

Module Handbook  
Master of Scientific  
Conservation and  
Restoration

Valid as per winter semester  
2020/2021

The module manual contains the modules of the 4-semester Master's program in Scientific Conservation and Restoration (M.Sc.) at HAWK University of Applied Sciences Hildesheim/Holzminde/Göttingen. The tabular module descriptions can be updated as required and according to the decision of the responsible study commission, taking full account of the accreditation conditions.

The consecutive study of Scientific Conservation and Restoration is based on a 6-semester Bachelor's program, for which 180 credit points must be earned. During the Master's program, 120 credit points are acquired. A total of 300 credit points must be obtained for the Master's degree in order to obtain the second professional academic degree.

The compulsory modules are obligatory for all students of the Master's program in Scientific Conservation and Restoration. As early as the 7th semester, students can determine their own subject specialization by taking selected compulsory elective modules in a given major. In the 7th semester, two compulsory elective modules (+ three compulsory modules), in the 8th semester three compulsory elective modules (+ two compulsory modules) and in the 9th semester two compulsory elective modules (+ three compulsory modules) are to be completed. In addition, the program offers the possibility of acquiring a minor within the framework of the elective modules and to deal with a subject area in greater depth. For a minor to be indicated in the transcript documents, four compulsory elective modules (24 CP), which are shown as belonging to the minor, must be completed. The corresponding modules and their contents are described in the module handbook and the mandatory registration in the chosen minor (Table 1) is marked in the study plan.

The following minors can be selected:

Analytics and Development

Conservation Management;

History, Theory and Ethics of Restoration

In addition, it is possible to choose not to have a minor designated. The elective modules can also be individually selected from the specified program and freely combined. The students are responsible for carefully combining the elective modules. They can seek advice on their selection from the professors at any time (see below).

The modules of the study program are offered either in the winter or summer semester. There is one exception for the module MK 10-15 Master's thesis with colloquium, in which the final thesis is written. This module can be taken in the winter or summer semester.

The range of elective modules may also vary depending on the actual teaching capacity available. However, a basic range of courses with the required minimum number of compulsory elective modules is ensured in the winter and summer semesters; this also applies to the minor courses. However, students are not guaranteed that certain elective modules will be offered, as the number of registered participants must be taken into account. These constraints, which are necessary for maintaining an orderly lecture schedule, must be taken into account when planning individual studies.

It is strongly recommended that students choose their modules with great care and combine them in a way that is best for them; this also applies to the subject area for the final thesis. As a result, it is recommended that students seek the advice of the professors for the study program. These consultations can also be very important for the student's later professional practice and a possible further qualification.

The Master's degree awarded upon completion of the Master's program is a second professional qualification at Level 2 of the Qualifications Framework for German Higher Education Qualifications. A good degree further qualifies the student to enter studies at Level 3 (doctoral programs). The Master's degree with a preceding Bachelor's degree in Conservation and Restoration with a total of 10 standard semesters is an essential prerequisite for entering the preparatory service for the career of the higher administrative service in accordance with the relevant legal regulations of the German states.

List of abbreviations:

LVS	Mandatory hours
P	Compulsory
SS	Summer semester
SWS	Semester week hours
WP	Compulsory elective
WS	Winter semester

Table 1: Study plan for the Master's study program in Scientific Conservation and Restoration (M.Sc.)

