oriented innovative talents with solid foundation for know-how, strong capacity for practice, and the spirit of innovation. With the development of the college, a training model for "artificial intelligence + communication" composite talents has been gradually explored and formed. Centered with the core objective of enhancing students' hands-on abilities, an innovation-driven, program-based and capability-oriented teaching system has been established.

II. Objectives

After four years of specialized study, graduates majoring in this field should have a solid foundation in mathematics, natural sciences, as well as humanities and social sciences. They should master the basic professional knowledge in the field of communication and systematically complete engineering practice training related to this program. They are able to apply the knowledge they've learned, proficiently use modern tools, and solve engineering and technical problems in areas such as the manufacturing of communication and electronic equipment, the software design of communication systems, and the design and operation maintenance of communication networks. They can be competent in various tasks and job roles. They have a correct understanding of self-exploration and learning, and can actively keep up with the development and changes of the social environment and the industry. They possess a certain international perspective, can read English literature related to this major, and have the ability to communicate in English regarding professional issues. Moreover, they should possess teamwork skills and basic enterprise management capabilities. They can understand and adhere to professional ethics and norms, have good humanistic qualities and a sense of social responsibility, as well as a sense of public service for the society. At the same time, they own a scientific spirit and an innovative awareness.

Students are expected to achieve the following goals within 5 years:

1. Ability to analyze, describe, and solve technical problems in complex engineering projects involving communication networks, information systems, and communication equipment by applying mathematical knowledge, and related theories, technologies and modern tools in the field of communication.

2. Ability to take into consideration mixed factors such as society, eco-environment, safety, laws, and economy while doing engineering practice; be able to independently manage and make

decisions for complex engineering projects, and have good innovation awareness and ability in this process.

3. Ability to communicate with peers, clients, and the public smoothly, with the spirit of teamwork, and capabilities of personal expression, project organization and coordination; be able to play a backbone role in different teams such as design, development, management, and operation.

4. Possess literacy of humanity, follow professional ethics and develop a great sense of social responsibility and services.

5. Have a global view, develop the habit and ability of lifelong learning and self-learning, and adapt to the development trends of domestic and foreign industries.

III. Graduation Requirements

1. Engineering knowledge: Ability to solve complex communication engineering problems by applying knowledge of mathematics, natural sciences, engineering fundamentals, etc.

2. Problem analysis: Ability to identify and describe complex communication engineering problems based on the basic rationale of mathematics, natural sciences, and information and communication technology, and analyze them through literature research so as to reach reliable conclusions.

3. Design/Develop Solutions: Ability to propose effective solutions to complex communication engineering problems, design communication systems, modules or components that meet specific needs, and show awareness of innovation in the design process, taking into account factors such as society, eco-environment, safety, laws, and economy.

4. Research: Ability to study complex communication engineering problems based on the scientific rationale and proper methods, including designing experiments, analyzing and interpreting data, and obtain reasonable conclusions through information integration.

5. Use modern tools: Ability to develop, select, and use appropriate technologies, resources, modern engineering tools, and information technology tools to prevent and stimulate complex communication engineering problems, and understand limitations.

6. Engineering and Society: Ability to conduct reasonable analysis based on relevant background knowledge, evaluate the potential impact of professional engineering practices and complex communication engineering problem solutions on society, health, safety, law, and culture, and understand the responsibilities.

7. Environment and Sustainable Development: Ability to understand and evaluate the impact of engineering practices targeting complex communication engineering problems on sustainable development of nature and society.

8. Professional norms: Possess literacy of humanity and social sciences, and a sense of social responsibility, and be able to understand and abide by professional ethics and norms.

9. Teamwork: Play a role in a multidisciplinary team as a member or a leader.

10. Communication: Ability to effectively communicate with peers and the public on

complex communication engineering issues, including writing reports and designing drafts, presenting speeches, clearly expressing or responding to instructions, and engage in cross-cultural exchanges with a global view.

11. Project Management: Understand and master the rationale of engineering management and economic decision-making methods in the field of communication, and be able to apply them in a multidisciplinary environment.

12. Lifelong learning: Possess awareness of self-learning and lifelong learning, and have the ability to adapt to development.

