

**Study regulations for the consecutive study programme
Print and Media Technology with the degree Master of Science (M.Sc.)
at Chemnitz University of Technology
as of August 18th, 2010**

Pursuant to § 13 paragraph 4 in conjunction with § 34 paragraph 1 of the Law on Institutions of Higher Education in the Free State of Saxony (Sächsisches Hochschulgesetz - SächsHG) of December 10th, 2008 (SächsGVBl. [Saxon law gazette] p. 900), last amended by article 10 of the Law of June 26th, 2009 (SächsGVBl. [Saxon law gazette] pp. 375, 377), the faculty committee of the Faculty of Mechanical Engineering in consultation with the Senate of Chemnitz University of Technology enacts the following study regulations:

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The male person and role terminology used in these regulations applies to both male and female persons. Women may transfer titles and functional designations to the grammatically feminine form. The same applies to the awarding of university degrees, academic designations and titles.

Part 1 General provisions

§ 1 Scope

Based on the valid version of the examination regulations, these study regulations govern the aims, contents, structure and schedule of the Master's programme Print and Media Technology with the degree Master of Science at the Faculty of Mechanical Engineering of Chemnitz University of Technology.

§ 2 Start of the programme and standard period of study

- (1) The study programme generally starts in the winter and summer semester of every academic year.
- (2) The standard period of study is four semesters (two years). The programme includes modules with a total of 120 credit points (CP). This equals an average workload of 3600 study hours.

§ 3 Admission requirements

- (1) Requirement for admission to the Master's programme Print and Media Technology is a Bachelor's degree in the Bachelor's programme Media Production or the Bachelor's programme Print and Media Technology of Chemnitz University of Technology, or any other equivalent university degree with regard to content.
- (2) Equivalence and admission of other applicants are decided by the examination board.

§ 4 Methods of teaching

- (1) Forms of teaching may be: lectures (V), seminars (S), exercises (Ü), projects (PR), colloquia (K), practical courses (P) or field trips (E).
- (2) The courses are held in English.

§ 5 Aims of the study programme

The aim of the study programme is the qualification of the students for the awarding of the title Master of Science in the subject field Print and Media Technology at Chemnitz University of Technology. Students gain an advanced professional qualification for application-, research-, and teaching-related occupations within the field of print and media technology. Graduates have acquired subject-related, interdisciplinary and methodical expertise, which prepares them for flexible employment in different occupational fields in science and industry. Due to the research orientation of the study programme, students gain core competencies which make them especially suitable for employment in the fields of research and development and which qualify them for doctoral studies.

Based on the deepened basic knowledge, students are offered a research-oriented specialisation in the field of media technologies. Special emphasis is placed on interdisciplinarity in order to enable students to work independently in this complex and dynamic subject field. Students are taught to work scientifically in this future-oriented engineering subject on the basis of exemplary specialisations, which usually make use of the excellent research facilities at Chemnitz University of Technology and which are also closely linked to research activities in the industry. The international orientation of the programme and the use of English as language of instruction take account of today's worldwide networking of this sector. The students' ability to collaborate with others, especially on an international level, is supported, for instance, by giving them the opportunity to study abroad during the course of the programme.

Part 2

Structure and contents of the study programme

§ 6

Structure of the study programme

(1) The study programme is made up of 120 credit points (CP) in total. In detail, it is composed of:

1. Basic modules:

M1 Media Physics, 6 CP (compulsory module)

M2 Electronic Media, 6 CP (compulsory module)

M3 Media Management and Entrepreneurship, 9 CP (compulsory module)

M4 Print Production, 11 CP (compulsory module)

2. Focal modules:

M5 Media Technology, 6 CP (compulsory module)

M6 Digital Fabrication, 5 CP (compulsory module)

M7 Modules and variants of printing presses, 5 CP (compulsory module)

3. Complementary modules:

M8 Applied Specialisation Module I, 10 CP (compulsory module)

M9 Applied Specialisation Module II, 10 CP (compulsory module)

4. Specialisation modules:

M10 Research Project Seminar I, 18 CP (compulsory module)

M11 Research Project Seminar II, 4 CP (compulsory module)

5. Module Master's Thesis:

M12 Master's Thesis, 30 CP

(2) The recommended schedule for the study programme Print and Media Technology at Chemnitz University of Technology within the standard period of study results from the chronological outline in the course schedule (see appendix 1) and the modular structure of the study programme.

§ 7

Contents of the study programme

(1) In the basic modules the Master's programme focuses on engineering, business and economics in the field of print and media technology. In the focal modules students learn about digital media, printed electronics, digital data output, and printing presses. In addition, students receive training on electronic devices, industrial production, and management and economics, which is the basis for an individualisation of their education. The research-oriented focus of the programme is especially reflected in the research project seminar: In this seminar, students work on a problem from the field of media technology and, together with an industry partner, plan and carry out their own scientific-technical project.

(2) Contents, aims, methods of teaching, credit points, examinations, frequency and length of the modules are specified in the module descriptions (see appendix 2).

Part 3

Management of the study programme

§ 8

Student advisory services

(1) Apart from the central student advisory service provided by the university, students can also make use of the study-related advisory service. The faculty committee of the Faculty of Mechanical Engineering appoints one member of the faculty for this task.