Study plan for a Master's Degree in Scientific Conservation and Restoration						
Modules	Name		MK1	MK2	MK3	MK4
			7th semester	8th semester	9th semester	10th semester
MKX-1	Degradation and causes of damage: Abiotic processes, biotic processes	P	MK7-1 (6 CP)	MK8-1 (6 CP)	MK9-1 (6 CP)	
MKX-3	Conservation and restoration techniques: Examination and treatment of degraded materials as well as material composites, treatment of old restorations	P	MK7-2 (6 CP)	MK8-2 (6LP)	MK9-2 (6LP)	
	Preservation of historical monuments and building research	WP	MK7-3 (6 CP)	MK8-3 (6 CP)		
MKX-4	Pest prevention and pollutants: Integrated pest management (IPM), contamination	WP	MK7-4 (6 CP)	MK8-4 (6 CP)		
MKX-5	Law, business administration and management (including thesis management)	P			MK9-5 (6 CP)	MK10-5 (6 CP)
MKX-5 all	Minor in history, theory and the ethics of restoration: Basic principles and laws of restoration	P	MK7-5 (6 CP)			
MKX-6	Conservation and Restoration projects: Project and method development; method application, project organization	WP	MK7-6 (6 CP)	MK8-6 (6 CP)	MK9-6 (6 CP)	
MKX-6SBG	Minor in conservation management – Basic principles of organization	WP	MK7-6 (6 CP)			
MKX-7	Digital methods: Documentation/mapping; conservation/restoration	WP	MK7-7 (6 CP)		MK9-7 (6 CP)	
MKX-7SBG	Minor in conservation management – Treating volumes	WP		MK8-7 (6 CP)		
MKX-8SBG	Minor in conservation management – Process development, specialist and leadership task	WP		MK8-8 (6 CP)	MK9-8 (6 CP)	
MKX-9 all	Minor in analytics and development – Bioremediation, use of enzymes, light	WP		MK8-9 (6 CP)	MK9-9 (6 CP)	
MKX-10 all	Minor in analytics and development – Instrumental analytics	WP		MK8-10 (6 CP)		
MKX-11 all	Minor in analytics and development – Biochemical methods of analysis	WP		MK8-11 (6 CP)		
MKX-12 all	Minor in history, theory and the ethics of restoration: Sacred buildings, ethics	WP		MK8-12 (6 CP)	MK9-12 (6 CP)	
MKX-13 all	Minor in history, theory and the ethics of restoration: Historical and current theories of restoration	WP		MK8-13 (6 CP)		
MKX-14	Museology and public relations	WP			MK9-14 (6 CP)	
MKX-15	Master's Thesis with Colloquium	P				MK10-15 (24 CP)
<b>Compulsory modules only (P)</b>			18 CP	12 CP	18 CP	30 CP
Goal/ Total credit points per semester:			P/WP 30 CP	30 CP	30 CP	30 CP

	Minor in Analytics and Development
	Minor in Conservation Management – SBG
	Minor in History, Theory and Ethics of Restoration

15.10.2020

Allocation to course of study <b>Master's Degree in Conservation and Restoration</b>		Module name <b>Abiotic Degradation Processes</b>		Course code <b>MK7-1</b>	Internal P	Last updated 18.03.2020
Study semester <b>7th semester</b>	Offered in <b>WS</b>			Credit points <b>6 CP</b>	Semester week hours <b>4 SWS</b>	
Allocation to study specialization <b>All</b>		Responsible for module <b>Prof. Dr. Henrik Schulz</b>		Type of teaching, group size, if applicable <b>2 block weeks</b>		
Can also be credited to study program -				Language of instruction <b>German</b>		
Requirements according to examination regulations				Recommended prerequisites		
Study/examination achievements/ examination types <b>Student research paper with colloquium</b> -				If applicable, weighting of the study/examination achievements		
<b>Module objectives/desired learning outcomes:</b>						
<p>The module can be selected as one part of four parts of the minor in Analytics and Development.</p> <ul style="list-style-type: none"> <li>- Knowledge of specific aging processes of organic and inorganic materials and understanding molecular aging</li> <li>- Assessment of aging conditions on selected objects</li> <li>- Knowledge and use of methods to simulate aging (artificial aging)</li> <li>- Assessment of the results and their significance for the objects</li> <li>- Knowledge of methods used in specimen preparation: Polished, cross-section and thin sections and their documentation and interpretation</li> </ul>						
<b>Contents:</b>						
<ul style="list-style-type: none"> <li>- Phenomenon of aging, need to simulate aging process</li> <li>- Stability and life span</li> <li>- Energy-related aspects of aging</li> <li>- Thermodynamics and chemical kinetics</li> <li>- Effects of heat and light on aging</li> <li>- Kinetics of simple aging processes Discussion based on case studies (sequential and parallel reactions)</li> <li>- of the Arrhenius approach</li> <li>- Effects of water and air (oxygen)</li> <li>- Hydrolysis, pH value, autocatalysis, example of ester saponification</li> <li>- Oxidation, hydroperoxide formation, autoxidation</li> <li>- Methods of specimen preparation</li> <li>- Preparing polished, cross-section and thin sections and their documentation and interpretation</li> </ul> <p>When selecting suitable preservation materials, their aging plays a decisive role, as the object and the preservatives age differently. Students are taught to understand molecular aging, the structure-property relationship of which determines the time course of aging. Since there is currently no physical-chemical model of aging, suitable simulations are used to determine aging effects empirically.</p>						
<b>Course attendance time (in mandatory hours - LVS)</b>				<b>Workload (in hours)</b>		
H. Schulz		3 LVS	Course attendance time		Home study	
M. Schulz		1 LVS	Lecture	30 h	Course accompanying and exam preparation	120 h
		-	Exercise	30 h		
		-	Other			
<b>Total classroom time</b>		<b>4 LVS</b>	<b>Total workload</b>		<b>180 h</b>	
Optional extra						
<b>Literature</b> is listed in Stud.IP						