IV. Objectives and Graduation Requirements

Objectives and Graduation Requirements Table

Objectives Graduation Requirements	Objective 1	Objective 2	Objective 3	Objective 4	Objective 5
	1 Engineering Knowledge	•			
2 Problem Analysis	•	•			
3 Design/Develop Solutions	•	•			
4 Research	•				•
5 Use Modern Tools	•				
6 Engineering and Society		•		•	
7 Environment and Sustainable Development		•		•	
8 Professional Norms			•	•	
9 Teamwork			•		
10 Communication			•		•
11 Project Management		•	•		
12 Lifelong Learning		•			•

V. Core Courses

C language programming, data structures and algorithms B, circuit analysis, analog electronic technology, digital electronic technology, signals and systems, electromagnetic fields and waves, digital signal processing A, communication principles, communication electronic circuits, mobile communication, etc.

VI. Duration and Degree

Program Duration: 4 years

Degree Conferred: Bachelor of Engineering

VII. Credits

Total Credit Requirements: 170 credits

Course categories	In class teaching				Internship and Practical Training
	Mathematics and Natural Science Courses	Engineering Courses	Humanities and Social Sciences General Education Courses (including English)	Personality Development Courses	
Credits	25.5	54.5	42	11	37
Proportion	15%	32.1%	24.6%	6.5%	21.8%

VIII. Curriculum Structure

1. Teaching Weeks Schedule

Semester	Military Training and Entrance Education	Teaching	Course Project	Intensive Training	Comprehensive Practical Training	Practical Training	Comprehensive Practice of Ideological and Moral Cultivation	Bachelor Thesis/Capstone Project	Examination Period	Mobile	Total Weeks in each semester
1	2	14							2	2	20
2		16		1		1			2		20
3		16				1	1		2		20
4		16	2						2		20
5		15	1		2				2		20
6		14			3	1			2		20
7		13			3	2			2		20
8						3		15		2	20
9	2	104	3	1	8	8	1	15	14		160

2. Internship and Practical Training

Course Code	Course Categories	Course Name	Semester	Weeks	Credit
1602000	Military Training and New Student Orientation	National Defense Education for Freshmen	1	2	1
0502001	Comprehensive Practice of Ideological and Political Theory	Internet + Xi's Thought on Socialism with Chinese Characteristics for a New Era Reaching Thousands of Villages and Millions of Households	2	(1)	1
0302200	Practicum and Internship	Professional Cognition Internship	2	1	1
0402000	Intensive Training	Practice of English Application	2		
0502000	Comprehensive Practice of Ideological and Moral Cultivation	Voluntary Labor	3	1	1
1402007	Practicum and Internship	Electronics Practice (1)	3	1	1
0302201	Course Project	Embedded System Design	4	1	1
0302202	Course Project	Digital System Design Based on FPGA	4	1	1
0502002	Social Practice	Social Survey	summer vacation	(4)	(4)
0302203	Course Project	Internet of Things Application System Design	5	1	1
0302204	Comprehensive Experimentation	Comprehensive Design of Signal Processing	5	2	2
1402000	Practicum and Internship	Metalworking Practice (1)	6	1	1

Course Code	Course Categories	Course Name	Semester	Weeks	Credit
0302205	Comprehensive Experimentation	Comprehensive Design of Communication Engineering I	6	3	3
0302206	Comprehensive Experimentation	Comprehensive Design of Communication Engineering II	7	3	3
0302207	Practicum and Internship	Comprehensive Training of Communication System	7	2	2
0302208	Practicum and Internship	Graduation Internship	8	2	2
0302209	Bachelor Thesis/Capstone Project	Bachelor Thesis/Capstone Project	8	15	15
Total				37	37

3. Teaching Schedule

Course Categories	Relation to curriculum	Course Code	Course Name	Credits	Teaching Hours			Allocation of weekly learning hours for each semester							
					Total	Lectures	Laboratory and Practicum	1	2	3	4	5	6	7	8
								14 WKs	16 WKs	16 WKs	16 WKs	15 WKs	14 WKs	13 WKs	
General Course	Compulsory	Ideological and Political Module													
		0500000	Morals and Ethics and Fundamentals of Law	2.5	40	32	8	3							
		0500001	Basic Principles of Marxism	3	48	40	8		3						
		0500002	Outline of Chinese Modern History	2.5	40	32	8					3			
		0500003	Introduction to Mao Zedong Thoughts and Theoretical System of Socialism with Chinese Characteristics	2	32	32					2				
		0500004	Introduction to Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era	3	48	40	8					3			

