SECOND-CYCLE INTERDISCIPLINARY MASTER'S STUDY PROGRAMME

MULTIMEDIA

HANDBOOK

for students enrolled for the first time in the first year in the 2025/2026 academic year

Ljubljana, 2025

Main objectives of the programme

To offer the technical and non-technical aspects of the field of multimedia and their mutual synergy, specifically:

• provide systemic knowledge in the fields of telecommunications and computer science,
• train students to analyse problems, search relevant sources and critically assess information obtained,
• train students to plan and implement multimedia solutions, both in technical and user aspects,
• provide knowledge in the area of software development,
• provide knowledge in the areas of analysing, discovering and visualising data and information,
• provide knowledge in the area of analysing and processing multimedia content,
• train students for teamwork with experts in technical and non-technical fields, including the capacity for active communication in written or verbal form.

General competences

- ability to define, understand and creatively address problems in the broader field of multimedia,
- ability to think critically on the basis of analysis and synthesis,
- systemic knowledge, ability to undertake research and planning,
- show professional, environmental and social responsibility,
- ability to engage in active technical communication in written and oral form,
- ability to make optimal use of information and communication technologies and develop them,
- ability to autonomously keep abreast of the latest achievements and acquire new knowledge,
- ability to search sources, critically assess information and communicate knowledge,
- capacity for teamwork with experts in technical and non-technical fields.

Subject-specific competences

- master basic and specialised knowledge in the field of telecommunications and information systems,
- ability to generate technical plans and implement multimedia systems and services,
- ability to plan and implement multimedia systems from the user standpoint, including user experience,
- familiarisation with modern methods of software development in multimedia systems,
- familiarisation with the basic properties of designing information and visual communication,
- ability to understand data and extract knowledge from data,
- ability to analyse various types of multimedia content,
- ability to acquire knowledge from complementary technical fields and the business sector and understand it.

Admission requirements

Enrolment in the master's programme is open to candidates who have completed:

a) a study programme of at least the first cycle, with a value of at least 180 ECTS credits, in the technical fields of Information and Communication Technologies, Engineering and engineering trades, Mathematics and Statistics, Physical Sciences (physics, chemistry and related disciplines), Inter-disciplinary programmes and qualifications involving natural sciences, mathematics and statistics, Building and civil engineering and Inter-disciplinary programmes and qualifications involving engineering, manufacturing and construction or an equivalent study programme acquired under the existing regulations in Slovenia or abroad;

b) a study programme of at least the first cycle, with a value of at least 180 ECTS credits, in other technical fields or an equivalent study programme acquired under the existing regulations in Slovenia or abroad, if prior to enrolment the candidate has completed the study requirements that are essential for further study. These requirements must comprise content in the technical fields listed under point a) of these conditions, valued at

10 to a maximum of 60 ECTS credits, as determined by the Senates of the Faculty of Computer and Information Science (FRI) and Faculty of Electrical Engineering (FE).

Selection criteria for limited enrolment
In the event of a decision limiting enrolment, candidates will be selected depending on:

- first-cycle studies GPA (20% of points),

- selection exam results (80% of points).

The selection exam will cover the fields of mathematics, programming, algorithms, communication systems, internet protocols and the properties of multimedia content, and will be held in the first half of September, after the deadline to register for the study programme.

Criteria for recognising knowledge and skills acquired prior to enrolment
Knowledge which is suitable in content and scope to the educational content of courses in the second-cycle master's study programme in Multimedia can be recognised in the education process. Recognition of knowledge and skills acquired prior to enrolment is decided upon by the Committee for Study Affairs of FRI and the Study Committee of FE, on the basis of a written application from the student, enclosing certificates and other documents demonstrating successfully acquired knowledge and the substance of such knowledge, and in accordance with the Rules on the procedure and criteria for recognising non-formally acquired knowledge and skills, adopted by the UL Senate on 29 May 2007.

Assessment methods
The methods of assessment comply with the UL Statutes and are set out in the curriculums.

Requirements for progression through the course
In order to enrol in the second year, students must have completed first-year course units in the amount of 54 ECTS credits.

