Syllabus

Kursbeschreibung

Titel der Lehrveranstaltung	Product development and design
Code der Lehrveranstaltung	47585
Zusätzlicher Titel der Lehrveranstaltung	
Wissenschaftlich-disziplinärer Bereich	
Sprache	Englisch
Studiengang	Master in Industrie- und Maschineningenieurwesen
Andere Studiengänge (gem. Lehrveranstaltung)	
Dozenten/Dozentinnen	Prof. Yuri Borgianni, Yuri.Borgianni@unibz.it https://www.unibz.it/en/faculties/engineering/academic-staff/person/35189
Wissensch. Mitarbeiter/Mitarbeiterin	
Semester	Erstes Semester
Studienjahr/e	2
KP	6
Vorlesungsstunden	32
Laboratoriumsstunden	24
Stunden für individuelles Studium	80
Vorgesehene Sprechzeiten	18
Inhaltsangabe	The course provides insights into the new trends in product development and design. First, students will be guided in the adoption of a managerial view to understand how to structure an innovation process and how to incorporate the Voice of the Customer (VOC) in new product development decisions. Furthermore, they will learn how to investigate the patterns of consumer decision making through

	market research, thus better understanding the utility and desirability of new products. Second, they will be able to understand an engineering view of designing industrial products. Here, students will learn best practices in generation of new product concepts and their subsequent evaluation, which will take place by means of state-of-the-art systems and methods.
Themen der Lehrveranstaltung	- Product innovation - New product development processes - Voice of the Customer - Conjoint Analysis - Quality Function Deployment - Forecasting techniques for new products - Engineering design cycles - Product planning and specifications - Conceptual design - Design creativity and assessment thereof - Human-product interaction - User Experience - Eye-tracking in design research
Stichwörter	product development; customer needs; engineering design; human-product interaction
Empfohlene Voraussetzungen	none
Propädeutische Lehrveranstaltungen	
Unterrichtsform	Frontal lectures, exercises, laboratory and experimental activities
Anwesenheitspflicht	Not mandatory, but highly recommended
Spezifische Bildungsziele und erwartete Lernergebnisse	Intended Learning Outcomes (ILO) Knowledge and understanding Students should acquire the knowledge and the understanding of: • New product development process and related concepts • Essential tools and methods for customer involvement in new product development • Tools and approaches for market research in new product development • Engineering design cycles

	• Creative conceptual design • User Experience in engineering and product design • Systems to test human-product interaction Applying knowledge and understanding • Ability to frame a product development process and its governance structure • Ability to apply the Quality Function Deployment tool to a simple product • Ability to properly design a Conjoint Analysis • Ability to understand the main drivers behind product development and design • Ability to meditate about concepts instead of rushing to solutions • Ability to identify the main elements to be tested to allow the appraisal of design ideas and new products • Ability to organize tests aimed to evaluate people's experience with new products Making judgements • Ability to transfer the knowledge and methods learned to real practical applications thanks to groupworks, exercises and simulation of experimental activities within product development and design Communication skills • Ability to prepare, conduct and join interactive discussions in class • Ability to structure, prepare, and present arguments related to product development and design Ability to learn • Ability to autonomously extend the knowledge acquired during the study course by reading and understanding
Spezifisches Bildungsziel und erwartete Lernergebnisse (zusätzliche Informationen)	-
Art der Prüfung	Written exam to verify the understanding of the contents and

	practical activities shown during the two modules. The duration of the written exam is 3 hours.
Bewertungskriterien	The mark is calculated as the average between the scores achieved in each single module. The following criteria are taken into consideration for the assignment of the marks: • Ability to accurately illustrate concepts about the topics of the course • Clarity of answers • Mastery of specialistic terminology
Pflichtliteratur	Lecture notes and documents for exercises will be available on the Microsoft Teams of the course.
Weiterführende Literatur	Books and articles will be possibly suggested by the lecturers during the course.
Weitere Informationen	-
Ziele für nachhaltige Entwicklung (SDGs)	Nachhaltiger Konsum und Produktion, Industrie, Innovation und Infrastruktur

Kursmodul

Titel des Bestandteils der Lehrveranstaltung	Product Development
Code der Lehrveranstaltung	47585A
Wissenschaftlich-disziplinärer Bereich	IEGE-01/A
Sprache	Englisch
Dozenten/Dozentinnen	Dott. Margherita Molinaro, Margherita.Molinaro@unibz.it https://www.unibz.it/en/faculties/engineering/academic-staff/person/43550
Wissensch. Mitarbeiter/Mitarbeiterin	
Semester	Erstes Semester
KP	3

Verantwortliche/r Dozent/in	
Vorlesungsstunden	16
Laboratoriumsstunden	12
Stunden für individuelles Studium	40
Vorgesehene Sprechzeiten	9
Inhaltsangabe	The course provides insights into the new trends in product development and design. First, students will be guided in the adoption of a managerial view to understand how to structure an innovation process and how to incorporate the Voice of the Customer (VOC) in new product development decisions. Furthermore, they will learn how to investigate the patterns of consumer decision making through market research, thus better understanding the utility and desirability of new products. Second, they will be able to understand an engineering view of designing industrial products. Here, students will learn best practices in generation of new product concepts and their subsequent evaluation, which will take place by means of state-of-the-art systems and methods.
Themen der Lehrveranstaltung	Customer-oriented product development • New product development process: history and phases • Portfolio management framework • From customer needs to product characteristics: the Quality Function Deployment (QFD) • Open innovation and crowdsourcing Market research for new products • Survey-based market research: the Conjoint Analysis • Forecasting new products: techniques and strategies • The role of crowdfunding
Unterrichtsform	Frontal lectures and exercises
Pflichtliteratur	-
Weiterführende Literatur	-

Kursmodul

Titel des Bestandteils der Lehrveranstaltung	Engineering and Product Design
Code der Lehrveranstaltung	47585B
Wissenschaftlich-disziplinärer Bereich	IIND-03/B
Sprache	Englisch
Dozenten/Dozentinnen	Prof. Yuri Borgianni, Yuri.Borgianni@unibz.it https://www.unibz.it/en/faculties/engineering/academic-staff/person/35189 dr. Aurora Berni, Aurora.Berni@unibz.it https://www.unibz.it/en/faculties/engineering/academic-staff/person/42284
Wissensch. Mitarbeiter/Mitarbeiterin	
Semester	Erstes Semester
KP	3
Verantwortliche/r Dozent/in	
Vorlesungsstunden	16
Laboratoriumsstunden	12
Stunden für individuelles Studium	40
Vorgesehene Sprechzeiten	9
Inhaltsangabe	The course provides insights into the new trends in product development and design. First, students will be guided in the adoption of a managerial view to understand how to structure an innovation process and how to incorporate the Voice of the Customer (VOC) in new product development decisions. Furthermore, they will learn how to investigate the patterns of consumer decision making through market research, thus better understanding the utility and desirability of new products. Second, they will be able to understand an engineering view of

	designing industrial products. Here, students will learn best practices in generation of new product concepts and their subsequent evaluation, which will take place by means of state-of-the-art systems and methods
Themen der Lehrveranstaltung	Engineering design • Cycles to design new products • Conceptual design and early design phases • Creativity and other metrics to assess the quality of design outcomes • Stimulation and other treatments to support idea generation Human-Product Interaction • User Experience and product appraisal • Subjective and objective data in product evaluation • Use of eye-tracking in Human-Product Interaction • Hands-on activities to design experiments on Human-Product Interaction
Unterrichtsform	Frontal lectures, laboratory and experimental activities
Pflichtliteratur	-
Weiterführende Literatur	-