

Master Online Renewable Energy

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# Evaluation Report Preparatory Mathematics Course



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## About the course

In August 2012 the test phase of the Preparatory Mathematics Course started with a face-to-face course for the students starting the Postgraduate Programme Renewable Energy in October 2012. Within 12 units of one hour lecture and two hours exercises the knowledge level of the students who started with different backgrounds were balanced and a deeper knowledge of different methods was taught.

They were free to participate but for different reasons motivated:

- Increasing their ability to study renewable energies afterwards
- Updating and deepening of mathematical knowledge of their previous studies
- Increased usage of mathematical knowledge for their upcoming study courses.

The course took place in Oldenburg. The subject matter was practiced together, exercises were solved by the students and knowledge gaps were identified. The exercises gave additionally the opportunity to get to know each other.

The content of the course was chosen depending on the requisites for the following master course and by evaluating the students' knowledge in advance.

In July 2013 the Preparatory Mathematics Course was offered to 36 students online. The content of the lecture was extended and restructured to 5 units. Each week one unit (pdf-file) and exercises were provided. After 3 days the solutions of the exercises were due and at the 4<sup>th</sup> day sample calculations were provided by the lecturer.

## Evaluation of the course

In 2012 a test was sent to the students by email additionally before the course started. During the courses the knowledge gaps of the students were monitored (for the online lecture by evaluating the submitted solutions). Both courses were evaluated by means of an online questionnaire sent to the students. In both year only few students gave their comments within the questionnaire.

### Results face-to-face course 2012

Before the course started a test was sent to 12 students by email with different tasks. 9 students sent their solutions back to the lecturer. None of them solved all tasks correctly.

During the course the students had difficulties with partial differentiation, logic and stochastics. The number of participants increased during the course from 11 to 16 students.

#### Results of the questionnaire

In which area of studies were you awarded your last degree?

Engeneering - Computer Systems	2 Person
Materials Engineering	1 Person
Electrical and Electronics Engineering	1 Person
Electrical Engineering	1 Person
Mechanical Engineering	1 Person
B Sc. in Electrical and Electronics Engineering	1 Person
Electrical	1 Person

When were you awarded your last degree?

Duration of your last university studies before attending PPRE or EUREC respectively?

Results:	
2006	2 Person
2009	3 Person
2010	3 Person

## Results online course 2013

During the online lecture the students did not participate actively. Only few questions were asked (mainly directly by email to the lecturer). The more difficult the topic and the respective exercises the less processed exercises were submitted. From tracked log-in dates it becomes obvious that more students participated "invisible" without submitting solutions to the lecturer.

### Results of the submitted solutions

<b>Chapter 1</b>	<b>11 participants</b>
All tasks solved correctly	-
4 out of 7 solved correctly	4
2 out of 7 solved correctly	5
<b>Chapter 2</b>	<b>8 participants</b>
All tasks solved correctly	1
3 out of 5 solved correctly	3
2 out of 5 solved correctly	3
<b>Chapter 3</b>	<b>8 participants</b>
All tasks solved correctly	-
6 out of 27 solved correctly	2
2 to 4 solved correctly	6
<b>Chapter 4</b>	<b>2 participants</b>
All tasks solved correctly	-
2 out of 3 solved correctly	2
<b>Chapter 5</b>	<b>1 participant</b>
All tasks solved correctly	1

### Results of questionnaire

1. How often did you participate in the course?

Not at all	1
Irregularly	5
Continuously	2
If not, why?	
Time constrains	5
other reason	

2. How would you rate the quality of the course?

pdf files

very poor	1
very good	1

exercises on the topics

supervision within the course

very poor	1
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online learning environment

very poor	1
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3. Were you expectations fulfilled in the course?

concerning the content

a lot	1
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concerning the applied methods

not at all 1

Did you communicate in forum discussions?

not at all 2

4. Did you communicate in forum discussions? [with teacher]

not at all 1

If not, why?

- Time constrains mainly, I've working a full-time job and studying German at the same time, so finding regular time for participating in the course was a bit hard for me.
- time constraints and short periods between the delivery of course materials and time to submit answers. Frankly, I was working at the moment and numerous and repetitive type of questions up to 40 in one instance feels like inconsiderate of the time constraints on any working person.
- I was working full time at the moment, and the workload demanded at least two days for reading the material and answer the questions.
- It would been helpful if we had the material on Friday, and spend the weekend working on it.

5. How many hours did you invest for the entire course?

- can't really say, but the some of the exercises took much more time than the others
- 8 hours
- approximately 22 hours
- more than 12 hours
- about 16 hours though I never did the last exercise
- 20 hours
- can't really say, but the some of the exercises took much more time than the others
- 6 hours weekly, not enough for the workload, that in my opinion required full time

6. Were you comfortable with the presentation of the content as a pdf file ?

No 1

Yes 4

7. What would you expect from an online math course?

- Good material. The pdf files are useless and sometimes doesn't fit with the exercises
- To be flexible, and to be interactive
- To show the basic contents in very simple way since the participant already has the background
- Refresher course that is adapted to someone working 9 to 5pm not suited for full time students. I believe most of the participants were working during the online mathematics course and a more convenient framework would have allowed for meaningful participation
- revision of the principles that we will need during the master course
- To refresh my knowledge in the subject, since I left the university 6 years ago

#### 8. General comments/suggestions:

- I was still working and had not enough time for the course
- Take into account the occupations of the addressed person or participants in the courses, the contents of each chapter was very good, but just little of time to work on each chapter.
- I suggest less questions distributed in time (at least a week in advance) and focused on a certain aspect of learning
- The exercises given should be relevant with the amount of information provided. In some chapters, exercise questions were more compared with the information given for learning. Also, there were some mistakes in certain places (mainly in equations)
- first i would like to thank you for the effort done as teaching and the effort done for the online environment
- i really appreciate it

#### suggestions:

- the Pdf's material: some had mistakes(formulas mistakes) while others were not that related to the exercises
- good luck and thank you all