DEPARTMENT OF INFORMATICS
UNIVERSITY OF RIJEKA

Establishment of new Department of Informatics, UNIRI and experiences in teaching SE course

Nataša Hoić-Božić, natasah@inf.uniri.hr

Sanja Čandrlić, sanjac@inf.uniri.hr

DEPARTMENT OF INFORMATICS
UNIVERSITY OF RIJEKA

Odjel za informatiku, Sveučilište u Rijeci
Omladinska 14, 51000 Rijeka, Hrvatska
Tel.: + 385 51 345 034 Fax: + 385 51 345 207

Department of Informatics,
University of Rijeka
Omladinska 14,
51000 Rijeka, Croatia

http://www.inf.uniri.hr
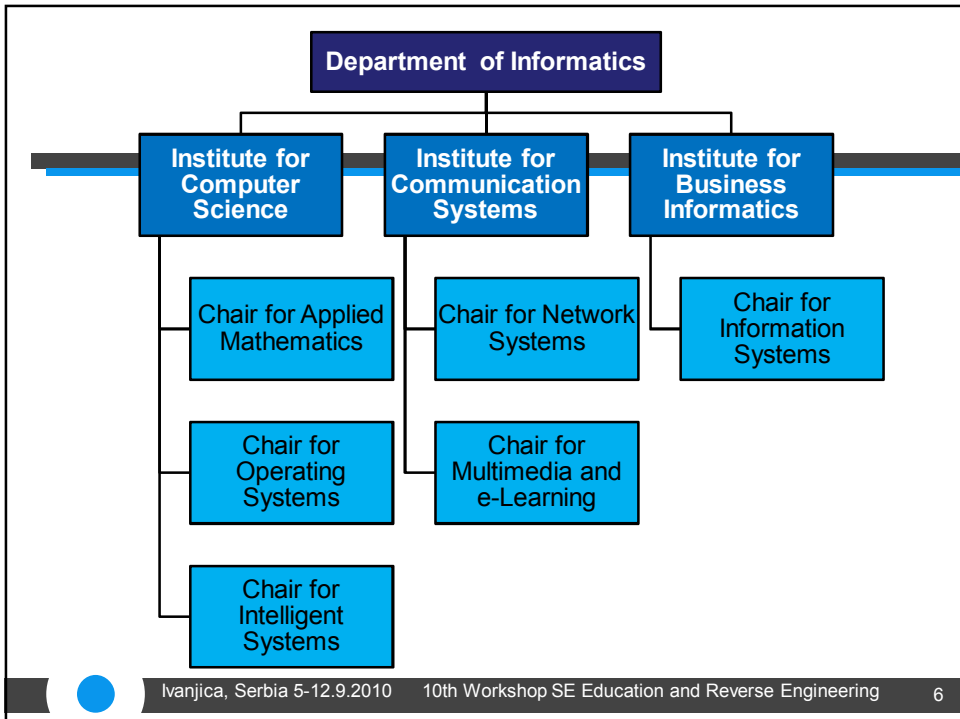
Department of Informatics

- One of the newest member institutions at University of Rijeka founded in April 2008
- Tendency to gather informatics experts mostly from the former Institute of Informatics at the Faculty of Philosophy in Rijeka (founded in 1986)
- Main activities: teaching and scientific research in the field of information and communication sciences as well as in the field of computing

New building at University Campus Trsat

Ivanjica, Serbia 5-12.9.2010   10th Workshop SE Education and Reverse Engineering

Department of Informatics

Institute for Computer Science

Institute for Communication Systems

Institute for Business Informatics

Chair for Applied Mathematics

Chair for Network Systems

Chair for Information Systems

Chair for Operating Systems

Chair for Multimedia and e-Learning

Chair for Intelligent Systems

Ivanjica, Serbia 5-12.9.2010   10th Workshop SE Education and Reverse Engineering   6

3

Teaching Staff

- 5 full professors
- 2 associate professors
- 4 assistant professors
- 1 senior assistant
- 10 assistants
- Scientific fields:
  - informatics and information science
  - computing

Location and equipment at FFRI

- Currently inadequate conditions in FFRI building

- About 200 m^2
  - 1 classroom for 40 students
  - 1 laboratory with 14 computers
  - 1 room for secretary and assistants
  - 3 rooms for professors (4 people per room!)
- Number of students: about 200

Location and equipment at future Campus

- About 3000 m^2
  - 20 rooms for professors
  - 10 rooms for assistants
  - 3 rooms for secretary and head of the Department
  - 1 room for meetings
  - 2 computer classrooms
  - 8 laboratories
  - Classrooms for 100, 150, 200 students (shared with other departments of UNIRI)

