

Learning Paths without UNBZ

EMSE 2015-2017 onward

A course of focal language is EMSE compulsory at each academic year on top of the 120 ECTS

UNKL					UPM				
ES	Topic	Title	ECTS	Lang.	Topic	Title	ECTS	Lang.	
1	VV	Safety and Reliability of Embedded Systems	4	En	I	Microship	8	En	
	TS	Performance Modelling of Distributed Systems	4	En	TS	Management, Relationships and Communication in Working Groups	4	En	
	ROSS	Requirements Engineering	4	En	FC	Choice among Process	12	En	
	ATSE	Middleware for Heterogeneous Distributed Information Systems	8	En					
	SPPM	Quality Management software and System (A1)	4	En					
	TS	Product Line Engineering	4	En					
semester 28					semester 24				
2	VV	Formal Specification and verification Techniques	8	En	T	Thesis	30	En	
	SPPM	Software Project and Process Management	4	En					
	ROSS	Software Architecture of Distributed Systems (A2)	8	En					
	TS	Process Modelling	4	En					
	ESER	Software Engineering Seminar	4	En					
	ESER	Empirical Model Building and Methods	4	En					
semester 32					semester 30				
year 60					year 54				
Total 114									

UNKL		UPM	
Elective	ECTS	Elective or alternatives	ECTS
		Data Engineering	4
		Management, Relationships and Communication in Working Groups	4
		Challenges for accessible computing for people with functional diversity	4
		Agile Software Development: Agile Practices and Agile Usability	4
		Distributed and Outsourced Software Engineering	4
		Heterous Software Development	4

UNKL					UwD				
ES	Topic	Title	ECTS	Lang.	Topic	Title	ECTS	Lang.	
1	VV	Safety and Reliability of Embedded Systems	4	En	I	Principles of Project Management	3	En	
	TS	Performance Modelling of Distributed Systems	4	En	I	Project II	11	En	
	ROSS	Requirements Engineering	4	En	ESER	Software Engineering Research	7	En	
	ATSE	Middleware for Heterogeneous Distributed Information Systems	8	En	ESER	Research Methods	5	En	
	SPPM	Quality Management software and System (A1)	4	En	TS	Interaction Design	4	En	
	TS	Product Line Engineering	4	En					
semester 28					semester 30				
2	VV	Formal Specification and verification Techniques	8	En	T	Thesis	30	En	
	SPPM	Software Project and Process Management	4	En					
	ROSS	Software Architecture of Distributed Systems (A2)	8	En					
	TS	Process Modelling	4	En					
	ESER	Software Engineering Seminar	4	En					
	ESER	Empirical Model Building and Methods	4	En					
semester 24					semester 30				
year 52					year 60				
Total 112									

UNKL		UwD	
Elective	ECTS	Elective or alternatives	ECTS

UPM					UwD				
ES	Topic	Title	ECTS	Lang.	Topic	Title	ECTS	Lang.	
1	ROSS	Requirements Engineering	4	En	I	Principles of Project Management	3	En	
	SPPM	Models and Methods for Process Improvement and Assessment	4	En	I	Project II	11	En	
	SPPM	Software Project Management	4	En	ESER	Software Engineering Research	7	En	
	ESER	Software Metrics	4	En	ESER	Research Methods	5	En	
	VV	Verification and Validation	6	En	TS	Interaction Design	4	En	
	TS	Software Economics	3	En					
	TS	Critical Software	3	En					
semester 30					semester 30				
2	ATSE	Agent Based Software Engineering	6	En	T	Thesis	30	En	
	ROSS	Software Design	4	En					
	ATSE	Interaction Design	4	En					
	ESER	Experimental Software Engineering	6	En					
	ROSS	Software Architecture	4	En					
	VV	Software Quality Management	4	En					
semester 30					semester 30				
year 60					year 60				
Total 120									

UPM		UwD	
Elective	ECTS	Elective or alternatives	ECTS

UPM					UNKL				
ES	Topic	Title	ECTS	Lang.	Topic	Title	ECTS	Lang.	
1	ROSS	Requirements Engineering	6	En	I	Software Project	8	En	
	SPPM	Models and Methods for Process Improvement and Assessment	4	En	FC	Software Engineering Seminar	8	En	
	SPPM	Software Project Management	4	En	FC	Middleware for Heterogeneous and Distributed Information Systems	4	En	
	ESER	Software Metrics	4	En	ATSE	Advances in Software Engineering - Module: Performance Modelling of distributed systems	4	En	
	VV	Verification and Validation	6	En	ATSE	Advances in Software Engineering - Module: Safety & Reliability of Embedded systems	4	En	
	TS	Software Economics	3	En	TS	Product Line Engineering	4	En	
	TS	Critical Software	3	En					
semester 30					semester 24				
2	ATSE	Agent Based Software Engineering	6	En	T	Thesis	30	En	
	ROSS	Software Design	4	En					
	ATSE	Interaction Design	6	En					
	ESER	Experimental Software Engineering	6	En					
	ROSS	Software Architecture	4	En					
	VV	Software Quality Management	4	En					
semester 30					semester 30				
year 60					year 54				
Total 114									