(2) Students are advised to make use of the student advisory service especially in the following cases:

1. before starting their studies,
2. before a study period abroad,
3. before an internship,
4. in case of change of the study programme or university,

5. after failed examinations.

§ 9

Examinations

The terms and regulations about examinations in the Master's programme Print and Media Technology at Chemnitz University of Technology can be found in the examination regulations.

§ 10

Self, distance and part-time studies

(1) Students are expected to prepare and deepen the contents of the courses individually at home. The necessary knowledge for successful graduation is not solely provided in the courses. Students are required to supplement the knowledge acquired in the courses through self-study.

(2) There is no provision for distance or part-time studies.

Part 4

Final provisions

§ 11

Coming into force and publication, transitional arrangement

These study regulations are valid for all students enrolled in this study programme from winter semester 2010/2011 on.

The study regulations for the consecutive Master's programme Media Production with the degree Master of Science as of June 25th 2008 (official announcements (*Amtliche Bekanntmachungen*) No. 15/2008, p. 403) are still valid for students who enrolled before winter semester 2010/2011.

The study regulations shall come into force on the day after their publication in the official announcements (*Amtliche Bekanntmachungen*) of Chemnitz University of Technology.

Drawn up pursuant to the resolutions of the faculty committee of the Faculty of Mechanical Engineering of July 19th, 2010, of the Senate of July 13th, 2010 and the approval of the Rectorate of Chemnitz University of Technology of August 3rd, 2010.

Chemnitz, August 18th, 2010

The Rector
of Chemnitz University of Technology

Prof. Dr. Klaus-Jürgen Matthes

**Appendix 1: Consecutive Study Programme Print and Media Technology with the Degree Master of Science
Course schedule**

Module	1 st semester	2 nd semester	3 rd semester	4 th semester	Workload (total number of credit points)
1. Basic Modules:					
M1 Media Physics	180 study hours 4 LVS (V2 / Ü2 / P0) EP: Exercise report E: Written exam				180 study hours / 6 CP
M2 Electronic Media 2.1 Electronic Media II 2.2 Media Colloquium	2.1 120 study hours 3 LVS (V2 / Ü1 / P0) EP: Test E: Written exam				180 study hours / 6 CP
	2.2 60 study hours 2 LVS (V0 / K2 / P0)				
M3 Media Management and Entrepreneurship 3.1 Media Entrepreneurship I 3.2 Media Management		3.1 180 study hours 5 LVS (V2 / S2 / P1) EP: Seminar paper			270 study hours / 9 CP
		3.2 90 study hours 2 LVS (V2 / K0 / P0) E: Written exam			
M4 Print Production 4.1 Prepress II 4.2 Output Systems II		4.1 150 study hours 3 LVS (V2 / Ü1 / P0) EP: Reports E: Written exam			330 study hours / 11 CP
		4.2 180 study hours 4 LVS (V2 / Ü0 / P2) EP: Attendance at practical course E: Written exam			

Note: Only the original study regulations in German language are legally binding.

**Appendix 1: Consecutive Study Programme Print and Media Technology with the Degree Master of Science
Course schedule**

Module	1 st semester	2 nd semester	3 rd semester	4 th semester	Workload (total number of credit points)
2. Focal Modules:					
M5 Media Technology 5.1 Digital Media 5.2 Printed Electronics II			5.1 90 study hours 2 LVS (V2 / Ü0 / P0) E: Written exams		180 study hours / 6 CP
			5.2 90 study hours 2 LVS (V2 / Ü0 / P0) E: Written exam		
M6 Digital Fabrication			150 study hours 3 LVS (V2 / Ü0 / P1) EP: Attendance at practical course E: Written exam		150 study hours / 5 CP
M7 Modules and variants of printing presses			150 study hours 3 LVS (V2 / Ü0 / P1) EP: Test and report on 5 experiments in the practical course E: Written exam		150 study hours / 5 CP
3. Complementary Modules:					
M8 Applied Specialisation Module I Students have to select two or three offers from the following list in order to reach the number of credit points/workload and marks specified in the last column: 8.1 Automotive Sensor Systems 8.2 Photonics 8.3 Quality Assurance in Printing 8.4 Hardware/Software Codesign II 8.5 Reliability of Micro and Nano Systems 8.6 Introduction to International Management			8.1 150 study hours 4 LVS (V2 / Ü2 / P0) E: Report and oral exam		300 study hours / 10 CP
			8.2 120 study hours 3 LVS (V2 / Ü1 / P0) E: Written exam		
			8.3 120 study hours 3 LVS (V2 / Ü1 / P0) E: Written exam		

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Module	1 st semester	2 nd semester	3 rd semester	4 th semester	Workload (total number of credit points)
		8.4 120 study hours 3 LVS (V2 / Ü1 / P0) E: Written exam			
		8.5 150 study hours 4 LVS (V3 / Ü1 / P0) E: Written exam			
		8.6 90 study hours 2 LVS (V2 / Ü0 / P0) E: Written exam			
M9 Applied Specialisation Module II Students have to select two or three offers from the following list in order to reach the number of credit points/workload and marks specified in the last column: 9.1 Smart Sensor Systems 9.2 Technologies for Micro and Nano Systems 9.3 Micro optical Systems 9.4 Printing Machine Planning 9.5 Media Entrepreneurship II			9.1 180 study hours 5 LVS (V2 / Ü1 / P2) EP: Attendance at the practical course E: Written exam		300 study hours / 10 CP
			9.2 150 study hours 4 LVS (V2 / Ü2 / P0) E: Written exam		
			9.3 120 study hours 3 LVS (V2 / Ü1 / P0) E: Written exam		
			9.4 150 study hours 4 LVS (V2 / Ü2 / P0) E: Written exam		
			9.5 150 study hours 4 LVS (V2 / Ü2 / P0) EP: Business plan E: Written exam		

