MASTER OF ELECTRICAL-TELECOMMUNICATION ENGINEERING
SCHOOL OF ELECTRICAL ENGINEERING
TELKOM UNIVERSITY
CURRICULUM OF 2024

SPECIALIZATION: INTELLIGENT WIRELESS COMMUNICATIONS AND SATELLITE SYSTEMS (IWCSS)
SCHEME: MASTER BY COURSEWORK (70% Course, 30% Research/Thesis), OFFERED SINCE 2003

Semester	No	Code	Courses	Credit
I	1	ABK6-AAB3	Advanced Engineering Mathematics	3
	2	ABK6-BAB3	Deep Learning for Electrical Engineering	3
	3	ABK6-CAB3	Entrepreneurship for Engineers	3
	4	ABK6-DAB3	Research Philosophy and Ethics	3
	5	ABK6-CFB3	Advanced Wireless Communications	3
	6	ABK6-AFB3	Classical and Quantum Information Theory	3
			Semester I Credits	18
II	1	ABK6-ZAB3	Research Design	3
	2	ABK7-XAA3	Thesis Proposal	3
	3	ABK6-DFB3	Advanced Digital Signal Processing and Applications	3
	4	ABK6-BFB3	Artificial Intelligence for Wireless Communication	3
	5		Elective Course 1 (Major)	3
			Semester II Credits	15
III	1	ABK7-YAA5	Thesis 1: Publication	5
	2	ABK7-AFB3	Advanced Satellite Systems	3
	3		Elective Course 2 (Major)	3
	4		Elective Course 3 (Major/Minor)	3
			Semester III Credits	14
IV	1	ABK7-ZAA5	Thesis 2	5
	2		Elective Course 4 (Major/Minor)	3
			Semester IV Credits	8
			Total Credits	55

Engineering Electives (Major)

No	Code	Courses	Cr
1	ABK6-MVB3	Quantum Computing and Algorithms	3
2	ABK6-NVB3	Advanced Multiple Access	3
3	ABK6-OVB3	Radar Signal Processing	3
4	ABK6-PVB3	Advanced Antenna	3
5	ABK7-DVB3	5G and Beyond Mobile Communication	3
6	ABK7-EVB3	Remote Sensing	3
7	ABK7-AVB3	Advanced Satellite Engineering	3

Note:

Courses in red letters are compulsory for all specialization tracks

SPECIALIZATION: NETWORK ENGINEERING AND CYBER SECURITY (NECS)
SCHEME: MASTER BY COURSEWORK (70% Course, 30% Research/Thesis), OFFERED SINCE 2003

Semester	No	Code	Courses	Credit
I	1	ABK6-AAB3	Advanced Engineering Mathematics	3
	2	ABK6-BAB3	Deep Learning for Electrical Engineering	3
	3	ABK6-CAB3	Entrepreneurship for Engineers	3
	4	ABK6-DAB3	Research Philosophy and Ethics	3
	5	AAK6-HFB3	Data Network & Protocols	3
	6	AAK6-EFB3	Internet of Things and Edge Computing	3
			Semester I Credits	18
II	1	ABK6-ZAB3	Research Design	3
	2	ABK7-XAA3	Thesis Proposal	3
	3	AAK6-FFB3	Advanced Network Security	3
	4	AAK6-GFB3	Network Mathematics	3
	5		Elective Course 1 (Major)	3
			Semester II Credits	15
III	1	ABK7-YAA5	Thesis 1: Publication	5
	2	AAK7-MFB3	Management and Audit of Cyber Security	3
	3		Elective Course 2 (Major)	3
	4		Elective Course 3 (Major/Minor)	3
			Semester III Credits	14
IV	1	ABK7-ZAA5)	Thesis 2	5
	2		Elective Course 4 (Major/Minor)	3
			Semester IV Credits	8
			Total Credits	55

Engineering Electives (Major)

No	Code	Courses	Cr
1	ABK6-QWB3	Information Security	3
2	ABK6-RWB3	Software Networks	3
3	ABK6-SWB3	BROADBAND COMMUNICATION NETWORKS	3
4	ABK6-TWB3	Selected Topics in Networking, Multimedia, & Security	3
5	ABK6-UWB3	IP Network Interconnection	3
6	ABK7-FWB3	Advanced Network Modeling and Simulation	3
7	ABK7-GWB3	Privacy Preserving Data Mining	3
8	ABK7-HWB3	Information Centric Networks	3
9	ABK7-IWB3	Optical Sensor Networks	3
10	ABK7-JWB3	Introduction to Digital and Network Forensics	3
11	ABK7-KWB3	Compressive Sensing and Network Applications	3

