



**Modernising Undergraduate Renewable Energy Education  
(MUREE)  
Scientific Committee Meeting  
Graz University of Technology  
Graz, Austria  
24-25 of July 2015  
Minutes of Meeting**

**Attendees**

- Abdallah Al-Zoubi and Mohammad Ashshi, PSUT
- Ahmed Al-Salaymeh and Mamoun Dmour, UoJ
- Qais Khasawneh, JUST
- Bashar Hammad and Ahmad Khasawneh, HU
- Handri Ammari, Mutah University
- Maria Hadjipanayi, UCY
- Mike Blakemore, External Evaluator
- Annette Mütze and Klaus Krischan, GUT

- ❖ Annette Mütze, Graz University of Technology, welcomed participants.
- ❖ Abdallah Al Zoubi started out the meeting with an overview of the progress of the project with respect to WPs and deliverables status in accordance to MUREE frame time as follows:.

Muree WP Status	
WP1	Completed with only the presidents visits to Rome and Madrid to be finalised.
WP2	<ol style="list-style-type: none"><li>1. Improvements of RE courses based on the monitoring meeting recommendations.</li><li>2. Final review of DEV2.3 and DEV2.5.</li><li>3. Students' internship to Europe as part of the activities of the summer course entitled: "Renewable Energy Systems".</li></ol>
WP3	Almost done and should be completed with the upcoming technical visit to UNED by Jordanian partner universities. Personalisation of Virtual Learning Environment: missing component: Student Involvement.
WP4	Almost done with a possibility to give access to EU students to VLE and remote labs.
WP5	Almost done expect for a report from JUST on training workshop. In addition: <ol style="list-style-type: none"><li>1. Maria checks the capacity building programme again.</li><li>2. Deliver additional workshops on RE to improve sustainability of MUREE using RE training course, and send an email to EU partners if interested to give additional training course at the training centre, maybe in conjunction with 1-2 Jordanian partners.</li></ol>
WP6	Completed.

WP7	<p>Almost done but need to focus on the following:</p> <ol style="list-style-type: none"> <li>1. MUREE Network has been established and should be activated and involved in upcoming activities, and in connecting students to industry.</li> <li>2. Call for participation in the final conference need to be circulated.</li> <li>3. UoJ will organize an <b>Info-day</b> on 28 September 2015 in conjunction with the final conference, with the following audience: <ul style="list-style-type: none"> <li>✓ Students who took the course to transfer the experience</li> <li>✓ Industry, MUREE network and stakeholders to talk about RES market.</li> </ul> </li> </ol> <p><b>Preparation of Info-day</b></p> <ul style="list-style-type: none"> <li>✓ Students experience from the new courses</li> <li>✓ E-learning courses and remote labs shall be demonstrated</li> <li>✓ One graduation project from every participating university</li> <li>✓ European Partners for contributions with their experience</li> </ul> <p><b>Agenda</b></p> <ul style="list-style-type: none"> <li>✓ Introduction of the new courses including e-learning and remote labs</li> <li>✓ What the project achieved in curriculum development and students' comprehension.</li> <li>✓ Concepts of EU (open learning resources, collaborations, mobility, ECTS system, assessment and upgrading quality).</li> <li>✓ Funding opportunities and benefits.</li> </ul> <p><b>Invitation</b></p> <ul style="list-style-type: none"> <li>✓ An agenda will be sent by Jordanians and EU partners to join Info-day with their experiences in ECTS, training, etc.</li> </ul>
WP8	<p>Almost done except for final evaluation planned to be submit by August 2015. Meanwhile, Professor Mike Blakemore, made some comments on the evaluation of the courses that should be included in the quality report, in addition to impact at variuos levels including personal, departmental, institutional and national levels.</p>
WP9	<ul style="list-style-type: none"> <li>✓ Financial administration management ongoing.</li> <li>✓ Preparation of final report.</li> </ul>

❖ Ahmed Al-Salaymeh, led the session of MUREE courses status with respect to ECTS. In this concern participants agreed on the following:

Status	Responsibility
The six prepared MUREE courses has to be send to EU partners to be revised, reviewed and validated according to suggestion (check that all OK, ECTS, etc).	All Partners Al-Salaymeh
Send Bashar an email to get access to the e-learning platform	All Partners

