REPUBLIC OF CROATIA

REPUBLIC OF CROATIA
UNIVERSITY OF ZAGREB
FACULTY OF ORGANIZATION AND INFORMATICS

University of Zagreb

DIPLOMA SUPPLEMENT

This Diploma Supplement model was 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.). It is designed to provide a description of the nature, level, context, content and status of the studies 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 judgements, equivalence statements or suggestions about recognition. Information in all eight sections should be provided. Where information is not provided, an explanation should give the reason why.

foi
FACULTY OF ORGANIZATION AND INFORMATICS VARAŽDIN

1 INFORMATION IDENTIFYING THE HOLDER OF THE QUALIFICATION

1.1	family name(s)	Marinov
1.2	given name(s)	Jure
1.3	date, place and country of birth	29 March 2002, Šibenik, Republic of Croatia
1.4	student identification number or code	0016149402

2 INFORMATION IDENTIFYING THE QUALIFICATION

2.1	name of qualification and (if applicable) title conferred (in original language)	Sveučilišni prvostupnik (baccalaureus) informatike; univ.bacc.inf.
2.2	main field(s) of study for the qualification	Information and Business Systems, module Analysis and design of business systems
2.3	name and status of awarding institution and study programmes accreditation act	University of Zagreb, Faculty of Organization and Informatics. Public higher education institution. The license for the university undergraduate study in Information Systems was issued by the Ministry of Science, Education and Sports of the Republic of Croatia [illegible]
2.4	name and status of institution (if different from 2.3) administering studies	---
2.5	language(s) of instruction/examination	Croatia.

3 INFORMATION ON THE LEVEL OF THE QUALIFICATION

3.1	level of qualification	University undergraduate study programme (first cycle degree), with bachelor thesis
3.2	official length of programme	Three-year study programme, 180 ECTS credits
3.3	access requirement(s)	Four-year secondary school

4 INFORMATION ON THE CONTENTS AND RESULTS GAINED

4.1	mode of study	Full-time study

4.2 **programme requirements and learning outcomes**

In the first year, students acquire basic knowledge and skills in informatics, programming, databases, business processes and business decision-making, mathematics, economics and organization. In addition, students are taught a professional foreign language and communication skills. In the second year of study, students expand their knowledge and skills in data structures and algorithms, information systems design, software engineering, operating systems and computer networks, web technologies, business process modelling, mathematics, statistics and operations research. In the third year of study, students enrol in one of the four modules offered: (1) Software Systems Development, (2) Networked Systems and Computer Games, (3) Artificial Intelligence in Business and (4) Business Systems Analysis and Design. Each module consists of 5 compulsory courses (3 courses in the 5th semester and 2 courses in the 6th semester) and 5 elective courses (3 courses in the 5th semester and 2 courses in the 6th semester). In the 5th and 6th semesters students must enrol in one of the offered elective courses from their module, and as other elective courses in the 5th and 6th semesters they can choose from the remaining elective courses of their module and elective courses of other modules from a particular semester. In this way, students are able to channel their own interests toward specific areas through elective courses. Module (1) - Software Systems Development - contains courses that are specifically dedicated to the development of software systems of different types of technologies (mobile and smartphones, web, etc.), software development methodologies, software testing and information systems security. Module (2) - Networked Systems and Computer Games - contains courses that are specifically focused on the development of various systems (networked systems, computer games, interactive systems), analysis of contemporary organizations for industry 4.0 and user interfaces design. Module (3) - Artificial Intelligence in Business - contains courses that are specifically dedicated to the theory and application of artificial intelligence, data analysis, knowledge modelling and knowledge discovery from data. Module (4) - Business Systems Analysis and Design - contains courses that are specifically dedicated to business analytics, IT entrepreneurship, digital transition, financial reporting, business planning and design of contemporary organizations. In the sixth semester, students do a short internship in a particular company, institution or laboratory. In the sixth semester, along with other courses, students enrol the Bachelor Thesis and independently write it, with its defence being a prerequisite for the completion of their studies. During their studies, students learn about various programming languages, systems and tools, which they use during the preparation of their seminar assignments, project assignments and Bachelor Thesis. The acquired knowledge is sufficient for inclusion in the labour market, especially in companies engaged in the development and application of software. Considering the acquired economic and organizational knowledge, a professional of this level is capable of business thinking and can un-

derstand the complementarity of the organizational and information system, which makes this study programme distinctive (unique) compared to other faculties engaged in profiling different types of IT professionals.

