Syllabus

Descrizione corso

Titolo insegnamento	Product development and design
Codice insegnamento	47585
Titolo aggiuntivo	
Settore Scientifico-Disciplinare	
Lingua	Inglese
Corso di Studio	Corso di laurea magistrale in Ingegneria Industriale Meccanica
Altri Corsi di Studio (mutuati)	
Docenti	prof. Yuri Borgianni, Yuri.Borgianni@unibz.it https://www.unibz.it/en/faculties/engineering/academic-staff/person/35189
Assistente	
Semestre	Primo semestre
Anno/i di corso	2
CFU	6
Ore didattica frontale	32
Ore di laboratorio	24
Ore di studio individuale	80
Ore di ricevimento previste	18
Sintesi contenuti	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.
Argomenti dell'insegnamento	- 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
Parole chiave	product development; customer needs; engineering design; human-product interaction
Prerequisiti	none
Insegnamenti propedeutici	
Modalità di insegnamento	Frontal lectures, exercises, laboratory and experimental activities
Obbligo di frequenza	Not mandatory, but highly recommended
Obiettivi formativi specifici e risultati di apprendimento attesi	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
Obiettivi formativi specifici e risultati di apprendimento attesi (ulteriori info.)	-
Modalità di esame	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.
Criteri di valutazione	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
Bibliografia obbligatoria	Lecture notes and documents for exercises will be available on the Microsoft Teams of the course.
Bibliografia facoltativa	Books and articles will be possibly suggested by the lecturers during the course.
Altre informazioni	-
Obiettivi di Sviluppo Sostenibile (SDGs)	Utilizzo responsabile delle risorse, Innovazione e infrastrutture

Modulo del corso

Titolo della parte costituente del corso	Product Development
Codice insegnamento	47585A
Settore Scientifico-Disciplinare	IEGE-01/A
Lingua	Inglese
Docenti	dott. Margherita Molinaro, Margherita.Molinaro@unibz.it https://www.unibz.it/en/faculties/engineering/academic-staff/person/43550
Assistente	
Semestre	Primo semestre
CFU	3
Docente responsabile	
Ore didattica frontale	16
Ore di laboratorio	12
Ore di studio individuale	40
Ore di ricevimento previste	9
Sintesi contenuti	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.
Argomenti dell'insegnamento	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
Modalità di insegnamento	Frontal lectures and exercises
Bibliografia obbligatoria	-
Bibliografia facoltativa	-

Modulo del corso

Titolo della parte costituente del corso	Engineering and Product Design
Codice insegnamento	47585B
Settore Scientifico-Disciplinare	IIND-03/B
Lingua	Inglese

Docenti	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
Assistente	
Semestre	Primo semestre
CFU	3
Docente responsabile	
Ore didattica frontale	16
Ore di laboratorio	12
Ore di studio individuale	40
Ore di ricevimento previste	9
Sintesi contenuti	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
Argomenti dell'insegnamento	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
Modalità di insegnamento	Frontal lectures, laboratory and experimental activities
Bibliografia obbligatoria	-
Bibliografia facoltativa	-