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Course schedule**

Module	1 st semester	2 nd semester	3 rd semester	4 th semester	Workload (total number of credit points)
4. Specialisation Modules:					
M10 Research Project Seminar I	540 study hours 2 LVS (V0 / S2 / P0) 2 E: Project report, presentation				540 study hours / 18 CP
M11 Research Project Seminar II			120 study hours 2 LVS (V0 / S2 / P0) 2 E: Project report, presentation		120 study hours / 4 CP
5. Module Master's Thesis:					
M12 Master's Thesis				900 study hours 2 E: Mater's thesis, oral exam (colloquium)	900 study hours / 30 CP
Total number of LVS (examples for M8 (8.1 and 8.5) and M9 (9.1 and 9.3))	11	22	20	--	53 LVS
Total number of study hours	900	900	900	900	3600 study hours / 120 CP

LVS Course hours per week, 45 minutes each
 EP Examination prerequisites
 E Examination
 V Lecture
 S Seminar
 Ü Exercise

T Tutorial
 P Practical course
 EC Field trip
 K Colloquium
 PR Project
 CP Credit points

Note: Only the original study regulations in German language are legally binding.

Appendix 2: Module Descriptions for the Consecutive Study Programme Print and Media Technology with the Degree Master of Science

Basic Module

Module Code	M1
Module Title	Media Physics
Module Coordinator	Professorship Print Media Technology
Module Description and Learning Outcomes	<p><u>Content:</u> Media-, information- and knowledge-based technologies are among the most important future fields of technology. By now, a common understanding about the similar structures and basic principles of different media technologies has established.</p> <p>The lecture Media Physics and the corresponding exercise course deal with the physical and technical aspects of “media” and “information”, based on the current state of research from an abstract point of view. Topics are structure and structuring, complexity and emergence, entropy and information, reality and image, universal coding, etc.</p> <p><u>Learning Outcomes:</u> In this module, students get to know abstract approaches to media technological problems and their physical backgrounds.</p>
Methods of Teaching	<p>Teaching methods of this module are lecture (V) and exercise (Ü).</p> <ul style="list-style-type: none"> • V: Media Physics (2 LVS) • Ü: Media Physics (2 LVS)
Prerequisites	None
Use of the Module	---
Prerequisites for Receiving Credit Points	<p>To receive credit points the student has to fulfil the prerequisites for admission to examination and pass the module examination.</p> <p>Admission prerequisite (can be repeated several times):</p> <ul style="list-style-type: none"> • Exercise report during the semester (30 study hours)
Module Examination	<p>Module assessment is based on one examination:</p> <ul style="list-style-type: none"> • 180 minute written examination in Media Physics
Credit Points and Marks	<p>The module is worth 6 credit points.</p> <p>The assessment of the examination and the formation of the module mark are regulated in §10 of the examination regulations.</p>
Semester	The module is offered every semester.
Workload	The workload for this module adds up to 180 study hours.
Number of Semesters	The module spans one semester.

Appendix 2: Module Descriptions for the Consecutive Study Programme Print and Media Technology with the Degree Master of Science

Basic Module

Module Code	M2
Module Title	Electronic Media
Module Coordinator	Professorship Print Media Technology – Electronic Media II Professorship Digital Printing and Imaging – Media Colloquium
Module Description and Learning Outcomes	<p><u>Content:</u> The course Electronic Media II allows students to acquire in-depth knowledge in different electronic media technologies. Exemplary questions of electroacoustics and audio coding, as well as moving picture processing are used as a starting point of digital media technologies. Quality criteria, transmission problems, and the interface to software-oriented user demands form a bridge to current applications. The exercise deals with suitable arithmetic problems. In the Media Colloquium, current research projects are presented and discussed. This also includes the discussion of research questions by researchers and experts from neighbouring fields.</p> <p><u>Learning Outcomes:</u> Students learn to orient themselves in neighbouring subject areas of media technology and develop an understanding of the specific technological frameworks. Apart from the lecture, the exercise supports students in dealing with multimedia-based problems. In the colloquium, students learn to follow current development trends of the media sector.</p>
Methods of Teaching	Teaching methods of this module are lecture (V) exercise (Ü), and colloquium (K). <ul style="list-style-type: none"> • V: Electronic Media II (2 LVS) • Ü: Electronic Media II (1 LVS) • K: Media Colloquium (2 LVS)
Prerequisites	None
Use of the Module	---
Prerequisites for Receiving Credit Points	To receive credit points the student has to fulfil the prerequisites for admission to examination and pass the module examination. Admission prerequisite (can be repeated several times): <ul style="list-style-type: none"> • Test in the exercise course Electronic Media II during the semester (30 study hours)
Module Examination	Module assessment is based on one examination: <ul style="list-style-type: none"> • 120 minute written examination in Electronic Media II
Credit Points and Marks	The module is worth 6 credit points. The assessment of the examination and the formation of the module mark are regulated in §10 of the examination regulations.
Semester	The module is offered every semester.
Workload	The workload for this module adds up to 180 study hours.
Number of Semesters	The module spans one semester.