Note:

Courses in red letters are compulsory for all specialization tracks

SPECIALIZATION: REGULATION AND MANAGEMENT OF TELECOMMUNICATIONS (RMT)
SCHEME: MASTER BY COURSEWORK (70% Course, 30% Research/Thesis), INTERDISCIPLINARY STUDIES, OFFERED SINCE 2014

Semester	No	Code	Courses	Credit
I	1	ABK6-AAB3	Advanced Engineering Mathematics	3
	2	ABK6-BAB3	Deep Learning for Electrical Engineering	3
	3	ABK6-CAB3	Entrepreneurship for Engineers	3
	4	ABK6-DAB3	Research Philosophy and Ethics	3
	5	AAK6-KFB3	Digital Telecommunication Policy and Regulation	3
	6	AAK6-IFB3	Telecommunication System and Network Planning	3
			Semester I Credits	18
II	1	ABK6-ZAB3	Research Design	3
	2	ABK7-XAA3	Thesis Proposal	3
	3	AAK6-LFB3	Management and Audit of Cyber Security	3
	4	AAK6-JFB3	Digital Business and Telecommunication Project Management	3
	5		Elective Course 1 (Major)	3
			Semester II Credits	15
III	1	ABK7-YAA5	Thesis 1: Publication	5
	2	AAK7-MFB3	Management of Technology and Innovation	3
	3		Elective Course 2 (Major)	3
	4		Elective Course 3 (Major/Minor)	3
			Semester III Credits	14
IV	1	ABK7-ZAA5)	Thesis 2	5
	2		Elective Course 4 (Major/Minor)	3
			Semester IV Credits	8
			Total Credits	55

Engineering Electives (Major)

No	Code	Courses	Cr
1	ABK6-VXB3	Digital Transformation	3
2	ABK7-LXB3	Strategic Management in Telecommunication Industries	3
3	ABK6-UWB3	IP Network Interconnection	3
4	ABK6-AXB3	Satellite Business and Regulation	3
5	ABK6-BXB3	Technology Policy and Ethics	3
6	ABK6-CXB3	Privacy Data Regulation	3
7	ABK7-AXB3	Sustainable Information and Communication Technologies	3
8	ABK7-AXB3	Artificial Intelligence in Telecommunication and Satellite	3

Note:

Courses in red letters are compulsory for all specialization tracks

SPECIALIZATION: CONTROL AND INTELLIGENT SYSTEMS (CIS)
SCHEME: MASTER BY COURSEWORK (70% Course, 30% Research/Thesis), OFFERED SINCE 2018

Semester	No	Code	Courses	Credit
I	1	ABK6-AAB3	Advanced Engineering Mathematics	3
	2	ABK6-BAB3	Deep Learning for Electrical Engineering	3
	3	ABK6-CAB3	Entrepreneurship for Engineers	3
	4	ABK6-DAB3	Research Philosophy and Ethics	3
	5	ABK6-GFB3	Model and Simulation of Control System	3
	6	ABK6-EFB3	Intelligent Internet of Things	3
			Semester I Credits	**18**
II	1	ABK6-ZAB3	Research Design	3
	2	ABK7-XAA3	Thesis Proposal	3
	3	ABK6-HFB3	Advanced Robotics	3
	4	ABK6-FFB3	Advanced Embedded System	3
	5		Elective Course 1 (Major)	3
			Semester II Credits	**15**
III	1	ABK7-YAA5	Thesis 1: Publication	5
	2	ABK7-AFB3	Advanced Machine Learning	3
	3		Elective Course 2 (Major)	3
	4		Elective Course 3 (Major/Minor)	3
			Semester III Credits	**14**
IV	1	ABK7-ZAA5)	Thesis 2	5
	2		Elective Course 4 (Major/Minor)	3
			Semester IV Credits	**8**
			Total Credits	**55**

Engineering Electives (Major)

No	Code	Courses	Cr
1	ABK6-MYB3	System Identification	3
2	ABK6-NYB3	Advanced Topics in Control	3
3	ABK6-OYB3	Autonomous Navigation Robots	3
4	ABK6-PYB3	Industrial Automations	3
5	ABK6-QYB3	Railway Control System	3
6	ABK7-CYB3	Railway Power System	3
7	ABK7-DYB3	Advanced Biomedical Instrumentation	3
8	ABK7-EYB3	Advanced Topics in Biomedical Engineering	3
9	ABK7-FYB3	Advanced System on Chip	3
10	ABK7-GYB3	Advanced Topics in Electronics System	3