University Bachelors of Informatics, upon completing the study programme in Information and Business Systems, have acquired the following competences:

KNOWLEDGE AND UNDERSTANDING

— Understand the state and trends in the development of contemporary information and communication technologies (ICT), understand their impact on the individual, organization and society, and assess their applicability in a given context
— Understand relevant factors that affect the business operation of an organization and individuals, and apply basic methods and concepts of business planning, management and accounting
— Understand the basic vertical fields of ICT implementation (industry, healthcare, traffic, tourism, state, etc.) and its horizontal applications (office systems, DSS, CRM, ERP, DMS, etc.)
— Understand contemporary organizational concepts and manage organizational culture
— Understand the basic principles and methods of organizational management and have the ability to successfully work in a team

APPLICATION OF KNOWLEDGE AND UNDERSTANDING

— Understand and apply key aspects of information technology (programming, algorithms, data structures, data and knowledge bases)
— Understand and apply contemporary technical concepts and practices in information technologies (computer architecture, operating systems, computer networks)
— Understand and apply appropriate mathematical methods, models and techniques to solving problems in the information and business systems field
— Understand and apply contemporary methodological approaches to developing organizational and information systems, and designing organizations and organizational structures
— Understand and apply methods and techniques of information and software systems development in contemporary development environments
— Understand and apply processes, methods and technologies pertaining to IT services and resources management, and provisioning and support of different ICT related services

MAKING CONCLUSIONS AND JUDGEMENTS (DECISIONS)

— Analyze the state, identify opportunities and define problems faced by organizations and individuals in implementing ICT, and formulate solutions with the use of ICT
— Model business processes and data in organizations, and apply models in the development of organizational and information systems
— Understand and apply ethical principles, legislative regulation and norms that are applied in the professional field of discipline

PRESENTATIONS

— Successfully communicate with clients, users and colleagues in speaking and writing using appropriate terminology, including the ability to communicate about one's professional field of discipline in a foreign language

LEARNING SKILLS

— Keep track of professional literature in Croatian and a foreign language, prepare and independently deliver presentations in Croatian and a foreign language to professional and general public, and critically evaluate a presented professional topic
— Understand and apply study skills needed for lifelong learning and continuation of education at the graduate level
— Understand and apply basic principles of planning and development of a career in one's professional field of discipline and of one's own entrepreneurial ventures

4.3 **programme details**

	hours	ECTS credits	date of examination	grade	subject
1	90	8.0	29/01/21	3	Information and Computer Systems
2	60	5.0	25/01/21	3	Mathematics 1
3	60	5.0	27/01/21	3	Organization
4	45	3.0	25/01/21	3	English for Information Technology
5	60	3.0	29/01/21	5	Business communication
6	60	6.0	03/02/21	3	Computer Programming 1
7	30	0.0		+	Physical Education 1
8	60	6.0	18/06/21	3	Databases 1
9	60	6.0	18/06/21	2	Mathematics 2
10	60	5.0	14/06/21	2	Principles of economics for IT specialists
11	60	4.0	18/06/21	2	Operations management
12	60	4.0	15/06/21	2	Business Decision Making
13	60	5.0	17/09/21	2	Programming 2
14	30	0.0		+	Physical Education 2
15	75	7.0	28/01/22	2	Mathematical methods for informatics
16	60	5.0	24/01/22	4	Business Process Modeling
17	60	5.0	24/01/22	3	Operating systems
18	60	7.0	27/01/22	3	Information system development
19	60	6.0	25/02/22	2	Data Structures and Algorithms
20	30	0.0		+	Physical Education 3
21	60	6.0	21/06/22	3	Computer Network
22	60	4.0	23/06/22	2	Operations Research
23	60	5.0	13/06/22	2	Introduction to Web technologies
24	60	6.0	11/07/22	2	Software Engineering
25	60	5.0	13/06/22	3	Statistics and Probability
26	60	4.0	15/06/22	2	Informatics Services Management
27	30	0.0		+	Physical Education 4
28	60	6.0	01/02/23	4	Introductory Business Analytics
29	60	6.0	30/01/23	3	IT Entrepreneurship
30	60	6.0	30/01/23	3	Design Thinking in Digital Transformation
31	45	4.0	30/01/23	4	Process oriented applications
32	45	4.0	01/02/23	3	Digital marketing
33	45	4.0	01/02/23	2	Financial mathematics
34	60	6.0	14/06/23	4	Fundamentals of financial reporting and business plan
35	60	6.0	12/06/23	3	Design of modern organizations
36	55	2.0		+	Internship
37	—	8.0	26/09/23	4	Bachelor Thesis
38	45	4.0	15/05/23	3	Managing the application of IT in business
39	45	4.0	12/06/23	5	Communication and virtual teams in organizations