Appendix 2: Module Descriptions for the Consecutive Study Programme Print and Media Technology with the Degree Master of Science

Basic Module

Module Code	M3
Module Title	Media Management and Entrepreneurship
Module Coordinator	Professorship Print Media Technology
Module Description and Learning Outcomes	<p><u>Content:</u> Media Entrepreneurship I introduces students to new media businesses. The lecture deals extensively with case studies of the recent media history. The examples are analysed and discussed within the context of their social and political conditions. In the seminar, students try to analyse themselves success stories of new media concepts in small groups by using the methods introduced in the lecture. In the practical course they simulate business processes in the scope of a business management game.</p> <p>Media Management provides students with an overview of application fields of media technology with regard to different products and markets. Besides a general overview, the course takes a closer look at individual market segments, such as the book, newspaper and broadcasting markets, internet and e-commerce, identification systems & tagging technologies. Furthermore, the course deals with the organisation and concept of media businesses.</p> <p><u>Learning Outcomes:</u> Students learn to apply their technical knowledge and to deal with the economic benefits of technological ideas. In the seminar and practical course, they develop skills such as team orientation, project management, independent working and presentation skills.</p>
Methods of Teaching	<p>Teaching methods of this module are lecture (V) seminar (S), and practical course (P).</p> <ul style="list-style-type: none"> • V: Media Entrepreneurship I (2 LVS) • S: Media Entrepreneurship I (2 LVS) • P: Media Entrepreneurship I (1 LVS) • V: Media Management (2 LVS)
Prerequisites	None
Use of the Module	---
Prerequisites for Receiving Credit Points	<p>To receive credit points the student has to fulfil the prerequisites for admission to examination and pass the module examination.</p> <p>Admission prerequisites (can be repeated several times):</p> <ul style="list-style-type: none"> • Seminar paper in Media Entrepreneurship I (30 study hours)
Module Examination	<p>Module assessment is based on one examination:</p> <ul style="list-style-type: none"> • 180 minute written examination in Media Management
Credit Points and Marks	<p>The module is worth 9 credit points.</p> <p>The assessment of the examination and the formation of the module mark are regulated in §10 of the examination regulations.</p>
Semester	The module is offered once every academic year.
Workload	The workload for this module adds up to 270 study hours.

Appendix 2: Module Descriptions for the Consecutive Study Programme Print and Media Technology with the Degree Master of Science

Number of Semesters	The module spans one semester.
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Appendix 2: Module Descriptions for the Consecutive Study Programme Print and Media Technology with the Degree Master of Science

Basic Module

Module Code	M4
Module Title	Print Production
Module Coordinator	Professorship Digital Printing and Imaging
Module Description and Learning Outcomes	<p><u>Content:</u> Students acquire detailed knowledge in the field of pre-press, digital output systems, as well as digital printing presses and technologies. The course Pre-Press II deals with the screen image process from theoretical and practical points of view. Students acquire profound knowledge about the screening process and the interpretation of print results on the print substrate. The course Output Systems II deals with engineering and natural scientific principles of digital output systems. Students acquire detailed knowledge about digital workflow systems, imaging systems and the sub-processes of inkjet and electrophotographic printing. Accompanying exercises and practical courses with experiments and the application of related measuring methods reinforce the theoretical knowledge attained in classroom lectures.</p> <p><u>Learning Outcomes:</u> Students acquire the ability to employ quality-assuring analysing methods in pre-press on a scientific basis, and to use and optimise digital output systems with regard to productivity and production quality.</p>
Methods of Teaching	<p>Teaching methods of this module are lecture (V) exercise (Ü), and practical course (P).</p> <ul style="list-style-type: none"> • V: Prepress II (2 LVS) • Ü: Prepress II (1 LVS) • V: Output Systems II (2 LVS) • P: Output Systems II (2 LVS)
Prerequisites	None
Use of the Module	---
Prerequisites for Receiving Credit Points	<p>To receive credit points the student has to fulfil the prerequisites for admission to examination and pass the module examination. Admission prerequisites (can be repeated several times):</p> <ul style="list-style-type: none"> • 6 reports within the course of the exercise (Ü) Pre-Press II for admission to the exam Prepress II • Attendance at the practical course (P) Output Systems II for admission to the exam Output Systems II
Module Examination	<p>Module assessment is based on two examinations:</p> <ul style="list-style-type: none"> • 180 minute written examination in Pre-Press II • 180 minute written examination in Output Systems II
Credit Points and Marks	<p>The module is worth 11 credit points. The assessment of the examination and the formation of the module mark are regulated in §10 of the examination regulations. Examinations:</p> <ul style="list-style-type: none"> • Written examination in Pre-Press II, weight 1 - pass is required (5 credit points) • Written examination in Output Systems II, weight 1 - pass is required (6 credit points)

Appendix 2: Module Descriptions for the Consecutive Study Programme Print and Media Technology with the Degree Master of Science

Semester	The module is offered once every academic year.
Workload	The workload for this module adds up to 330 study hours.
Number of Semesters	The module spans one semester.