	0500005	Situation and Policy	2	32	32									
Mathematics and Natural Science Module														
	1000000	Advanced Mathematics A (1)	4.5	72	72		6							
	1000001	Advanced Mathematics A (2)	6	96	96			6						
	1000004	Linear Algebra	2.5	40	40			3						
	1000005	Complex Function and Integral Transformations	2	32	32				3					
	1000006	Probability and Mathematical Statistics	3	48	48				3					
	1000008	College Physics (1)	2.5	40	40			3						
	1000009	College Physics (2)	3	48	48				3					
	1001000	College Physics Experiment (1)	1	16		16		1						
	1001001	College Physics Experiment (2)	1	16		16			1					
Comprehensive Capacity Module														
	0400000	College English (1)	3	48	48		4							
	0400001	College English (2)	2	32	32			2						

		0400002	College English (3)	3	48	48				3					
		0400003	College English (4)	3	48	48					3				
		0300014	Literature Reading and Thesis Writing	1	16	16								2	
General Course	Compulsory	Quality Outreach Module													
		1100000	Physical Education (1)	1	36	32	4	2							
		1100001	Physical Education (2)	1	36	32	4		2						
		1100002	Physical Education (3)	1	36	32	4			2					
		1100003	Physical Education (4)	1	36	32	4				2				
		0000000	Cultural quality education (Chinese Culture, Natural Sciences, etc.)	1	16	16									
		0000001	Cultural Quality Education (Public Art)	2	32	32									
		1800000	Mental Health Education	1	16+ (16)	16	(16)	*							

			of University Students											
	1600000		Military Theory and National Security Education	2	36	24	12		*					
	00000002		Extracurricular Classroom	*										
Innovation and Entrepreneurship Module														
	0010000		Career Development and Employment Guidance for University Students	2	16+ (22)	16	(22)						*	
	5210000		Innovation and Entrepreneurship Education (1)	1	8+ (8)	8	(8)			2				
	5210001		Innovation and Entrepreneurship Education (2)	1	8+ (8)	8	(8)						2	
	1900916		Engineering Economics	1.5	24	24							2	
	0700921		Business Management	1.5	24	24								2

		0300015	Engineer Professional Ethics and Responsibility	1	16	16								2	
		Subtotal		70.5	1180	1088	92	15	20	16	11	3	4	6	
Engineer ring Fundam entals	Compulsory	0300001	C Programming Language (1)	3	48	32	16	4							
		0300002	C Programming Language (2)	3	48	32	16		3						
		0300201	Circuit Analysis	3	48	38	10		3						
		0300202	Data Structures and Algorithm B	3	48	48				3					
		0301201	Data Structures and Algorithms Experiment	1	16		16				1				
		0300203	Signals and Systems	3.5	56	46	10			4					
		0300204	Analog Electronics	2.5	40	40				3					
		0301202	Analog Electronics Experiment	1	16		16				1				
		0300205	Digital Electronics	2.5	40	30	10				5*8/				
		0300207	Digital Signal Processing A	2.5	40	40					3				
		0301203	Digital Signal	1	16		16					1			

			Processing Experiment											
		0300208	Communication Principles	3.5	56	56					4			
		0301204	Communication Principles Experiment	1	16		16				1			
		0300209	Electromagnetic Fields and Waves	2	32	28	4				3			
		0300210	Communication Electronic Circuits	3	48	40	8					4		
		Subtotal		35.5	568	430	138	4	6	12	9	8	4	
Engineering Applications	Compulsory	0300211	Introduction to Information and Communication Engineering	1	16	16		2						
		0300212	Principles and Design of Embedded System	2	32	32					3			
		0301205	Principles and Design of Embedded System	1	16		16				1			

		Subtotal	19	304	242	62	2			4	7	6	3		
Speciali zed Course	Electives	Modern Communication Technology Module													
		0300222	Communication System Modeling and Simulation	2	32	22	10					3			
		0300223	Software Radio Technology	3	48	32	16						3		
		0300226	Optical Fiber Communication	2.5	40	32	8							3	
		0300227	Information Theory and Coding	2.5	40	32	8						3		
		0300229	Satellite Communication	2	32	24	8							3	
		0300230	Analysis of Random Signals	2	32	32							3		
		Intelligent Information Processing and Application Module													
		0300231	Satellite Navigation and Positioning Technology	2	32	24	8					3			

