

STUDY PROGRAMME CURRICULUM APPLIED ELECTRICAL ENGINEERING

2023/2024

Name of study programme	Applied Electrical Engineering
Programme characteristics	
Type	higher professional
Cycle	bachelor
University of Ljubljana members	• Faculty of Electrical Engineering, Tržaška cesta 25, 1000 Ljubljana, Slovenija

Year 1

	University Course Code	Course title	Lecturers	Contact hours					Individual student work	Total hours	ECTS	Semesters	Elective
				Lectures	Seminar	Tutorials	Clinical tutorials	Other forms of study					
1.	0074878	Mathematics I	Melita Hajdinjak	60		60			105	225	9	1st semester	no
2.	0074880	Mechanics and heat	Aleš Igljč	45		45			85	175	7	1st semester	no
3.	0074884	Programming I	Iztok Fajfar	30		30			65	125	5	1st semester	no
4.	0074882	Fundamentals of Electrical Engineering I	Iztok Humar, Marko Meža	60		60			105	225	9	1st semester	no
5.	0074872	Atomics and optics	Aleš Igljč	45		30			85	160	6	2nd semester	no
6.	0074879	Mathematics II	Melita Hajdinjak	45		45			85	175	7	2nd semester	no
7.	0074883	Fundamentals of Electrical Engineering II	Iztok Humar, Marko Meža	60		45			70	175	7	2nd semester	no
8.	0074885	Programming II	Iztok Fajfar	30		30			65	125	5	2nd semester	no
9.	0082643	Elective general course		30		30			65	125	5	2nd semester	yes
Total				405	0	375	0	0	730	1510	60		

Control Systems (direction/track)

Year 2

	University Course Code	Course title	Lecturers	Contact hours					Individual student work	Total hours	ECTS	Semesters	Elective
				Lectures	Seminar	Tutorials	Clinical tutorials	Other forms of study					
1.	0074959	Digital Systems	Tadej Kotnik	45	15	15			75	150	6	1st semester	no
2.	0074962	Control Technology Instrumentation	Aleš Belič, Sašo Blažič	45		45			60	150	6	1st semester	no
3.	0074963	Measurements	Dušan Agrež	30		45			75	150	6	1st semester	no
4.	0074964	Modelling and Simulation	Maja Atanasijević-Kunc	45		30			75	150	6	1st semester	no
5.	0074973	Embedded Systems in automatics	Marko Munih, Roman Kamnik	45		30			75	150	6	1st semester	no
6.	0074958	Signal Analysis	Vitomir Štruc	45		30			50	125	5	2nd semester	no
7.	0074961	Electronics	Tomaž Jarm	30		30			65	125	5	2nd semester	no
8.	0074968	Robotics	Matjaž Mihelj	30		30			65	125	5	2nd semester	no
9.	0074970	Servomotors	Tomaž Jarm	30		30			65	125	5	2nd semester	no
10.	0074971	Systems and Control Design	Maja Atanasijević-Kunc	45		30			50	125	5	2nd semester	no
11.	0082644	Elective general course		30		30			65	125	5	2nd semester	yes
Total				420	15	345	0	0	720	1500	60		

Year 3

	University Course Code	Course title	Lecturers	Contact hours					Individual student work	Total hours	ECTS	Semesters	Elective
				Lectures	Seminar	Tutorials	Clinical tutorials	Other forms of study					
1.	0074976	Intelligent Systems in Automation	Simon Dobrišek	45		45			60	150	6	1st semester	no
2.	0074977	Communications in Automation	Boštjan Murovec	45		45			85	175	7	1st semester	no

3.	0074991	Computer Process Control	Gašper Mušič	45		45			85	175	7	1st semester	no
4.	0082658	Elective professional module		60		60			150	270	10	1st semester	yes
5.	0074834	Practical Training							500	500	20	2nd semester	no
6.	0074819	Diploma thesis							250	250	10	2nd semester	no
		Total		195	0	195	0	0	1130	1520	60		

Electronics (direction/track)