additional ECTS credits

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total ECTS credits 180

beginning of the study–end of the study 1 October 2020–26 September 2023

diploma number 2262

graduation thesis; mentor; defended on Ranking of sport teams using PageRank algorithm; Jelena Gusić Munđar; 26 September 2023

4.4	grading scheme and, if available, grade distribution guidance	In all courses continuous assessment and evaluation of student's work is applied, with each required activity in the course carrying a certain number of points. Each course should fit in one of several proposed models of assessment and evaluation of student's work. The final grade depends on the total number of points accumulated by the student during the semester. A student who has not accumulated sufficient points for a passing grade (2) should take the exam, so that his or her final grade will depend on the success in particular elements of the exam. The grading scale is: excellent (5), very good (4), good (3), satisfactory (2). In some courses grades are not awarded and instead the completion of all obligations is recorded by entering the "+" label in the student's transcript of grades.
4.5	average grade and overall classification of the qualification	Cumulative grade point average: 2.904

5 INFORMATION ON THE FUNCTION OF THE QUALIFICATION

5.1	access to further study	After completing this university undergraduate study programme, the student acquires the right to enrol in any of the four university graduate study programmes in informatics at the Faculty of Organization and Informatics of the University of Zagreb. The terms of admission to university or professional graduate study programmes at other higher education institutions are determined by these institutions.
5.2	employability and professional status, if applicable	The holder of this qualification is authorized to use the legally protected academic title of a Bachelor (Baccalaureus) of Informatics and to perform professional work in the field for which he or she has acquired the title. The study is based on basic knowledge in computer science, mathematics, economics and organization. Owing to that, students acquire the necessary knowledge and skills to solve medium complex tasks in various branches of industry and entrepreneurship and to face constant technological changes and innovations.

6 ADDITIONAL INFORMATION

6.1	additional information	—
6.2	further information sources	Faculty of Organization and Informatics Varaždin, www.foi.unizg.hr

7 CERTIFICATION OF THE SUPPLEMENT

7.1 place and date	7.2 name and signature	7.3 capacity	7.4 official stamp or seal
Varaždin, 26 September 2023	Full Professor Marina Klačmer Čalopa, PhD	Dean	

8.1 Types of higher education institutions

Higher education institutions include universities, faculties, art academies and universities of applied sciences.

UNIVERSITIES are higher education institutions that set up and carry out university study programmes in at least two scientific areas or in the scientific and artistic area and in at least three fields. Universities can also carry out professional study programmes. A university can set up a FACULTY and ART ACADEMY as its constituent unit with legal personality. A university department, faculty or art academy as well as an institute, centre, clinic or another constituent unit can be also established by a university as its constituent unit without legal personality. Universities and their constituent units perform the higher education activity as well as the scientific or artistic, as well as professional activity.

UNIVERSITIES OF APPLIED SCIENCES are higher education institutions that carry out professional study programmes. They perform both the higher education activity and professional activity, and they can also perform the scientific or artistic activity.