UPM		UNKL	
Elective	ECTS	Elective or alternatives	ECTS

UwD					UNKL				
ES	Topic	Title	ECTS	Lang.	Topic	Title	ECTS	Lang.	
1	SPPM	Software Development in Global Environment	5	En	I	Software Project	8	En	
	ESER	Open Source Software Development	4	En	FC	Software Engineering Seminar	8	En	
	SPPM	Software Engineering Management, Measurement and Improvement	5	En	FC	Middleware for Heterogeneous and Distributed Information Systems	4	En	
	VV	Software Quality and Testing	5	En	ATSE	Advances in Software Engineering - Module: Performance Modelling of distributed systems	4	En	
	ROSS	Realtime Distributed Software Development	6	En	ATSE	Advances in Software Engineering - Module: Safety & Reliability of Embedded systems	4	En	
	ESER	Advanced Topics in Software Engineering	5	En	TS	Product Line Engineering	4	En	
semester 30					semester 24				
2	ATSE	Software Production and Maintenance	5	En	T	Thesis	30	En	
	ROSS	Embedded Software Development	5	En					
	TS	IT Infrastructure	5	En					
	ATSE	Programmable Web Project	5	En					
	VV	Advanced Topics in Software Testing	5	En					
	TS	Mobile and Social Computing	5	En					
semester 30					semester 30				
year 60					year 54				

UwD		UNKL	
Elective	ECTS	Elective or alternatives	ECTS

Total	114
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U4D				
IS	Topic	Title	ECTS	Lang.
1	SPM	Software Development in Global Environment	5	En
	ESR	Open Source Software Development	4	En
	SPM	Software Engineering Management, Measurement and Improvement	5	En
	VV	Software Quality and Testing	5	En
	RCSS	Realtime Distributed Software Development	6	En
	ESR	Advanced Topics in Software Engineering	5	En
semester			30	
2	ATSE	Software Production and Maintenance	5	En
	RCSS	Embedded Software Development	5	En
	TS	IT Infrastructure	5	En
	ATSE	Programmable Web Project	5	En
	VV	Advanced Topics in Software Testing	5	En
	TS	Mobile and Social Computing	5	En
semester			30	
year			60	

UPM				
Topic	Title	ECTS	Lang.	
1	Mentorship	8	En	
TS	Management, Relationships and Communication in Working Groups	4	En	
HC	Choice among	12	En	
semester			24	
1	Thesis	30	En	
semester			30	
year			54	

U4D	Elective

UPM	
Elective or alternatives	ECTS
Data Engineering	4
Management, Relationships and Communication in Working Groups	4
Challenges for accessible computing for people with functional diversity	4
Agile Software Development: Agile Practices and Agile Usability	4
Distributed and Outsourced Software Engineering	4
Heterogeneous Software Development	4

Total	114
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Learning paths with UNIBZ

EMSE 2015-2017 onward

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Legend	
Modules	Acronym
Software Project / Process Management	SPPM
Verification and Validation	VV
Requirements and Design of Software Systems	RSSS
Empirical Software Engineering Research	ESER
Advanced Topic in Software Engineering	ATSE
Transversal Skills	TS
Internship	I
Free Choice	FC
Thesis	T

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ES	Topic	Title	ECTS	Lang.	Topic	Title	ECTS	Lang.	Elective	ECTS	Elective or alternatives	ECTS	
1	SPPM	Software Process Management	8	En	I	Software Project	8	En	[Orange Box]	[Green Box]			
	TS	Statistical Methods	4	En	FC	Software Engineering Seminar	8	En					
	RSSS	Requirements and Design of Software Systems	8	En	FC	Middleware for Heterogeneous and Distributed Information Systems	4	En					
	TS	Data Mining	8	En	ATSE	Performance modelling of distributed systems	4	En					
semester 28					semester 32								
2	VV	Software Reliability and Testing	8	En	T	Thesis	30	En					
	ESER	Empirical Software Measurement	8	En									
	SPPM	Software Factory	8	En									
	ATSE	Advanced Internet Technologies	8	En									
semester 32					semester 30								
year 60					year 62								
Total												122	

UNIBZ					UPM					UNIBZ		UPM	
ES	Topic	Title	ECTS	Lang.	Topic	Title	ECTS	Lang.	Elective	ECTS	Elective or alternatives	ECTS	
1	SPPM	Software Process Management	8	En	I	Internship	8	En	[Orange Box]	[Green Box]	Challenges for accessible computing for people with functional diversity	4	
	TS	Statistical Methods	4	En	TS	Management, Relationships and Communication in Working Groups	4	En					
	RSSS	Requirements and Design of Software Systems	8	En	FC	Choice among	12	En					
	TS	IT and Service Management	8	En									
semester 28					semester 24								
2	VV	Software Reliability and Testing	8	En	T	Thesis	30	En					
	ESER	Empirical Software Measurement	8	En									
	SPPM	Software Factory / Quality Software Factory	8	En									
	ATSE	Advanced Internet Technologies	8	En									
semester 32					semester 30								
year 60					year 54								
Total												114	