Year 2

	University Course Code	Course title	Lecturers	Contact hours					Individual student work	Total hours	ECTS	Semesters	Elective
				Lectures	Seminar	Tutorials	Clinical tutorials	Other forms of study					
1.	0074925	Semiconductor Devices	Marko Topič	45		30			75	150	6	1st semester	no
2.	0074927	Linear Electronics	Arpad Buermen	45		30			75	150	6	1st semester	no
3.	0074928	Measurements and Measurement Instrumentation	Dušan Agrež	45		30			75	150	6	1st semester	no
4.	0074933	Development of Digital Systems	Matej Možek	45		30			75	150	6	1st semester	no
5.	0074934	Realisation of Electronic Circuits	Marko Jankovec	45		45			60	150	6	1st semester	no
6.	0074923	Analog Electronic	Arpad Buermen	45		45			85	175	7	2nd semester	no
7.	0074926	Components, Assemblies and Sensors	Matej Možek	45		45			60	150	6	2nd semester	no
8.	0074929	Signal Processing	Matija Pirc	45		45			85	175	7	2nd semester	no
9.	0074930	Fundamentals of Microprocessor Electronics	Marko Jankovec	30		30			65	125	5	2nd semester	no
10.	0082644	Elective general course		30		30			65	125	5	2nd semester	yes

	Total	420	0	360	0	0	720	1500	60	
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Year 3

				Contact hours									
	University Course Code	Course title	Lecturers	Lectures	Seminar	Tutorials	Clinical tutorials	Other forms of study	Individual student work	Total hours	ECTS	Semesters	Elective
1.	0074941	Communication Systems	Matija Pirc	45		30			50	125	5	1st semester	no
2.	0074942	Optoelectronic components and systems	Janez Krč	30		30			65	125	5	1st semester	no
3.	0074956	Computer Tools	Marko Jankovec	30		30			65	125	5	1st semester	no
4.	0074957	Embedded Systems	Tadej Tuma	45		30			50	125	5	1st semester	no
5.	0082658	Elective professional module		60		60			150	270	10	1st semester	yes
6.	0074834	Practical Training							500	500	20	2nd semester	no
7.	0074819	Diploma thesis							250	250	10	2nd semester	no
Total				210	0	180	0	0	1130	1520	60		

Power technology and automation of power systems (direction/track)

Year 2

				Contact hours									
	University Course Code	Course title	Lecturers	Lectures	Seminar	Tutorials	Clinical tutorials	Other forms of study	Individual student work	Total hours	ECTS	Semesters	Elective
1.	0074836	Analog and Digital Electronics	Peter Zajec	45		30			50	125	5	1st semester	no
2.	0074837	Power System Operation and Planning	Miloš Pantoš	30		30			65	125	5	1st semester	no
3.	0074840	Elements of Electrical Power Networks	Boštjan Blažič	30		30			65	125	5	1st semester	no

4.	0074841	Measurement Techniques	Dušan Agrež	30		30			65	125	5	1st semester	no
5.	0074843	Fundamentals of Electrical Machines	Damijan Miljavec	45		30			50	125	5	1st semester	no
6.	0074852	Technology of Materials	Danjel Vončina	45		15			65	125	5	1st semester	no
7.	0074838	Electrical Installations and Lighting	Grega Bizjak	30		30			65	125	5	2nd semester	no
8.	0074839	Electrical Drives	Rastko Fišer	45		30			50	125	5	2nd semester	no
9.	0074842	Power Electronics	Rastko Fišer	45		30			50	125	5	2nd semester	no
10.	0074846	Fundamentals of Control Engineering	David Nedeljković	45		15			65	125	5	2nd semester	no
11.	0074847	Fundamentals of High Voltage Engineering	Boštjan Blažič	30		30			65	125	5	2nd semester	no
12.	0082644	Elective general course		30		30			65	125	5	2nd semester	yes
Total				450	0	330	0	0	720	1500	60		

Year 3

				Contact hours									
	University Course Code	Course title	Lecturers	Lectures	Seminar	Tutorials	Clinical tutorials	Other forms of study	Individual student work	Total hours	ECTS	Semesters	Elective
1.	0074854	Digital Control Systems	David Nedeljković	45		30			50	125	5	1st semester	no
2.	0074868	Operation of Electrical Power Systems during Disturbances	Rafael Mihalič	30		30			65	125	5	1st semester	no
3.	0074870	Electrical Energy Production	Marko Čepin	45		30			50	125	5	1st semester	no

4.	0074871	Power System Protection and Automation	Miloš Pantoš	30		30			65	125	5	1st semester	no
5.	0082658	Elective professional module		60		60			150	270	10	1st semester	yes
6.	0074834	Practical Training							500	500	20	2nd semester	no
7.	0074819	Diploma thesis							250	250	10	2nd semester	no
		Total		210	0	180	0	0	1130	1520	60		

Information and communication technologies (direction/track)

