

**Consecutive Sheet**

<b>Study programme</b>	MSc in Facility Management				
<b>Study year</b>	2018_19				
<b>Course</b>	<b>Building Information Modelling (BIM)</b>				
<b>Code</b>	n.MA.FM.Elec1.15HS				
<b>Module</b>	Elective				
<b>Status</b>	Compulsory Course				
<b>*Type</b>	<b>C</b>	<b>R</b>	<b>M</b>	<b>x</b>	
<b>Regulations applicable</b>	RPO vom 29. Januar 2008, Studienordnung für den Masterstudiengang Facility Management vom 24. März 2011, Anhang für den Masterstudiengang Facility Management vom 30. August 2011				
Total workload in lessons					
	<b>1. Sem.</b>	<b>2. Sem.</b>	<b>3. Sem.</b>	<b>4. Sem.</b>	<b>5. Sem.</b>
<i>Lectures</i>	20		20		20
<i>Coached self-study</i>	16		16		16
<i>Autonomous self-study (including exams)</i>	54		54		54
<i>Total Workload</i>	90		90		90
<b>Course Coordinator</b>	Dr. Carsten K. Druhmnn				
<b>Telephone / Email</b>	+41 58 934 5626		carsten.druhmnn@zhaw.ch		
<b>Lecturer(s)</b>	Dr. Carsten K. Druhmnn				
<b>Speaker(s)</b>	External consultants (To be agreed)				
<b>Associate(s)</b>	MSc Simon Ashworth				
<b>Learning outcomes and competencies</b>	<p>Students will be able to demonstrate a clear understanding of Building Information Modelling (BIM) as a process and how it relates to FM. The course will clarify what BIM is, and what is not.</p> <p>Students will be able to describe and explain the importance of BIM standards, norm, guidelines and tools and how FM is integrated in the BIM digital planning process.</p> <p>Students will be able to evaluate the implications of BIM for FM and be able to articulate the users' needs in terms of preparing the Employers Information Requirements (EIR). They will responsibilities of key people with respect to information management and modelling.</p>				

**Course content**

BIM as a concept is not new and has been developed from earlier concepts in the 1970s. It is fundamentally a process that refers to a collaborative way of working, underpinned by digital three-dimensional technologies which unlock more efficient methods of designing, creating and maintaining assets. The levels of BIM maturity are different by industry sector and country. The rapid adoption of BIM has been prompted by several governments across Europe mandating the use of BIM on public procurement projects.

The BIM process is closely linked to FM as many of the decisions made in the design and BIM process have long-term economic and sustainability consequences. As such there is move towards including facility managers in the initial design briefings where their knowledge can be used to avoid making mistakes which have costly long term operation cost implications. Several European countries are changing their design process to align them with the BIM process and also to include Post Occupancy Evaluations (POE) for up to 3 years after the completion of a building. The aim is to prove the building design in operation with increased involvement of FMs and asset managers as the ones who have to manage the primary cost phase (use and operation). Such initiatives recognise the value and need for FM to be involved early in the design. Taking into account the key drivers impacting FM, e.g. cost, sustainability, energy management, space etc. a good starting point is to have the end in mind. A lot of information is needed in digital building models during the operational phase and can be delivered out from design and construction phase. This is also been helped by the development of National BIM Libraries that help capture data on BIM objects for use by FM.

The Course is structured to cover the following areas:

**Introduction**

- Introduction to BIM
- Social, environmental and economic benefits of BIM

**BIM: Research background:**

- Development and links between FM and BIM research
- Development of BIM standards
- BIM institutions and organizations
- Research leading to enabling tools and documents

**BIM: The “model” is just a small part**

- BIM is a process and more than just an IT Tool
- The need to reduce waste
- BIM is about “information management”
- BIM, FM and collaborative working
- The different maturity levels of BIM

**BIM: The role of FM and Asset Management**

- FM in the BIM process
- The need to improve the management of assets
- FM role in helping establish National BIM Libraries
- Roles and responsibilities in BIM projects

**BIM: The future of FM and BIM:**

- Scan to BIM
- FM developments in the field of FM and BIM

EUROPEAN CREDIT TRANSFER SYSTEM (ECTS)

<b>Language of instruction</b>	English
<b>Expected attendance</b>	Attendance is expected and strongly recommended. Mandatory attendance on selected dates – the exact dates will be provided at the beginning of the course.
<b>Assessment</b>	Written Report (70%) and Presentation (30%)
<b>Bibliography</b>	Relevant course reading material and access to lecture hand-outs will be provided on Moodle.
<b>Entrance requirements</b>	Students must have read the defined pre-course reading material between the introduction to the elective and the start of the teaching in class
<b>Follow-up courses</b>	Applied Research Project, Master's Thesis Research Plan
<b>Comments</b>	Students are expected to acquire the theoretical background in self-study mode. In class, more in-depth knowledge will be developed by working on case studies, practice reports and exercises.

*Typus (Type)	<b>C</b> Core course/module (Kerngebiet eines Studienprogramms)
	<b>R</b> Related course/module (Unterstützung des Kerngebiets mit Vermittlung von Vor- oder Zusatzkenntnissen)
	<b>M</b> Minor course/module (Wahl- oder Ergänzungskurs/-modul)

This document can be accessed under: <http://intra.zhaw.ch/lsfm/studiensekretariat>

Please send the course description electronically to [scal@zhaw.ch](mailto:scal@zhaw.ch) prior to the beginning of the course.