<p><b>Courses Sustainability:</b> send an email to EU partners if interested to give additional training course at the RE training centre maybe in conjunction with 1-2 Jordanian partners.</p>	Al-Salaymeh
<p><b>Course 1: Energy Covenrsion</b> 1. The structure used for the course description, need to be described</p>	UJ
<p><b>Course 2: Wind Energy</b> 1. The competence parameters need to be: a. Defined, short description in Glossary b. Provided explanation for each parameter: technical, systematic, methodic, and social? 2. Compulsory or elective topics within the course, what does it mean?</p>	JUST
<p><b>Course 3: Solar Thermal</b> Suggestion: 1. To be consistence in the references (authors, book, dates, etc), all different 2. To change abbreviations used in table for elective/compulsory courses (they are in German) 3. Point 9 effort and credit points: need to be consistent with the format in other courses (we need a table here) 4. To add annex with course contents (topics)</p>	Mutah Handri
<p><b>Course 4: PV</b> Suggestion: 1. textbook references need to have full details for consistency 2. change abbreviations used in table for elective/compulsory courses (they are in German) 3. correct the transfer between SWH (contact hours) and credits (1/10) 4. change 180 h into 150 h (student hours in table) → make appropriate changes</p>	HU Bashar
<p><b>Course 5: RE System</b> Suggestions: 1. textbook references need to have full details for consistency; Need to be properly referenced 2. change abbreviations used in table for elective/compulsory courses (they are in German) 3. correct the transfer between SWH (contact hours) and credits (1/10) 4. change 180 h into 150 h (student hours in table) → make appropriate changes</p>	HU Bashar
<p><b>Course 6: Electric Machines Drives</b> Suggestions: 1. textbook references need to have full details for consistency; Need to be properly referenced</p>	PSUT Wejdan

2. change abbreviations used in table for elective/compulsory courses (they are in German) 3. correct the transfer between SWH (contact hours) and credits (1/10) 4. change 180 h into 150 h (student hours in table) → make appropriate changes	
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The deadline for the above action plan is 7 August 2015.

❖ Also, the difference between the Jordanian System (Credit Hours) and the European System (ECTS) has been clarified by participants:

### Jordanian System (Credit Hours)

- University requirements: 30 credit hours (1Ch = lecture with prof) per semester
- Faculty requirements: 20 Ch (15% of total)
- Departmental requirements: 160 Ch (in engineering 160+30+20- 210ch)
- 48 hours student in Class = 3Ch (43 h lecture + 5h exams)
- Final exam given a high % → need to reduce the weight of the final exam (abdullah)

Mike: ECTS system explained: 60 ECTS/year = 1500-1800 h/year (depending on faculty)

- 180-240 ECTS > 4500 Working hours (3-4 year degrees)
- Ahmed: 60ECTS/year=12 Jordan courses per year → 1 Jordan course= 5 ECTS =125-150h/course
- Annette: 3 ECTS course (EU) → 30 contact hours
- Ahmed: 150 h/course = 48 (contact) +102 (non-contact)

Mike suggests: the jordanian way may not be so far away from the ECTS system but maybe describe better what is done (Assesment method, %, lab assessment, ..) in the non-contact hours

Mike: wishes to have from Ministry of Education in Jordan the legal definition of a textbook → is it too rigid? they need to define it → in terms restriction on textbooks and the regulation that the universities have in Jordan regarding the lecture hours (mandatory to attend 80% otherwise disqualified). He suggests that students should be more free to attend lectures, read material other than textbooks, websites, e-learning... → in order to modernize the curriculum

### ❖ ACTION PLAN to finalize courses

#	Status	Responsibility	Due Date
	➤ Send Jens email or during the meeting of quality to clarify parameters (technical, systematic, methodical, social)	Handri	27/7/2015
	➤ Jordanians should modify MUREE courses. ➤ Each partner should review the MUREE course they are responsible for.	PSUT, UJ, JUST, HU, Mutah	7/8/2015
	➤ Send suggestions to Mike directly, tracked changes	Al-Salaymeh	14/8/2015

	➤ Mike and Jens do the finalization of MUREE courses.	Mike	21/8/2015
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❖ **Students Internships**

Status	Responsibility	Due Date
<p>Each European partner need to define number of students who can host, topics/learning outcomes, availability and invitation letters.</p> <p>Each host decides what to teach (similar to the trainee visit (equipment, techniques, see things they have been taught in the course or learn new things, site visits, and lectures).</p>	European Partners	31/7/2015
<p>Each Jordanian partner need to define nominated students, 5-10 per visit + 1 nominated supervisor for one week.</p>	Al-Salaymeh + Bashar	31/7/2015