DEPARTMENT OF INFORMATICS
UNIVERSITY OF RIJEKA

Study programs

Study programs

- Designed in accordance with the Bologna principles
- Undergraduate study of Informatics (Bachelor degree, 3 years,180 ECTS)
  - Single major program of Informatics
  - Double major program of Informatics and another major (in cooperation with FFRI)
- Graduate study Informatics (Master degree, 2 years, 120 ECTS
  - Single major program of Informatics
    - Teacher training
    - Information and Communication Systems track (ICS)
    - Business Informatics and ICT track (BI)
  - Double major program of Informatics and another major

BSC of Informatics: 1st Year of Study			
Course name	**ECTS**	**Hours**	**Core**
Logics	2	2	CORE
Foregin Language 1 (English)	4	2	CORE
Physical Education 1	1	2	CORE
Mathematics 1	5	4	CORE
Physics 1	4	4	CORE
Fundamentals of Informatics 1	5	4	CORE
Programming 1	6	4	CORE
Fundamentals of Digital Technique	5	4	CORE
Foregin Language 2 (English)	4	2	CORE
Physical Education 2	1	2	CORE
Mathematics 2	5	4	CORE
Physics 2	4	4	CORE
Fundamentals of Informatics 2	5	4	CORE
Programming 2	5	4	CORE
Computer Architecture and Organization	4	4	CORE
Total Year 1	60		

BSC of Informatics: 2nd Year of Study			
Course name	**ECTS**	**Hours**	**Core**
Foregin Language 3 (English)	2	2	CORE
Physical Education 3	1	2	CORE
Mathematics 3	4	4	CORE
Combinatorics	5	4	
Computer Networks 1	5	4	CORE
Operating Systems 1	4	4	CORE
Introduction to Database	5	4	CORE
Information Systems	4	4	CORE
Foregin Language 4 (English)	2	2	CORE
Physical Education 4	1	2	CORE
Discrete Mathematics	5	4	CORE
System Theory	4	4	CORE
Computer Networks 2	5	4	CORE
Operating Systems 2	4	4	CORE
Database	4	4	CORE
Alghorithms and data structures	5	4	CORE
Total Year 2	60		

3

BSC of Informatics: 3nd Year of Study			
Course name	**ECTS**	**Hours**	**Core**
Numerical Mathematics	5	4	CORE
Dynamic Web Application 1	5	4	CORE
Object Oriented Programming	5	4	CORE
Process Modeling	5	4	CORE
Formal Languages and Compilers 1	5	4	CORE
Probability and Statistics	5	4	CORE
Dynamic Web Application 2	4	4	CORE
Object Oriented Modeling	5	4	CORE
Multimedia Systems	4	4	CORE
Data Modeling	5	4	CORE
Final Exam	2	-	CORE
Elective segment	10		ELECTIVE
Total Year 2	60		

Computer Graphics	5	4
Information Theory	5	4
Software Engineering	5	4
Formal Languages and Compilers 2	5	4

Master of Informatics: 1st Year of Study (or 4th Year)			
Course name	**ECTS**	**Hours**	**Core**
Intelligent Systems 1	6	4	CORE
Operations Research 1	6	4	CORE
Program BI			
Software Engineering	6	4	CORE
Business Economics	6	4	CORE
Elective Course (ICS program)	6	4	ELECTIVE
Program ICS			
Distributed Systems	6	4	CORE
Object-Oriented Programming Languages	6	4	CORE
Elective Course (BI program)	6	4	ELECTIVE
Intelligent Systems 2	6	4	CORE
Operations Research 2	6	4	CORE
Program BI			
Selected Topics in Databases	6	4	CORE
Electronic Commerce	6	4	CORE
Elective Course (ICS program)	6	4	ELECTIVE
Program ICS			
Multimedia and Hypermedia Systems	6	4	CORE
Digital Signal Processing	6	4	CORE
Elective Course (BI program)	6	4	ELECTIVE

5

Master of Informatics: 2st Year of Study (or 5th Year) 1/2			
Course name	**ECTS**	**Hours**	**Core**
Communication Skills	2	2	CORE
Master's Thesis Seminar	4	2	CORE
Program BI			
Management and Leadership	6	4	CORE
Information Technology Project Management OR * Organization's Information System	6	4	CORE
Elective Course (ICS program)	6	4	ELECTIVE
Elective Course	6	4	ELECTIVE
Program ICS			
Network Systems Management	6	4	CORE
Human-Machine Communication	6	4	CORE
Knowledge Discovery and Data Mining OR Knowledge Management	6	4	ELECTIVE
Elective Course	6	4	ELECTIVE
Information Technology and Society	5	4	CORE
Thesis	10		CORE

