

MODULE HANDBOOK
M.A. ENGINEERING DESIGN

Overview by Area **MODULE PLAN** **MED**

Modules	Courses	Type	T/A	Sem. 1		Sem. 2		Sem. 3	
				WHS	CP	WHS	CP	WHS	CP
1_Design & Technology Basics									
	1.1_Fundamentals of Capital Goods Design	SL	TP	2	5				
	1.2_Product Development Basics	SL	TP		2	5			
	1.3_Materials & Bionics Basics	SL	TP	2	5				
2_Integrated Product Development									
	2.1_Product Development CAD/CAM 1	SL	TP	2	5				
	2.2_Product Development CAD/CAM 2	SL	TP		2	5			
	2.3_Mechanics & Strength	SL	TP		4	5			
3 Compulsory Elective Modules - Design/Technology									
	3.1_Sustainable Design	SL	WE	2	5				
	3.2_Computer-Aided Design	SL	WE	2	5				
	3.3_Fundamentals of Fibre-Reinforced Plastics	SL	WE	4	5				
	3.4_Fundamentals of Simulation Techniques	SL	TP	2	5				
	3.5_New Interaction Technologies	Co	TP	2	5				
4_Projects									
	4.1_Project 1 Theory, Data & Models	P	D	4	10				
	4.1_Project 2 Theory, Data & Models	P	D	4	10				
	4.3_Project Presentation	P	Pre			2	5		
5_Master									
	5.1_Master thesis - companion module	Co	OE					2	5
	5.2_Master thesis and colloquium	P	MT			25			
Total				12 or 14	30	14	30	2	30

Key:

Type = Type of course

P = Project

Pre = Presentation

S = Seminar

SL = Seminar-style lecture

WHS= Weekly hours per semester

CP = Credit points

* = Compulsory elective module

T/A = Type of assessment

D = Documentation

DP = Design project

TP = Term paper

WE = Written examination

OE = Oral examination

OP = Oral presentation

MT = Master thesis and colloquium

ID

Module.Course.Semester

Overview by progression **EXAMINATION SCHEDULE MED**

Sem.	Modules	ID	Courses	Leader	T/A	Workload h	CP C	CP M
1	Design & Technology	1.1	Fundamentals of Capital Goods Design	Prof. Jan Bäse	TP	150	5	10
		1.2	Materials & Bionics Basics	Cordula Gebauer	TP	150	5	
1	IPD	2.1	Product Development CAD/CAM 1	Prof. Hagen Kluge	TP	150	5	5
1 5	Voluntary Elective Modules	3.1	Sustainable Design	Martin Wiesner	WE	150	5	150
		3.2	Computer-Aided Design	Martin Wiesner	WE	150	5	
		3.3	Fundamentals of Fibre-Reinforced Plastics	Prof. Dr.-Ing. J. Häberle	WE			
		3.4	Fundamentals of Simulation Techniques	Prof. Dr.-Ing. Weber	TP			150
5								
		3.5	New Interaction Technologies	Prof. D. Schumacher	TP	150	5	
						900	30	30
2	Design & Technology	1.2	Product Development Basics	Prof. Hagen Kluge	TP	150	5	5
2	IPD	2.2	Product Development CAD/CAM 2	Prof. Hagen Kluge	TP	150	5	10
		2.3	Mechanics & Strength	Florian Schwarz	TP	150	5	
2	Project	4.2	Project 2 Theory, Data & Models	Prof. Kluge, Prof. Bäse	DP, D, OE	150	10	15
						900	30	30
3	Master	5.1	Master Thesis - Companion Module	Prof. Kluge, Prof. Bäse	Co, OE	150	5	30

Key:

Type = Type of course

P = Project
 Co = Colloquium
 Pre = Presentation
 S = Seminar
 SL = Seminar-style lecture
 WHS = Weekly hours per semester
 CP = Credit points
 * = Compulsory elective module

T/A = Type of assessment

D = documentation
 DP = Design project
 TP = Term paper
 WE = Written examination
 OE = Oral examination
 OP = Oral presentation
 MT = Master thesis and colloquium

