

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	dott. Margherita Molinaro, Margherita.Molinaro@unibz.it https://www.unibz.it/en/faculties/engineering/academic-staff/person/43550 dr. Aurora Berni, Aurora.Berni@unibz.it https://www.unibz.it/en/faculties/engineering/academic-staff/person/42284
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	Module 1 - Product Development: • The concept of innovation • New product development processes and models • Forecasting techniques for new products • Quality Function Deployment • Conjoint Analysis Module 2 - Engineering and Product Design: • 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	Module 1 is assessed through a project-based work, carried out in

	groups. The assessment includes a short individual oral discussion aimed at verifying the understanding of the concepts and methods covered in the module and the individual contribution to the project. Module 2 is assessed through a written examination lasting 1.5 hours. The final grade is calculated as the arithmetic mean of the grades obtained in the two modules, each expressed on a 30-point scale.
Criteri di valutazione	The assessment of the project-based work (Module 1) will be based on: • Quality and coherence of the project and problem framing • Appropriate and correct application of the methods introduced in the course • Quality of data analysis, interpretation, and resulting recommendations • Clarity of the work and individual understanding demonstrated during the oral discussion The written examination (Module 2) will consider: • 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	Product Development
---------------------------	---------------------

costituente del corso	
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	Module 1 - Product Development: • The concept of innovation • New product development processes and models • Forecasting techniques for new products • Quality Function Deployment

	Conjoint Analysis
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	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	Module 2 - Engineering and Product Design: • Engineering design cycles • Product planning and specifications • Conceptual design • Design creativity and assessment thereof • Human-product interaction • User Experience • Eye-tracking in design research
Modalità di insegnamento	Frontal lectures, laboratory and experimental activities
Bibliografia obbligatoria	-
Bibliografia facoltativa	-