



COURSE CATALOG

Information for incoming students
applying for 2020/21 at FOI

\ Foreword \ Guidelines \ List of Courses



Faculty of Organization and Informatics
University of Zagreb



FOREWORD

Exchange students (coming via Erasmus+ programme, bilateral cooperation and freemovers) should choose courses from the list below containing **all courses** at the **Faculty of Organization and Informatics (FOI)** that are taught in English. Aside courses, students can enroll in one or more **short intensive programmes (workshops)**.

Exchange students who can prove that they have a sufficient knowledge of the Croatian language can be allowed to take courses that are taught and examined in Croatian.

This list can still undergo changes until the start of the semester, but it can be used as a guideline for putting together an acceptable **Learning Agreement (LA)** for Erasmus+ and other applicants. The Learning Agreement can still be changed upon arrival.

Students who would like to write a **final thesis**, need to find a lecturer at our Faculty who accepts to be their mentor before the application deadline. Please contact us for more information on this possibility.

Most of the short intensive programmes (workshops) will be organized in summer (second) semester. Students can enroll in one or more workshops.

CONTACT

For more information about the courses and workshops please contact:

- **FOI ECTS coordinator (academic advisor)** – Asst. Prof. Martina Tomičić Furjan, Ph.D., ects.coordinator@foi.hr
- **FOI International Relations Office**, international@foi.hr



GUIDELINES

ONE



We advise exchange students to take around 30 ECTS credits per semester.

TWO



The courses are selected by bachelor and master programme, informatics or economics study programme, but exchange students can take courses from the different study programmes and study level.

THREE



Always check the prerequisites of each course (by clicking on the course description), to see whether you have enough previous knowledge to follow the course.

FOUR



For more information about the course (content, prerequisites, evaluation etc.), please click on the course description or search the course on FOI website.

FIVE



If you miss some information about the course or a workshop that you would like to take, please contact FOI ECTS coordinator (academic advisor).

SIX



Most of the courses are offered as blended learning courses. Therefore, students can use LMS to study some of the course materials.

LIST OF COURSES



Winter semester

Bachelor level

English language 1	
Summary	The aim of the course is to introduce students with the terminology in the field of informatics English and morphological and syntactic peculiarities of informatics English.
Lecturers	Andreja Kovačić, lecturer
ECTS	3
Study programme	Information/Business Systems, 1 st year BA

Business Communication	
Summary	The main goal of the course is student adoption of basic knowledge required for successful interpersonal communication in business environment and efficient figuration of messages in public and written communication and during the presentation of information. Also, the students will gain required knowledge and skills in applied fields of business communication, such as execution of presentation, sales communication, negotiation, conduction of meeting, interviewing, electronic mediated communication etc.
Lecturers	Full Prof. Goran Bubaš, Ph.D. Assoc. Prof. Violeta Vidaček-Hainš, Ph. D. Asst. Prof. Dijana Plantak Vukovac, Ph. D. Antonela Čižmešija, M. Inf.
ECTS	3
Study programme	Information/Business Systems, Economics of Entrepreneurship, 1 st year BA

Course description

Informatics Services Management	
Summary	The main goal of this course is to provide students with detailed overview of IT services, make them understand the rapidly growing service economy sector, understand and apply best practices and reference models for IT services and prepare them for professional service delivery within a service organization, including the definition of service strategy, service design, service management and service delivery. The practical part of this course

	enables students to meet all phases of service design while working on a team project.
Lecturers	Full Prof. Vjeran Strahonja, Ph.D. Assoc. Prof. Renata Mekovec, Ph.D. Asst. Prof. Katarina Pažur Aničić, Ph.D. Dijana Peras, M. Inf.
ECTS	4
Study programme	Information/Business Systems, 3 rd year BA

[Course description](#)

