Building Life-Cycle Management

01	Facility Management	
Compulsory	Semester : M2S1	ECTS credits : 5
	Lectures : 60h	Recommended personal work : 65h

Expected Learning Outcomes

The student should be able to

- Restate the key objectives of Facility Management
- Discuss the relationship between Facility Management and Real Estate Management
- Describe the relationship between Facility Management and Human Resource Management, Workplace Productivity and Health and Safety issues
- Describe and develop Facility Management and Design briefings for a new or refurbished facility
- Describe and outline a Facility Management Strategy for a specific organization
- Identify strength and weaknesses regarding insourcing and outsourcing of services for a specific organization
- Develop service specifications
- Describe and apply different tools and methods for performance management
- Describe the basic processes and tools of maintenance management and identify constraints for maintenance actions
- Define and implement an information management strategy
- Discuss issues regarding Change management and innovation in relation to facility management

Content

Introduction - Principles, process and procedures	6,0
Facility Planning and FM strategy	6,0
HR management and Workplace productivity	6,0
Health, safety and security	6,0
Outsourcing, procurement and partnerships	6,0
Performance management	6,0
Maintenance management	6,0
Information management	12,0
Change management and innovation	6,0

Prerequisites

Related SDGs

02	Sustainable Buildings	
Compulsory	Semester : M2S1	ECTS credits : 5
	Lectures : 60h	Recommended personal work : 65h

The module addresses sustainable buildings through a holistic approach where the students should acquire new skills relating to previous knowledge in the area in order to define and apply environmental, economic and social/behavioural criteria relevant to different phases of the building life-cycle.

The course treats in detail the concepts, methodologies, tools and processes required for designing, building and operating sustainable buildings and evaluating their resource efficiency as well as environmental and socio-economic performance over their life-cycle.

Expected Learning Outcomes

The student should be able to

- Apply the principles of triple-bottom-line approach in the iterative and multidisciplinary process of conceptualizing and designing a high-performance building
- Choose and size building- components and systems in order to achieve the smallest feasible life-time environmental impact
- Employ a variety of tools and methods for evaluating the environmental performance of buildings in different stages of their life-cycle

Content

Introduction - The triple-bottom-line approach	6,0
Bioclimatic architecture	12,0
High-performance buildings and resource efficiency	12,0
Integrated systems approach to Building Services design	12,0
Buildings, clusters, precincts and cities	6,0
Modelling tools for high-performance building design	18,0

Related SDGs

03	Smart Buildings	
Compulsory	Semester : M1S2	ECTS credits : 5
	Lectures : 60h	Recommended personal work : 65h

Expected Learning Outcomes

The student should be able to

- Define key concepts related to Smart Buildings
- Describe components, tools and methods that can be used to measure, analyse and optimize performance of individual buildings as well as building clusters
- Describe technologies used for user-adapting and user-interaction
- Describe technologies (components, networks, protocols, tools) used for interconnecting buildings and building components and area distribution systems
- Define and give examples of the use of smart and connected materials

Content

Introduction - User-adapted and smart buildings	6,0
Follow up/measurement, analysis and optimisation of Building performance	12,0
Big data, inter-connectivity, cloud-services, IoT, machine learning, AI	12,0
User-adaption and user-building interaction	12,0
Smart materials	12,0
From smart buildings to smart cities	6,0

Related SDGs

04	Circular Economy in Real Estate	
Compulsory	Semester : M1S2	ECTS credits : 5
	Lectures : 60h	Recommended personal work : 61h

Expected Learning Outcomes

The student should be able to

- Define and use key concepts of Real Estate Management (Real Estate Law, Valuation, Finance and Investment, Contracts, Land Development, …)
- Analyse technical, environmental, economic, and organizational of alternative designs and implementations of a project, especially with regard to Resilience and "Future-proof Solutions"
- Describe and develop circular renovation strategies for individual buildings and groups of buildings (clusters, precincts, …)

Content

Introduction to Real Estate Economics and Management	12,0
Land-use, space and adaptability	12,0
Planning and design of Resilient buildings and Future-proof solutions	12,0
Circular Renovation Strategies	12,0
Life-cycle- and total- cost analysis	12,0

Related SDGs

05	Lab project	
Compulsory	Semester :	ECTS credits : 10
	Lectures and tutorials: 120	Recommended personal work :

Expected Learning Outcomes

Content

Individual R&D project in relation to one of the compulsory modules	120,0

Related SDGs

06	Real case project	
Compulsory	Semester :	ECTS credits : 10
	Lectures and tutorials: 120	Recommended personal work :

Expected Learning Outcomes

Indicative content

Advanced managerial and organizational issues in early project phases	12h
CPM	108h

Related SDGs