		0300232	Deep Learning and Its Applications B	2.5	40	32	8						3		
		0300233	Computer Vision B	2.5	40	32	8						3		
		0300234	Cloud Computing and Big Data B	2	32	24	8							3	
		0300235	Natural Language Processing B	2.5	40	32	8							3	
		0300238	Machine Learning B	2	32	24	8							3	
		Subtotal (At least 8 credits are required)		8	128	96	32					3	6	6	
		Total		133	2180	1856	324	21	26	28	24	21	20	15	

IX. Graduate Requirement Assessment Points and Supporting Courses

Graduation Requirements	Graduation Requirements Assessment Point	Supporting Courses
1. Engineering Knowledge	1.1 Apply basic knowledge of mathematics, natural sciences, computation, engineering, and communication engineering to appropriately express engineering problems in the field of communication;	Advanced Mathematics A (H), Linear Algebra (H), Complex Functions and Integral Transformations (M), Probability Theory and Mathematical Statistics (M), College Physics (L)
	1.2 Possess the ability of data analysis required in the field of communication, establish mathematical models for engineering problems in circuits, signals, and system analysis, and be able to use computers to solve models when necessary;	Circuit Analysis (M), Analog Electronic Technology (L), Digital Electronic Technology (L), Signal and Systems (H), Electromagnetic Fields and Waves (L), C Programming Language (L), Object-oriented Programming B (L)
	1.3 Apply mathematical models to deduce and analyze complex communication engineering problems based on specialized knowledge in circuits, computer science, and communication;	Digital Signal Processing A (H), Communication Principles (H), Signal and Systems (M), Mobile Communication (M)
	1.4 Apply theoretical knowledge and know-how in the field of communication engineering, compare the reliability and effectiveness of solutions, and optimize them in a comprehensive way.	Data Structures and Algorithm B (H), Communication Electronic Circuits (H), Modern Switching and Communication Networks (M)
2. Problem Analysis	2.1 Apply knowledge of mathematics, natural science, and communication engineering to identify and judge the key links and parameters of complex communication engineering problems, and decompose them effectively;	Probability Theory and Mathematical Statistics (L), Linear Algebra (M), Complex Functions and Integral Transformations (L), Data Structures and Algorithm B (M), Circuit Analysis (H)
	2.2 Apply communication theories and mathematical models to accurately express the input, output, and	Signal and Systems (H), Communication Principles (M),

Graduation Requirements	Graduation Requirements Assessment Point	Supporting Courses
	constraint conditions of decomposed complex engineering problems in the field of communication;	Digital Signal Processing A (M), Mobile Communications (L), Communication Electronic Circuit (L)、 Electromagnetic Fields and Waves (L)
	2.3 Be aware that there are multiple solutions to engineering problems, that one can seek solutions to complex communication engineering problems through literature research and expertise, and analyze the impact of engineering activities from the perspective of sustainable development so as to obtain effective conclusions.	Comprehensive Design of Communication Engineering I (M), Graduation Design (H), Mobile Communication (L), Introduction to Artificial Intelligence B (M), Introduction to Information and Communication Engineering (M)
3. Design and Development	3.1 Master the basic design/development methods of system design and product development in the field of communication and other related areas, be familiar with the complete cycle and process of design and development, and understand various factors that affect design goals and technical solutions;	Comprehensive Design of Communication Engineering I (H), Comprehensive Design of Communication Engineering II (H), Graduation Design (H)
	3.2 Design and try out software and hardware modules or functional units that meet performance indicators for complex communication engineering problems under the constraints of design objectives;	C Programming Language (H), Principles and Design of Embedded Systems (M), IoT Communication Technology (M), EDA Technology and Applications (L), Object-oriented Programming B (M)
	3.3 Propose design solutions, complete design and development, and show awareness of innovation for specific requirements of communication application products or systems;	Embedded System Design (M), Digital System Design Based on FPGA (M), IoT Application System Design (M), Comprehensive Design of Signal Processing (H)

