Course Descriptions Bachelor 2021-2022

Course Title	Experimentation in Science and Engineering
Course Code	BENC1008
ECTS Credits	5,0
Assessment	Whole/Half Grades
Period	

Period	Start	End	Mon	Tue	Wed	Thu	Fri
5	11-4-2022	3-6-2022		X		X	L

Level	no level
Coordinator	Bart van Grinsven, Kasper Eersels, Hanne Diliën For more information:bart.vangrinsven@maastrichtuniversity.nl; kasper.eersels@maastrichtuniversity.nl; hanne.dilien@maastrichtuniversity.nl
Language of instruction	English
Goals	* Students obtain an understanding of the fundamental processes in science and engineering research. * Students are able to set up a scientific experiment and are familiarized with the execution of scientific research experiments. * Students are able to plan and perform basic laboratory experiments in a safe manner, analyze and process the data. * Students are able to apply knowledge to solve complex scientific research questions. * Students understand the implications of new developments in science and engineering. * Students are able to relate research questions to the appropriate scientific theory and relate scientific theory to a research experiment. * Students are able to work in small teams.
Description	The experimentation in science and engineering course will introduce the entire process behind scientific research. Starting from the definition of a research question, going to the search for the theoretical principles that are behind the problem. In the final stage, students will learn how to design their experiment while keeping safety, sustainability and time management in mind. The theory will be applied with real life case studies. For these cases studies students will go through all former stages and design their experiment. Furthermore, sites visits will be planned in order to give students a realistic image of how experimentation is done in real life context in an engineering company. This course consists of 8 tutorial group meetings, 6 lectures, 4 lab sessions and 1 company visit in which we discuss Problem Tasks and Case studies. Problem Tasks are discussed following the seven-jump PBL approach. Case studies are real life problems where students will have to provide a solution for following the RBL approach. Students work together in small groups (2-3 people) in order to solve the problem. Furthermore, hands-on lab sessions will be coupled to the case studies. There are 3 different points of assessment in this course: 1. A midterm examination on the theories and concepts discussed during the course and a case study (30%). 2. Team performance during the lab (10%). 3. A scientific paper (lab report) about the case studies/ lab experiments (2x30%).
Literature	To be announced.
Prerequisites	This course does not have prerequisites.
Keywords	
Teaching methods	
Assessment methods	
Evaluation in previous academic year	For the complete evaluation of this course please click http://iwio-sbe.maastrichtuniversity.nl/rapporten.asp?referrer=codeUM
This course belongs to the following programme / specialisation	Bachelor Business Engineering — Year 1 Compulsory Course(s)