UNIVERSITY OF CRAIOVA
DEPARTMENT OF COMPUTERS AND INFORMATION TECHNOLOGY
MASTER: INFORMATION SYSTEMS FOR E-BUSINESS

YEAR I
1. Multimedia Design for e-Business
2. Computational and Algorithmic Methods in e-Business
3. Service and Agent Technologies for E-Business
4. Formal Methods in Semantic Web
5. Web Systems Engineering (Option 1a)
6. Image Processing (Option 1b)
7. Mobile and Wireless Technologies for e-Business
8. Secure Payment Systems
10. Knowledge and Semantics-Based Systems
11. Complex Graphical Systems (Option 2a)
12. Legal, Ethical and Social Issues in e-Business (Option 2b)

YEAR II
1. Software Metrics for Web Systems
2. Systems for Visual Information Retrieval (Option 3a)
3. Information Technology for e-Marketing and Branding (Option 3b)
4. Data Mining and Data Warehouses
5. Enterprise Information Systems
6. Research activity
7. Internship - dissertation paper
YEAR I

**SUBJECT: MULTIMEDIA DESIGN FOR E-BUSINESS**

**NUMBER OF CREDIT POINTS:** 6  
**SEMESTER:** I  
**COURSE TYPE:** synthesis  
**COURSE OBJECTIVES:** The course covers the essential concepts and technologies of text, graphics, animation, audio, and video and how they are interwoven to create multimedia products for e-business. It introduces the essential concepts and technologies, every learner will receive a solid introduction to the field of multimedia - including design principles, storyboarding, computer development, motion graphics, animation principles, camera moves, and storytelling techniques.  
**TEACHING LANGUAGE:** English  
**EVALUATION:** oral examination  
**BIBLIOGRAPHY:**  
- Multimedia Design and Production for Students and Teachers, Edward L. Counts, Allyn & Bacon, 2003  

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**SUBJECT: COMPUTATIONAL AND ALGORITHMIC METHODS IN E-BUSINESS**

**NUMBER OF CREDIT POINTS:** 6  
**SEMESTER:** I  
**COURSE TYPE:** in-depth  
**COURSE OBJECTIVES:** It is one of the speciality courses and it is a continuation of the “Algorithms Complexity Analysis” course.  
**COURSE CONTENT:** Optimisation problems; Optimization problems approximation; NP-complexity class; Complexity classes polynomial optimization; Probabilistic algorithms; Probabilistic Turing Machines; probabilistic complexity classes.  
**TEACHING LANGUAGE:** English  
**EVALUATION:** written examination  
**BIBLIOGRAPHY:**  
- DEXTER C. KOZEN - The Design and Analysts of Algorithms; Springer Verlag 1992;  
- DAVID HAREL - Algorithmics - The Spirit of Computing; Addison-Wesley 1991;  
- WEISS M. A. - Data Structures and Algorithms Analysis; Benjamin Cummings 1992;  
- BOVET D. P. - CRESCENZI P. - Introduction to the Theory of Complexity; Prentice Hall 1994;  
- BAASE S. - Computer Algorithms. Introduction to Design and Analysis; Addison-Wesley 1992;  
- CORMEN TH., LEISERSON CH., RIVEST R. - Introduction to Algorithms; MIT Press 1992;  
- AHO A. V., HOPCROFT J. E., ULLMAN J. D. - The design and Analysis of Computer Algorithms; Addison-Wesley 1975;  
- J HOPCROFT J. E., ULLMAN J. D. - Introduction to Automata. Theory, Languages and Computation; Addison-Wesley 1979;  
- MORET B. M. E., SHAPIO H. D. - Algorithms from P to NP; Benjamin Cummings 1990;  
- LASSAIGNE R., ROUGEMONT M. - Logique et Complexite; Editions Hermes 1996;  
- BALCAZAR J., DIAZ J., GABARRO J. - Structural Complexity; Springer Verlag 1988;  
- PAPADIMITRIOU CH. - Computation Complexity; Addison-Wesley 1994;  
- NEIL D. JONES - Computability and Complexity; MIT Press 1997;  
- JACQUES STERN - Fondements Mathematiques de L'informatique; McGraw-Hill 1990;  
- GREEN D., KNUTH D. E. - Mathematics for the Analysis of Algorithms; Birkhauser 1990;  
- CALUDE CRISTIAN - Complexitatea calculului. Aspecte calitative; Ed. Stiintifica si Enciclopedica 1982;  
- BURDESCU D. D., PATRIUCI ALEX. - O implementare a unei reduceri intre probleme NP-complete; Revista ELSE-Software nr.7/1995;  
- BURDESCU D. D. - Tehnici de programare in C; Ed. Radical 1995;  
- BURDESCU D. D., PATRIUCI ALEX. - Analiza algoritmilor (indrumar de laborator); Reprografia Universitatii Craiova 1996;  
- BURDESCU D.D. - Analiza complexitatii algoritmilor (curs);Reprografia Universitatii Craiova 1997