Graduation Requirements	Graduation Requirements Assessment Point	Supporting Courses
	3.4 Fully consider social, safety, legal, cultural, and environmental constraints involved in solving complex communication engineering problems, and demonstrate feasibility of the solution.	Morality and Fundamentals of Law (L), Engineers' Professional Ethics and Responsibility (M), Professional Cognition Internship (M), Bachelor Thesis/Capstone Project (H), Modern Switching and Communication Networks (M)
4. Research	4.1 Analyze solutions to complex communication engineering problems based on the scientific rationale of communication and through literature research or other relevant methods;	Communication Principles (M), Signal and Systems (M), Comprehensive Design of Communication Engineering II (H), Literature Reading and Thesis Writing (H)
	4.2 Select reasonable research routes and design experimental plans based on the specific characteristics of communication engineering problems;	College Physics Experiment (L), Data Structures and Algorithm Experiment (L), Analog Electronic Technology Experiment (M), Principles and Design of Embedded Systems (M), IoT Communication Technology Experiment (M), EDA Technology and Applications (L), Digital Electronic Technology (L)
	4.3 Construct an experimental system according to the experimental plan, safely carry out experiments, and collect data in a correct way;	College Physics Experiment (L), Embedded System Design (H), Digital System Design Based on FPGA (H), IoT Application System Design (H)
	4.4 Analyze and interpret experimental results, obtain reasonable and effective conclusions through comprehensive information analysis, and evaluate the entire study to determine the areas that need improvement.	Probability Theory and Mathematical Statistics (L), Digital Signal Processing A (L), Comprehensive Design of Signal Processing (M), Comprehensive

Graduation Requirements	Graduation Requirements Assessment Point	Supporting Courses
		Design of Communication Engineering I (H), Comprehensive Design of Communication Engineering II (H)
5. Use of Modern Tools	5.1 Master the using principles and methods of common instruments, engineering tools, software and hardware development tools, and simulation software in the field of communication, and understand the limitations of instruments and tools;	Electronic Internship (1) (M), Digital Signal Processing Experiment (M), Communication Principles Experiment (M), Circuit Analysis (M), EDA Technology and Applications (L), Digital Electronic Technology (L)
	5.2 Select and use appropriate communication instruments, information resources, engineering tools, and professional simulation software to analyze, calculate, and design complex communication engineering problems;	Analog Electronic Technology Experiment (M), Digital System Design Based on FPGA(M), Comprehensive Design of Signal Processing (H), Communication electronic circuit (M)
	5.3 Select and develop appropriate modern tools for specific objects, simulate and predict complex engineering problems in the field of communication, and analyze limitations of the tools.	Comprehensive Design of Communication Engineering I (H), Comprehensive Design of Communication Engineering II (H), Comprehensive Training of Communication System (M)
6. Engineering and Society	6.1 Understand the technical standard system, intellectual property rights, industrial policies, and laws and regulations related to communication, and understand the impact of different social cultures on engineering activities;	Morality and Fundamentals of Law (M), Situation and Policy (M), Introduction to Information and Communication Engineering (H), Mobile Communication (M)
	6.2 When conducting engineering practice activities or seeking solutions to complex engineering problems, students are able to reasonably analyze, evaluate, and consider their impact on society, health, safety, law,	Metalworking Internship (1) (L), Morality and Fundamentals of Law (M), Engineers' Professional Ethics and Responsibility (M), Graduation

Graduation Requirements	Graduation Requirements Assessment Point	Supporting Courses
	and culture, and understand due responsibilities.	Internship (M), Bachelor Thesis/Capstone Project(H)
7. Environment and Sustainable Development	7.1 Know and understand the United Nations Sustainable Development Goal SDG17;	Professional Cognition Internship (M), Engineer Ethics and Responsibility (H), Introduction to Mao Zedong Thought and Theoretical System of Socialism with Chinese Characteristics (M), Morality and Fundamentals of Law (M)
	7.2 Consider the sustainability of communication engineering practices from the perspective of environmental and sustainable development, and evaluate the potential damage and hazards to humans and the environment that may occur during the product cycle;	Comprehensive Training of Communication System (H), Situation and Policy(M), Innovation and Entrepreneurship Education (M), Introduction to Mao Zedong Thought and Theoretical System of Socialism with Chinese Characteristics (M)
8. Professional Norms	8.1 Have correct socialist values, understand the relationship between individuals and society, and the national conditions of China;	Military Theory and National Security Education (L), Basic Principles of Marxism (L), Introduction to Mao' Thought and Theoretical System of Socialism with Chinese Characteristics (M), Comprehensive Practice of Ideological and Political Theory (M), Mental Health Education of University Students (L), Voluntary Labor(L)

