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EGREEN:
**Development of Environmental Engineering Courses and Injection of Climate
Change Concept For Undergraduate Curriculum**

**Minutes
of
The Sixth Steering Committee Meeting**

**The University of Jordan
Amman-Jordan**

December 18-20, 2018



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EGREEN Sixth Steering Committee

December 18-20, 2018

Participants list:

No.	Participant Name	Position
The University of Jordan (UJ)		
1.	Prof. Ahmed Al-Salaymeh	EGREEN Project Coordinator
2.	Prof. Mohammad Hamdan	Professor at Mechanical Engineering Department
3.	Prof. Ahmad Abu Yaghi	Professor at Chemical Engineering Department
4.	Prof. Zayed Al-Hamamre	Professor at Chemical Engineering Department
5.	Dr. Osama Ayadi	Assistant Professor at Mechanical Engineering Department
6.	Eng. Leena Marashdeh	Research Assistant at School of Engineering
7.	Ms. Hanan Hasan	Research Assistant at School of Engineering
8.	Eng. Rasha AlBeek	Research Assistant at School of Engineering
9.	Eng. Tahni adel	Research Assistant at School of Engineering
10.	Mr. Mamoun Dmour	Technician Information Technology Center
11.	Mr. Hussien Omari	Staff in Public Relation Department
The German-Jordanian University (GJU)		
12.	Prof. Ala'aldeen Al-Halhouli	Professor at Engineering Faculty
13.	Ms. Diala Albate'	Project Assistant
Al al-Bayt University (AABU)		
14.	Dr. Moayyad shawaqfeh	Dean of Engineering School
15.	Dr. Ali Maabdeh	Faculty member at AABU
Al-Zaytoonah University of Jordan (ZUJ)		
16.	Dr. Loai Dabbour	Chairman at Architecture department
Mutah University (MUTAH)		
17.	Prof. Omer Maaitah	Dean of the Faculty of Graduate Studies



Jordan University of Science and Technology (JUST)		
18.	Prof. Suhil Kiwan	Dean of Engineering School
Al-Baath University (ABU)		
19.	Prof. Adnan Ghata	Professor at Chemical Engineering Department
20.	Prof. Ahmed Almahmoud	Faculty member at ABU
21.	Prof. Abd Alnaser Alaarag	Faculty member at ABU
22.	Dr. Anwar Ramadan	Faculty member at ABU
Tishreen University (TU)		
23.	Prof. Moussa Al Samara	The Dean of the higher Institute for Environmental Research
24.	Dr. Juliet Salloum	Faculty member at TU
25.	Dr. Badia Haidar	Faculty member at TU
Aleppo University (AU)		
26.	Prof. Khalaf ALABDULLAH	Faculty member at AU
27.	Dr. Taha Jabban	Faculty member at AU
28.	Dr. Mufeed Sharholy	Faculty member at AU
29.	Dr. Abdulhakim Bannoud	Faculty member at AU
30.	Dr. Nahed Farhoud	Faculty member at AU
Hamburg University of Technology (TUHH)		
31.	Prof. Martin Kaltschmitt	Head of the Institute for Environmental technology and Energy industry
32.	Mr. Marvin Scherzinger	Research Assistant
Hochschule Ostwestfalen-Lippe (OWL-UAS)		
33.	Prof. Salman Ajib	Head of the department renewable energies & decentralized energy supplying
34.	Prof, Burkhard Wrenger	Faculty member at OWL-UAS
35.	Prof. Joachim Fettig	Faculty member at OWL-UAS
University of Innsbruck (UIBK)		



36.	Prof. Wolfgang Streicher	Professor of Energy Efficient Buildings and Renewable Energies
37.	Dr. Martin Hauer	Faculty member at UIBK
Catholic University of Portugal (UCP)		
38.	Dr. Eduardo Cardoso	Assistant Professor and Scientific Officer for Knowledge Transfer, Entrepreneurship and Partnerships at Faculty of Biotechnology
39.	Dr. Paula Castro	Faculty member at UCP



Day 1

Tuesday, December 18, 2018

The Opening Session

Prof. Ahmed Al-Salaymeh, Egreen General Coordinator, welcomed all participants and delivered a presentation about the progress in EGREEN project.