Databases 2

Summary	The goal of this course is to introduce the students to methods of database design. The content of the course is focused on design of relational databases because technology of relational databases, as a dominant commercial technology, is a base for development of relational/object systems, temporal database management systems and knowledge bases, and data warehouses.
Lecturers	Full Prof. Kornelije Rabuzin, Ph.D.
ECTS	6
Study programme	Information/Business Systems, 3 rd year BA

[Course description](#)

Advanced Computer Networks

Summary	The main goal of this course is to give students conceptual and practical knowledge in advance topics such as security, peer to peer architecture, wireless and mobile networks, multimedia streaming, routing, network management and network programming. This course develops critical thinking and promotes planning, making expert opinions and decisions based on the analytical approach, research, modelling, simulation and formal methods.
Lecturers	Asst. Prof. Nikola Ivković, Ph.D. Full Prof. Ivan Magdalenčić, Ph.D. Marko Peras, M. Inf. Asst. Prof. Igor Tomičić, Ph.D.
ECTS	6
Study programme	Information/Business Systems, 3 rd year BA

[Course description](#)

Selected Chapters in Biometrics

Summary	Main goal of the course is adoption of basic informatic knowledge and skills necessary for work with biometric characteristics, implementation and construction of biometric security systems, especially in everyday network environment. The students learn basic biometric characteristics, gathering methods, processing, storing and comparing biometric characteristics, and their use in comprehensive security systems. The students are also introduced to most recent achievements in the field of biometry development.
Lecturers	Full Prof. Miroslav Bača, Ph.D. Asst. Prof. Petra Grd, Ph.D.
ECTS	4
Study programme	Information/Business Systems, 3 rd year BA

Course description

Advanced Computer Networks

Summary	The main goal of this course is to give students conceptual and practical knowledge in advance topics such as security, peer to peer architecture, wireless and mobile networks, multimedia streaming, routing, network management and network programming. This course develops critical thinking and promotes planning, making expert opinions and decisions based on the analytical approach, research, modelling, simulation and formal methods.
Lecturers	Asst. Prof. Nikola Ivković, Ph.D. Full Prof. Ivan Magdalenčić, Ph.D. Marko Peras, M. Inf. Asst. Prof. Igor Tomičić, Ph.D.
ECTS	6
Study programme	Information/Business Systems, 3 rd year BA

Course description

Data Mining

Summary	This course introduces several fundamental concepts and methods for data mining. The objective is to familiarize the students with some basic learning algorithms and techniques and their applications, as well as general questions related to analyzing and handling large data sets. Several software's and data sets publicly available will be used to illustrate the application of these algorithms. The emphasis will be thus on data mining algorithms and applications, with some broad explanation of the underlying principles
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Lecturers	Full Prof. Božidar Kliček, Ph.D. Asst. Prof. Dijana Oreški, Ph.D.
ECTS	4
Study programme	Information/Business Systems, 3 rd year BA

[Course description](#)

Master level

Software Analysis and Design	
Summary	The aim of the course Software Analysis and Design is to introduce students to the life cycle and stages of development of modern software products. Program development has become an important branch of industry that has its own laws and specific standards. The course goes through all stages of the life cycle: analysis of the domain name system, the specification of program requirements, methods and techniques program modelling, program development, program testing and debugging. In addition, students learn fundamental approaches that are used in development and engineering of complex software systems and modern tools and procedures that make this process easier.
Lecturers	Full Prof. Neven Vrčec, Ph.D. Asst. Prof. Zlatko Stapić, Ph.D. Asst. Prof. Boris Tomaš, Ph.D.
ECTS	6
Study programme	Information and Software Engineering, 1 st year MA
Course description	

Knowledge Bases and Semantic Web	
Summary	The aim of course Knowledge Bases and Semantic Web is to acquaint students with two important, intertwined areas, dealing with intelligent structuring and intelligent processing of data (information) in the environment of the Web. Structured data in dynamic interaction with each other, a combination of classic search and deductive statements, resulting in knowledge bases. In recent years, the notion of knowledge base is replaced by the notion of ontologies. Semantic Web is set in the context of the Web and provides intelligent access to heterogeneous, distributed IT facilities. The course will provide students with the necessary theoretical knowledge, acquaint them with modern programming languages and tools, and pass them through practical work on computers equipped for the use of Semantic Web systems and their development.
Lecturers	Full Prof. Sandra Lovrenčić, Ph.D. Asst. Prof. Dijana Oreški, Ph.D.
ECTS	5
Study programme	Databases and Knowledge bases, 2 st year MA