ID

Module.Course.Semester

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MED

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Design & Technology Basics

1

Fundamentals of Capital Goods Design

1.1

Product Development Basics

1.2

Materials & Bionics Basics

1.3

MODULE FORM 1.1

M.A. ENGINEERING DESIGN

Module title **Design & Technology Basics / No. 1.1: Fundamentals of Capital Goods Design** Code **MED_1.1**

Entry Requirements / Study & Examination Regulations (SER) **none** Number of Students **10 - 19**

Compulsory module	<input checked="" type="checkbox"/>	Semesters	<input type="checkbox"/>
Compulsory elective module	<input type="checkbox"/>	Winter semester	<input checked="" type="checkbox"/>
Voluntary elective module	<input type="checkbox"/>	Summer semester	<input type="checkbox"/>

Type	WHS	Credits	Exams
SL	2	5	TP

Workload	
30	In-person
90	Independent product development and construction
30	Review of specialist literature
150	

Content Description

Design tasks from the range of technical products in the capital goods sector
 Teaching of methodology for the design development of complex machines taking into account safety, ergonomics, accessibility, usability, economic viability and creative originality

Course Aims and Skills

Shaping of own development and design competence specifically for the design of capital goods
 Acquisition of specific skills for designing objects under restrictive conditions as far as the possibilities of production, manufacturing effort and costs are concerned.

Preceding modules	Good to combine with	Possible follow-on modules
none	MED_2.1, MED_4.1/4.2	MED_1.2, MED_4.3/4.4

Module online resources www.gestaltung.hs-magdeburg.de

Literature and source references www.gestaltung.hs-magdeburg.de

Contact(s)	Enrolment formalities
Prof. Jan Bäse	Registration list

Notes



MODULE FORM 1.2

M.A. ENGINEERING DESIGN

Module title **Design & Technology Basics / No. 1.2: Product Development Basics** Code **MED_1.2**

Entry Requirements / Study & Examination Regulations (SER) **none** Number of Students **10 - 19**

Compulsory module	<input checked="" type="checkbox"/>	Semesters	2
Compulsory elective module	<input type="checkbox"/>	Winter semester	
Voluntary elective module	<input type="checkbox"/>	Summer semester	<input checked="" type="checkbox"/>

Type	WHS	Credits	Exams
SL	2	5	TP

Workload

30	In-person
90	Independent product development & construction
30	Review of specialist literature
150	

Content Description

- Introduction to the application of tolerances
- Introduction to the application of DIN standards
- Design-relevant machine components, connections
- Design-relevant traditional manufacturing processes, innovative 3D printing processes
- Methodical design and construction

Course Aims and Skills

Acquisition of basic engineering knowledge tailored to the development of design-relevant product components, for Master students from both the design and engineering environments.
 The aim is to acquire basic skills in the field of technical construction and manufacturing, plus an understanding of complex technical relationships between and at the interface of product design and construction.
 Acquisition of the necessary communication and cooperation skills for working in development teams.

Preceding modules	Good to combine with	Possible follow-on modules
MED_1.1, MED_4.1/4.2	MED_4.3/4.4	MED_3.3

Module online resources
www.gestaltung.hs-magdeburg.de

Literature and source references
www.gestaltung.hs-magdeburg.de

Contact(s)	Enrolment formalities
Prof. Hagen Kluge	Registration list

Notes



MODULE FORM 1.3

M.A. ENGINEERING DESIGN

Module title	Code
Design & Technology Basics / No. 1.3: Materials & Bionics Basics	MED_1.3

Entry Requirements / Study & Examination Regulations (SER)	Number of Students
none	10 - 19

Compulsory module	X	Semesters	1
Compulsory elective module		Winter semester	
Voluntary elective module		Summer semester	X

Type	WHS	Credits	Exams
SL	2	5	TP

Workload	
30	In-person
90	Independent exercises / oral presentation
30	Review of specialist literature
<hr/>	
150	

Content Description

- Research into material innovations
- Critical analysis of the acquisition, production and recyclability of materials in terms of ecological and economic aspects
- Evaluation of material innovations in respect of the design of products (relevance, appropriateness, alternatives to conventional methods and materials)
- Study of products with regard to the production techniques used
- Study of products with regard to materiality
- Methodological concepts
- Fundamentals of bionics, discursive methods for bionic products

Course Aims and Skills

- The students should be brought up to date with materials research and develop independent methods to enable them to continue to be accessible in future.
- The students should be made aware of materiality in industrial design.
- The students should develop an awareness of the consequences of product design.
- The students should hone their perception with regard to the manufacture of products in order to draw conclusions for their own product developments.
- Development of bionics skills in product development processes in design, expertise and skills in the field of product development methodology with regard to a sustainable consideration of the human-product-environment system as a whole.