Appendix 2: Module Descriptions for the Consecutive Study Programme Print and Media Technology with the Degree Master of Science

Focal Module

Module Code	M5
Module Title	Media Technology
Module Coordinator	Professorship Print Media Technology
Module Description and Learning Outcomes	<p><u>Content:</u> The course Digital Media deals with new software and user aspects of media concepts and highlights the technological conditions of hybrid media technologies, which are increasingly systemically connected. The course covers Web 2.0 technologies, smart objects, tagging technologies, and other recent applications. The course Printed Electronics II deepens the understanding of physical, chemical, and material-oriented aspects of printed electronics, which are correlated with circuit and device-physical demands with the help of selected application examples. Important aspects include simulation processes, as well as new electronic device concepts that are unknown in conventional silicon electronics.</p> <p><u>Learning Outcomes:</u> Students learn to understand current concepts of new media technologies in a scientific way and get an understanding of development possibilities and trends.</p>
Methods of Teaching	<p>Teaching methods of this module are lectures (V).</p> <ul style="list-style-type: none"> • V: Digital Media (2 LVS) • V: Printed Electronics II (2 LVS)
Prerequisites	None
Use of the Module	---
Prerequisites for Receiving Credit Points	To receive credit points the student has to pass the module examination.
Module Examination	<p>Module assessment is based on one examination:</p> <ul style="list-style-type: none"> • 120 minute written examination in Digital Media and Printed Electronics II
Credit Points and Marks	<p>The module is worth 6 credit points. The assessment of the examination and the formation of the module mark are regulated in §10 of the examination regulations.</p>
Semester	The module is offered once every academic year.
Workload	The workload for this module adds up to 180 study hours.
Number of Semesters	The module spans one semester.

Appendix 2: Module Descriptions for the Consecutive Study Programme Print and Media Technology with the Degree Master of Science

Focal Module

Module Code	M6
Module Title	Digital Fabrication
Module Coordinator	Professorship Digital Printing and Imaging
Module Description and Learning Outcomes	<p><u>Content:</u> In the course Digital Fabrication students, on the basis of their detailed knowledge of digital workflow and digital media output technologies, are introduced to new application areas (e.g. 2D and 3D prototyping) in which functionalities that do not address the human visual sense are applied to substrates. In the accompanying practical course, with experiments and the application of related measuring methods, students reinforce the theoretical knowledge attained in classroom lectures.</p> <p><u>Learning Outcomes:</u> In the module Digital Fabrication students acquire detailed knowledge of modern applications of digital output systems of the media sector in other areas of high-technology business.</p>
Methods of Teaching	Teaching methods of this module are lecture (V) and practical course (P): <ul style="list-style-type: none"> • V: Digital Fabrication (2 LVS) • P: Digital Fabrication (1 LVS)
Prerequisites	None
Use of the Module	---
Prerequisites for Receiving Credit Points	To receive credit points the student has to fulfil the prerequisites for admission to examination and pass the module examination. Admission prerequisites (can be repeated several times): <ul style="list-style-type: none"> • Attendance at the practical course (P) Digital Fabrication (30 study hours)
Module Examination	Module assessment is based on one examination: <ul style="list-style-type: none"> • 180 minute written examination in Digital Fabrication
Credit Points and Marks	The module is worth 5 credit points. The assessment of the examination and the formation of the module mark are regulated in §10 of the examination regulations.
Semester	The module is offered once every academic year.
Workload	The workload for this module adds up to 150 study hours.
Number of Semesters	The module spans one semester.

Appendix 2: Module Descriptions for the Consecutive Study Programme Print and Media Technology with the Degree Master of Science

Focal Module

Module Code	M7
Module Title	Modules and variants of printing presses
Module Coordinator	Professorship Print Media Technology
Module Description and Learning Outcomes	<p><u>Content:</u> The module deals with the methodology of design and construction of precise processing machines using the example of printing presses. This includes the following main foci:</p> <ul style="list-style-type: none"> • Sheet guiding, including gripper design and determination of transfer geometry • Web guiding, web tension, and register adjustment • Structure and construction characteristics of the print working pairs in offset, flexo, and gravure printing machines • Special requirements of printing machines for functional printing, such as the printing of electronic circuits • Structure of inking and damping systems • Inline processing of webs • Machine acceptance <p><u>Learning Outcomes:</u> Students get an overview of characteristics in the design of printing presses with regard to the machine and process. They learn how to develop technical working principles and solutions for the constructional implementation.</p>
Methods of Teaching	Teaching methods of this module are lecture (V) and practical course: <ul style="list-style-type: none"> • V: Modules and variants of printing presses (2 LVS) • P: Modules and variants of printing presses (1 LVS)
Prerequisites	None
Use of the Module	---
Prerequisites for Receiving Credit Points	To receive credit points the student has to pass the module examination.
Module Examination	Module assessment is based on two examinations: <ul style="list-style-type: none"> • 180 minute written examination in Modules and variants of printing presses • Creditable course achievement: 10 minute written test and reports (minimum 3 pages) on 5 out of 7 experiments in the practical course Modules and variants of printing presses. The course achievement can be credited if it is marked at least with "pass".
Credit Points and Marks	The module is worth 5 credit points. The assessment of the examination and the formation of the module mark are regulated in §10 of the examination regulations. Examinations: <ul style="list-style-type: none"> • Written examination in Modules and variants of printing presses, weight 2 - pass is required (3 credit points) • Creditable course achievement: Written test and reports on 5 out of 7 experiments in the practical course, weight 1 – pass is required (2 credit points)
Semester	The module is offered once every academic year.