Allocation to course of study <b>Master's Degree in Conservation and Restoration</b>		Module name <b>Treatment of Degraded Materials 1</b>		Course code <b>MK7-2</b>	Internal P	Last updated 28.02.2019
Study semester 7th semester	Offered in WS			Credit points 6 CP	Semester week hours 4 SWS	
Allocation to study specialization All		Responsible for module Prof. Ulrike Hähner		Type of teaching, group size, if applicable 2 block weeks		
Can also be credited to study program -				Language of instruction German		
Requirements according to examination regulations				Recommended prerequisites		
Study/examination achievements/ examination types - -				If applicable, weighting of the study/examination achievements  Confirmation of participation, examination takes place in the 9th semester		
<b>Module objectives/desired learning outcomes:</b>						
<p>Compulsory elective module: Students select a course from a major:</p> <ul style="list-style-type: none"> <li>- Polychrome wooden objects and paintings (1)</li> <li>- Furniture, wooden objects and material combinations (2)</li> <li>- Archive material, book and graphics (3)</li> <li>- Stone objects and architectural surfaces (4)</li> </ul> <ul style="list-style-type: none"> <li>- Recording, examining and assessing the condition of degraded materials in actual practice</li> <li>- Analysis of conservation and restoration treatments, testing and application to the student's own task</li> <li>- Evaluation of new supplementary materials, treatment substances, auxiliary materials on the basis of the basic principles of material science (properties, long-term resistance, aging resistance) and visual properties</li> <li>- Mastering methods of conservation and restoration</li> <li>- Evaluating and discussing the student's own choice of materials and methods and their results</li> <li>- Mastering questions about conservation science investigations to assess degraded materials and the respective treatment outcomes</li> </ul>						
<b>Contents:</b>						
<ul style="list-style-type: none"> <li>- Methods of condition investigation and condition assessment</li> <li>- Repeating material science investigations Identifying and using appropriate examination methods on degraded materials Interpretation of the results (possibilities and limits) and putting them into practice</li> <li>- Advanced knowledge and skills on conservation and restoration materials and conservation and restoration techniques according to the major selected and the student's own object</li> <li>- Basic principles for treatment decision-making and development of reproducible treatment processes</li> <li>- Methods of checking the individual treatment steps – Process monitoring (use of various measurement and monitoring methods)</li> <li>- Possibility of re-treatment in connection with the selected treatment</li> <li>- Importance of material quality and auxiliary materials in restoration, requirements for their material condition</li> </ul>						
<b>Course attendance time</b> (in mandatory hours - LVS)				<b>Workload</b> (in hours)		
Professors for majors, 3 LVS each	6 LVS	Course attendance time		Home study		
Professors for majors, 3 LVS each	6 LVS	Lecture	30 h	Course accompanying and exam preparation		120 h
Assistant staff members for majors, 1 LVS each	4 LVS	Exercise	30 h			
	-	Other				
<b>Total classroom time</b>		<b>16 LVS</b>	<b>Total workload</b>		<b>180 h</b>	
Optional extra						
<b>Literature</b> is listed in Stud.IP						