Note:

Courses in red letters are compulsory for all specialization tracks

SPECIALIZATION: ELECTRICAL ENGINEERING RESEARCH & PUBLICATIONS (EERP)
SCHEME: MASTER BY RESEARCH (33% Course, 67% Research), OFFERED SINCE 2021

Semester	No	Code	Courses	Cr
I	1	ABK6-AAB3	Advanced Engineering Mathematics	3
	2	ABK6-BAB3	Deep Learning for Electrical Engineering	3
	3	ABK6-DAB3	Research Philosophy and Ethics	3
	4	ABK6-CAB3	Entrepreneurship for Engineers	3
	5	ABK6-VFB5	Research Topics 1	5
			Semester I Credits	**17**
II	1	ABK6-ZAB3	Research Design	3
	2	ABK7-XAA3	Thesis Proposal	3
	3	ABK6-WFB5	Research Topics 2	5
	4		Elective Course 1 (Major)	3
	5		Elective Course 2 (Major)	3
			Semester II Credits	**17**
III	1	ABK7-YAA5	Thesis 1: Publication	5
	2	ABK7-KFB5	Research Topics 3	5
	3		Elective Course 3 (Major/Minor)	3
			Semester III Credits	**13**
IV	1	ABK7-ZAA5	Thesis 2	5
	2	ABK7-LFB5	Research Topics 4	5
			Semester IV Credits	**10**
			Total Credits	**57**

Engineering Electives (Major)

Depending on the research topic, elective courses could be chosen from all other tracks, i.e. IWCSS, NECS, RMT, CIS, or SES

Notes:

Courses in red letters are compulsory for all specialization tracks
Courses in blue letters are research and thesis-related (independent study or under supervision of the faculties)

Courses in black letters are coursework related with thesis (taught in classes)

SPECIALIZATION: SUSTAINABLE ENERGY SYSTEMS (SES)
SCHEME: MASTER BY COURSEWORK (70% Course, 30% Research/Thesis), OFFERED SINCE 2022

Semester	No	Code	Courses	Credit
I	1	ABK6-AAB3	Advanced Engineering Mathematics	3
	2	ABK6-BAB3	Deep Learning for Electrical Engineering	3
	3	ABK6-CAB3	Entrepreneurship for Engineers	3
	4	ABK6-DAB3	Research Philosophy and Ethics	3
	5	ABK6-KFB3	Operation and Control of Energy System	3
	6	ABK6-IFB3	Sustainable Energy Planning	3
			Semester I Credits	**18**
II	1	ABK6-ZAB3	Research Design	3
	2	ABK7-XAA3	Thesis Proposal	3
	3	ABK6-LFB3	Power Electronics	3
	4	ABK6-RBB3	Energy Regulation and Economics	3
	5		Elective Course 1 (Major)	3
			Semester II Credits	**15**
III	1	ABK7-YAA5	Thesis 1: Publication	5
	2	ABK7-BFB3	Grid Modernization	3
	3		Elective Course 2 (Major)	3
	4		Elective Course 3 (Major/Minor)	3
			Semester III Credits	**14**
IV	1	ABK7-ZAA5)	Thesis 2	5
	2		Elective Course 4 (Major/Minor)	3
			Semester IV Credits	**8**
			Total Credits	**55**

Engineering Electives (Major)

No	Code	Courses	Cr
1	ABK6-SZB3	Electromagnetic Compatibility and Power Quality	3
2	ABK6-TZB3	Energy System Reliability and Protection	3
3	ABK6-UZB3	Energy System Automation and Digitalization	3
4	ABK7-HZB3	Social and Environmental Aspects of Sustainable Energy	3
5	ABK7-IZB3	Energy Storage Techniques	3
6	ABK6-AZB3	Energy Modeling and Simulation	3
7	ABK6-BZB3	Electric Transportation Systems	3
8	ABK6-CZB3	Direct Current Power Transmission Systems	3
9	ABK7-JZB3	Advanced Energy Conversion Systems	3
10	ABK7-JZB3	Energy Business Planning	3
11	ABK7-AZB3	Electrical Energy Material Technologies	3

Note:

Courses in red letters are compulsory for all specialization tracks