In accordance with Article 153 of the Statutes of the University of Ljubljana, in exceptions students may enrol in the next year even if they have not completed all the requirements for progress, if they have justified reasons for so doing, such as: maternity, lengthy illness, exceptional family and welfare circumstances, recognised status of person with special needs, active participation in top-level professional, cultural and sports events and active participation in university bodies. Possible exceptional enrolment based on a student's application is decided on by the FRI Committee for Study Affairs.

For repeat enrolment in the same year students must have completed at least half the programme requirements of that year (i.e. 30 credits).

Students may in exceptions repeat a year even if they have not completed all the requirements for repeating, if they have justified reasons for so doing as set out in Article 153 of the Statutes of the University of Ljubljana, such as: maternity, lengthy illness, exceptional family and welfare circumstances, recognised status of person with special needs, active participation in top-level professional, cultural and sports events and active participation in university bodies. Possible exceptional repeat enrolment based on a student's application is decided on by the FRI Committee for Study Affairs.

Requirements for transferring between programmes
In accordance with Article 6 of the Criteria for Transferring between Programmes, it is possible to transfer between study programmes that: (1) upon completion of studies ensure the acquisition of comparable competences and (2) for which it is possible to recognise at least half the course units under the European Credit Transfer System (ECTS) from the first study programme relating to compulsory subjects of the second study programme. The conditions for transfer to the second-cycle interdisciplinary master's study programme in Multimedia from other programmes (master's programmes) are as follows: - conditions fulfilled for enrolment in the second-cycle interdisciplinary master's study programme in Multimedia, - conditions fulfilled for enrolment in the second year of the study specialisation in which the student is currently

enrolled, with the added condition that they have completed the requirements in all mandatory courses of the first year or equivalent courses at other higher education institutions whose appropriateness is assessed by the Committee for Study Affairs of FRI and the Study Committee of FE.

Students can be granted consent for parallel enrolment in another study programme on the basis of an individual application and their study performance.

Requirements for completing the study programme
To complete the study programme, students must complete all prescribed course units, for a total of 120 credits, including their master's thesis.

Requirements for completing individual parts of the programme if the programme contains them
/

Professional or academic title (male)

- Master of Science

Professional or academic title (female)

- Master of Science

Professional or academic title (abbreviated)

- M. Sc.

STUDY PROGRAMME CURRICULUM
MULTIMEDIA

2025/2026

Name of study programme	**Multimedia**
Programme characteristics	interdisciplinary
Type	master's
Cycle	master
University of Ljubljana members	• Faculty of Electrical Engineering, Tržaška cesta 25, 1000 Ljubljana, Slovenija • Faculty of Computer and Information Science, Večna pot 113, 1000 Ljubljana, Slovenija - coordinator

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.	0075702	Transmission of multimedia signals	Anton Umek	45		30			105	180	6	1st semester	no
2.	0075704	User-adapted communication	Andrej Košir	45		30			105	180	6	1st semester	no
3.	0082114	Interaction and Information Design	Ciril Bohak	45	20	10			105	180	6	1st semester	no
4.	0165289	Specialist elective course FRI		90		60			210	360	12	1st semester, 2nd semester	yes
5.	0165290	Specialist elective course FE		90		60			210	360	12	1st semester, 2nd semester	yes
6.	0075703	Multimedia Content Transfer	Anton Kos	45		30			105	180	6	2nd semester	no
7.	0075158	Web information extraction and retrieval	Marko Bajec	45	10	20			105	180	6	2nd semester	no
8.	0082861	Advanced Software Development Methods	Damjan Vavpotič	45	10	20			105	180	6	2nd semester	no
		Total		450	40	260	0	0	1050	1800	60		

Year 1, Specialist elective course FRI (students choose 12 ECTS)

| | 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.	0082821	Information Security and Privacy	Denis Trček	45		30			105	180	6	1st semester	yes
2.	0088091	Digital marketing	Vesna Žabkar	45		30			105	180	6	1st semester	yes
3.	0148113	Natural language processing	Marko Robnik Šikonja	45	10	20			105	180	6	2nd semester	yes
4.	0574758	Numerical Mathematics	Aljaž Zalar	45		30			105	180	6	1st semester, 2nd semester	yes
5.	0073694	Machine Learning	Jana Faganeli Pucer	45	6	24			105	180	6	1st semester	yes
		Total		225	16	134	0	0	525	900	30		

