

## Annex SFB

### Studienfachbeschreibung (subject description, SFB) for the subject Games Engineering as a Bachelor's with 1 major with the degree "Bachelor of Science" (180 ECTS credits)

Responsible: Faculty of Mathematics and Computer Science  
Responsible: Institute of Computer Science

Examination regulations version: 2017  
Examination regulations version: 2017

Abbreviations used: Course types: **E** = field trip, **K** = colloquium, **O** = conversatorium, **P** = placement/lab course, **R** = project, **S** = seminar, **T** = tutorial, **Ü** = exercise, **V** = lecture

Term: **SS** = summer semester, **WS** = winter semester

Methods of grading: **NUM** = numerical grade, **B/NB** = (not) successfully completed

Regulations: **(L)ASPO** = general academic and examination regulations (for teaching-degree programmes), **FSB** = subject-specific provisions, **SFB** = list of modules

Other: **A** = thesis, **LV** = course(s), **PL** = assessment(s), **TN** = participants, **VL** = prerequisite(s)

Conventions for the modules in this SFB: Unless otherwise stated, courses and assessments will be held in German, assessments will be offered every semester and modules are not creditable for bonus.

Information on assessment procedures: Should there be the option to choose between several methods of assessment, the lecturer will agree with the module coordinator on the method of assessment to be used in the current semester by two weeks after the start of the course at the latest and will communicate this in the customary manner.

Should a module comprise more than one graded assessment, all assessments will be equally weighted, unless otherwise stated below.

Should the assessment comprise several individual assessments, successful completion of the module will require successful completion of all individual assessments.

In accordance with the general regulations governing the degree subject described in this module catalogue:

**ASPO2015**

associated official publications (FSB (subject-specific provisions)/SFB (list of modules)):

**09-Aug-2017 (2017-53)**

This module handbook seeks to render, as accurately as possible, the data that is of statutory relevance according to the examination regulations of the degree subject. However, only the FSB (subject-specific provisions) and SFB (list of modules) in their officially published versions shall be legally binding. In the case of doubt, the provisions on, in particular, module assessments specified in the FSB/SFB shall prevail.

Every module will be described using the following form:

Abbreviation	<b>Module title</b>						
	ECTS		Duration	(in semesters)	Method of grading		Module level
	Courses		To be specified in the form X (y) with course type X abbreviated as specified above and number of weekly contact hours y				
	Method of assessment						
	Only after successful completion of		if applicable				
	Other prerequisites		if applicable				
	Participants and allocation of places		if applicable				
	Additional information		if applicable				
	Referred to in LPO I		if applicable (examination regulations for teaching-degree programmes)				

Compulsory Courses (135 ECTS credits)								
10-GE-GL-1-162-m01	Game Lab I Principles and Languages							
	ECTS	15	Duration	2 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses		R (8) Module taught in: German or English					
	Method of assessment		presentation of project results (30 to 45 minutes) Language of assessment: German and/or English creditable for bonus					
10-GE-GL-2-162-m01	Game Lab II Architectures and Components							
	ECTS	20	Duration	2 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses		R (10) Module taught in: German or English					
	Method of assessment		presentation of project results (30 to 45 minutes) Language of assessment: German and/or English creditable for bonus					
10-GE-GL-3-162-m01	Game Lab III Systems							
	ECTS	20	Duration	2 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses		R (10) Module taught in: German or English					
	Method of assessment		presentation of project results (30 to 45 minutes) Language of assessment: German and/or English creditable for bonus					
10-GE-GdP-172-m01	Fundamentals of Programming							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses		V (2) + Ü (2) Module taught in: German or English					
	Method of assessment		written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus					