Appendix 2: Module Descriptions for the Consecutive Study Programme Print and Media Technology with the Degree Master of Science

Workload	The workload for this module adds up to 150 study hours.
Number of Semesters	The module spans one semester.

Appendix 2: Module Descriptions for the Consecutive Study Programme Print and Media Technology with the Degree Master of Science

Complementary Module

Module Code	M8
Module Title	Applied Specialisation Module I
Module Coordinator	Professorship Measurement and Sensor Technology – Electronic Devices Professorship Print Media Technology – Industrial Production Professorship Computer Engineering – Hardware/Software Codesign II Professorship Materials and Reliability of Microsystems – Reliability of Micro and Nano Systems Junior Professorship European Management – Management and Economics
Module Description and Learning Outcomes	<p><u>Content:</u> In the Applied Specialisation Module I students can choose courses from the interdisciplinary subject fields Electronic Devices, Industrial Production, and Management and Economics.</p> <p>The subject area Electronic Devices gives an overview of different principles and possibilities of sensors for automotive applications, as well as functioning principles and physical backgrounds of the generation, conversion and transmission of optical signals.</p> <p>The first part of the subject area Industrial Production is based on the fundamentals of measuring technology and deals with the design of measuring systems for specific tasks of print media technology. The second part is concerned with measurements on test stands, devices, machines and systems. Particular focus is put on problems of quality assurance of processes and products of print media technology.</p> <p>The lecture Hardware/Software Codesign II deals with specific technologies and methods with the help of examples of cooperating hardware and software components:</p> <ul style="list-style-type: none"> • Interface synthesis (communication types, synchronisation, synthesis) • Verification and cosimulation • Modelling of system in system C • Estimation methods for system assessment • Design of hardware interfaces <p>The course Reliability of Micro and Nano Systems deals with:</p> <ul style="list-style-type: none"> • Basics of reliability assessment • Reliability of micro and nano systems • Fracture mechanics and crack concepts • Calculation methods and reliability assessment of MEMS • Experimental reliability analyses • Applications <p>The subject area Management and Economics offers an introduction to the topic of international management. The first part deals with the development of internationalisation. The second part focuses on the different divisions of an international company (e.g. marketing, production, human resources). In the third part students will learn about some selected interdisciplinary problems of international management, such as cultural management, and selected problems of international law.</p> <p><u>Learning Outcomes:</u> Students are sensitised to the relevance of the offered subjects and learn about current problems and developments in these subject areas.</p>
Methods of Teaching	<p>Teaching methods of this module are lecture (V) and exercise (Ü). Students have to select two or three offers from the following list in order to reach the number of credit points specified in “Credit Points and Marks”:</p> <p><u>Subject area Electronic Devices:</u></p>

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	<p><u>Offer 1:</u></p> <ul style="list-style-type: none"> • V: Automotive Sensor Systems (2 LVS) • Ü: Automotive Sensor Systems (2 LVS) <p><u>Offer 2:</u></p> <ul style="list-style-type: none"> • V: Photonics (2 LVS) • Ü: Photonics (1 LVS) <p><u>Subject area Industrial Production:</u></p> <p><u>Offer 3:</u></p> <ul style="list-style-type: none"> • V: Quality Assurance in Printing (2 LVS) • Ü: Quality Assurance in Printing (1 LVS) <p><u>Subject area Hardware/Software Codesign II:</u></p> <p><u>Offer 4:</u></p> <ul style="list-style-type: none"> • V: Hardware/Software Codesign II (2 LVS) • Ü: Hardware/Software Codesign II (1 LVS) <p><u>Subject area Reliability of Micro and Nano Systems:</u></p> <p><u>Offer 5:</u></p> <ul style="list-style-type: none"> • V: Reliability of Micro and Nano Systems (3 LVS) • Ü: Reliability of Micro and Nano Systems (1 LVS) <p><u>Subject area Management and Economics:</u></p> <p><u>Offer 6:</u></p> <ul style="list-style-type: none"> • V: Introduction to International Management (2 LVS) •
Prerequisites	None
Use of the Module	---
Prerequisites for Receiving Credit Points	To receive credit points the student has to pass the module examination.
Module Examination	<p>Module assessment is based on two to three examinations. Depending on the choice of courses, the student has to pass two or three of the following exams:</p> <ul style="list-style-type: none"> • Technical report of 10 to 15 pages dealing with a specific topic and 30 minute oral exam in Automotive Sensor Systems • 120 minute written examination in Photonics • 120 minute written examination in Quality Assurance in Printing • 90 minute written examination in Hardware/Software Codesign II • 60 minute examination in Reliability of Micro and Nano Systems • 60 minute written examination in Introduction to International Management
Credit Points and Marks	<p>The module is worth 10 credit points. The assessment of the examination and the formation of the module mark are regulated in §10 of the examination regulations. Examinations:</p> <ul style="list-style-type: none"> • Technical report and oral exam in Automotive Sensor Systems, weight 5 - pass is required (5 credit points) • Written exam in Photonics, weight 4 - pass is required (4 credit points) • Written exam in Quality Assurance in Printing, weight 4 - pass is required (4 credit points) • Written exam in Hardware/Software Codesign II, weight 4 - pass is required (4 credit points) • Written exam in Reliability of Micro and Nano Systems, weight 5 - pass is required (5 credit points) • Written exam in Introduction to International Management, weight 3 - pass is required (3 credit points)
Semester	The module is offered once every academic year.

