1.	Course		Service Orie	nted Architectures					
2.	Code		KNI E13						
			Computer Science and Engineering PhD study						
3.	Study programme		programme						
4.	Study programme organized by			FCSE					
5.	Cycle		Thi	Third – PhD					
	Academic year / semester								
6.	winter/summer/elective	7	ECTS credits 7,5						
8.	Teacher	eacher Prof. d-r							
9.	Prerequisites		None						
	Course programme goals (competences):								
10.	The students will be capable to develop a service-oriented architecture, as well as implement services as a constituent part of the service oriented architectures.								
	Course syllabus:								
11.	Introduction to service oriented architecture (SOA). SOA principles. SOA leveled structure evolution. SOA based protocols. SOA standards. Relationship between SOA protocols an service protocols. Web services and primitive SOA. SOA extensions. SOA based sy security. SOA based interoperability. SOA information providers. Defining adapters for needs principles. SOA implementation strategies. Service oriented analysis. Service modes service structure building (service oriented design). Modeling business processes. Bu processes modeling language (BPEL). Business processes scheme. Service orchestration. ESB in large companies. SOA and Web2.0 services. SOA and collaboration systems. platforms. SOA examples. Evaluation of SOA based solutions.								
12.	Teaching methods: Classes supported with slide presentations, interactive teaching, lab equipment and other software packages, teamwork, case studies, invited guest lecturers, presentations of project works, e-learning materials, forums and consultations.								
13.	Total fund of work hours								
14.	Available hours distribution		45+30+150 = 225						
	Teaching activities		Theoretical classes	45 h					
15.			Practical classes (labs exercises), seminars, team work	30 h					
	Other activities	16.1.	Project tasks	50 h					
16.		16.2.	Self study	50 h					
			Homework	50 h					
	Grading								
	17.1. Tests	40 points							
17.	17.2. Seminar work/ project (presenta	50 points							
	17.3. Active participation	10 points							
10			to 59 points	5 (five) (F)					
18.	Grading criteria (points/grade)		from 60 to 68 points	6 (six) (E)					

from 69 to 76 points 7 (seven) (D) from 77 to 84 points 8 (eight) (C) from 85 to 92 points 9 (nine) (B) from 93 to 100 points 10 (ten) (A) 19. Conditions for attending the final exam Successful completion of activities 15.1 and 15.2 20. Language Macedonian or English 21. Quality assessment Internal evaluation and student pools Literature Compulsory No. Author Title Publisher Year 22.1. Dirk Krafzig, Karl Banke, Dirk Slama Enterprise SOA: Service-Oriented Architecture: Concepts, Technology, and Design Prentice Hall 2004 22. Dirk Krafzig, Karl Banke, Dirk Slama SOA in Practices Prentice Hall 2004 Additional No. Author Title Publisher Year 22. Dirk Krafzig, Karl Banke, Dirk Slama SOA in Practice: The Art of Distributed System Design O'Reilly Media 2007 22.2. James P. Lawler, James P. Lawler, H. Howell- Barber Service-Oriented Architecture: SOA Strategy, Methodology, and Technology Auerbach 2007 <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>										
from 85 to 92 points 9 (nine) (B) from 93 to 100 points 10 (ten) (A) 19. Conditions for attending the final exam Successful completion of activities 15.1 and 15.2 20. Language Macedonian or English 21. Quality assessment Internal evaluation and student pools Literature Compulsory No. Author Title Publisher Year 22.1. Compulsory Service-Oriented Architecture: Concepts, Technology, and Design Prentice Hall 2005 22.1. Dirk Krafzig, Karl Banke, Dirk Slama Enterprise SOA: Service- Oriented Architecture Best Practices Prentice Hall 2004 22. 3. Nicolai M. Josuttis SOA in Practice: The Art of Distributed System Design O'Reilly Media 2007 Additional Title Publisher Year 22.2. I. James P. Lawler, James P. Lawler, H. Howell- Barber Service-Oriented Architecture: SOA Strategy, Methodology, and Technology Auerbach 2007 2. Michael Havey Essential Business Process Modeling O'Reilly Media 2005						from 69 to 76 points	7 (seven) (D))		