Preceding modules	Good to combine with	Possible follow-on modules
none	MED_2.1, MED_4.1/4.2	MED_1.2, MED_4.3/4.4

Module online resources

www.gestaltung.hs-magdeburg.de

Literature and source references

www.gestaltung.hs-magdeburg.de

Contact(s)	Enrolment formalities
Cordula Gebauer	Registration list

Notes



Integrated Product Development

2

Product Development & CAD/CAM 1

2.1

Product Development & CAD/CAM 2

2.2

Mechanics & Strength

2.3

MODULE FORM 2.1

M.A. ENGINEERING DESIGN

Module title **Integrated Product Development / No. 2.1: Product Development & CAD & CAM 1** Code **MED_2.1**

Entry Requirements / Study & Examination Regulations (SER) **none** Number of Students **10 - 19**

Compulsory module	<input checked="" type="checkbox"/>	Semesters	<input type="checkbox"/>
Compulsory elective module	<input type="checkbox"/>	Winter semester	<input checked="" type="checkbox"/>
Voluntary elective module	<input type="checkbox"/>	Summer semester	<input type="checkbox"/>

Type	WHS	Credits	Exams
SL	2	5	TP

Workload

30	In-person
90	Independent computer-aided product development
30	Study of specialist literature
150	

Content Description

- Basics of parametric 3D CAD modelling
- Assemblies with 3D CAD tools
- Construction of complex multi-component products
- CAD module for production-oriented design - sheet metal
- CAD module for production-oriented design - injection moulding

Course Aims and Skills

Basics of computer-aided design using example parametric CAD programmes.
 Working across programmes.
 Production-oriented design. Project-supported working with the computer-aided design chain.

Preceding modules	Good to combine with	Possible follow-on modules
none	MED_3	MED_4

Module online resources
www.gestaltung.hs-magdeburg.de

Literature and source references
www.gestaltung.hs-magdeburg.de

Contact(s)	Enrolment formalities
Prof. Hagen Kluge	Registration list

Notes

- 2**
- 2.1**
- 2.2**
- 2.3**

MODULE FORM 2.2

M.A. ENGINEERING DESIGN

Module title **Integrated Product Development / No. 2.2: Product Development CAD & CAM 2** Code **MED_2.2**

Entry Requirements / Study & Examination Regulations (SER) **MED_PE_CC 1** Number of Students **10 - 19**

Compulsory module	<input checked="" type="checkbox"/>	Semesters	2
Compulsory elective module	<input type="checkbox"/>	Winter semester	
Voluntary elective module	<input type="checkbox"/>	Summer semester	<input checked="" type="checkbox"/>

Type	WHS	Credits	Exams
SL	2	5	TP

Workload

30	In-person
90	Independent exercises
30	Study of specialist literature
150	

Content Description

- Basics of parametric 3D CAD modelling
- Assemblies with 3D CAD tools
- Parametric CAD construction with freeform surfaces

Course Aims and Skills

Advanced computer-aided construction using generic parametric CAD programmes.
Project-supported working with the computer-aided design chain.

Preceding modules	Good to combine with	Possible follow-on modules
MED_1.2, MED_2.1	MED_3	MED_4

Module online resources www.gestaltung.hs-magdeburg.de

Literature and source references www.gestaltung.hs-magdeburg.de

Contact(s)	Enrolment formalities
Prof. Hagen Kluge	Registration list

Notes

- 2**
- 2.1**
- 2.2**
- 2.3**

MODULE FORM 2.3

M.A. ENGINEERING DESIGN

Module title **Integrated Product Development / No. 2.3: Mechanics & Strength** Code **MED_2.3**

Entry Requirements / Study & Examination Regulations (SER) **none** Number of Students **10 - 19**

Compulsory module	<input checked="" type="checkbox"/>	Semesters	2
Compulsory elective module	<input type="checkbox"/>	Winter semester	
Voluntary elective module	<input type="checkbox"/>	Summer semester	<input checked="" type="checkbox"/>

Type **SL** WHS **4** Credits **5** Exams **TP**

Workload

60	In-person
40	Independent product development and construction
50	Review of specialist literature
150	

Content Description

- Fundamentals of applied technical mechanics
- Statics of rigid bodies (forces, moments)
- Technical strength of materials (stresses, tensions)

Short exercises with which, on the basis of simple physical models, experience can be acquired of design that is able to meet load and selected kinematic requirements

- Implementation project for practising and transferring students' learning to the development of a design-relevant mechanical product.