Public universities are established by the law, public universities of applied sciences are established by a regulation of the Government of the Republic of Croatia, and private higher education institutions are set up by a founder's decision.

8.2 Types of study programmes

Higher education institutions carry out UNIVERSITY and PROFESSIONAL STUDY PROGRAMMES.

UNIVERSITY STUDY PROGRAMMES prepare students for performing jobs in science, art and higher education, in the world of business, the public sector and society at large, as well as for creating and applying the scientific, artistic and professional achievements.

PROFESSIONAL STUDY PROGRAMMES prepare students for performing professional jobs in the business sector, the public sector and society at large.

Study levels are the following: short-cycle study programme, undergraduate study programme, graduate study programme and postgraduate or doctoral study programme.

The Republic of Croatia joined the Bologna Process in 2001, and since 2005 learning outcomes and student workload have been defined in study programmes through awarding ECTS credits. As a rule, a student may be awarded 60 ECTS credits during an academic year.

A SHORT-CYCLE PROFESSIONAL STUDY PROGRAMME lasts two years and a student is required to earn 120 ECTS credits.

The admission requirement for a short-cycle professional study programme is the completion of a relevant secondary education programme, in accordance with the requirements laid down by the higher education institution.

Upon completion of the study programme, a certificate and diploma supplement are issued to the student who obtains the professional title of Associate in a particular field.

A UNIVERSITY OR PROFESSIONAL UNDERGRADUATE STUDY PROGRAMME is carried out as the first cycle study programme. It can either last three years and a student is required to earn at least 180 ECTS credits or four years and a student is required to earn at least 240 ECTS credits.

A graduate from a relevant secondary education programme lasting for at least four years who has passed the State Matura exam may enrol in an undergraduate study programme.

A graduate from a short-cycle professional study programme may enrol in a professional undergraduate study programme. Exceptionally, it is possible to enrol in an undergraduate study programme in the artistic area without previously having completed the relevant secondary education and on the basis of recognition of non-formal and informal learning. More detailed admission requirements for an undergraduate study programme are laid down by the higher education institution.

Upon completion of the study programme, a diploma and diploma supplement are issued to the student.

Upon completion of a university undergraduate study programme, the academic title of University Bachelor (baccalaureus) in a particular field (univ. bacc.) is obtained. Upon completion of a professional undergraduate study programme, the professional title of Bachelor (baccalaureus) in a particular field (bacc.) is obtained.

A UNIVERSITY OR PROFESSIONAL GRADUATE STUDY PROGRAMME is carried out as the second cycle study programme. It usually lasts for two years and a student is required to earn at least 120 ECTS credits. The admission requirement is the completion of a three-year undergraduate study programme with at least 180 ECTS credits earned.

Graduate study programmes that last for one academic year are also carried out, and a student is required to earn at least 60 ECTS credits. Graduates from a four-year university or professional undergraduate study programme who have earned 240 ECTS credits may enrol in a graduate study programme.

As a rule, a graduate from a university undergraduate study programme may enrol in a university graduate study programme, while a graduate from a professional undergraduate study programme may enrol in a professional graduate study programme. However, there is a possibility for a graduate from a professional undergraduate study programme to enrol in a university graduate study programme, on condition of passing bridging exams. More detailed admission requirements for a specific study programme are laid down by the higher education institution.

Upon completion of the study programme, a diploma and diploma supplement are issued to the student.

Upon completion of a university graduate study programme the academic title of University Master in a particular field (univ. mag.) is obtained, while in the area of technical sciences and some study programmes in the area of biotechnical sciences the academic title of University Master Engineer in a particular field (univ. mag. ing.) is obtained. Upon completion of a professional graduate study programme the professional title of Master in a particular field (mag.) is obtained, while in the area of technical sciences the title of Master Engineer in a particular field (mag. ing.) is obtained.

The UNIVERSITY INTEGRATED UNDERGRADUATE AND GRADUATE STUDY PROGRAMME comprises the first and second cycle of higher education. It can either last five years and a student is required to earn at least 300 ECTS credits, or six years a student is required to earn at least 360 ECTS credits.