Course description

Information Systems Security

Summary	The aim of the course is to introduce the students to the area of Information Security. The course focuses on the area of organizational and technical aspects of information security: from people, policy and processes to the technical measures like application security, cryptography, security testing and security architecture, we will show the ecosystem of threats and attacks on information systems with the combination of best practices how to design secure systems and organizations.
Lecturers	Full Prof. Miroslav Bača, Ph.D. Assoc. Prof. Sandro Gerić, Ph.D. Asst. Prof. Petra Grd, Ph.D. Asst. Prof. Igor Tomičić, Ph.D. Nikola Garafolić, M. Inf.
ECTS	5
Study programme	Databases and Knowledge Bases / Information and Software Engineering / Business Systems Organization, 1 st year MA

Course description

Multiagent Systems

Summary	The main objective of the course is to introduce students to the fundamental theoretical and practical principles of multi-agent systems. The course is focused on the formalization of multi-agent systems' features by applying various approaches including reasoning about knowledge, game theory, swarm theory, organization theory, automated negotiation, logic argumentation and automated planning.
Lecturers	Assoc. Prof. Markus Schatten, Ph.D. Asst. Prof. Bogdan Okreša Đurić, Ph.D.
ECTS	4
Study programme	Databases and Knowledge bases, 2 st year MA

Course description

Intelligent Systems

Summary	The aim of this course is to create a solid theoretical knowledge of intelligent systems technology and their most significant techniques, which should give a listener the competence to solve complex problems of practical implementation, as well as the research. In addition, the emphasis is on gaining competences for practical usage of theoretical knowledge to solve complex problems.
Lecturers	Full Prof. Božidar Kliček, Ph.D. Asst. Prof. Dijana Oreški, Ph.D.
ECTS	4
Study programme	Databases and Knowledge bases, 2 st year MA

Course description

ERP Systems

Summary	The aim of the course is to introduce students to the role of the ERP system in modern enterprises. The course describes how ERP systems are used for integration of business processes and shows the relationship between business processes and software modules that make such a complex information system. The structure of the ERP system is being analyzed at the theoretical and practical level. It also stresses out the importance of organizational preparations for the introduction of the ERP systems. The course analyzes the methods and tools for evaluation of the organization, implementation of ERP systems and maintenance of achieved results. It also analyzes the project structure and resources, roles and responsibilities necessary for effective implementation.
Lecturers	Full Prof. Neven Vrček, Ph.D. Assoc. Prof. Ruben Picek, Ph.D. Marko Mijač, M. Inf.
ECTS	5
Study programme	Information and Software Engineering / Business Systems Organization, 2 nd year MA

Course description

Organizational Performance Measurement

Summary	The development of an organizational performance measurement model and its corresponding measurement system is a process covered by the continuum of strategic planning of an organization. Each model is, like any organization, unique and specific, but it is possible to define procedural guidelines and steps, which organizations can apply to make the development process easier and
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	more successful. This course is aimed for students in graduate level to learn how to develop a strategic plan for an organization, that includes performance measurement as its focus, using Balanced Scorecard as the most common performance measurement method.
Lecturers	Full Prof. Robert Fabac, Ph.D. Asst. Prof. Martina Tomičić Furjan, Ph.D.
ECTS	5
Study programme	Business Systems Organization, 2 nd year MA

[Course description](#)

Quality and Measurement in Informatics

Summary	The aim of the course is to familiarize students with a comprehensive approach to quality management in all aspects of information technology, as well as the necessary measurements which are an essential part of such systems
Lecturers	Assoc. Prof. Valentina Kirinić, Ph.D. Assoc. Prof. Melita Kozina, Ph.D. Mario Žgela, Ph.D.
ECTS	5
Study programme	Information and Software Engineering, 2 nd year MA