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**SUBJECT: SERVICE AND AGENT TECHNOLOGIES FOR E-BUSINESS**

**NUMBER OF CREDIT POINTS:** 6  
**SEMESTER:** I  
**COURSE TYPE:** synthesis  
**COURSE OBJECTIVES:** This course explores new technologies for software development based on agents and services. Results: Agent and service-oriented software development methodologies; Software platforms based on agents and services; Architectures, notations and standards in agent and service oriented software engineering; Applications: e-business, distributed decision making, crisis and disaster man.  
**COURSE CONTENT:** 1. Introduction to agents and services; 2. Software architectures based on agents and services; 3. Service and agent based software development methodologies; 4. Notations and models for agent and service oriented software; 5. Service and agent oriented software technologies and platforms (coordination, processes, transactions, workflow systems); 6. Multi-agent systems: semantics, communication, negotiation, collaboration, organisations, societies, norms  
**TEACHING LANGUAGE:** English  
**EVALUATION:** written examination  
**BIBLIOGRAPHY:**
Wooldridge, M. J. An Introduction to MultiAgent Systems. John Willey & Sons Ltd, 2002
Munindar P. Singh and Michael N. Huhns, Service-Oriented Computing: Semantics, Processes, Agents, John Willey & Sons, Ltd., 2005
Maria Fasli, Agent Technology for E-Commerce, Wiley, 2007
Christopher D. Walton, Agency and the Semantic Web, Oxford University Press, 2007
Fabio Luigi Bellifemine, Giovanni Caire, Dominic Greenwood, Developing Multi-Agent Systems with JADE, Wiley, 2007

SUBJECT: FORMAL METHODS IN WEB SYSTEMS DEVELOPMENT
NUMBER OF CREDIT POINTS: 6
SEMESTER: I
COURSE TYPE: in-depth
COURSE OBJECTIVES: To introduce students to the concepts and techniques required in Semantic Web.
To introduce students to the concepts and techniques of formal languages and models: the Z language, and of the Petri Net models. To apply formal methods to Semantic Web.
TEACHING LANGUAGE: English
EVALUATION: oral examination
BIBLIOGRAPHY:
M. Dean, G. Schreiber - OWL Web Ontology Language Reference, 2004 (http://www.w3.org/TR/owlref)

SUBJECT: WEB SYSTEMS ENGINEERING
NUMBER OF CREDIT POINTS: 6
SEMESTER: I
COURSE TYPE: synthesis
COURSE OBJECTIVES: Web Engineering uses scientific, engineering, and management principles and systematic approaches to successfully develop, deploy, and maintain high-quality Web systems and applications and provides an in-depth examination of the basic concepts and general principles associated with Web application development. It explains the underlying protocols and languages that support Web application development, and delineates the best practices associated with building robust applications. It describes mechanisms for providing Web access to heterogeneous data sources including relational databases and multimedia.
TEACHING LANGUAGE: English
EVALUATION: oral examination
BIBLIOGRAPHY:

SUBJECT: IMAGE PROCESSING
NUMBER OF CREDIT POINTS: 6
SEMESTER: II
COURSE TYPE: synthesis
COURSE OBJECTIVES: The course focuses on the main issues related to mobile and wireless technologies, mobile devices, wireless networks, mobile and wireless security. During this course the students are also taught how to build Smart Client Applications and Wireless Internet Applications as well.
TEACHING LANGUAGE: English
EVALUATION: written examination
BIBLIOGRAPHY:
E. Ramos, A. Schoroeder and A. Beheler – Computer Networking Concepts, Macmillian, 1996
Gallo & Hancock – Computer Comm. And networking Technologies, Thomson Learning, 2001
Mancas D., Garnita S. – Comunicatii optice - principii, tehnici, tehnologii.

SUBJECT: SECURE PAYMENT SYSTEMS

NUMBER OF CREDIT POINTS: 6
SEMESTER: II
COURSE TYPE: synthesis
COURSE OBJECTIVES: The course has the objective of introducing and promoting the procedures, technologies, practices available today for secure electronic transactions.
TEACHING LANGUAGE: English
EVALUATION: written examination
BIBLIOGRAPHY:

SUBJECT: COMPLEX GRAPHICAL SYSTEMS

NUMBER OF CREDIT POINTS: 6
SEMESTER: II
COURSE TYPE: synthesis
COURSE OBJECTIVES:
COURSE CONTENT:
TEACHING LANGUAGE: English
EVALUATION:
BIBLIOGRAPHY:

SUBJECT: MODELLING AND PERFORMANCE
EVALUATION OF E-BUSINESS SYSTEMS

NUMBER OF CREDIT POINTS: 6
SEMESTER: II
COURSE TYPE: in-depth
COURSE OBJECTIVES:
COURSE CONTENT:
TEACHING LANGUAGE: English
EVALUATION:
BIBLIOGRAPHY:

SUBJECT: KNOWLEDGE AND SEMANTICS –BASED SYSTEMS

NUMBER OF CREDIT POINTS: 6
SEMESTER: II
COURSE TYPE: synthesis
COURSE OBJECTIVES: The course comprises the core of Legal, Ethical and Social Issues in e Business. All chapters of the course are the subject of research and each element is linked to the rest of the courses in multiple ways allowing students to track a specific issue concerning legal aspects and ethical codes and to follow that same question into materials covering other ebusiness research domains.