Session (1-A)

Chaired by Prof. Martin Kaltschmitt (TUHH)

Work packages leaders for WP 3, 4, and 5 presented the progress in them and the suggested action plan.

WP3: Development of Study Plan and Curricula

Title	Major Activities	Coordination			Estimated Start\END Date	
		Coordinator	Co-Coordinator	Other partners involved		
WP3: Development of Study Plan and Curricula	Task 3.1: Workshop on Curricula Updating	HS-OWL	ZUJ, MUTAH,TU	All	1/9/2017	1.8.2017 To 1/4/2018
	Task 3.2: Selection of Pilot Courses and Labs				1/11/2017	
	Task 3.3: Detailed Design of Pilot Courses				1/2/2018	
	Task 3.4: Accreditation of New Curricula				1/6/2018	
	Task 3.5: New Curricula for environment Courses				15/9/2018	
	Task 3.6: Establishment of Environmental lab				15/4/2018	
	Task 3.7: Monitoring and Feedback Methodology and Reports				1/10/2018	

Prof. Salman Ajib, OWL-UAS, presented the tasks and activities of this work package and the action plan for the implementation.

It was obvious that progress in this work package is within the timeline of the proposal. The agreed-on tasks were as follow:

No.	Task	Responsibility	Due Date
1.	Organize the courses folder to include the following sub-folders: 1- Collected Presentations Folder 2- Final Material Folder: ✓ Arabic Folder ✓ English Folder	JO Partners SY Partners	Dec, 2018
2.	Course (2) title will be changed to “Introduction to Water and Wastewater Treatment” as it a bachelor course	-	-
3.	Equip the labs (2018)	JO Partners	ASAP
4.	Provide Material for 6.a. Introduction to environment and Climate change	Prof. Salman (HS-OWL) Prof. Abu Yaghi (UJ) Prof. Saeb (JUST)	Dec 20, 2018
5.	A basic material for course “6.a. Introduction to environment and Climate change” will be designed in English	AABU	Jan, 2019
6.	An advanced material for course “6.a. Introduction to environment and Climate change” will be designed in English and Arabic	AU	Jan, 2019
7.	Final courses to be submitted for Quality check	JO Partners SY Partners	Dec 21, 2018
8.	Comments of the Quality Check to be sent to Authors	GJU	Dec 23, 2018
9.	The revised courses will be sent to European universities for Technical review	GJU	Dec 25, 2018
10.	Provide Summary of implemented courses for Fall semesters 2018 with accurate number of Students	JO Partners SY Partners	Dec, 2018
11.	Provide Summary of courses to be implemented for Spring semesters 2019	JO Partners SY Partners	Dec, 2018



12.	Deliver new and revised outline template	GJU	Sep 15, 2018???
13.	Deliver PPT Template for teaching material	GJU	Sep 15, 2018???
14.	The technical review comments will be sent to authors and Quality leader	EU	Jan 15, 2019
15.	Submit an official letter indicating the approval of partner university to include the EGREEN courses within the curriculum	JUST and GJU	Jan 30, 2019
16.	Translate teaching material to Arabic	SY Partners	Jan 30, 2019
17.	Courses Implementation in Spring semester 2019	JO Partners SY Partners	Feb, 2019
18.	Pre-Course survey to be distributed to students for implemented courses	JO Partners SY Partners	Feb, 2019
19.	Provide suggested questions for QUIZZES, TESTS	JO Partners SY Partners	Feb, 2019
20.	Analyses and preparation a report of the surveys by each faculty member for his implemented course	JO Partners SY Partners	May, 2019

Course leaders and committees

Clusters	Course Title	EU Committee	JO, SY Committee	Responsible university to submit final teaching material
Cluster 1	Water Resources Engineering including non-conventional water recourses	Prof. Joachim Fettig (HS-OWL) Dr. Paulo Baptista (P&B)	Prof. Adnan Ghata (ABU) Prof. Abd-alnasser Alaaraj (ABU) Prof. Omer Maaitah (MUTAH) Dr. Mo'ayyad Shawaqfah (AABU)	Dr. Mo'ayyad Shawaqfah (AABU) Arabic version: Prof. Adnan Ghata (ABU)
Cluster 2	Introduction to Water and Wastewater Treatment including Bio-	Prof. Martin Oldenburg (HS-OWL)	Prof. Adnan Ghata (ABU) Prof. Fahmi Abu Al-Rub (JUST) Prof. Juliet Saloum(TU) Prof. Ahmad Abu-Yaghi (UJ)	Dr. Mo'ayyad Shawaqfah (AABU) Arabic version:



	Techniques for Waste Water Treatment		Dr. Muna Hindiyeh (GJU) Dr. Mo'ayyad Shawaqfah (AABU)	Prof. Adnan Ghata (ABU)
Cluster 3	Design of Sustainable Buildings including Energy efficient building services	Prof. Wolfgang Streicher (UIBK)	Dr. Loui Dabbour (ZUJ) Dr. Hamzeh Ali (ABU)	Dr. Loui Dabbour (ZUJ) Arabic version: Prof. Adnan Ghata (ABU)
Cluster 4	Air Pollution and Air Quality Management	Prof. Klaus Maßmeyer (HS-OWL)	Dr. Mo'ayyad Shawaqfah (AABU) Prof. Khalaf Alabdullah (AU) Prof. Adnan Ghata (ABU) Prof. Ahmed Al-Mahmoud (ABU) Prof. Mohammad Hamdan (UJ) Prof. Ahmad Abu-Yaghi (UJ)	TU Arabic version: TU
Cluster 5	Environmental engineering and sustainable development	Prof. Martin Kaltschmitt (TUHH)	Prof. Fahmi Abu Al-Rub (JUST) Prof. Moussa Al-Samara (TU) Prof. Ahmad Abu-Yaghi (UJ) Dr. Muna Hindiyeh (GJU) Dr. Mo'ayyad Shawaqfah (AABU)	Prof. Moussa Al-Samara (TU) Arabic version: Prof. Moussa Al-Samara (TU)
Cluster 6.a	Introduction to Environment and Climate Change	Dr. Eduardo Luís Cardoso (UCP) Prof. Klaus Maßmeyer (HS-OWL)	Prof. Moussa Al-Samara (TU) Dr. Mo'ayyad Shawaqfah (AABU) Dr. Saeb Khresat (JUST) Dr. Muna Hindiyeh (GJU)	Dr. Eduardo Luís Cardoso (UCP) Dr. Mo'ayyad Shawaqfah (AABU) Arabic version: Prof. Moussa Al-Samara (TU)
Cluster 6.c	6.c Environmental Monitoring Systems (New Course)	Dr. Eduardo Luís Cardoso (UCP) Prof. Burkhard Wrenger (HS-OWL) Prof. Klaus Maßmeyer (HS-OWL)	Prof. Adnan Ghata (ABU) Prof. Ahmed Al-Mahmoud (ABU) Prof. Khalaf Alabdullah (AU) Prof. Moussa Al-Samara (TU) Prof. Ahmad Abu-Yaghi (UJ) Dr. Muna Hindiyeh (GJU)	AU Arabic version: AU