[Course description](#)

Discrete Structures and Graph Theory

Summary	The purpose of the course is introducing and deepening students' knowledge of the core of the mathematical knowledge necessary for the development of information sciences. This core coincides largely with the field of discrete mathematics. One of the aims of this course is to develop a mechanism of rigorous mathematical thinking among students, which is necessary for anyone who wants to follow the requirements of a very dynamic IT discipline. The aim is also that the student develops a sense of different degrees of mathematical rigor and formalism and learn to use them appropriately to a problem situation. The chapters chosen for this subject are intended for all those who want to do research in informatics, as well as more advanced information technology.
Lecturers	Asst. Prof. Marcel Maretić, Ph.D. Damir Horvat, lecturer
ECTS	6

Study programme	Information and Software Engineering/Business Systems Organization, 1 st year MA
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Course description

Applied Research Methods in the Social Sciences

Summary	The aim of this course is to train students for the scientific and vocational work. Students must be familiarized with the research methods in the social sciences.
Lecturers	Full Prof. Diana Šimić, Ph.D. Jelena Gusić, M. Math.
ECTS	4
Study programme	Teacher in Informatics, 1 st year MA

Course description

Corporate Governance

Summary	The aim of the course is to introduce students to the basic principles of corporate governance and ethics that apply in managing socially responsible private companies, financial institutions and state enterprises.
Lecturers	Assoc. Prof. Marina Klačmer Čalopa, Ph.D. Ivana Đunđek Kokotec, M. Econ.
ECTS	5
Study programme	Economics of Entrepreneurship, 2 nd year MA

Course description

Strategic Human Resources Management

Summary	The goal is to provide knowledge and help develop skills for human resource management in business organizations. Through various topics and case studies, students can develop an understanding of the strategic importance of HR development and management of HR as well as gain insight in benefits of HRM in business organizations in a competitive environment. The aim is to show modern methods and techniques in HRM through theories and current research results and discussion with experts.
Lecturers	Assoc. Prof. Marina Klačmer Čalopa, Ph.D.

	Assoc. Prof. Violeta Vidaček-Hainš, Ph.D. Ivana Đunđek Kokotec, M. Econ.
ECTS	4
Study programme	Economics of Entrepreneurship, 2 nd year MA

[Course description](#)

Entrepreneurial Strategies	
Summary	The aim of the course is to enable students to identify and evaluate entrepreneurial opportunities. We try to present students with potential entrepreneurial strategies (mostly by introducing numerous business cases) and develop their ability to analyze and select a suitable entrepreneurial strategy. We want to encourage students to take a strategic approach to entrepreneurship that will enable an innovative approach to entrepreneurial venture of any size. To do so they must gain knowledge of theoretical and practical foundations of entrepreneurship. They must know different skills of organizing and managing entrepreneurial ventures, be familiar with marketing techniques and be able to create an operating business plan.
Lecturers	Asst. Prof. Kristina Detelj, Ph.D. Marijana Bubanić, M. Econ.
ECTS	4
Study programme	Economics of Entrepreneurship, 2 nd year MA
<u>Course description</u>	

Summer semester

Bachelor level

Business English 2	
Summary	The aim of the course is to introduce students with the terminology in the field of business English and morphological and syntactic peculiarities of business English. Students use acquired knowledge in language production and interaction in given communication situations in business context, in oral and written form. Students learn about basic stylistic and structural characteristics of representative texts in the fields of business English and adopt strategies for interpreting texts and reference texts. Students will master the communication skills needed for listening a foreign language conferences, discussions or presentation, including the basics of managing in a multicultural context. Students can also use information technology for self-expanding vocabulary and reading skills (analysis, synthesis of information) and through teamwork, through the provision of written assignments or oral presentations.
Lecturers	Andreja Kovačić, lecturer
ECTS	3
Study programme	Information/Business Systems 2 nd year BA