Course Aims and Skills

Development / consolidation of skills for designing structures able to satisfy load requirements and geometries for design-relevant functional elements.

Fundamentals of construction for containment elements, support and envelope structures that are suitable for production and able to meet load requirements.

Understanding of simple kinematics, forces, force effects, material properties and design that is properly proportioned for stress and strain.

Ability to carry out simple static calculations.

Preceding modules **MED_1.1** Good to combine with **MED_3.3, MED_1.2** Possible follow-on modules **MED_4**

Module online resources **www.gestaltung.hs-magdeburg.de**

Literature and source references **www.gestaltung.hs-magdeburg.de**

Contact(s) **Prof. Hagen Kluge** Enrolment formalities **Registration list**

Notes

- 2**
- 2.1
- 2.2
- 2.3

Voluntary Elective Modules - Design / Technology**3**

Sustainable Design

3.1

Computer-Aided Design

3.2

Fundamentals of Fibre-Reinforced Plastics

3.3

Fundamentals of Simulation Techniques

3.4

New Interaction Technologies

3.5

MODULE FORM 3.1

M.A. ENGINEERING DESIGN

Module title	Code
Voluntary Elective Modules - Design / Technology / No. 3.2: Sustainable Design	MED_3.1

Entry Requirements / Study & Examination Regulations (SER)	Number of Students
none	1-5

Compulsory module		Semesters	1
Compulsory elective module	X	Winter semester	X
Voluntary elective module		Summer semester	

Type	WHS	Credits	Exams
SL	2	5	WE

Workload	
30	In-person
60	Independent exercises
60	Literature review
<hr/>	
150	

Content Description

- Sustainability in product development and the specific possibilities of industrial design
- Analysis of potential for fostering sustainability in relation to aesthetic design elements such as form, colour and material (object aesthetics)
- Analysis of potential for fostering sustainability in relation to use processes by people as users and owners of products (action aesthetics)
- Objective investigations into ways of operating (perception)

Course Aims and Skills

This course is intended to promote the understanding of the sustainable design of technical products in integrated product development processes. To this end, appropriate aesthetic design tools are analysed and examined in respect of their use. The core aim is to achieve the exemplary ability to make a demonstrable contribution to the sustainability of products using aesthetic design elements (form, colour and material) and suitable use strategies.

Preceding modules	Good to combine with	Possible follow-on modules
none	MED_4	MED_5

Module online resources

www.gestaltung.hs-magdeburg.de

Literature and source references

www.gestaltung.hs-magdeburg.de

Contact(s)	Enrolment formalities
M.A. Martin Wiesner / OvGU	Registration list

Notes

This course is held at Otto von Guericke University.
The number of participants may be limited.

- 3
- 3.1
- 3.2
- 3.3
- 3.4
- 3.5

MODULE FORM 3.2

M.A. ENGINEERING DESIGN

Module title **Voluntary elective modules - Design/Technology / No. 3.2: Computer-Aided Design** Code **MED_3.2**

Entry Requirements / Study & Examination Regulations (SER) **none** Number of Students **1-5**

Compulsory module		Semesters	2
Compulsory elective module	X	Winter semester	
Voluntary elective module		Summer semester	X

Type	WHS	Credits	Exams
SL	2	5	WE

Workload

30	In-person
60	Literature review
60	Independent exercises
150	

Content Description

Advanced exercises in computer-aided design and complex visualisation of products

Course Aims and Skills

- Skills and competences in computer-aided design drafting
- Application-oriented learning using examples from product design
- Familiarisation with design methodologies and tools that are typical of industrial design
- Proficiency in dealing with interface problems between CAID, CAD and ergonomic programme systems

Preceding modules	Good to combine with	Possible follow-on modules
none	MED_2.1, MED_4	MED:5

Module online resources

www.gestaltung.hs-magdeburg.de

Literature and source references

www.gestaltung.hs-magdeburg.de

Contact(s)	Enrolment formalities
MA Martin Wiesner / OvGU	Registration list

Notes

This course is held at Otto von Guericke University.
The number of participants may be limited.