Graduation Requirements	Graduation Requirements Assessment Point	Supporting Courses
	8.2 Adhere to engineering ethics, understand and abide by engineering professional ethics and norms, and respect relevant national and international rules and regulations;	Cultural Quality Education (M), Situation and Policy(M), Outline of Chinese Modern History (M), Introduction to Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era (M), Graduation Internship (M)
	8.3 In engineering practices, fulfill social responsibility as engineers for the safety, health, and well-being of the public, as well as environmental protection.	Engineering Economics (H), Business Management (M), Engineers' Professional Ethics and Responsibility (H)
9. Individuals and Teams	9.1 Effectively and inclusively communicate and collaborate with other team members in a multidisciplinary, diverse, and multi-form team; work independently or collaboratively within the team;	Career Development and Employment Guidance for University Students (H), Mental Health Education of University Students (M), Metalworking Internship (1) (M), Embedded System Design(M)
	9.2 Promote collaborative spirit in a team, and be able to coordinate and lead the team's work.	IoT Application System Design (M), Physical Education (M), Military Training and Entrance Education (M), Comprehensive Training of Communication System (H)
10.Communication	10.1 Express one's own views accurately, respond to doubts, and understand the differences in communication with peers and the general public on complex communication engineering problems through oral, written, graphical, and other means;	College English (M), Cultural Quality Education (M), Graduation Internship (M), Bachelor Thesis/Capstone Project (H)
	10.2 Learn about the international development trends and research focus of the field, understand and respect	Introduction to Information and Communication Engineering

Graduation Requirements	Graduation Requirements Assessment Point	Supporting Courses
	different languages and diverse cultures around the world;	(H),College English (L), Interactive Practical English (M), Cultural Quality Education (M), Introduction to Artificial Intelligence B (M)
	10.3 Possess basic language and written communication skills in cross-cultural contexts in terms of communication engineering.	College English (H), Literature Reading and Thesis Writing (H), Interactive Practical English (M), Bachelor Thesis/Capstone Project (M)
11. Project Management	11.1 Understand the importance of engineering management and economic decision-making, and master the management and economic decision-making methods involved in communication engineering projects;	Engineering Economics (H), Business Management (H), Innovation and Entrepreneurship Education (M)
	11.2 Understand the cost composition of communication engineering projects and products, related problems of engineering management and economic decision-making. Apply management principles and economic decision-making methods to complete projects in a multidisciplinary environment.	Engineering Economics (H), Business Management (M), Graduation Internship (M), Bachelor Thesis/Capstone Project (M)
12. Lifelong Learning	12.1 Recognize the necessity of self-learning and lifelong learning amid technological changes on a large scale;	Career Development and Employment Guidance for University Students (H), Innovation and Entrepreneurship Education (H)
	12.2 Possess self-learning ability, including the ability to understand technical problems, summarize and generalize knowledge points, ask questions, think critically, and be creative; to meet the needs of personal or professional development, one should be able to independently learn new technologies and knowledge in information science in response to the challenges brought by new technologies, new things,	Advanced Mathematics A (L), College English (M), Innovation and Entrepreneurship Education (M), Introduction to Information and Communication Engineering (H), Introduction to Artificial Intelligence B (M)

Graduation Requirements	Graduation Requirements Assessment Point	Supporting Courses
	and new problems.	

No.	Course Name	Graduation requirements and secondary indicators																																		
		1. Engineering knowledge				2 Problem analysis			3 Design/Develop Solutions				4 Research				Use modern tools			6 Engineering and Society		7 Environment and Sustainable Development		8 Professional norms			9 teamwork		10 Communication			11 Project Management		12 Lifelong learning		
		1-1	1-2	1-3	1-4	2-1	2-2	2-3	3-1	3-2	3-3	3-4	4-1	4-2	4-3	4-4	5-1	5-2	5-3	6-1	6-2	7-1	7-2	8-1	8-2	8-3	9-1	9-2	10-1	10-2	10-3	11-1	11-2	12-1	12-2	
58	Metalworking Internship (1)																			L						M										
59	Comprehensive Design of Communication Engineering I							M	H									H																		
60	Comprehensive Design of Communication Engineering II								H					H																						
61	Comprehensive Training of Communication System																					H						H								
62	Graduation Internship																				M								M					M		
63	Bachelor Thesis/Capstone Project							H	H																				H			M			M	

XI. Creator and Reviewer

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