Software Engineering	
Summary	The aim of the course is to provide a detailed overview of software engineering and teach the students methodological approach to developing software products.
Lecturers	Full. Prof. Vjeran Strahonja, Ph. D. Asst. Prof. Zlatko Stapić, Ph. D. Asst. Prof. Boris Tomaš, Ph.D. Marko Mijač, M. Inf.
ECTS	7
Study programme	Information/Business Systems 3 rd year BA

[Course description](#)

Web Design and Programming

Summary	The aim of the course Web Design and Programming is to introduce the students to elements of design of Web pages and development of Web applications. The course explains main elements which make particular structural components of comprehensive project solutions on Web platform.
Lecturers	Full Prof. Dragutin Kermek, Ph.D. Matija Novak, M. Inf. Matija Kaniški, M. Inf.
ECTS	7
Study programme	Information/Business Systems 3 rd year BA

Course description

Databases 1

Summary	The aim of this course is straightforward: at the end of the course, students should be able to understand all the three components of Relational Database Management Systems (structural, operational, and integrity component). In addition, students should be able to realize and manage Relational Databases using SQL (creation, modification, queries, indexes, security and transactions). The text focuses on the use of relational database technology and SQL (the standard query language used to communicate with relational database management systems) as it is what students will encounter in businesses today.
Lecturers	Assoc. Prof. Kornelije Rabuzin, Ph.D. Assoc. Prof. Markus Schatten, Ph.D. Bogdan Okreša Đurić, Ph.D.
ECTS	6
Study programme	Information/Business Systems 2 nd year BA

Course description

Computer Networks

Summary	This course introduces computer networks, network services and applications, and provides conceptual and practical knowledge for a successful IT career. The students are prepared to solve communication problems and determine parameters important for quality of service and efficient communication. The importance of layered approach of ISO-OSI and the modern Internet model will be explained, and the inner working of networks is studied through the
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	application, transport, network, and link layer, which is demonstrated by relevant protocols and network applications.
Lecturers	Asst. Prof. Nikola Ivković, Ph.D. Assoc. Prof. Ivan Magdalenić, Ph.D. Asst. Prof. Igor Tomičić, Ph.D. Marko Peras, M. inf.
ECTS	6
Study programme	Information/Business Systems, 2 nd year BA
<u>Course description</u>	

Knowledge Management	
Summary	The aim of this course is to enable the students to understand theory, practice, tools and techniques of knowledge management (KM). In the scope of the course students will learn and be able to apply methods of analysis and evaluation of KM solutions as well as learn and apply methods of semantic modelling and knowledge reasoning in KM. Also, students will understand the role of KM in organizations, which can assist them in development of a successful career.
Lecturers	Full Prof. Sandra Lovrenčić, Ph.D. Full Prof. Mirko Maleković, Ph.D. Bogdan Okreša Đurić, Ph.D. Vlatka Sekovanić, M. Inf.
ECTS	4
Study programme	Information/Business Systems 2 nd year BA
<u>Course description</u>	

Operations Management	
Summary	The course covers topics that introduce students to business operations principles in productive companies and other profit and non-profit organizations, presents the company as a system and explains the role of modern ICT in company's management, systemizes processes in catalogue groups and systemizes informatics, material and other organization courses. Students also learn business logic and functioning algorithm of typical business processes.
Lecturers	Asst. Prof. Martina Tomičić Furjan, Ph.D. Asst. Prof. Katarina Tomičić-Pupek, Ph.D. Igor Pihir, Ph.D.