- 3
- 3.1
- 3.2
- 3.3
- 3.4
- 3.5

MODULE FORM 3.3

M.A. ENGINEERING DESIGN

Module title **Voluntary elective modules - Design/Technology / No. 3.3: Foundations of fibre-reinforced plastics** Code **MED_3.3**

Entry Requirements / Study & Examination Regulations (SER) **none** Number of Students **1 - 5**

Compulsory module		Semesters	1
Compulsory elective module	X	Winter semester	X
Voluntary elective module		Summer semester	

Type **SL** WHS **2** Credits **5** Exams **WE**

Workload

30	In-person
60	Literature review
60	Independent exercises
150	

Content Description

- Use of fibre composite structures
- User markets and practical examples
- Structure and basic mechanical function of fibre reinforced plastics (FRP)
- Material foundations (matrix systems, fibre types and semi-finished products, adjuvants and additives)
- Manufacturing processes for FRP components
- Manufacturing faults and their effects

Course Aims and Skills

Students are familiarised with the fundamental structure as well as the functionality and sample applications of FRP. In particular, they should be able to identify possible uses and limitations of this category of material - including in hybrid applications. The wide variety of possible manufacturing processes is presented. Students will be put in the position to discuss and assess suitable manufacturing processes for specific components and given batch sizes.

Preceding modules **none** Good to combine with **MED_2.1, MED_4** Possible follow-on modules **MED_5**

Module online resources

Literature and source references

Contact(s) **Prof. Dr.-Ing. Jürgen Häberle** Enrolment formalities **Registration list**

Notes

- 3**
- 3.1
- 3.2
- 3.3**
- 3.4
- 3.5

MODULE FORM 3.4

M.A. ENGINEERING DESIGN

Module title **Voluntary elective modules - Design/Technology / No. 3.4: Fundamentals of Simulation Techniques** Code **MED_3.4**

Entry Requirements / Study & Examination Regulations (SER) **none** Number of Students **8-15**

Compulsory module	<input type="checkbox"/>	Semesters	2
Compulsory elective module	<input checked="" type="checkbox"/>	Winter semester	
Voluntary elective module	<input type="checkbox"/>	Summer semester	X

Type	WHS	Credits	Exams
SL	2	5	TP

Workload

30	In-person
70	Formulation/design project/disquisition
40	Research work
10	Examination preparation
150	

Content Description

X

Course Aims and Skills

X

Preceding modules	Good to combine with	Possible follow-on modules
none	MED_4	MED_5

Module online resources

Literature and source references

www.hs-magdeburg.de

Contact(s)	Enrolment formalities
Prof. Dominik Schumacher	Registration list

Notes

3

3.1

3.2

3.3

3.4

3.5

MODULE FORM 3.5

M.A. ENGINEERING DESIGN

Module title	Code
Voluntary elective modules - Design/Technology / No. 3.5: New Interaction Technologies	MED_3.5

Entry Requirements / Study & Examination Regulations (SER)	Number of Students
none	8-15

Compulsory module		Semesters	2
Compulsory elective module	X	Winter semester	
Voluntary elective module		Summer semester	X

Type	WHS	Credits	Exams
Co	2	5	TP

Workload	
30	In-person
70	Formulation/design project/disquisition
40	Research work
10	Examination preparation
150	

Content Description

In this colloquium, research activities are undertaken in which all students consolidate their knowledge of a specific aspect of a new technology, for example: display technologies, intelligent materials, tracking technologies in virtual spaces, tangible interaction, eye tracking mash-ups, apps within networked systems or communication channels.

The ways in which these technologies are able to alter people's lives or their ways of interacting are examined. In particular, the colloquium fosters communication skills and the development of linguistic sensitivity for technological process developments in interaction design and the scientific and multimedia skills for professional documentation. The participants will deliver their research findings in a public presentation.