BIBLIOGRAPHY:
Ronald Brachman, Hector Levesque, Knowledge Representation and Reasoning, Morgan Kaufmann; 1 edition, 2004
John F. Sowa, Knowledge Representation: Logical, Philosophical, and Computational Foundations, Course Technology; 1 edition, 1999
Handbook of Knowledge Representation, Frank van Harmelen, Vladimir Lifschitz, Bruce Porter, Elsevier Science, 2007
Jorge Cardoso, editor, Semantic Web services: theory, tools and applications, IGI Global, 2007

TEACHING LANGUAGE: English

EVALUATION: written examination

BIBLIOGRAPHY:

ANUL II

SUBJECT: SOFTWARE METRICS FOR WEB SYSTEMS

NUMBER OF CREDIT POINTS: 7
SEMESTER: II
COURSE TYPE: in-depth
COURSE OBJECTIVES:
COURSE CONTENT: Data Mining and Data Warehouses
TEACHING LANGUAGE: English
EVALUATION:
BIBLIOGRAPHY:

SUBJECT: SYSTEMS FOR VISUAL INFORMATION RETRIEVAL

NUMBER OF CREDIT POINTS: 8
SEMESTER: II
COURSE TYPE: synthesis
COURSE OBJECTIVES:
COURSE CONTENT: Data Warehousing: Data Mining: Data Mining Methods.
TEACHING LANGUAGE: English
EVALUATION:
BIBLIOGRAPHY:

SUBJECT: INFORMATION TECHNOLOGY FOR E-MARKETING AND BRANDING

NUMBER OF CREDIT POINTS: 8
SEMESTER: II
COURSE TYPE: sinteza
COURSE OBJECTIVES: This course explores the basic principles that underlie marketing and how e-business marketing techniques will fundamentally change the traditional marketing process. This course prepares students for careers in a rapidly changing environment of non-linear, online, interactive advertising; new product development and distribution processes; and reliance on databases. Throughout the semester, students will learn how traditional marketing models are translated or modified into the electronic medium of the World Wide Web. This transformation will be examinationined from theoretical and case study perspectives.


TEACHING LANGUAGE: English
EVALUATION: written examination

BIBLIOGRAPHY:
- Levinson, J.C., Rubin, G., Guerilla Marketing on the Information Highway, 1996
- Ince, D., Developing Distributed and E-Commerce Applications, Addison-Wesley, 2002

SUBJECT: DATA MINING ANDA DATA WAREHOUSES

NUMBER OF CREDIT POINTS: 7
SEMESTER: II
COURSE TYPE: in-depth
COURSE OBJECTIVES: The course will introduce students to the basic concepts and techniques of Data Mining and Data Warehouses. Also, it will develop skills of using recent data mining and data warehouses software for solving practical problems. A data warehouse is a specially prepared repository of data designed to support decision making. Data are extracted from source systems, transformed, and loaded into data stores. Then the data is accessed by users or applications that draw data from the warehouse. Data mining is an important use of a data warehouse. This course is designed to provide a thorough understanding of the business potential of data warehousing, how to build and maintain data warehouses, and how to use data warehouses for business advantage.


TEACHING LANGUAGE: English
EVALUATION: oral examination

BIBLIOGRAPHY:
- Advances in Data Warehousing and Mining, David Taniar, IGI Publishing, USA
- Data Warehousing, Data Mining, and OLAP (Data Warehousing/Data Management), Alex Berson, Stephen J. Smith, Computing Mcgraw-Hill, 1997
**SUBJECT : ENTERPRISE INFORMATION SYSTEMS**

NUMBER OF CREDIT POINTS: 8  
SEMESTER: II  
COURSE TYPE: synthesis  
COURSE OBJECTIVES:  
TEACHING LANGUAGE: English  
EVALUATION: written examination  

**BIBLIOGRAPHY:**  

**SUBJECT : RESEARCH ACTIVITY**

NUMBER OF CREDIT POINTS: 15  
SEMESTER: II  
COURSE TYPE: CA  
COURSE OBJECTIVES:  
COURSE CONTENT:  
TEACHING LANGUAGE: English  
EVALUATION:  

**BIBLIOGRAPHY:**  

**SUBJECT : INTERNSHIP - DISSERTATION PROJECT**

NUMBER OF CREDIT POINTS: 15  
SEMESTER: II  
COURSE TYPE: synthesis  
COURSE OBJECTIVES:  
COURSE CONTENT:  
TEACHING LANGUAGE: English  
EVALUATION:  

**BIBLIOGRAPHY:**  

Dean,  
Professor Eugen BOBAŞU, PhD