Year 2

	University Course Code	Course title	Lecturers	Contact hours					Individual student work	Total hours	ECTS	Semesters	Elective
				Lectures	Seminar	Tutorials	Clinical tutorials	Other forms of study					
1.	0074803	Information Systems	Anton Kos	30		30			65	125	5	1st semester	no
2.	0074808	Microprocessor Systems in Telecommunications	Arpad Buermen	30		30			65	125	5	1st semester	no
3.	0074810	Radio Communications	Boštjan Batagelj	45		30			50	125	5	1st semester	no
4.	0074813	Signals and Information	Anton Umek	30		30			65	125	5	1st semester	no
5.	0074815	Telecommunication Networks	Anton Kos	30		30			65	125	5	1st semester	no
6.	0074816	Introduction to communication electronics	Aleksander Sešek	45		30			50	125	5	1st semester	no
7.	0074800	Digital Signal Processing	Urban Burnik	45		30			50	125	5	2nd semester	no
8.	0074801	Digital Communications	Anton Umek	45		30			50	125	5	2nd semester	no
9.	0074804	Network Services	Andrej Kos, Matevž Pustišek	30		30			65	125	5	2nd semester	no

10.	0074806	Optical Communication Basics	Boštjan Batagelj	30		30			65	125	5	2nd semester	no
11.	0074809	Project Management	Matej Zajc	30		30			65	125	5	2nd semester	no
12.	0082644	Elective general course		30		30			65	125	5	2nd semester	yes
Total				420	0	360	0	0	720	1500	60		

Year 3

				Contact hours									
	University Course Code	Course title	Lecturers	Lectures	Seminar	Tutorials	Clinical tutorials	Other forms of study	Individual student work	Total hours	ECTS	Semesters	Elective
1.	0074818	Digital services and applications	Andrej Kos, Matevž Pustišek	30		30			65	125	5	1st semester	no
2.	0074820	Information communication system engineering	Iztok Humar, Janez Bešter	45		30			50	125	5	1st semester	no
3.	0074821	Mobile and Wireless Systems	Urban Burnik	30		30			65	125	5	1st semester	no
4.	0074835	Telecommunication Protocols	Andrej Štern, Matevž Pustišek	45		30			50	125	5	1st semester	no
5.	0082658	Elective professional module		60		60			150	270	10	1st semester	yes
6.	0074834	Practical Training							500	500	20	2nd semester	no
7.	0074819	Diploma thesis							250	250	10	2nd semester	no
Total				210	0	180	0	0	1130	1520	60		

Quality engineering (direction/track)

Year 2

				Contact hours									
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	University Course Code	Course title	Lecturers	Lectures	Seminar	Tutorials	Clinical tutorials	Other forms of study	Individual student work	Total hours	ECTS	Semesters	Elective
1.	0074890	Electronics with Digital Techniques	Boštjan Murovec	45		30			75	150	6	1st semester	no
2.	0074891	Measurement Methods and Instrumentation	Janko Drnovšek, Jovan Bojkovski	45		45			60	150	6	1st semester	no
3.	0074893	Microcontroller systems	Marko Munih	45		30			75	150	6	1st semester	no
4.	0074894	Modelling and signal processing	Gregor Klančar	45		30			75	150	6	1st semester	no
5.	0074904	Software Engineering	Jovan Bojkovski	45		30			75	150	6	1st semester	no
6.	0074892	Metrology	Janko Drnovšek, Jovan Bojkovski	45		30			50	125	5	2nd semester	no
7.	0074898	Testing and Energy Efficiency	Igor Pušnik	45		30			50	125	5	2nd semester	no
8.	0074899	Regulation and Control Techniques	Igor Škrjanc, Vito Logar	30		30			65	125	5	2nd semester	no
9.	0074901	Sensors and Data Acquisition	Samo Beguš	30		30			65	125	5	2nd semester	no
10.	0074902	Statistical Process Control	Boštjan Likar	30		30			65	125	5	2nd semester	no
11.	0082644	Elective general course		30		30			65	125	5	2nd semester	yes
Total				435	0	345	0	0	720	1500	60		

Year 3

				Contact hours									
University Course Code	Course title	Lecturers		Lectures	Seminar	Tutorials	Clinical tutorials	Other forms of study	Individual student work	Total hours	ECTS	Semesters	Elective

1.	0074907	Systems Quality	Janko Drnovšek	45		45			85	175	7	1st semester	no
2.	0074921	Robotics and production systems	Roman Kamnik	45		45			60	150	6	1st semester	no
3.	0074922	Reliability and Maintainability of Components and Systems	Marko Topič	45		45			85	175	7	1st semester	no
4.	0082658	Elective professional module		60		60			150	270	10	1st semester	yes
5.	0074834	Practical Training							500	500	20	2nd semester	no
6.	0074819	Diploma thesis							250	250	10	2nd semester	no
Total				195	0	195	0	0	1130	1520	60		