	Larisa Hrustek, M. Econ. Snježana Križanić, M. Inf. Ana Kutnjak, M. Econ.
ECTS	5
Study programme	Information/Business Systems 2 nd year BA
<u>Course description</u>	

Business Decision Making	
Summary	The course introduces the students to basics of business decision making and theories of decision making. It analyses separate phases of the decision-making process and factors which influence the process of decision making. Also, it is very important to introduce the students to different methods of decision making, and to various circumstances in which decision making is needed. Special emphasis is placed upon role and meaning of information systems as a support to decision making, and upon methods and techniques of decision making which ease the decision-making process. Information systems serve as the foundation for management because they present continued process of gathering various information which are processed for the needs of decision making.
Lecturers	Prof. emer. Tihomir Hunjak, Ph.D. Assoc. Prof. Nina Begičević Ređep, Ph.D. Nikola Kadoić, Ph.D.
ECTS	4
Study programme	Information/Business Systems 2 rd year BA
<u>Course description</u>	

Data Mining	
Summary	The aim of this course is to help students to understand and use data mining in the economics, get to know techniques and algorithms, familiarize students with basic skills of data mining through tools and examples, understand typical examples of usage.
Lecturers	Full Prof. Božidar Kliček, Ph.D. Asst. Prof. Dijana Oreški, Ph.D.
ECTS	4
Study programme	Economics of Entrepreneurship, 3 rd year BA

Course description

Master level

Advanced Web Technologies and Services

Summary	The aim of the course is to introduce the students to advanced technologies which can help realization of complex Web applications. Upon completing this course, the students will be able to individually develop advanced Web projects. In addition, they will be able to evaluate, master, install and use advantages of these packages. The course is project-oriented, to teach students how to plan, conduct and finish relatively big Java programming projects.
Lecturers	Full Prof. Dragutin Kermek, Ph.D. Matija Novak, M. Inf.
ECTS	7
Study programme	Information and Software Engineering, 1 st year MA

Course description

Data Warehouses and Business Intelligence

Summary	The aim of this course is to introduce the students to basic principles of constructing and applying data warehouses technology, which should result in business improvements. At the end of the course, students should be able to select a DW project, justify the price of a DW project, develop DW strategy, plan a DW project, estimate the completeness of the plan, choose the appropriate architecture components, build a good quality data warehouse, integrate the knowledge of business systems and IT and thus achieve the maximum value of a DW investment.
Lecturers	Full Prof. Kornelije Rabuzin, Ph.D.
ECTS	4
Study programme	Databases and Knowledge Bases/Business Systems Organization, 1 st year MA

Course description

Physical Design of Databases

Summary	This course complements the knowledge required for profound understanding of Systems Database Management Systems (DBMS), their functioning and practical application. This course uses knowledge from many other courses, for example Databases 1, Algorithms, Data structures etc., and represents their logical continuation in the similar context. The students are acquainted with the way a software system works. Software systems are the second most dominant system regarding their presence in a computer, right after the operating systems. DBMS is quite a complex system which itself contains various aspects that enable its functioning.
Lecturers	Full Prof. Alen Lovrenčić, Ph.D. Assoc. Prof. Markus Schatten, Ph.D.
ECTS	5
Study programme	Databases and Knowledge Bases, 1 st year MA

Course description

Internet Security

Summary	Acquisition of basic knowledge and skills necessary to operate with internet and networked systems security, especially in everyday network environment and their implementation in everyday life is the basis of the course. Students will study the basic mistakes, weaknesses, security risks, countermeasures and protection, ways of collecting, processing, storing and comparing information and their use in security systems, and students will be informed about the latest developments in the field of Internet security. The course is structured to provide a complete overview of the most important internet security features.
Lecturers	Full Prof. Miroslav Bača, Ph.D. Asst. Prof. Petra Grd, Ph.D.
ECTS	4
Study programme	Databases and Knowledge Bases, 1 st year MA

Course description

Negotiation in International Environment

Summary	Main goals of the Course: Familiarizing with the specific characteristic of the negotiation in the international context, negotiation techniques and communication skills that leads to international agreements; Efficacy applying
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	negotiation techniques and communication skills in face to face interpersonal communication and computer mediated communication.
Lecturers	Assoc. Prof. Violeta Vidaček-Hainš, Ph.D. Antonela Čižmešija, M. Inf.
ECTS	4
Study programme	Economics of Entrepreneurship, 1 st year MA