Allocation to course of study <b>Master's Degree in Conservation and Restoration</b>		Module name <b>Preservation of Historical Monuments and Building Research 1</b>		Course code <b>BA 7-3</b>	Internal WP	Last updated 18.03.2020
Study semester 7th semester	Offered in WS			Credit points 6 CP	Semester week hours 4 SWS	
Allocation to study specialization All		Responsible for module Prof. Dr. Ursula Schädler-Saub		Type of teaching, group size, if applicable 2 block weeks		
Can also be credited to study program -				Language of instruction German		
Requirements according to examination regulations				Recommended prerequisites		
Study/examination achievements/ examination types Project work with colloquium -				If applicable, weighting of the study/examination achievements		
<p><b>Module objectives/desired learning outcomes:</b></p> <ul style="list-style-type: none"> <li>- Knowing and understanding the objectives of historical building research and its significance for the recording of monuments (inventory of monuments) and for the practice of the preservation of monuments (planning and implementation of restoration concepts)</li> <li>- Knowledge and understanding of the development of objectives and methods of building research from the 20th century to the present day, and of interdisciplinary cooperation with restorers in the creation and joint evaluation of findings on and in the building monument, including its fittings/fixtures (altar architecture, choir stalls, etc.).</li> <li>- Knowing, understanding and applying traditional methods of building measurement (manual measurement) and the tools necessary for this purpose</li> <li>- Ability to independently create a manual, deformation-accurate survey of an architectural monument, based on a geodetic coordinate system, including the entry of restorative findings</li> <li>- Know, understand, and be able to independently create a simple building age plan, with identification and designation of various historical phases of construction and fittings/furnishings</li> </ul>						
<p><b>Contents:</b></p> <p>Note: 10 lessons of 45 minutes each by Prof. Schaedler-Saub will be covered by her e-learning course entitled "Object History", which is offered by the Hornemann Institute. The professor in charge is responsible for the subject-specific supervision.</p> <ul style="list-style-type: none"> <li>- Monument research and historical building research, introduction to methods and objectives (lecture)</li> <li>- Architectural history, historical building research and restoration research on monuments and their fixtures/fittings: their significance for the theory and practice of monument preservation and restoration, illustrated by examples (lecture)</li> <li>- Building age plans as a result of building research and restoration research on monuments and their fixtures/fittings (lecture)</li> <li>- Overview of traditional methods and techniques of building surveying, in conjunction with restorative survey (lecture)</li> <li>- Preparation of a deformation-accurate manual building survey at a scale of 1:25 or 1:10, with the entry of restorative findings (practical exercise)</li> <li>- Creation of a building age plan on the basis of data from building research and restoration survey of findings, exemplified by parts of a building monument or a historical fixture/fitting (practical exercise)</li> </ul>						
<b>Course attendance time</b> (in mandatory hours - LVS)				<b>Workload</b> (in hours)		
Schädler-Saub		2 LVS		Course attendance time		Home study
Assistant lecturer		2 LVS		Lecture	30 h	Course accompanying and exam preparation 120 h
		-		Exercise	30 h	
		-		Other		
<b>Total classroom time</b>		<b>4 LVS</b>		<b>Total workload</b>		<b>180 h</b>
Optional extra						
Participation in the lectures on the preservation of historical monuments of the Master's program in architecture by Prof. Dr. Birgit Franz						

**Literature**  
is listed in Stud.IP

Allocation to course of study <b>Master's Degree in Conservation and Restoration</b>		<b>Module name</b>  <b>Integrated Pest Management</b>		Course code <b>MK7-4</b>	Internal WP	Last updated 28.02.2019
Study semester <b>7th semester</b>	Offered in <b>WS</b>			Credit points <b>6 CP</b>		Semester week hours <b>5 SWS</b>
Allocation to study specialization <b>All</b>		Responsible for module <b>Prof. Dr. Karin Petersen</b>		Type of teaching, group size, if applicable <b>2 block weeks, maximum of 10 persons</b>		
Can also be credited to study program -				Language of instruction <b>German</b>		
Requirements according to examination regulations			Recommended prerequisites			
Study/examination achievements/ examination types <b>Written examination (K1)</b> -			If applicable, weighting of the study/examination achievements			
<b>Module objectives/desired learning outcomes:</b>						
<ul style="list-style-type: none"> <li>- Wood-destroying fungi and insects (IPM) and two electives</li> <li>- Lichen diagnostics</li> <li>- Mold diagnostics</li>   <li>- Knowing and identifying harmful organisms</li> <li>- Knowledge of the living conditions of relevant harmful organisms in archives, museums and collections</li> <li>- Understanding the methods of detection for harmful organisms</li> <li>- Knowledge of the options for containment and for extermination</li> <li>- Knowledge of biological pest control</li> <li>- Knowledge of the problems involved in chemical pest control</li> <li>- Knowledge of the physical methods of pest control</li> </ul>						
<b>Contents:</b>						
<ul style="list-style-type: none"> <li>- Theoretical introduction to the principle of Integrated Pest Management according to D. Pinninger</li> <li>- Extension of the principle and development of comparable methods for infestation by molds</li> <li>- Implementation of selected monitoring methods</li> <li>- Determination of the relevant insect groups and fungi</li> <li>- Determination of the relevant lichens and their damage processes</li> <li>- Testing pheromone traps</li> <li>- Effects of light on harmful organisms</li> <li>- Pest control options</li> </ul>						
<b>Course attendance time (in mandatory hours - LVS)</b>			<b>Workload (in hours)</b>			
Möhlenhoff	4 LVS	Course attendance time		Home study		
Fritz	2 LVS	Lecture	35 h	Course accompanying and exam preparation		105 h
Assistant lecturer (Gehrmann-Janßen)	2 LVS	Exercise	40 h			
	-	Other				
<b>Total classroom time</b>	<b>8 LVS</b>	<b>Total workload</b>			<b>180 h</b>	
Optional extra						
<b>Literature</b> is listed in Stud.IP						