Cluster 7	Energy Resources and Engineering and Energy conversion Technologies	Prof. Martin Kaltschmitt (TUHH) Prof. Wolfgang Streicher (UIBK)	Prof. Mohammad Hamdan (UJ) Eng. Razan Al Rhia (TU) Dr. Loui Dabbour (ZUJ) Dr. Zayed Al-Hamamre (UJ)	Prof. Mohammad Hamdan (UJ) Arabic version: Prof. Moussa Al-Samara (TU)
Cluster 8	Design of Renewable Energy Systems	Prof. Martin Kaltschmitt (TUHH) Prof. Wolfgang Streicher (UIBK) Prof. Salman Ajib (HS-OWL) Dr. Eduardo Luís Cardoso (UCP)	Prof. Suhil Kiwan (JUST) Prof. Ahmed Al-Salaymeh (UJ) Prof. Mohammad Smairan (AABU) Prof. Chehadeh Moussa (ABU) Prof. Shoaib Mahmoud (TU)	Prof. Suhil Kiwan (JUST) Arabic version: Prof. Chehadeh Moussa (ABU)
Cluster 9	Heating Ventilating and Air Conditioning Systems including solar energy driven system	Prof. Wolfgang Streicher (UIBK) Prof. Salman Ajib (HS-OWL)	Dr. Mohammad Majali (MUTAH) Dr. Osama Ayadi (UJ) Eng. Eman Abdelhafez (ZUJ) Prof. Suhil Kiwan (JUST) Dr. Mohammad Al-Rbai (UJ)	Dr. Osama Ayadi (UJ) Arabic version: Prof. Moussa Al-Samara (TU)
Cluster 10	Power and Refrigeration Cycles	Prof. Salman Ajib (HS-OWL) Prof. Wolfgang Streicher (UIBK)	Prof. Mohammad Hamdan (UJ) Dr. Mohammad Majali (MUTAH) Prof. Suhil Kiwan (JUST) Dr. Osama Ayadi (UJ)	Eng. Eman Abdelhafez (ZUJ) Arabic version: AU
Cluster 11	Modelling and simulation of power plant cycles (new)	Prof. Salman Ajib (HS-OWL)	Prof. Suhil Kiwan (JUST) Dr. Mohammad Majali (MUTAH) Eng. Scandar Hadad (TU)	Dr. Mohammad Majali (MUTAH) Arabic version: AU
Cluster 12	Waste Resource Management including Solid Waste Management	Prof. Martin Kaltschmitt (TUHH)	Dr. Mo'ayyad Shawaqfah (AABU) Dr. Rasin Zakieh (ABU) Dr. Muna Hindiyeh (GJU) Dr. Loui Dabbour (ZUJ) Dr. Zayed Al-Hamamre (UJ) Dr. Mohammad Al-Rbai	Dr. Rasin Zakieh (ABU) Arabic version: ABU

WP4: Development of Online Content and Competencies

Dr. Eduardo Cardoso, UCP, presented the tasks and activities of this work package and the

Title	Major Activities	Coordination			Estimated Start\END Date	
		Coordinator	Co-Coordinator	Other partners involved		
WP4: Development of Online Content and Competencies	Task 4.1: Development of e-Learning Environment.	UCP	JUST, AU	All	1/1/2018	1.12.2017 To 1/4/2018
	Task 4.2: Adaptation of e-learning Courses Content into curricula				1/4/2018	
	Task 4.3: Personalization of e-learning.				1/4/2018	

action plan for the implementation.

The two e-learning courses were selected to be **Course#6:** Introduction to Environment and Climate Change (**New course**) and **Course#8:** Design of Renewable Energy Systems.

Moodle website was established and linked to the project official website.

The partners agreed on the following:

No.	Task	Responsibility	Due Date
1.	Prepare and upload the courses material on portal	JO Partners SY Partners	Jan, 2019
2.	Apply quality tools during implementation phase	JO Partners SY Partners	Feb-May, 2019

WP5: Capacity Building

Title	Major Activities	Coordination			Estimated Start\END Date	
		Coordinator	Co-Coordinator	Other partners involved		
WP5: Capacity Building	Task 5.1: Development a Capacity Building Programme	TUHH	GJU, ABU	All	1/3/2018	1.1.2018 To 1/10/2018
	Task 5.2: Academic Visits to EU Partners				1/7/2018	



	Task 5.3: Students Visits to EU Partners				1/7/2018	
	Task 5.4: Training Workshops in environment in Jordan and Syria				1/10/2018	

Mr. Marvin Scherzinger (TUHH), presented the tasks and activities of this work package and the action plan for the implementation. The training workshops for students, and the selection criteria were discussed.

The partners agreed on the following tasks:

No.	Task	Responsibility	Due Date
1.	Prepare and submit a report about the training workshop that was conducted in ZUJ and AABU on Dec 16, 2018	ZUJ AABU	Dec, 2018
2.	Training workshop for students in TUHH	TUHH	Sep 2-13, 2019
3.	Training workshop for students in UIBK	UIBK	Jul 1-12, 2019
4.	Training workshop for students in (HS-OWL)	HS-OWL	Jul 1-12, 2019
5.	Training workshop for students in UCP	UCP	Sep 2-13, 2019
6.	Prepare the suggested program of the workshops and circulate it to partners	EU partners	Feb, 2019
7.	Send participants list according to the agreed selection Criteria	JO Partners SY Partners	Mar, 2019
8.	Distribute evaluation surveys for student's workshops	EU partners JO Partners SY Partners	During workshops



Session (1-B)

A training session was delivered by Prof. Joachim Fettig (OWL-UAS) about water related courses.

