

MODULE		MIRI - Innovation			
SEMESTER	1	CREDITS (ECTS)	5	VALID AS OF	10-02-2020
LECTURES / WEEK	1	PRACTICAL HOURS / WEEK	4	TOTAL EFFORT	140 hours
AUTHORS	Dr. Gregor Schwake				
CREDENTIALS					
INTRODUCTION AND MOTIVATION					
In a highly competitive world it is important for a student to understand what innovation is and how it can be fostered. One major part is to be able to apply creativity techniques in order to unveil new shapes (innovations) of a product, service or process. Another part is to know about the topics that need to be addressed when one wants to actively manage innovation. Feedback from and exchange with third parties that are actively busy in that area is a necessity.					
LEARNING GOALS: THE STUDENT ...					
LG 1	Is able to apply creativity techniques.				
LG 2	Is able to act as a moderator in an innovation finding setting.				
LG 3	Understands the key concepts of managing innovation.				
TOPICS					
Students will later on be asked to actively support the continuous improvement of products, services and processes. Having a sound understanding about what innovations are, how they can be managed, as well as being able to apply techniques that help create innovations, will help with this enormously.					
In MIRI the following topics will be addressed:					
<ul style="list-style-type: none">• Creativity techniques and their application• Moderation of innovation finding sessions• Managing innovations• Exchange with guest speakers					
Week	Description				
1	Introduction and setup Creativity techniques – Hear: Problem				
2	Creativity techniques – Create: Problem Solving				
3	Creativity techniques – Cluster: Inbetween Creativity techniques – Select: Converging				
4	Moderation of innovation finding sessions				
5	Managing Innovation Creativity techniques presentation / moderation				
6	Managing Innovation Creativity techniques presentation / moderation				
7	Rerun and application of creativity techniques				

CONTRIBUTION TO FINAL COMPETENCE PROFILE (SEE OER)												
Learning Goal	Architectural Layers (enter "X", max 1 one per LG)					Activities (enter niveaus "1" .. "3", max 1 per LG)					(enter "X")	
	User Interface	Business Processes	Infra-structure	Software	Hardware Interfacing	Manage	Analyse	Advice	Design	Realise	Professional Behaviour	Research Skills
LG 1		X					3					X
LG 2		X						2				X
LG 3		X					2				X	
MODULE ASSESSMENT												
Learning Goal	Type of Assessment (enter "X", at least one per LG)					Grade for (enter "X", one per LG)		Weight (in %) (adds up to 100%)				
	Written Exam	Oral Exam	Performance Assessment	Presentation incl Defense	Report	Individual	Group					
LG 1	X					X		40%				
LG 2	X					X		30%				
LG 3	X					X		30%				
TEACHING MATERIAL												
All slides will be published on Sharepoint: https://connect.fontys.nl/instituten/fhtenl/studies/INF/MIRI												
Book												
Managing Innovation												
Integrating Technological, Market and Organizational Change												
Joe Tidd and John Bessant												
John Wiley & Sons Ltd. 5th edition, 2013												
ISBN: 9781118360637												
Innovation Portal												
http://johnbessant.org/tools-for-innovation-and-entrepreneurship/												
PRIOR KNOWLEDGE												
No prior knowledge is needed												
ADDITIONAL INFORMATION (ON GRADING, ASSESSMENTS, RETAKES, PRACTICAL PARTS, ..)												
The grade for MIRI is comprised:												
Written exam 100%												
The exam will be done at the end of the first Kwartester. A retake will be offered at the end of the semester.												

MODULE		MIRR - Research			
SEMESTER	1	CREDITS (ECTS)	5	VALID AS OF	10-02-2020
LECTURES / WEEK	2	PRACTICAL HOURS / WEEK	6	TOTAL EFFORT	140 hours
AUTHORS	Dr. Gregor Schwake, Dr. Linda Urselmans				
CREDENTIALS					
INTRODUCTION AND MOTIVATION					
<p>In order to be able to innovate, research is needed. Research can be done at different levels, with diverse purposes. In this module, students learn about the tools and processes required to conduct research. A particular emphasis is placed on developing critical-thinking skills. At the end of this module, students are able to make informed choices regarding research in an innovation process.</p> <p>During the bachelor study students learn how to do applied research. Applied research involves research that contributes to practice-oriented problems in the work field. Through research, students will gain new knowledge. Depending on the goal, the situation is described, new solutions are developed, a process is evaluated. Conclusions of applied research can be either applied in very specific contexts, or broadly applicable to other fields as well.</p> <p>In this module, the basic techniques and theories of research are central. Students learn how to design, conduct, analyze, and report applied research.</p>					
LEARNING GOALS: THE STUDENT ...					
LG 1	Is able to state research questions (<i>what</i>).				
LG 2	Is able to define a research framework (<i>how</i>).				
LG3	Is able to set up a research plan (<i>when</i>).				
LG 4	Is able to carry out applied research.				
TOPICS					
<p>Based on a project, e.g. a project done with the minor Smart Innovation, students will</p> <ul style="list-style-type: none">state research questions,define a corresponding research framework,set up a research plan andcarry out applied research. <p>This all is done with the final goal to write a research paper. The paper itself might be of scientific or introductory character, or might reflect applied research carried out for a business customer like selection of a specific technology, framework etc.</p> <p>Students are also allowed to use other means like a video blog instead of writing a research paper. Such approaches need to be clarified with the lecturer beforehand.</p>					
Week	Description				
1	Introduction and setup Research Question(s)				
2	Research Framework, Research Plan				
3 - 7	Carrying out research				
CONTRIBUTION TO FINAL COMPETENCE PROFILE (SEE OER)					
min 0,00	Architectural Layers (enter "X", max 1 one per LG)		Activities (enter niveaus "1" .. "3", max 1 per LG)		(enter "X")