Course Aims and Skills

This module conveys the skills for independently preparing entirely new research findings, identifying developments that are relevant to design and discovering the innovation potential of technologies, as well as the ability to familiarise oneself with previously unfamiliar fields of work. This involves the design-oriented scientific appraisal and formulation of the current state of research into technologically groundbreaking topics in interaction design. The aim is for the participants to develop decision-making capabilities that take into account societal, ethical and scientific insights, even if only limited information is available. The communication skills of the students are fostered to enable them to comprehend and present the current state of research.

- // Ability to present the current state of the art
- // Ability to familiarise themselves with a previously unfamiliar field of work
- // Design-specific scientific research strategies

Preceding modules	Good to combine with	Possible follow-on modules
none	MED_4	MED_5

Module online resources

Literature and source references
www.hs-magdeburg.de

Contact(s)	Enrolment formalities
Prof. Dominik Schumacher	Registration list

Notes

3

3.1

3.2

3.3

3.4

3.5

	Project	4
Project 1_Theory, Data and Models		4.1
Project 2_Theory, Data and Models		4.2
Project_Presentation		4.3

MODULE FORM 4.1, 4.3

M.A. ENGINEERING DESIGN

Module title	Code
No. 4: Project 1 / Theory, Data & Models	MED_4.1, MED_4.2

Entry Requirements / Study & Examination Regulations (SER)	Number of Students
	6 - 8

Compulsory module	X	Semesters	1 / 2
Compulsory elective module		Winter semester	X
Voluntary elective module		Summer semester	X

Type	WHS	Credits	Exams
P	4	10	D, OP

Workload	
30	In-person
50	Specialist literature, research, analysis, briefing
70	Concept, design, detailing
150	

- 4
- 4.1
- 4.2
- 4.3

Content Description

- Working on project topics individually or in small interdisciplinary teams
- Projects with partners from external practice are preferred
- Presentation of work progress in weekly meetings of the entire project group
- Results must be recorded in both digital and written documentary form
- Project content is derived from the Product Development module

The project in the first semester involves selected project-relevant design theory considerations, such as:

- design theory considerations like methodology or corporate design in the project topic
- ethical questions such as sustainability in the project topic

The project in the second semester involves a larger presentation block and prepares students to write their Master thesis

Course Aims and Skills

Largely independent work on project topics in practical form Analysis, hypothesis forming, production, simulation and reflection skills are focussed on achieving an optimised design result.

The level of complexity of the task set increases over the course of the module as a whole from semester to semester and results in the topic being dealt with in a practical manner.

Skills such as the ability to work in teams and integrative thinking are developed. Students are trained to deal with external partners in the course of their projects.

- Acquisition of suitable, accompanying critical skills for a technological design Master degree programme
- Overview of design and research-relevant topics and the development of own key areas of interest
- Acquisition of fundamentals concerning the requirements of scientific research

Preceding modules	Good to combine with	Possible follow-on modules
MED_1.1, MED_1.2	MED_3	MED_5

Module online resources

www.gestaltung.hs-magdeburg.de

Literature and source references

www.gestaltung.hs-magdeburg.de

Contact(s)	Enrolment formalities
Prof. Hagen Kluge, Prof. Jan Bäse	Registration list

Notes

The development work on the projects is generally carried out in smaller interdisciplinary groups.

MODULE FORM 4.5

M.A. ENGINEERING DESIGN

Module title	Code
No. 4: Project / Presentation	MED_4.3

Entry Requirements / Study & Examination Regulations (SER)	Number of Students
	6 - 8

Compulsory module	X	Semesters	1 / 2
Compulsory elective module		Winter semester	X
Voluntary elective module		Summer semester	X

Type	WHS	Credits	Exams
P	2	5	D, OP

4

Workload	
150	Model / prototype building, presentation preparation
150	

4.1

4.2

4.3

Content Description

- Working on project presentation individually or in small interdisciplinary teams
- Project presentation individually or in small, interdisciplinary teams
- Results must be recorded in digital and/or written documentary form

Course Aims and Skills

- Acquisition of various presentation techniques in poster, digital and written form including suitable tools
- Schooling in dealing with external partners on projects through training in various presentation situations at the university and/or with internship partners

Preceding modules	Good to combine with	Possible follow-on modules
MED_4.1, MED_4.3	MED_1, MED_2, MED_3	MED_5

Module online resources

www.gestaltung.hs-magdeburg.de

Literature and source references

www.gestaltung.hs-magdeburg.de

Contact(s)	Enrolment formalities
Prof. Hagen Kluge, Prof. Jan Bäse	Registration list

Notes

The development work on the projects is generally carried out in smaller interdisciplinary groups.

