



REPUBLIC OF CROATIA



JOSIP JURAJ STROSSMAYER UNIVERSITY OF OSIJEK
FACULTY OF ELECTRICAL ENGINEERING



ETFOS

DIPLOMA SUPPLEMENT

This Diploma Supplement follows the model developed by the European Commission, Council of Europe and UNESCO-CEPES. The purpose of the Supplement is to provide sufficient independent data to improve the international transparency and fair academic and professional recognition of qualifications (diplomas, degrees, certificates, etc.). The Diploma Supplement is designed to provide a description of the studies (their nature and level, context, content and status) that were pursued and successfully completed by the individual named on the original qualification to which this Supplement is appended. It should be free from any value judgments, equivalence statements or suggestions about recognition. Information in all eight sections should be provided. Where information is not given, an appropriate explanation should be provided.

1. INFORMATION IDENTIFYING THE HOLDER OF THE QUALIFICATION

1.1. Family name(s)

Hojsak

1.2. Given name(s)

Hrvoje

1.3. Date (day/month/year), place and country of birth

12 July 1986

Osijek

Republic of Croatia

1.4. Student identification number

0165023384

2. INFORMATION IDENTIFYING THE QUALIFICATION

2.1. Qualification (in original language)

magistar inženjer elektrotehnike
mag.ing.el.

2.2. Main field(s) of study

Graduate Study Programme in Electrical Engineering, branch:
Communications and Informatics

2.3. Institution awarding the qualification

Sveučilište Josipa Jurja Strossmayera u Osijeku, Elektrotehnički fakultet Osijek (a public higher education institution), accreditation issued by the Minister of Science, Education and Sports of 2 June 2005, following an evaluation by the National Council for Higher Education dated 1 June 2005, for university graduate study programme (second cycle) in electrical engineering.

2.4. Name and type of the institution administering studies (if different from 2.3.)

2.5. Language(s) of instruction:

Croatian

3. INFORMATION ON THE LEVEL OF THE QUALIFICATION

3.1. Level of qualification

University graduate study programme (second cycle)

3.2. Official length of programme

Two years, 120 ECTS credits

3.3. Access requirements

Completed university undergraduate study programme (first cycle) in electrical engineering or computer engineering (180 ECTS credits)

4. INFORMATION ON THE CONTENTS AND RESULTS GAINED

4.1. Mode of study

Part-time

4.2. Programme requirements

Upon graduation master's degree holders have acquired knowledge and skills in the field of mathematics, physics, science and engineering required for solving complex engineering problems in the field of power engineering and communication systems.

Concept of the study programme, branch Communications and Informatics, is based upon a systematic approach to solving engineering and research tasks in the field of communications and multimedia. At the beginning, the study programme offers courses dealing with phenomena in the communication system; then, it continues with courses involving corresponding analysis and synthesis methods. In the end, courses impart knowledge on the design of components and communication and multimedia systems. Furthermore, special attention is paid to public health care, security and environment protection.

Master's degree holders in electrical engineering are qualified to investigate complex problems in various branches of communications and multimedia following the latest trends and adopting different technological changes and innovations in this field. They are able to analyse and come to relevant conclusions. In addition, master's degree holders can apply adequate methods with the aim of solving specific practical and theoretical problems where they are able to create, select and apply respective techniques, and modern engineering tools understanding at the same time limits such tools might have.

Students acquire a good insight into relevant literature which contains important theoretical background accompanied with methods from this field of science and engineering.

Master's degree holders specialised in the branch of communications and informatics have acquired the necessary knowledge to do tasks that include planning, researching, developing, designing, manufacturing, modernization and maintaining, which involves the following activities:

- to design public telecommunications networks representing an information basis for the overall society and economy;
- to develop and implement complex network technologies;
- to design, implement and maintain business and private networks and corresponding computer systems;
- to develop, design, implement and maintain radio communication systems;
- to apply advanced technologies of multimedia communications and multimedia;
- to plan and supervise quality assurance of electronic and communication systems;
- to perform complex measurements and experiments on communication systems with special attention paid to analyzing the impact of electrical engineering on humans and the environment;
- to apply and maintain hardware and software of design systems in other branches of science.

4.3. See next page

4.4. Grading scheme and description

ECTS grading scale		National grading scale	
86-100%	A	Outstanding	5
71-85%	B	Very good	4
56-70%	C	Good	3
50-55%	D	Satisfactory	2
40-49%	E	Sufficient	2
25-39%	FX	Unsatisfactory (fail)	1
0-24%	F	Insufficient (fail)	1

4.5. Average grade during the study programme and performance level, if applicable

Comprehensive classification for the qualification of the Master of Electrical Engineering	Final average percentage of the knowledge, skills and competencies acquired by students during the programme	Latin classification of honours for Master's degree in Electrical Engineering
First class	80-100%	Master of Electrical Engineering, branch: Communications and Informatics – summa cum laude
Second upper class	70-79%	Master of Electrical Engineering, branch: Communications and Informatics – magna cum laude
Second lower class	60-69%	Master of Electrical Engineering, branch: Communications and Informatics – cum laude
Third class	50-59%	Master of Electrical Engineering, branch: Communications and Informatics – cum laude
Passed	40-49%	Master of Electrical Engineering, branch: Communications and Informatics – cum laude
Failed – ineligible for certificate	0-39%	