Master of Informatics: 2st Year of Study (or 5th Year) 2/2			
Course name	ECTS	Hours	Core
Program BI			
Strategic Planning of Information Systems	5	4	CORE
Logistics	5	4	CORE
Elective Course (ICS program) OR * Elective Course (EF, TF, MF)	5	4	ELECTIVE
Program ICS			
Decision Support Systems	5	4	CORE
Natural Language Processing OR * e-learning	5	4	CORE
Elective Course (BI program) OR Elective Course (EF, TF, PF)	5	4	ELECTIVE

EF - Faculty of Economics
TF - Faculty of Engineering
PF - Faculty of Maritime Studies

DEPARTMENT OF INFORMATICS
UNIVERSITY OF RIJEKA

Experiences in teaching SE course

Sanja Čandrlić,
sanjac@inf.uniri.hr

SE course - introduction

- School year 2009/2010
- Teaching materials from JCSE
- Mandatory course at 4th year of Business Informatics graduate study
- Optional course at 4th year of Information and Communication Systems graduate study
- 18 students enrolled

SE course – introduction (2)

- Duration of the course: 1 semester
- 2+2 hours weekly, lectures and practical part
- JCSE materials used during lectures
- Slides in English
- Lectures in native language
- Somerville: "Software Engineering"

Lecturing topics

- What is Software engineering
- Quality Criteria for Software Products
- Software Process Models
- Basic Concepts for the Description of Software Development
- Results of the „Analysis and Definition" Phase
- Cost Estimation
- Basic Concepts of the Functional View
- Basic Concepts of the Data Oriented View
- Overview of Design Phase
- Implementation: Programming Style and Methodology
- Systematic testing
- Project Management
- Configuration and Version Management

Practical part of the course

- Fast recall of the knowledge already learned:
  - Data modeling using entity relationship method
  - Process modelling using DFD method
  - Project management
  - Programming logic
  - ...
- Experts involved in computer business from a computer company in Rijeka as guest speakers

Practical part of the course (2)

- What is the role of users in a SW development team and during software implementation?
  - requirements' analysis, user support, user interface design, testing
- Guest speakers:
  - experiences from user support department
  - software presentation (ERP solution) - user interface design, process analysis
- Programmers' tools presentations:
  - configuration management tool
  - a tool for database synchronization
- Project documentation

Mandatory students' assigment - seminar

- Seminar paper on the chosen topic, for example:
  - On the history of SE
  - Human resources
  - Component based SE
  - Client – Server architecture
- Limited ammount of library sources at our Department
- Mostly books available on the internet and other internet sources were used

Final mark

- Final mark is based on:
  - written examination mark (30%)
  - seminar paper mark (30%)
  - interest shown (10%)
  - final paper (30%)

- Written exam – questions with open answers
- The average final mark: 84,1%

Questionary

- After the classes - questionary
- Original questions were used
- 12/18 students filled in the questionary
- Their atendance to classes: 83%

Contents of the lecture

Question	Our rank	Optimum rank
1. Amount of knowledge offered (too few=1, too much=5)	3,2	3
2. Contents of the lecture (too easy=1, too difficult=5)	3,1	3
3. Course well-structured (unstructured=1, very well=5)	3,8	5
4. Any pre-knowledge needed (few=1, much=5)	3,7	3
5. Slides in English language (no problem=1, big problem=5)	1,7	1

Style of the lecture

Question	Our rank	Opti-mum
1. Lecturer familiar with the contents (not so much=1, very well=5)	4,9	5
2. Lectures well prepared (not so much=1, very well=5)	4,4	5
3. Lecturer engaged (not so much=1, very well=5)	4,7	5
4. Lecturer willing to answer questions (not so much=1, very well=5)	4,9	5
5. Presentation of the lecture (too slow=1, too fast=5)	3,2	3
6. Presentation style encourages to follow the lecture (not so much=1, very well=5)	3,6	5

Using media

Question	Our rank	Opti-mum
1. Adequate amount of information on the slides (not so much=1, very well=5)	3,3	5
2. Well-structured and clearly arranged slides (not so much=1, very well=5)	3,5	5
3. To get keywords only after lectures (no problem=1, big problem=5)	2,6	1

Benefit of the lecture

Question	Our rank	Opti-mum
1. A lot of new things learned (not so much=1, much=5)	3,2	5
2. Contents of the lecture is useful (not so much=1, completely =5)	3,7	5
3. Important to you that the course is internationally supported and recognized (not so much=1, much=5)	3,2	5
4. Your overall ranking of the lecture (bad=1, very well=5)	4	5

Conclusion

- Thank you for this opportunity
- Using materials prepared in the JCSE project good experience for students and for the teacher

---

DEPARTMENT OF INFORMATICS
UNIVERSITY OF RIJEKA

Thank you for your attention!

www.inf.uniri.hr

Sanja Čandrlić, sanjac@inf.uniri.hr

Nataša Hoić-Božić, natasah@inf.uniri.hr