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Workload	The workload for this module adds up to 300 study hours.
Number of Semesters	The module spans one semester.

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Complementary Module

Module Code	M9
Module Title	Applied Specialisation Module II
Module Coordinator	Professorship Microtechnology – Electronic Devices Professorship Print Media Technology – Industrial Production, Media Entrepreneurship and Management
Module Description and Learning Outcomes	<p><u>Content:</u> In the Applied Specialisation Module II students can choose courses from the interdisciplinary subject fields Electronic Devices, Industrial Production, and Entrepreneurship and Management.</p> <p>The subject Electronic Devices provides an overview of intelligent sensor systems, the fundamentals of sensor technology, sensor characteristics and principles; and it explains technological steps and processes of MEMS and NEMS components and systems.</p> <p>The subject Industrial Production deals with the planning of production facilities for media on all levels. Starting with product analysis, production methods are developed and a catalogue of requirements for the technical features of aggregates, processes and logistics is created. This also includes human resources and spatial planning. Finally, students are also concerned with project financing.</p> <p>In the subject Entrepreneurship and Management students learn about different aspects connected with setting up a company in the media field. Methods and decision calculuses are discussed and students are introduced to the specific steps of business planning. In the exercise course, small groups of students set up a business plan themselves</p> <p><u>Learning Outcomes:</u> Students are sensitised to the relevance of the offered subjects and learn about current problems and developments in these subject areas.</p>
Methods of Teaching	<p>Teaching methods of this module are lecture (V), exercise (Ü), practical course (P) and seminar (S). Students have to select two or three offers from the following list in order to reach the number of credit points specified in “Credit Points and Marks”:</p> <p><u>Subject area Electronic Devices:</u> <u>Offer 1:</u></p> <ul style="list-style-type: none"> • V: Smart Sensor Systems (2 LVS) • Ü: Smart Sensor Systems (1 LVS) • P: Smart Sensor Systems (2 LVS) <p><u>Offer 2:</u></p> <ul style="list-style-type: none"> • V: Technologies for Micro and Nano Systems (2 LVS) • Ü: Technologies for Micro and Nano Systems (2 LVS) <p><u>Offer 3:</u></p> <ul style="list-style-type: none"> • V: Micro optical Systems (2 LVS) • Ü: Micro optical Systems (1 LVS) <p><u>Subject area Industrial Production:</u> <u>Offer 4:</u></p> <ul style="list-style-type: none"> • V: Printing Machine Planning (2 LVS) • S: Printing Machine Planning (2 LVS) <p><u>Subject area Entrepreneurship and Management:</u> <u>Offer 5:</u></p>

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	<ul style="list-style-type: none"> • V: Media Entrepreneurship II (2 LVS) • Ü: Media Entrepreneurship II (2 LVS)
Prerequisites	None
Use of the Module	---
Prerequisites for Receiving Credit Points	<p>To receive credit points the student has to fulfil the prerequisites for admission to examination and pass the module examination.</p> <p>Admission prerequisites (can be repeated several times):</p> <ul style="list-style-type: none"> • Passing of the practical course Smart Sensor Systems (experiments and reports) for the exam in Smart Sensor Systems • Successful defence of the business plan (teamwork, 30 study hours) for the exam in Media Entrepreneurship II
Module Examination	<p>Module assessment is based on two to three examinations. Depending on the choice of courses, the student has to pass two or three of the following exams:</p> <ul style="list-style-type: none"> • 120 minute written examination in Smart Sensor Systems • 120 minute written examination in Technologies for Micro and Nano Systems • 120 minute written examination in Micro optical Systems • 120 minute written examination in Printing Machine Planning • 120 minute written examination in Media Entrepreneurship II
Credit Points and Marks	<p>The module is worth 10 credit points.</p> <p>The assessment of the examination and the formation of the module mark are regulated in §10 of the examination regulations.</p> <p>Examinations:</p> <ul style="list-style-type: none"> • Written exam in Smart Sensor Systems, weight 6 - pass is required (6 credit points) • Written exam in Technologies for Micro and Nano Systems, weight 5 - pass is required (5 credit points) • Written exam in Micro optical Systems, weight 4 - pass is required (4 credit points) • Written exam in Printing Machine Planning, weight 5 - pass is required (5 credit points) • Written exam in Media Entrepreneurship II, weight 5 - pass is required (5 credit points)
Semester	The module is offered once every academic year.
Workload	The workload for this module adds up to 300 study hours.
Number of Semesters	The module spans one semester.