Year 1, Discipline related electives

				Contact hours									
	University Course Code	Course title	Lecturers	Lectures	Seminar	Tutorials	Clinical tutorials	Other forms of study	Individual student work	Total hours	ECTS	Semesters	Elective
1.	0082635	Automatic Control	Gašper Mušič	30		30			65	125	5	2nd semester	yes
2.	0082637	Programmable Digital Systems	Andrej Trost	30		30			65	125	5	2nd semester	yes
3.	0082638	Mechatronics	Vanja Ambrožič	30		30			65	125	5	2nd semester	yes
4.	0082640	Communication Systems	Andrej Kos, Matevž Pustišek	30		30			65	125	5	2nd semester	yes
5.	0082642	Technical Quality	Gaber Begeš, Janko Drnovšek	30		30			65	125	5	2nd semester	yes
Total				150	0	150	0	0	325	625	25		

Student selects one elective of 5 ECTS from above offered or can have recognized 5 ECTS from selection of a subject in other study programmes. redmet ob vpisu v letnik.

Year 2, Discipline related electives

				Contact hours									
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	University Course Code	Course title	Lecturers	Lectures	Seminar	Tutorials	Clinical tutorials	Other forms of study	Individual student work	Total hours	ECTS	Semesters	Elective
1.	0082651	Robotics	Matjaž Mihelj	30		30			65	125	5	2nd semester	yes
2.	0082648	Fundamentals of Microprocessor Electronics	Marko Jankovec	30		30			65	125	5	2nd semester	yes
3.	0082653	Electrical Installations and Lighting	Grega Bizjak	30		30			65	125	5	2nd semester	yes
4.	0082654	Optical Communication Basics	Boštjan Batagelj	30		30			65	125	5	2nd semester	yes
5.	0082655	Sensors and Data Acquisition	Samo Beguš	30		30			65	125	5	2nd semester	yes
6.	0102011	English	Nina Bostič Bishop	30		30			65	125	5	2nd semester	yes
7.	0082657	Physical Education	Iztok Mihevc	10	5	60			50	125	5	2nd semester	yes
Total				190	5	240	0	0	440	875	35		

Student selects one elective of 5 ECTS (4 contact hours per week) from above offer or can have selected electives from other study programmes recognized.

Year 3, Izbirni strokovni modul

				Contact hours									
	University Course Code	Course title	Lecturers	Lectures	Seminar	Tutorials	Clinical tutorials	Other forms of study	Individual student work	Total hours	ECTS	Semesters	Elective
1.	0082675	Module A: Measurement Systems in Processes	Dušan Agrež, Janko Drnovšek, Jovan Bojkovski	30		30			65	125	5	1st semester	yes
2.	0082676	Module A: Control of Quality and Reliability	Gaber Begeš	30		30			65	125	5	1st semester	yes

3.	0082678	Module B: Integrated Circuits	Andrej Žemva	30		30			65	125	5	1st semester	yes
4.	0082679	Module B: Digital Electronic Systems Design	Andrej Žemva	30		30			65	125	5	1st semester	yes
5.	0082680	Module C: Electromagnetic Devices Design	Damijan Miljavec	30		30			65	125	5	1st semester	yes
6.	0082681	Module C: Electrical Power Engineering	Marko Čepin	30		30			65	125	5	1st semester	yes
7.	0082682	Module D: Communication Security	Anton Umek	30		30			65	125	5	1st semester	yes
8.	0082683	Module D: Satellite and Navigation Systems	Boštjan Batagelj	30		30			65	125	5	1st semester	yes
9.	0082684	Module E: Software Quality	Jovan Bojkovski	30		30			65	125	5	1st semester	yes
10.	0082686	Module E: Innovation Process and Patenting	Igor Pušnik	30		30			65	125	5	1st semester	yes
11.	0082687	Module F: Applied Electromagnetics	Iztok Humar, Marko Meža	30		30			65	125	5	1st semester	yes
12.	0082688	Module F: Practical Mathematics	Melita Hajdinjak	30		30			65	125	5	1st semester	yes
Total				360	0	360	0	0	780	1500	60		

Student selects one elective programme module (a, B, C, D, E or F) ob 10 ECTS from above offer. More info about selection available at the faculty.