FUB					UoO					FUB		UoO	
ES	Topic	Title	ECTS	Lang.	Topic	Title	ECTS	Lang.	Elective	ECTS	Elective or alternatives	ECTS	
1	SPPM	Software Process Management	8	En	I	Principles of Project Management	3	En	[Orange Box]	[Green Box]			
	TS	Statistical Methods	4	En	I	Project II	11	En					
	RSSS	Requirements and Design of Software Systems	8	En	ESER	Software Engineering Research	7	En					
	TS	IT and Service Management	8	En	ESER	Research Methods	5	En					
semester 28					semester 30								
2	VV	Software Reliability and Testing	8	En	T	Thesis	30	En					
	ESER	Empirical Software Measurement	8	En									
	SPPM	Software Factory / Quality Software Factory	8	En									
	ATSE	Advanced Internet Technologies	8	En									
semester 32					semester 30								
year 60					year 60								
Total												120	

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ES	Topic	Title	ECTS	Lang.	Topic	Title	ECTS	Lang.	Elective	ECTS	Elective or alternatives	ECTS		
1	VV	Safety and Reliability of Embedded Systems	4	En	ATSE	Mobile System Engineering	8	En	Lean start up	8	A1: Software Quality Assurance A2: Service Oriented Architecture			
	TS	Performance Modelling of Distributed Systems	4	En		FC	Seminars in Software and IT Engineering	4		En			Requirements	8
	REDS	Requirements Engineering	4	En		I	Internship	8		En			IT and service management	8
	ATSE	Middleware for Heterogeneous Distributed Information Systems	8	En		FC	Elective	8		En				
	SPFM	Quality Management software and System (A1)	4	En		ESER	Research Methods	2	En					
	TS	Product Line Engineering	4	En										
semester 28					semester 30									
2	VV	Formal Specification and verification Techniques	8	En	T	Thesis	30	En						
	SPFM	Software Project and Process Management	4	En										
	REDS	Software Architecture of Distributed Systems (A2)	8	En										
	TS	Process Modelling	4	En										
	ESER	Software Engineering Seminar	4	En										
	ESER	Empirical Model Building and Methods	4	En										
semester 32					semester 30									
year 60					year 60									
Total										120				

UPM					UNIBZ					UNIBZ		UPM		
ES	Topic	Title	ECTS	Lang.	Topic	Title	ECTS	Lang.	Elective	ECTS	Elective or alternatives	ECTS		
1	REDS	Requirements Engineering	6	En	ATSE	Mobile System Engineering	8	En	Lean start up	8				
	SPFM	Models and Methods for Process Improvement and Reengineering	4	En		FC	Seminars in Software and IT Engineering	4		En			Requirements	8
	SPFM	Software Project Management	4	En		I	Internship	8		En			IT and service management	8
	ESER	Software Metrics	4	En		FC	Elective	8		En				
	VV	Verification and Validation	6	En		ESER	Research Methods	2	En					
	TS	Software Economics	3	En										
	TS	Critical Software	3	En										
semester 30					semester 30									
2	ATSE	Agent Based Software Engineering	6	En	T	Thesis	30	En						
	REDS	Software Design	4	En										
	ATSE	Interaction Design	6	En										
	ESER	Experimental Software Engineering	6	En										
	REDS	Software Architecture	4	En										
	VV	Software Quality Management	4	En										
semester 30					semester 30									
year 60					year 60									
Total										120				

UoO					UNIBZ					UNIBZ		UoO		
ES	Topic	Title	ECTS	Lang.	Topic	Title	ECTS	Lang.	Elective	ECTS	Elective or alternatives	ECTS		
1	SPFM	Software Development in Global Environment	5	En	ATSE	Mobile System Engineering	8	En	Lean start up	8				
	ESER	Open Source Software Development	4	En		FC	Seminars in Software and IT Engineering	4		En			Requirements	8
	SPFM	Software Engineering Management, Measurement and Improvement	5	En		I	Internship	8		En			IT and service management	8
	VV	Software Quality and Testing	5	En		FC	Elective	8		En				
	REDS	Realtime Distributed Software Development	6	En		ESER	Research Methods	2	En					
	ESER	Advanced Topic in Software Engineering	5	En										
semester 30					semester 30									
2	ATSE	Software Production and Maintenance	5	En	T	Thesis	30	En						
	REDS	Embedded Software Development	5	En										
	TS	IT Infrastructure	5	En										
	ATSE	Programmable Web Project	5	En										
	VV	Advanced Topic in Software Testing	5	En										
	TS	Mobile and Social Computing	5	En										
semester 30					semester 30									
year 60					year 60									
Total										120				