[Course description](#)

Small and Medium Enterprise in the EU

Summary	The purpose of the course is to enable students to apply microeconomic techniques in the analysis of the small and medium-sized enterprises at national and European level and providing students with a critical analysis of local, regional and national economic policies in terms of EU integration.
Lecturers	Full Prof. Ksenija Vuković, Ph.D. Ivana Fojs, M. Econ. Tamara Šmaguc, Ph.D.
ECTS	5
Study programme	Economics of Entrepreneurship, 1 st year MA

[Course description](#)

Internet Marketing

Summary	The Internet is becoming a very significant promotional sales media with a few specific advantages expressed through low usage costs and the ability of interactive communication. There are significant advantages over other forms of communication, resulting on its greater use in all areas of social and economic activity. The purpose of the course is to enable students to upgrade their existing marketing knowledge by familiarizing themselves with trends in the field and their specificities of analysis, planning and marketing activities.
Lecturers	Full Prof. Damir Dobrinić, Ph.D. Asst. Prof. Iva Gregurec, Ph.D.
ECTS	4
Study programme	Economics of Entrepreneurship, 1 st year MA

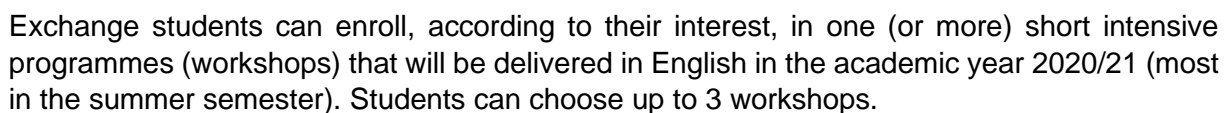
[Course description](#)

Organizational Behavior

Summary	Getting to know students with organizational variables: individuals, groups, teams, organizational values and acquiring knowledge of the human dimension of organization; ability to model knowledge of general organizational assumptions, models and elements of organizational structure.
Lecturers	Asst. Prof. Ivan Malbašić, Ph.D. Nikolina Posarić, M. Econ.
ECTS	6
Study programme	Economics of Entrepreneurship, 1 st year MA

Course description

WORKSHOPS



Duration of the workshops is approximately 6-8 weeks. At the end of the successfully completed workshop each student will get ECTS credits which are a part of student's study plan at FOI. Please note that workshops are not graded.

Internet of Things: Embedded software development	
Summary	<p>IOT: ESD is a 3-week education in which students are taught to develop microprocessor-based software solutions. During education, students are introduced to the basics of electronic circuits and the physical characteristics of various electronic components.</p> <p>The development of the solution includes the design of the circuitry and the development of the background application in C / C ++. Used microprocessor and basic components are based on Photon Particle development board.</p>

	<p>In addition to the development of applications, students are introduced to different types of sensors and actuators that they can use when designing their projects.</p> <p>Thanks to the IOT features of the Photon Particle Component, education also involves connecting and managing devices over the Internet.</p>
Lecturers	Asst. Prof. Boris Tomaš, Ph.D.
ECTS	2

Workshop description

Computer Games Development by Examples

Summary	Computer games development industry is on the rise and game programmers are needed on the labor market. The purpose of this workshop is to present the basic knowledge of the computer games development process, and appropriate skillset, to the students. The main idea behind this workshop is to show students how computer games are made and to motivate students to explore this field of computer programming.
Lecturers	Mladen Konecki, Ph.D.
ECTS	3