A graduate from a relevant secondary education programme lasting for at least four years who has passed the State Matura exam may enrol in a university integrated undergraduate and graduate study programme. Exceptionally, it is possible to enrol in a university integrated undergraduate and graduate study programme in the area of arts without previously having completed the relevant secondary education and on the basis of recognition of non-formal and informal learning. More detailed admission requirements for a university integrated undergraduate and graduate study programme are laid down by the higher education institution.

Upon completion of the study programme, a diploma and diploma supplement are issued to the student.

Upon completion of a university integrated undergraduate and graduate study programme the academic title of University Master in a particular field (univ. mag.) is obtained, while in the area of medicine, veterinary medicine and dental medicine the academic title of Doctor in a particular field (dr.) is obtained.

A UNIVERSITY SPECIALIST STUDY PROGRAMME is carried out as the third cycle study programme. It lasts for at least one year and not more than two years, and a student is required to earn between 60 and 120 ECTS credits.

A graduate from a relevant university graduate or university integrated undergraduate and graduate study programme may enrol in a university specialist study programme. Exceptionally, admission may be granted to a graduate from a professional graduate study programme on condition of passing supplemental exams. More detailed admission requirements for a university specialist study programme are laid down by the higher education institution.

Upon completion of the study programme, a diploma and diploma supplement are issued to the student.

Upon completion of a university specialist study programme the academic title of Specialist in a particular field (spec.) is obtained, while in the area of medicine, veterinary medicine, dental medicine, pharmacy and medical biochemistry the academic title of University Specialist in a particular field (univ. spec.) is obtained.

A DOCTORAL STUDY PROGRAMME is carried out as the third cycle study programme. It lasts for three years and a student is required to earn 180 ECTS credits.

A graduate from a relevant university graduate, university integrated undergraduate and graduate study programme or university specialist study programme may enrol in a doctoral study programme.

Upon completion of the study programme, a diploma and diploma supplement are issued to the student.

Upon completion of a doctoral study programme the academic degree of Doctor of Science in a particular scientific field (dr. sc. in a particular scientific field) or Doctor of Arts (dr. art.) is obtained.

8.3 Accreditation of higher education institutions and study programmes

The Agency for Science and Higher Education is the national body in charge of all types of quality assessment in higher education and science, in line with the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG). The Agency was founded by the Republic of Croatia. It is accredited on a regular basis and periodically reviewed by the European Association for Quality Assurance in Higher Education (ENQA), and is a full member of the European Quality Assurance Register for Higher Education (EQAR).

All higher education institutions in Croatia are required to undergo the initial accreditation procedure in order to obtain the license for performing the higher education activity.

The initial accreditation of all new study programmes is carried out by the Agency for Science and Higher Education by applying uniform criteria for all public and private higher education institutions in case of both university and professional study programmes.

The Agency for Science and Higher Education also carries out the regular re-accreditation procedure for Croatian higher education institutions as well as thematic reviews.

8.4 Grading system

The learning outcomes achieved during a period of study are graded by using the following grades:

EXCELLENT (5) - outstanding achievement corresponding to the letter grade A,
VERY GOOD (4) - above-average achievement corresponding to the letter grade B,
GOOD (3) - average achievement corresponding to the letter grade C,
SUFFICIENT (2) - satisfactory corresponding to the letter grade D,
INSUFFICIENT (1) - learning outcomes have not been achieved and the grade corresponds to the letter grade F.

Specific courses may be graded in a descriptive manner but without being calculated into the average of the grades attained during a period of study.

8.5 National Qualifications Framework

The Croatian Qualifications Framework (CROQF) is an instrument for regulating the entire system of qualifications at all education levels in the Republic of Croatia. It provides the referencing of levels of qualifications obtained in the Republic of Croatia to the levels of the European Qualifications Framework (EQF) and the Qualifications Framework for the European Higher Education Area (QF-EHEA).

More information on the Croatian Qualifications Framework is available at http://www.kvalifikacije.hr