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Specialisation Module

Module Code	M10
Module Title	Research Project Seminar I
Module Coordinator	Professorship Print Media Technology
Module Description and Learning Outcomes	<p><u>Content:</u> Small groups of students (2 to 4 participants) plan and realise a project related to media technology. They develop the scientific-technical environment of the media technological task and possible solutions for the posed problem. Necessary work packages and needed resources have to be planned. Subsequently, the plan has to be put into practice. In the course of the project the students have to prepare an experiment, demonstrator or prototype to present the results of the project. Students may work completely or partly at the site of an industrial partner. Students are asked to work independently with supervision by staff of the professorship Print Media Technology and, as the case may be, industrial partners.</p> <p><u>Learning Outcomes:</u> Formulation of a media technological problem, independent planning and implementation of a scientific-technical project, presentation of the results, group work</p>
Methods of Teaching	<p>The teaching method of this module is seminar (S).</p> <ul style="list-style-type: none"> • S: Research Project Seminar I (2 LVS)
Prerequisites	None
Use of the Module	---
Prerequisites for Receiving Credit Points	To receive credit points the student has to pass the module examination.
Module Examination	<p>Module assessment is based on two examinations:</p> <ul style="list-style-type: none"> • Project report (approx. 15 - 25 pages, detailed presentation of the project (project content, scientific-technical environment, relevance, workflow, problems and solutions, results, used resources)) • 20 minute presentation of the results in the seminar
Credit Points and Marks	<p>The module is worth 18 credit points. The assessment of the examination and the formation of the module mark are regulated in §10 of the examination regulations. Examinations:</p> <ul style="list-style-type: none"> • Project report, weight 1 - pass is required (9 credit points) • Presentation, weight 1 - pass is required (9 credit points)
Semester	The module is offered every semester.
Workload	The workload for this module adds up to 540 study hours.
Number of Semesters	The module spans one semester.

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Specialisation Module

Module Code	M11
Module Title	Research Project Seminar II
Module Coordinator	Professorship Print Media Technology
Module Description and Learning Outcomes	<p><u>Content:</u> Small groups of students (2 to 4 participants) work on a problem area related to media technology. The aim is to gain wide and applicable knowledge of the state of research and technology and of past and future developments of the chosen area. This requires systematic research with different methods. The gained information must be evaluated scientifically and presented clearly. The topic may be linked to the project of module M10. It could also be a different project. Organisation and the assignment of tasks are done independently with support from the professorship Print Media Technology.</p> <p><u>Learning Outcomes:</u> Preparation problem area related to media technology, independent planning and scientific-technical research, presentation of results, group work</p>
Methods of Teaching	<p>The teaching method of this module is seminar (S).</p> <ul style="list-style-type: none"> • S: Research Project Seminar II (2 LVS)
Prerequisites	None
Use of the Module	---
Prerequisites for Receiving Credit Points	To receive credit points the student has to pass the module examination.
Module Examination	<p>Module assessment is based on two examinations:</p> <ul style="list-style-type: none"> • Project report (approx. 15 - 25 pages, detailed presentation of the project (project contents, scientific-technical environment, relevance, workflow, problems and solutions, results, used resources)) • 20 minute presentation of the results in the seminar
Credit Points and Marks	<p>The module is worth 4 credit points. The assessment of the examination and the formation of the module mark are regulated in §10 of the examination regulations. Examinations:</p> <ul style="list-style-type: none"> • Project report, weight 1 - pass is required (2 credit points) • Presentation, weight 1 - pass is required (2 credit points)
Semester	The module is offered once every academic year.
Workload	The workload for this module adds up to 120 study hours.
Number of Semesters	The module spans one semester.

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Module Master's Thesis

Module Code	M12
Module Title	Master's Thesis
Module Coordinator	Professorship Print Media Technology
Module Description and Learning Outcomes	<p><u>Content:</u> In this module students work independently on a scientific project. Students have to describe their approach and results in a written scientific documentation. Another part of the module is the defence of the thesis in a colloquium.</p> <p><u>Learning Outcomes:</u> Students demonstrate their ability to work on a complex scientific task independently, in a structured way and set time frame. They have to apply creatively the knowledge, skills and capabilities from the different modules they took during their course of studies.</p>
Methods of Teaching	After a short introduction into the task and objective of the topic, the students work on the Master's thesis on their own. A supervisor assists the students in case of questions or problems.
Prerequisites	Successful completion of all preceding modules.
Use of the Module	---
Prerequisites for Receiving Credit Points	<p>To receive credit points the student has to fulfil the prerequisites for admission to examination and pass the module examination.</p> <p>Admission prerequisites for the colloquium:</p> <ul style="list-style-type: none"> • To be admitted to the colloquium the Master's thesis must be marked with "pass" or better
Module Examination	<p>Module assessment is based on two examinations:</p> <ul style="list-style-type: none"> • Master's thesis (approx. 80 pages, time frame 23 weeks) • 30 minute oral examination (colloquium) on the topic and results of the Master's thesis
Credit Points and Marks	<p>The module is worth 30 credit points.</p> <p>The assessment of the examination and the formation of the module mark are regulated in §10 of the examination regulations.</p> <p>Examinations:</p> <ul style="list-style-type: none"> • Master's thesis, weight 7 - pass is required • Oral examination, weight 3 - pass is required
Semester	The module is offered every semester.
Workload	The workload for this module adds up to 900 study hours.
Number of Semesters	The module spans one semester.