Session (2-A)

Chaired by Prof. Salman Ajib

Work packages leaders for WP 1, 7, and 6 presented the progress in them and the suggested action plan.

WP1: Networking

Title	Major Activities	Coordination			Estimated Start\END Date
		Coordinator	Co-Coordinator	Other partners involved	
WP1: Networking	Task 1.1 : Elaboration of Agreement, Members List and Statute	JUST	P&B	All	15/10/2016 To 14/10/2019

Prof. Suhil Kiwan (JUST) presented the status and activities of this work package and the action plan for the implementation.

The partners agreed on the following:

No.	Task	Responsibility	Due Date
1.	Disseminate EGREEN activities to EGREEN network members	JO Partners SY Partners	Over project life
2.	Send a summary of developed EGREEN Courses to network members to get their feedback	JO Partners SY Partners	Over project life
3.	Carry out a workshop to explain and disseminate information, giving lectures about some selected topics in the developed courses	JO Partners SY Partners	2019
4.	Conduct a stakeholder workshop in Aqaba	UJ JO Partners	Jan-April, 2019

WP7: Dissemination and Sustainability

Dr. Adnan Ghata, ABU, presented the prepared dissemination plan, tasks and activities of this

Title	Major Activities	Coordination			Estimated Start\END Date	
		Coordinator	Co-Coordinator	Other partners involved		
WP7: Dissemination and Sustainability	Task 7.1: Communication Plan to Disseminate Activities	ABU	ZUJ, P&B	All	1/3/2017	1.11.2016 To 1/10/2019
	Task 7.2: Info- Days "Environments and Climate Change"				1/6/2018	

work package and the action plan for the implementation. The partners agreed on the following:

No.	Task	Responsibility	Due Date
1.	Next issue of Newsletter	ZUJ	Apr 15, 2019
2.	Conduct Info-days (open door days-Environment and Climate Change) in each partner university for faculty member and students	JO SY	Once yearly
3.	Circulate the news letter to the mailing lists	JO SY EU	Over project life
4.	Info days in Partner universities about the project and its outputs during project life	JO Partners SY Partners	Once yearly

WP6: Monitoring and Evaluation

Title	Major Activities	Coordination			Estimated Start\END Date	
		Coordinator	Co-Coordinator	Other partners involved		
WP6: Monitoring and Evaluation	Task 6.1: Quality Committee	GJU	TUHH	All	1/2/2017	1.11.2016 To 1/10/2019
	Task 6.2: External Evaluation				1/8/2019	



	Task 6.3: Monitoring and Evaluation Plan				1/9/2019	
	Task 6.4: Mid- Term Evaluation Report				1/4/2018	
	Task 6.5: Final Evaluation Report				1/9/2019	

Prof. Ala'aldeen Al-Halhouli, GJU, presented the tasks and activities of this work package and the action plan for the implementation.

The received External evaluator was appointed for the project.

The partners agreed on the following:

No.	Task	Responsibility	Due Date
1.	Prepare a survey to evaluate the content of the developed courses by Stakeholders	GJU	Dec, 2018
2.	Prepare a summary form to include the courses information to be sent to stakeholders.	GJU	Dec, 2018
3.	Courses quality check and coordination for reviewing process	GJU	Jan, 2019
4.	External Evaluation	UJ GJU	Dec, 2018
5.	Submit Progress reports by WP leader for P1, P2, P3, P4 (P= Six months) to be provided for external evaluator	WP leader	Jan, 2019

Session (2-B)



A training session was delivered by Prof. Burkhard Wrenger (OWL-UAS) about Environmental Monitoring Systems.