Workshop description

Application of Biometric Methods in Forensics

Summary	<p>Biometrics refers to the automatic recognition of individuals based on their physical and/or behavioral characteristics. Forensics involves the use of scientific principles for the analysis of evidence from the crime scene to reconstruct and describe the past events. Locard's exchange principle had a major impact on forensics, which says that the perpetrator of the criminal offense will bring something to the crime scene and take something out of it, and that both can be used as forensic evidence. At the crime scene it is possible to find many traces, and some of them have biometric features such as fingerprints, signature, voice or face. One of the goals of the forensic investigation is to link proof (e.g. signature) to the source (a person).</p> <p>The purpose of the education is to provide students with a more detailed insight into biometric methods with emphasis on the use of biometric methods in forensics. Education provides students with an understanding of the various parameters to be considered so that different aspects of fingerprints, iris, face recognition, and the like can be recognized, which could be applied in criminal cases involving the use of forensic biometrics. The purpose of the education is to connect students interested in biometrics and forensics, as well as exchange of knowledge and, thus, the training of students and raising their competences.</p>
Lecturers	<p>Asst. Professor Petra Grd, Ph.D. Full Prof. Miroslav Bača, Ph.D.</p>
ECTS	2

Workshop description

Advanced Python Workshop	
Summary	<p>This is a programming workshop whose goal is to teach the advantages of the Python programming language hands-on.</p> <p>Topics:</p> <ul style="list-style-type: none"> • Features of the Python Language • Python's Object Model • Functional programming in Python • Debugging and Testing in Python • Scientific Python • Overview of Essential Python Modules and Frameworks • Software Carpentry of a Python Programmer
Lecturers	Asst. Prof. Marcel Maretić, Ph.D.
ECTS	2

Workshop description

Competitive Web Design	
Summary	<p>Increasing of students' competencies in the field of competitive web design. The web design service is a type of service that is highly represented on the global market. To diversify one's service and to make it more prominent a high level of quality is needed. This will consequently make one's web designs and websites more competitive and interesting to all potential users. One of the key aspects of making competitive websites is creating high quality web interfaces. The purpose of this education is to increase the competences of its participants in the area of creating a competitive web designs and web interfaces and consequently more competitive websites in order to enhance the position of created websites on the overall market.</p> <p>Targeted audience: Students of all years and study programs, regardless of their prior knowledge.</p>
Lecturers	Asst. Prof. Mario Konecki, Ph.D.
ECTS	2
Workshop description	

Predictive Analytics	
Summary	<p>Data is being increasingly recognized by organizations and businesses as potential for significant benefits to business and society as a whole. Data represents strategic resource, if they are analyzed. Predictive modeling algorithms can efficiently analyze large amounts of data. The purpose of this workshop is to give an overview of predictive modeling technologies and to explain the process of development and interpretation of the predictive model using different algorithms.</p>
Lecturers	Asst. Prof. Dijana Oreški, Ph.D.
ECTS	2
Workshop description	

Technology driven innovation in digital transformation	
Summary	<p>Digital business transformation is considered as a new concept of change that affects how companies create a new value of their products and services based on customer needs. Businesses face the challenge of creating new business models that imply generating new value, relying strongly on digital technologies. In this workshop, creative methods and techniques are applied to analyse trends, customer needs and opportunities to change, followed by</p>

	<p>the creation of a new digital business model that includes implementation of one or combination of several new digital technologies.</p> <p>Students work in teams and develop an innovative digital business model for a selected example, based on the knowledge gained at the workshop. In the realization of the project, the emphasis is on innovation and creativity, and the solutions do not necessarily have to be fully achievable but have to be based on real technologies.</p>
Lecturers	<p>Asst. Prof. Martina Tomičić Furjan, Ph.D.</p> <p>Assoc. Prof. Katarina Tomičić-Pupek, Ph.D.</p> <p>Asst. Prof. Kristina Detelj, Ph.D.</p> <p>Assoc. Prof. Marina Klačmer Čalopa, Ph.D.</p> <p>Mladen Konecki, Ph.D.</p> <p>Asst. Prof. Mario Konecki, Ph.D.</p> <p>Asst. Prof. Petra Grd, Ph.D.</p> <p>Bogdan Okreša Đurić, Ph.D.</p> <p>Asst. Prof. Boris Tomaš, Ph.D.</p> <p>Assoc. Prof. Violeta Vidaček-Hainš, Ph.D.</p>
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Workshop description