Image: From 93 to 100 points 10 (ten) (A) 19. Conditions for attending the final exam Successful completion of activities 15.1 and 15.2 20. Language Macedonian or English 21. Quality assessment Internal evaluation and student pools Literature Compulsory No. Author 1. Thomas Erl 22.1. Service-Oriented 1. Thomas Erl Service-Oriented Architecture: Concepts, Technology, and Design 2. Dirk Krafzig, Karl Banke, Dirk Slama Enterprise SOA: Service-Oriented Architecture Best Practices 3. Nicolai M. Josuttis SOA in Practice: The Art of Distributed System Design O'Reilly Media 20.7 James P. Lawler, James 2.2.1. James P. Lawler, James 2.2.2. Michael Havey					from 77 to 84 points 8 (eight) (C)					
19. Conditions for attending the final exam Successful completion of activities 15.1 and 15.2 20. Language Macedonian or English 21. Quality assessment Internal evaluation and student pools Literature Compulsory No. Author Title Publisher Year 22.1. 1. Thomas Erl Service-Oriented Architecture: Concepts, Technology, and Design Prentice Hall 2005 22. 2. Dirk Krafzig, Karl Banke, Dirk Slama Enterprise SOA: Service- Oriented Architecture Best Practices Prentice Hall 2004 22. 3. Nicolai M. Josuttis SOA in Practice: The Art of Distributed System Design O'Reilly Media 2007 Additional 1. James P. Lawler, James P. Lawler, H. Howell- Barber Service-Oriented Architecture: SOA Strategy, Methodology, and Technology Auerbach 2007 2. Michael Havey Essential Business Process Modeling O'Reilly Media 2005						from 85 to 92 points 9 (nine) (B				
20. Language Macedonian or English 21. Quality assessment Internal evaluation and student pools Literature Compulsory No. Author Title Publisher Year 22.1. I. Thomas Erl Service-Oriented Architecture: Concepts, Technology, and Design Prentice Hall 2005 22.1. Dirk Krafzig, Karl Banke, Dirk Slama Enterprise SOA: Service- Oriented Architecture Best Practices Prentice Hall 2004 22. 3. Nicolai M. Josuttis SOA in Practice: The Art of Distributed System Design O'Reilly Media 2007 Additional Vear 2. James P. Lawler, James P. Lawler, H. Howell- Barber Service-Oriented Architecture: SOA Strategy, Methodology, and Technology Auerbach 2007						from 93 to 100 points	10 (ten) (A)			
21. Quality assessment Internal evaluation and student pools 21. Quality assessment Internal evaluation and student pools Literature Compulsory No. Author Title Publisher Year 1. Thomas Erl Service-Oriented Architecture: Concepts, Technology, and Design Prentice Hall 2005 2. Dirk Krafzig, Karl Banke, Dirk Slama Enterprise SOA: Service- Oriented Architecture Best Practices Prentice Hall 2004 22. 3. Nicolai M. Josuttis SOA in Practice: The Art of Distributed System Design O'Reilly Media 2007 Additional No. Author Title Publisher Year 22.2. 1. James P. Lawler, James P. Lawler, H. Howell- Barber Service-Oriented Architecture: SOA Strategy, Methodology, and Technology Auerbach 2007	19.	Conditions for attending the final exam				Successful completion of activities 15.1 and 15.2				
Literature Compulsory No. Author Title Publisher Year 1. Thomas Erl Service-Oriented Architecture: Concepts, Technology, and Design Prentice Hall 2005 2. Dirk Krafzig, Karl Banke, Dirk Slama Enterprise SOA: Service- Oriented Architecture Best Practices Prentice Hall 2004 2. Jirkolai M. Josuttis SOA in Practice: The Art of Distributed System Design O'Reilly Media 2007 Additional No. Author Title Publisher Year 2.2.2. James P. Lawler, James P. Lawler, H. Howell- Barber Service-Oriented Architecture: SOA Strategy, Methodology, and Technology Auerbach 2007 2. Michael Havey Essential Business Process Modeling O'Reilly Media 2005	20.	Language				Macedonian or English				