Year 1, Specialist elective course FE (students choose 12 ECTS)

| | 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.	0075708	Sensor systems and multimedia	Sara Stančin	45		30			75	150	6	1st semester	yes
2.	0075707	Visual Communication Design	Boštjan Botas Kenda	45		30			105	180	6	1st semester	yes
3.	0090461	Ambient intelligence	Matej Zajc	45		30			105	180	6	2nd semester	yes
4.	0090462	Multimedia content processing	Urban Burnik	45		30			75	150	6	2nd semester	yes
		Total		180	0	120	0	0	360	660	24		

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.	0165305	Module FE - course 2 (student selects Module FE A or Module FE B)		90		60			210	360	12	1st semester	yes
2.	0165307	Module FRI – course 2 (student selects Module FRI A or Module FRI B)		90		60			210	360	12	1st semester, 2nd semester	yes
3.	0086926	General elective course		45		30			105	180	6	1st semester	yes
4.	0069530	General elective course		45		30			105	180	6	2nd semester	yes
5.	0153664	Master thesis							720	720	24	1st semester, 2nd semester	no
		Total		270	0	180	0	0	1350	1800	60		

Year 2, Module FE A User-oriented (Students choose 2 courses from one of the 2 modules offered)

	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.	0090463	Multimedia Terminals	Matej Zajc	45		30			105	180	6	1st semester	yes
2.	0090464	User Experience Design	Matevž Pogačnik	45		30			105	180	6	1st semester	yes
		Total		90	0	60	0	0	210	360	12		

Year 2, Module FE B System-oriented (Students choose 2 courses from one of the 2 modules offered)

	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.	0090466	3D sound in multimedia	Jaka Sodnik	45		30			105	180	6	1st semester	yes
2.	0090467	Embedded Systems in Multimedia	Iztok Fajfar	45		30			105	180	6	1st semester	yes
		Total		90	0	60	0	0	210	360	12		

Year 2, Module FRI A User-oriented (Students choose 2 courses from one of the 2 modules offered)

	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.	0082828	Human-Computer Interaction	Ciril Bohak, Luka Čehovin Zajc	45		30			105	180	6	1st semester	yes
2.	0075165	Image based biometry	Peter Peer	45	10	20			105	180	6	1st semester	yes
3.	0082596	Computer based sound production	Denis Trček	45		30			105	180	6	1st semester	yes
4.	0148113	Natural language processing	Marko Robnik Šikonja	45	10	20			105	180	6	2nd semester	yes
5.	0148094	Advanced Computer Graphics	Matija Marolt	45		30			105	180	6	2nd semester	yes
		Total		225	20	130	0	0	525	900	30		

Year 2, Module FRI B User-oriented (Students choose 2 courses from one of the 2 modules offered)

	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.	0082823	Cloud Computing	Branko Matjaž Jurič	45	20	10			105	180	6	1st semester	yes
2.	0082821	Information Security and Privacy	Denis Trček	45		30			105	180	6	1st semester	yes
3.	0082727	Cryptography and Computer Security	Aleksandar Jurišić	45	10	20			105	180	6	1st semester, 2nd semester	yes
4.	0082617	Wireless Sensor networks	Nikolaj Zimic	45	10	20			105	180	6	2nd semester	yes
5.	0127821	Algorithms	Andrej Brodnik	45	20	10			105	180	6	2nd semester	yes
		Total		225	60	90	0	0	525	900	30		

Year 2, General elective courses

	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.	0125918	Computer science and society 1	Slavko Žitnik	5				40	45	90	3	1st semester, 2nd semester	yes
2.	0125919	Computer science and society 2	Slavko Žitnik	5				40	45	90	3	1st semester, 2nd semester	yes
3.	0088147	Interdisciplinary projects	Matevž Pesek	30		60			90	180	6	1st semester, 2nd semester	yes
		Total		40	0	60	0	80	180	360	12		