ECTS grading scale: each subject carries a total of 100 points. One point represents 1% of total knowledge, skills and competencies acquired. The percentage of the knowledge, skills and competencies acquired by students is expressed on the scale ranging from 0 to 100%. Minimum required knowledge, skills and competencies acquired by the student to pass the examination on a subject amounts to 40%. The manner of acquiring the points (both minimum and maximum) is defined in the following table:

Model	I	II	III	IV
a) Lectures and auditory exercises (attendance)*	0-10	0-10	0-10	0-10
b) Laboratory exercises	10-25	12-30	16-40	
c) Seminars/Homework	10-25	12-30		16-40
d) Mid-term exams/final exam (auditory exercises)	16-40	12-30	20-50	20-50
Total:	40-100	40-100	40-100	40-100

*Minimum class attendance is defined by respective instructor.

If a course does not include laboratory exercises, several homework assignments or seminar papers are mandatory, with the aim to increase students' independent workload. A student who achieves the level of adopted knowledge, skills and competencies from 0% to 39% receives the grades 'unsatisfactory' and 'insufficient', i.e. FX or F, and does not meet the requirements to earn the qualification. Students with points achieved during a semester, as shown in the table, are candidates for the final oral exam according to the ECTS grading scale.

Instructors in each course may adjust the tables to comply with the specific characteristics of each study programme. Mid-term exams that are part of the written examination during a year are mandatory and the decision whether the oral part of the examination is mandatory or not is made by respective course instructors and announced to students. National grading system: grades from 1 (insufficient) to 5 (outstanding).

Total ECTS credits: 120

Degree certificate number: D-132/305

Study programme start date: 1 October 2009

Grade point average: 3.316

Study programme end date: 27 March 2014

5. INFORMATION ON THE FUNCTION OF THE QUALIFICATION

5.1. Access to further study

By completing the university graduate study programme (second cycle), the master's degree holder gains the prerequisite to enrol in postgraduate specialist study programmes and postgraduate doctoral study programmes to acquire the academic degree of a Doctor of Science at the Faculty of Electrical Engineering and other institutions. More information on access requirements for the postgraduate study programmes at the Faculty of Electrical Engineering in Osijek is available on the Faculty's website. Access requirements for postgraduate doctoral or specialist study programmes at other higher education institutions are determined by those institutions.

5.2. Professional status

The holder of this qualification is entitled to bear the legally protected academic title of the Master of Electrical Engineering (mag.ing.el.), carry out research and professional work in the field for which the title was awarded and can be employed in business, scientific research institutions and public sector. Due to achieved knowledge and competencies, employment is not necessarily limited to electrical engineering.

4.3 Programme information, grades and ECTS credits

At the university graduate study programme (second cycle), classes are generally carried out in various forms: lectures, auditory exercises, laboratory exercises and design exercises where particular courses are carried out through one or several aforementioned forms. More information regarding particular study programmes is available on the Faculty's website.

No.	Subject	Semester	Load				Total hours	ECTS credits	Date of examination	Grade
			L	AE	LE	DE				
1	Numerical Mathematics	1	30	30			60	5.0	22.9.2010.	2
2	Digital Signal Processing	1	30	15	15		60	5.0	4.10.2010.	3
3	Theory of EM Fields and Waves	1	45	30			75	6.0	21.2.2013.	2
4	Computer Networks	1	30	15	15		60	5.0	29.4.2010.	4
5	Microelectronics	1	30	15	15		60	4.5	23.6.2010.	4
6	Automation and Formal Languages	1	30	15	15		60	4.5	14.7.2010.	3
7	Transmitters	2	45	15	15		75	7.0	21.11.2012.	4
8	Internet Programming	2	45	15	15		75	7.0	14.10.2010.	5
9	Multimedia Systems	2	45		15	15	75	7.0	24.9.2010.	2
10	Radio-relay and Satellite Communications	2	30	15	15		60	4.5	5.10.2010.	4
11	Information Technology and Management	2	30	15		15	60	4.5	15.9.2012.	3
12	Mobile communications	3	45	15	15		75	7.0	6.9.2011.	3
13	Receivers	3	45	15	15		75	7.0	3.9.2012.	3
14	Communication Protocols	3	45	15	15		75	7.0	19.2.2013.	4
15	Optical Communications	3	30	15	15		60	4.5	20.9.2012.	2
16	Distributed Computer Systems	3	45		30		75	4.5	19.2.2013.	3
17	Diploma Paper	4					240	21.0	27.3.2014.	5
18	Management	4	30	15			45	4.0	15.6.2011.	4
19	Project Management	4	30	15			45	5.0	9.12.2011.	3

6. ADDITIONAL INFORMATION

6.1. Additional information

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6.2. Further information sources


Republic of Croatia, Ministry of Science, Education and Sports, <http://www.mzos.hr>; University of Josip Juraj Strossmayer in Osijek, <http://www.unios.hr>; Faculty of Electrical Engineering Osijek, <http://www.etfos.hr>.

7. CERTIFICATION OF THE DIPLOMA SUPPLEMENT

7.1. Place and date

Osijek, 30 January 2015

7.2. Name and signature

Full Professor Drago Žagar, PhD	
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7.3. Capacity

Dean

7.3. Official stamp or seal

