DEPARTMENT OF ENERGY SCIENCE AND TECHNOLOGY
COURSE SYLLABUS

Course Details

Code	Academic Year			Semester
EBT305	3			6
Title	**T**	**A**	**L**	**ECTS**
Statistics	2	2	0	6

Language	German
Level	**Undergraduate** X **Graduate** **Postgraduate**
Department / Program	Energy Science and Technology
Forms of Teaching and Learning	Face-to-face
Course Type	**Compulsory** X **Elective**
Objectives	The course participants are provided to plan and perform data collection and analyze the collected data, taking into account statistical principles, in a technical working environment. Based on data collection and analysis, basic methods applicable in operational practice for engineering problem identification and sustainable solution are taught.
Content	1) Data analysis and problem solving as the foundation of Data Science. 2) Fundamentals of Descriptive Statistics 3) Introduction to R 4) Data Analysis Process 5) Model Data 6) Random Variables and Their Distributions 7) Deductive Statistics 8) Inductive Statistics 9) Engineering Methods
Prerequisites	Basic mathematical knowledge
Coordinator	
Lecturer(s)	
Assistant(s)	
Work Placement	None

Recommended or Required Reading

Books / Lecture Notes	1. Sachs L., Hedderich J. (2006): Angewandte Statistik, 12.Auflage, Springer, Berlin. 2. Montgomery, Runger: Applied Statistics and Probability for Engineers, Wiley 2006
Other Sources	

Additional Course Material

Documents	
Assignments	
Exams	

Course Composition

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Mathematics und Basic Sciences	100	%
Engineering		%
Engineering Design		%
Social Sciences		%
Educational Sciences		%
Natural Sciences		%
Health Sciences		%
Expert Knowledge		%

Assessment

Activity	Count	Percentage (%)
Midterm Exam	1	30
Quiz		
Assignments	5	20
Attendance		
Recitations		
Projects	1	10
Final Exam	1	40
	Total	**100**

ECTS Points and Work Load

Activity	Count	Duration	Work Load (Hours)
Lectures	15	2	30
Self-Study	15	5	75
Assignments			
Presentation / Seminar Preparation			
Midterm Exam	1	2	2
Recitations	15	2	30
Laboratory			
Projects	1	30	30
Final Exam	1	2	2
		Total Work Load	**169**
		ECTS Points (Total Work Load / Hour)	**6**

Learning Outcomes

1	
2	
3	
4	

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5	
6	
7	
8	
9	
10	
11	
12	
Weekly Content	
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	

Contribution of Learning Outcomes to Program Objectives (1-5)

	P1	P2	P3	P4	P5	P6	P7
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							

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11							
12							

Contribution Level	1: Low 2: Low-intermediate 3: Intermediate 4: High 5: Very High

P1 Working with modern scientific sources.
P2 Having modern scientific knowledge and scientific analysis abilities and being able to apply them to scientific problems.
P3 Having theoretical and practical skills in the area of Energy Science and Technology.
P4 Having foreign language skills to follow the worldwide advancements in the field of Energy Science and Technology and to be able to discuss them with foreign colleagues.
P5 Having computational skills for research data analysis purposes.
P6 Having appropriate skills for academic and industrial jobs, being ready to take responsibility in working life.
P7 Having knowledge about work occupational work and safety.

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