	User Interface	Business Processes	Infra-structure	Software	Hardware Interfacing	Manage	Analyse	Advice	Design	Realise	Professional Behaviour	Research Skills
LG 1	(X)	(X)	(X)	(X)	(X)		3					X
LG 2	(X)	(X)	(X)	(X)	(X)				2			X
LG 3	(X)	(X)	(X)	(X)	(X)				2			X
LG 4	(X)	(X)	(X)	(X)	(X)					2		X

MODULE ASSESSMENT

Learning Goal	Type of Assessment (enter "X", at least one per LG)					Grade for (enter "X", one per LG)		Weight (%) (adds up)
	Written Exam	Oral Exam	Performance Assessment	Presentation incl Defense	Report	Individual	Group	
LG 1					X	X		20%
LG 2					X	X		30%
LG 3					X	X		10%
LG 4					X	X		40%

TEACHING MATERIAL

All slides will be published on Sharepoint: <https://connect.fontys.nl/instituten/fhten/studies/INF/MIRR>

PRIOR KNOWLEDGE

No prior knowledge is needed

ADDITIONAL INFORMATION (ON GRADING, ASSESSMENTS, RETAKES, PRACTICAL PARTS, ..)

The grade for MIRR is comprised of:

Research Paper (or approved alternative) 100%

Deadline for the research paper will be at the end of the first Kwartester.

Deadline for the retake will be at the end of the semester.

Regarding grading, it will be taken into account if the topic of the retake paper is identical with the topic of the original research paper.

MODULE		MIRR - Project			
SEMESTER	1	CREDITS (ECTS)	20	VALID AS OF	10-02-2020
LECTURES / WEEK	1	PRACTICAL HOURS / WEEK	20	TOTAL EFFORT	560 hours
AUTHORS	Dr. Gregor Schwake				
CREDENTIALS					
INTRODUCTION AND MOTIVATION					
<p>Almost all innovation oriented activities take place in team based environments and focus on a specific product, service or process.</p> <p>In the project students apply knowledge gained in the minor modules, as well as knowledge gained in previous study activities. In multidisciplinary groups, students will develop an innovative product, service or process. The module includes coaching and may include project specific lectures (enabling skills). Where needed specific, related topics and techniques from the major domain might be lectured in detail.</p>					
LEARNING GOALS: THE STUDENT ...					
LG 1	Is able to actively participate in the setup and execution of a team based innovation/research project.				
LG 2	Is able to apply innovation techniques.				
LG 3	Is able to structure research activities.				
LG 4	Is able to carry out applied research in a group environment.				
TOPICS					
<p>Based on a project, i.e. a project done with the minor Smart Innovation, students will</p> <ul style="list-style-type: none">• identify a research topic,• create a problem statement,• derive from this a main research question,• derive from this sub research questions,• derive from this a research framework,• derive from this a research plan,• carry out applied research and• organise the annual Minor Exhibition where research results are presented. <p>During the project, techniques and tools presented in the minor modules <i>Innovation</i> and <i>Research</i> are applied accordingly.</p> <p>Students can choose a project out of a range of proposed project ideas or can define a project based on individual interests regarding application areas and technologies.</p> <p>During the project, there will be weekly status meetings where each group presents progress made and problems they came across in the previous week, as well as lessons learned and the set out for the current week.</p> <p>Artefacts to be created by students are a poster, a video, project documentation (including a hand over document and a project report) and a presentation.</p>					

Week	Description
1	Introduction and setup
2	Project Selection
3	Project Setup, Research Plan
4	Finalizing Project Setup, Research Plan
5	Carrying Out Research
6	Carrying Out Research
7	Carrying Out Research
8-12	Carrying Out Research Organising the Minor Exhibition
13	Finalizing project documentation and poster, presentation etc.
14	Minor Exhibition (includes presentation)

CONTRIBUTION TO FINAL COMPETENCE PROFILE (SEE OER)

Learning Goal	Architectural Layers (enter "X", max 1 one per LG)					Activities (enter niveaus "1" .. "3", max 1 per LG)					(enter "X")	
	User Interface	Business Processes	Infra-structure	Software	Hardware Interfacing	Manage	Analyse	Advice	Design	Realise	Professional Behaviour	Research Skills
LG 1	(X)	(X)	(X)	(X)	(X)					3		X
LG 2		X					3					X
LG 3		X							3			X
LG 4	(X)	(X)	(X)	(X)	(X)					3	X	

MODULE ASSESSMENT

Learning Goal	Type of Assessment (enter "X", at least one per LG)					Grade for (enter "X", one per LG)		Weight (in %) (adds up to 100%)
	Written Exam	Oral Exam	Performance Assessment	Presentation incl Defense	Report	Individual	Group	
LG 1					X	X	X	40%
LG 2					X	X	X	10%
LG 3					X	X	X	10%
LG 4					X	X	X	40%

TEACHING MATERIAL

All slides will be published on Sharepoint: <https://connect.fontys.nl/instituten/fhtenl/studies/INF/MIRP>

PRIOR KNOWLEDGE

No prior knowledge is needed.

ADDITIONAL INFORMATION (ON GRADING, ASSESSMENTS, RETAKES, PRACTICAL PARTS, ..)

Artefacts (poster, a video, project, a presentation, a prototype) will be graded on group level but individual grades might differ based on a student's contribution.

Projects and student work are also closely shadowed by lecturers, beside the weekly coaching hours. This will also be taken as input for grading.

Deadline for project documentation is the Friday of the semester's last lecture week.

The project can't be retaken.