Compulsory No. Author Title Publisher Year 22.1. No. Author Service-Oriented Prentice Hall 2005 2. Dirk Krafzig, Karl Banke, Dirk Slama Enterprise SOA: Service- Oriented Architecture Best Practices Prentice Hall 2004 2. Dirk Krafzig, Karl Banke, Dirk Slama Enterprise SOA: Service- Oriented Architecture Best Practices Prentice Hall 2004 3. Nicolai M. Josuttis SOA in Practice: The Art of Distributed System Design O'Reilly Media 2007 Additional No. Author Title Publisher Year 22.2. I. James P. Lawler, James P. Lawler, H. Howell- Barber Service-Oriented Architecture: SOA Strategy, Methodology, and Technology Auerbach 2007 2. Michael Havey Essential Business Process Modeling O'Reilly Media 2005	21.	Quality	Quality assessment			Internal evaluation and student pools				
No. Author Title Publisher Year 1. Thomas Erl Service-Oriented Prentice Hall 2005 2 Dirk Krafzig, Karl Enterprise SOA: Service-Oriented Architecture Best Prentice Hall 2004 2. Dirk Krafzig, Karl Enterprise SOA: Service-Oriented Architecture Best Prentice Hall 2004 2. Dirk Krafzig, Karl SOA in Practices Prentice Hall 2004 2. Nicolai M. Josuttis SOA in Practice: The Art of Distributed System Design O'Reilly Media 2007 Additional No. Author Title Publisher Year 22.2. 1. James P. Lawler, J	22.	Literature								
22.1. I. Thomas Erl Service-Oriented Architecture: Concepts, Technology, and Design Prentice Hall 2005 22. Dirk Krafzig, Karl Banke, Dirk Slama Enterprise SOA: Service- Oriented Architecture Best Practices Prentice Hall 2004 22. 3. Nicolai M. Josuttis SOA in Practice: The Art of Distributed System Design O'Reilly Media 2007 Additional No. Author Title Publisher Year 22.2. I. James P. Lawler, James P. Lawler, H. Howell- Barber Service-Oriented Architecture: SOA Strategy, Methodology, and Technology Auerbach 2007			Compulsory							
22.1.1.Thomas ErlArchitecture: Concepts, Technology, and DesignPrentice Hall20052.Dirk Krafzig, Karl Banke, Dirk SlamaEnterprise SOA: Service- Oriented Architecture Best PracticesPrentice Hall200422.3.Nicolai M. JosuttisSOA in Practice: The Art of Distributed System DesignO'Reilly Media2007AdditionalNo. AuthorTitlePublisherYear22.2.1.James P. Lawler, James P. Lawler, H. Howell- BarberService-Oriented Architecture: SOA Strategy, Methodology, and TechnologyAuerbach2007		22.1.	No.	Author	Title		Publisher	Year		
2. Difk Kraizig, Kain Banke, Dirk Slama Oriented Architecture Best Practices Prentice Hall 2004 22. 3. Nicolai M. Josuttis SOA in Practice: The Art of Distributed System Design O'Reilly Media 2007 Additional No. Author Title Publisher Year 22.2. 1. James P. Lawler, James P. Lawler, H. Howell- Barber Service-Oriented Architecture: SOA Strategy, Methodology, and Technology Auerbach 2007 2. Michael Havey Essential Business Process Modeling O'Reilly Media 2005			1.	Thomas Erl	Architecture: Concepts,		Prentice Hall	2005		
3. Nicolai M. Josuttis Distributed System Design O'Reilly Media 2007 Additional Additional No. Author Title Publisher Year James P. Lawler, James James P. Lawler, James Service-Oriented Auerbach 2007 22.2. I. P. Lawler, H. Howell- Barber Methodology, and Technology Auerbach 2007 2. Michael Havey Essential Business Process Modeling O'Reilly Media 2005			2.		Oriented Architecture Best Practices		Prentice Hall	2004		
No.AuthorTitlePublisherYear22.2.I.James P. Lawler, James P. Lawler, H. Howell- BarberService-Oriented Architecture: SOA Strategy, Methodology, and TechnologyAuerbach20072.Michael HaveyEssential Business Process ModelingO'Reilly Media2005			3.	Nicolai M. Josuttis			O'Reilly Media	2007		
22.2.I.James P. Lawler, James P. Lawler, H. Howell- BarberService-Oriented Architecture: SOA Strategy, Methodology, and TechnologyAuerbach20072.Michael HaveyEssential Business Process ModelingO'Reilly Media2005			Additional							
22.2.1.James P. Lawler, James P. Lawler, H. Howell- BarberArchitecture: SOA Strategy, Methodology, and TechnologyAuerbach20072.Michael HaveyEssential Business Process ModelingO'Reilly Media2005		22.2.	No. Author			Title	Publisher	Year		
2. Michael Havey Modeling O'Reilly Media 2005			1.	P. Lawler, H. Howell-	Arc	chitecture: SOA Strategy, Methodology, and	Auerbach	2007		
			2.	Michael Havey	Essential Business Process		O'Reilly Media	2005		
3.			3.							