Session (3-A)

Chaired by Prof. Burkhard Wrenger (HS-OWL)

Courses leaders presented the following courses for evaluation and feedback:

Cluster 1: Water Resources Engineering including non-conventional water recourses

By Dr. Mo'ayyad Shawaqfah (AABU)

Cluster 2: Water and Wastewater Treatment including Bio-Techniques for Waste Water Treatment

Dr. Mo'ayyad Shawaqfah (AABU)

Cluster 6.a: Introduction to Environment and Climate Change

Dr. Mo'ayyad Shawaqfah (AABU)

Cluster 6.c: Environmental Monitoring Systems (New Course)

AU (English version+ Arabic version)

Session (3-B)



A training session was delivered by Prof. Wolfgang Streicher (UIBK) about Energy Efficient Buildings – Passive measures in different climates.

Session (4-A)

Chaired by Prof. Joachim Fettig (HS-OWL)

Courses leaders presented the following courses for evaluation and feedback:

Cluster 4: Air Pollution and Air Quality Management

Prof. Moussa Samara (English version+ Arabic version)

Cluster 5: Environmental engineering and sustainable development

Prof. Moussa Samara (English version+ Arabic version)

Cluster 12: Waste Resource Management including Solid Waste Management

Dr. Rasin Zakieh (ABU) for English and Arabic versions

Session (4-B)

A training session was delivered by Dr. Martin Hauer (UIBK) about Thermal building simulation.

Session (5-A)

A training session was delivered by Dr. Eduardo Cardoso (UCP) about ELearning in the Egreen Project.



Day 2

Wednesday, December 19, 2018

STC meeting

Second Day Session (1-A)

Chaired by Prof. Wolfgang Streicher (UIBK)

Courses leaders presented the following courses for evaluation and feedback:

Cluster 3: Design of Sustainable Buildings including Energy efficient building services

Dr. Loui Dabbour (ZUJ)

Cluster 7: Energy Resources and Engineering and Energy conversion Technologies

Prof. Mohammad Hamdan (UJ)

Cluster 8: Design of Renewable Energy Systems

Prof. Suhil Kiwan (JUST)

Second Day Session (2-A)

Chaired by Prof. Alaaldeen Al-Halhouli (GJU)

Courses leaders presented the following courses for evaluation and feedback:

Cluster 9: Heating Ventilating and Air Conditioning Systems including solar energy driven system

Dr. Osama Ayadi (UJ)

Cluster 10: Power and Refrigeration Cycles

Prof. Hamdan presented the course on the behalf of Eng. Eman.

Cluster 11: Modelling and simulation of power plant cycles (new)

Prof. Ajib presented the course



Session (3-A)

Chaired by Prof. Salman Ajib (HS-OWL)

Partner universities in Jordan and Syria have presented the Project Implementation at their universities, covering the following topics

- ✓ EGREEN team
- ✓ Achievements in Networking
- ✓ Achievement in WP3 (Role in development process, Final list of courses, Accreditation letter, offered courses next semester and number of enrolled students)
- ✓ Equipment procurement, installation place and usage (supported with photos)
- ✓ Conducted dissemination activities
- ✓ Conducted Quality activities (Submitted progress reports)

Session (3-B)

A training session was delivered by Prof. Martin Kaltschmitt (TUHH) about Wind Offshore.

Session (4-A)

Chaired by Prof. Ahmed Al-Salaymeh

WP8: Management

Title	Major Activities	Coordination			Estimated Start\END Date	
		Coordinator	Co-Coordinator	Other partners involved		
WP8: Management	Task 8.1: Scientific committee	UJ	-	All	1/2/2017	15.10.2016 To 14/10/2019
	Task 8.2: Steering Committee				1/2/2017	
	Task 8.3: Operational management				14/10/2019	
	Task 8.4: EGREEN Website				1/4/2017	



Prof. Ahmed Al-Salaymeh, General Manager of Egreen Project delivered a summary of the two days meeting were presented, the action plan for each work package was also Presented, and the project partners agreed the following in regard to the next consortium meetings:

No.	Task	Responsibility	Due Date
1.	Next steering committee meeting in Hamburg University of Technology, Germany	All	Jun 26-28, 2019
2.	A technical Meeting to be conducted in Tishreen University, Syria	All	Aug, 2019

Session (4-B)

A training session was delivered by Prof. Martin Kaltschmitt (TUHH) about Biogas.

Day 3

Thursday, December 20, 2018

Train of Trainer workshop

A two training sessions were delivered by Prof. Wolfgang Streicher (UIBK) about Solar Thermal Systems and Heat Pump Systems.