	Master	5
Master thesis - companion module		5.1
	Master Thesis	5.2

MODULE FORM 5.1

M.A. ENGINEERING DESIGN

Module title	Code
Master / No. 5.1: Master thesis - companion module	MED_5.1

Entry Requirements / Study & Examination Regulations (SER)	Number of Students
60 completed credits	10 - 19

Compulsory module	X	Semesters	3
Compulsory elective module		Winter semester	X
Voluntary elective module		Summer semester	X

Type	WHS	Credits	Exams
Co	2	5	OE

Workload	
30	In-person
40	Working on the Master's thesis companion module
40	Research work
40	Scientific working
150	

5

5.1

5.2

Content Description

The companion module to the Master thesis is used to prepare the Master thesis in terms of content and form. Students consolidate their knowledge of scientific working methods. Over and above this, this colloquium assists in defining individual problems and identifying a suitable and qualitatively challenging topic for the Master thesis.

The work from the companion module to the Master thesis, which must be completed in writing, contains research results and a critical analysis of them, the choice of topic to be worked upon, the definition of the field, the workflow and the planned scope.

The student's own skills in terms of the level of detail of the development must be examined and, if necessary, augmented.

The outcome of the companion module to the Master thesis must be presented orally to potential supervisors for discussion and approval.

Course Aims and Skills

- // Categorisation of complex knowledge in the specialist area of Engineering Design.
- Critical understanding of the field in the area of tension between the integral design requirements and engineering and commercial considerations as well as taking into account restrictions.
 - Complex research of the area under consideration and identification of feasible fields of design
 - Proficiency in methods of scientific working, research, structuring, citation, analysis and documentation
 - Problem definition and formulation of an initial brief for the Master thesis

Preceding modules	Good to combine with	Possible follow-on modules
MED_4	MED_1, MED_2, MED_3	MED_5.2

Module online resources
www.gestaltung.hs-magdeburg.de

Literature and source references
www.gestaltung.hs-magdeburg.de

Contact(s)	Enrolment formalities
Prof. Hagen Kluge, Prof. Jan Bäse	Registration list

Notes

MODULE FORM 5.2

M.A. ENGINEERING DESIGN

Module title	Code
Master / No. 5.2: Master Thesis	MED_5.2

Entry Requirements / Study & Examination Regulations (SER)	Number of Students
60 completed credits	10 - 19

Compulsory module	X	Semesters	3
Compulsory elective module		Winter semester	X
Voluntary elective module		Summer semester	X

Type	WHS	Credits	Exams
P		25	MT

Workload	
Specialist literature, research, analysis, briefing	5
Concept, design, detailing	5.1
Model/prototype building	
Presentation preparation	5.2
750	

Content Description

The Master thesis is based on the objective developed in the companion module to the Master thesis. The topic should be capable of optimally demonstrating in an impactful way the skills and knowledge acquired during the course of study. The Master thesis may be a conceptual work that comprehensively examines a question in great analytical depth and incorporates all relevant social, technological and ethical developments in order to develop innovative, autonomous solutions in a scientific and creative way.

The Master thesis may develop a concrete design solution that must be adequately underpinned in technical and design-engineering terms. In the process, the usage context, and the context in which the implementation takes place, must be taken into account. The details and logic of the entire design process must be logically presented so that each design decision is transparent.

Course Aims and Skills

Independent scientific and creative/technical work on a current design problem / fundamentally relevant issue in Engineering Design.

- Independent identification of fields of action
- Development of problem-solving strategies.
- Self-organisation and motivation.
- Acquisition of new knowledge and integration in innovative design decisions.

Preceding modules	Good to combine with	Possible follow-on modules
MED_5.1	MED_1, MED_2, MED_3	-

Module online resources
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Literature and source references
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