10-GE-ADS-162-m01	Algorithms and data structures							
	ECTS	10	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses		V (4) + Ü (2)					
	Method of assessment		written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus					
10-GE-ST-162-m01	Software Technology							
	ECTS	10	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses		V (4) + Ü (2)					
	Method of assessment		written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus					
10-M-GE-1-162-m01	Mathematics 1 for Games Engineering							
	ECTS	10	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses		V (4) + Ü (2)					
	Method of assessment		a) written examination (approx. 90 to 180 minutes, usually chosen) or b) oral examination of one candidate each (15 to 30 minutes) or c) oral examination in groups (groups of 2, 10 to 15 minutes per candidate) Language of assessment: German and/or English creditable for bonus					
10-M-GE-2-162-m01	Mathematics 2 for Games Engineering							
	ECTS	10	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses		V (4) + Ü (2)					
	Method of assessment		a) written examination (approx. 90 to 180 minutes, usually chosen) or b) oral examination of one candidate each (15 to 30 minutes) or c) oral examination in groups (groups of 2, 10 to 15 minutes per candidate) Language of assessment: German and/or English creditable for bonus					

10-GE-SQ-162-mo1	Software Quality							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses		V (2) Module taught in: German or English					
	Method of assessment		written examination (approx. 60 to 120 minutes) Language of assessment: German and/or English creditable for bonus					
10-GE-NPP-162-mo1	Network and Concurrent Programming							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses		V (2) + Ü (2) Module taught in: German or English					
	Method of assessment		a) written examination (approx. 60 to 120 minutes) or b) presentation of project results (approx. 20 minutes) Language of assessment: German and/or English creditable for bonus					
10-GE-GM-CS-162-mo1	Foundations of Human-Computer Interaction							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses		V (2) + Ü (1) Module taught in: German or English					
	Method of assessment		written examination (approx. 60 to 120 minutes) Language of assessment: German and/or English creditable for bonus					
10-GE-AE-162-mo1	Asset Development (Modeling and Animation)							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses		V (2) + Ü (2) Module taught in: German or English Course type: alternatively S (2) instead of V					
	Method of assessment		a) written examination (approx. 60 to 120 minutes) or b) presentation of project results (approx. 20 minutes) Language of assessment: German and/or English creditable for bonus					
10-GE-IKI-162-mo1	Interactive Artificial Intelligence							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses		V (2) + Ü (2) Module taught in: German or English					
	Method of assessment		a) written examination (approx. 60 to 120 minutes) or b) presentation of project results (approx. 20 minutes) Language of assessment: German and/or English creditable for bonus					

10-GE-ICG-162-mo1	Interactive Computer Graphics							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses		V (2) + Ü (2) Module taught in: German or English					
	Method of assessment		a) written examination (approx. 60 to 120 minutes) or b) presentation of project results (approx. 20 minutes) Language of assessment: German and/or English creditable for bonus					
10-GE-SEM-162-mo1	Seminar - Current Trends of Games Engineering							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses		S (2)					
	Method of assessment		presentation (approx. 20 minutes) with handout (approx. 5 pages) Language of assessment: German and/or English creditable for bonus					
Compulsory Electives (10 ECTS credits)								
10-GE-AT-1-162-mo1	Selected Topics of Games Engineering 1							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses		V (2) + Ü (2) Module taught in: German or English Course type: alternatively S (2) instead of V, T (2) instead of Ü					
	Method of assessment		a) written examination (approx. 60 to 120 minutes) or b) presentation of project results (approx. 20 minutes) Language of assessment: German and/or English creditable for bonus					
10-GE-AT-2-162-mo1	Selected Topics of Games Engineering 2							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses		V (2) + Ü (2) Module taught in: German or English Course type: alternatively S (2) instead of V, T (2) instead of Ü					
	Method of assessment		a) written examination (approx. 60 to 120 minutes) or b) presentation of project results (approx. 20 minutes) Language of assessment: German and/or English creditable for bonus					

10-GE-MK-162-mo1	<b>Computer Science in Media 1</b>							
	ECTS	6	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses		V (2) + Ü (2) Course type: alternatively T (2) instead of Ü					
	Method of assessment		a) written examination (approx. 60 minutes) or b) oral examination (approx. 20 minutes) or c) term paper (approx. 20 pages) or d) portfolio (approx. 20 pages) Language of assessment: German and/or English creditable for bonus					
10-GE-TIV-162-mo1	<b>Theoretical Informatics</b>							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses		V (4)					
	Method of assessment		written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).					
10-GE-TIT-172-mo1	<b>Tutorial Theoretical Informatics</b>							
	ECTS	5	Duration	1 semester	Method of grading	(not) successfully completed	Modul level	undergraduate
	Courses		Ü (2)					
	Method of assessment		a) exercises (consisting in completion of approx. 11 home work exercise sheets, presentation of own solutions in the exercise groups as well as approx. 5 short assessments written in the exercise group) or b) written examination (approx. 180 to 240 minutes) Die Prüfungsart ist vom Prüfling festzulegen					
10-GE-LOG-162-mo1	<b>Logic for informatics</b>							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses		V (2) + Ü (2)					
	Method of assessment		written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus					

10-GE-AGT-162-m01	Algorithmic Graph Theory							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses		V (2) + Ü (2)					
	Method of assessment		written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus					
10-GE-DB-162-m01	Databases							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses		V (2) + Ü (2)					
	Method of assessment		written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus					
10-GE-WBS-162-m01	Knowledge-based Systems							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses		S (2) + Ü (2)					
	Method of assessment		written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus					
10-GE-APR-172-m01	Advanced Programming							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses		V (2) + Ü (2)					
	Method of assessment		written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus					



10-GE-KD-162-m01	<b>Cryptography and Data Security</b>							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses		V (2) + Ü (2)					
	Method of assessment		written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus					
10-GE-3D-162-m01	<b>3D Point Cloud Processing</b>							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses		S (2) + Ü (2)					
	Method of assessment		written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus					
10-GE-RAK-162-m01	<b>Computer Architecture</b>							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses		V (2) + Ü (2)					
	Method of assessment		written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus					
10-GE-RK-162-m01	<b>Computer Networks and Communication Systems</b>							
	ECTS	8	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses		V (4) + Ü (2)					
	Method of assessment		written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus					

10-GE-GI-162-m01	Selected Basics of Computer Science							
	ECTS	5	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses		V (4) + Ü (2)					
	Method of assessment		written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). Language of assessment: German and/or English creditable for bonus					
Transferable Skills (20 ECTS credits)								
General Key Skills (5 ECTS credits) Students may also take modules offered as part of the pool of general transferable skills (ASQ) of JMU.								
General Key Skills (subject-specific)								
10-GE-Tut-ASQ-162-m01	Work experience as a research and teaching assistant							
	ECTS	5	Duration	1 semester	Method of grading	(not) successfully completed	Modul level	undergraduate
	Courses		P (o)					
	Method of assessment		report (approx. 2 pages)					
Subject-specific Key Skills (15 ECTS credits)								
10-GE-BPrakt-162-m01	Practice/Job-oriented Internship							
	ECTS	15	Duration	1 semester	Method of grading	(not) successfully completed	Modul level	undergraduate
	Courses		P (o)					
	Method of assessment		report on practical course (approx. 5 pages) Language of assessment: German or English					
	Additional Information		Additional information on module duration: no less than 12 weeks.					
Thesis Area (15 ECTS credits)								
10-GE-EX-162-m01	Exhibition: Game Lab III and Bachelor Thesis							
	ECTS	3	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses		S (1) Module taught in: German or English					
	Method of assessment		presentation of results of Game Lab III project and of Bachelor's thesis (approx. 10 minutes) Language of assessment: German and/or English creditable for bonus					

10-GE-BT-162-m01	<b>Bachelor Thesis Games Engineering</b>							
	ECTS	12	Duration	1 semester	Method of grading	numerical grade	Modul level	undergraduate
	Courses		No courses assigned to module					
	Method of assessment		Bachelor's thesis (approx. 30 pages) Language of assessment: German or English					
	Additional Information		Time to complete: 12 weeks					