Allocation to course of study <b>Master's Degree in Conservation and Restoration</b>		Module name <b>Basic Principles and Laws of Restoration</b>		Course code <b>MK7-5</b>	Internal P	Last updated 18.03.2020	
Study semester <b>7th semester</b>	Offered in <b>WS</b>			Credit points <b>6 CP</b>		Semester week hours <b>4 SWS</b>	
Allocation to study specialization <b>All</b>		Responsible for module <b>Prof. Dr. Ursula Schädler-Saub</b>		Type of teaching, group size, if applicable <b>2 block weeks</b>			
Can also be credited to study program -				Language of instruction <b>German</b>			
Requirements according to examination regulations				Recommended prerequisites			
Study/examination achievements/ examination types <b>Seminar paper Student research paper with colloquium</b>				If applicable, weighting of the study/examination achievements <b>Seminar paper: 50% oral presentation, 50% written paper</b>			
<b>Module objectives/desired learning outcomes:</b>							
<p>The module can be selected as one part of four parts of the minor in History, Theory and Ethics of Restoration.</p> <ul style="list-style-type: none"> <li>- Knowledge and understanding of the international charters and principles of monument conservation and restoration, as well as the internationally active institutions UNESCO, ICOMOS, ICOM; as well as the international and national documents on the restoration and conservation of art and cultural property</li> <li>- Knowledge of historic preservation laws and agency structures in historic preservation in the Federal Republic of Germany and understanding their application</li> <li>- Ability to coordinate and bring together various concerns of historic preservation, museology, and restoration in an interdisciplinary manner</li> <li>- Ability to weigh different concerns in the restoration of cultural monuments and develop concepts of restoration in the preservation of monuments in cooperation with professional partners, owners and users</li> <li>- Ability to convey and communicate restoration concepts and explain their implementation in practice, based on international charters, national and international documents and taking into account the legal situation, with representatives of authorities, owners and users</li> </ul>							
<b>Contents:</b>							
<ul style="list-style-type: none"> <li>- International charters and principles of restoration and preservation of monuments and their significance for practical application</li> <li>- World heritage sites: World heritage list, world heritage management, maintenance and use of world heritage sites</li> <li>- National and international documents on conservation in general and for specific areas; their relevance to the practice of conservation, preservation and restoration</li> <li>- Laws on the protection of monuments in the Federal Republic of Germany as a basis for restoration work in the preservation of monuments</li> <li>- Tasks of the various authorities for the protection and preservation of historical monuments (state offices for the preservation of historical monuments, ecclesiastical preservation of historical monuments, authorities for the protection of historical monuments, etc.)</li> <li>- Ecclesiastical conservation and preservation of monuments with state, municipal and private partners: interdisciplinary development of conservation and restoration concepts with authorities, experts, owners and users</li> <li>- Archive laws in the Federal Republic of Germany</li> <li>- "Decision-making model" for conservation and restoration concept development, current examples</li> </ul>							
<b>Course attendance time (in mandatory hours - LVS)</b>				<b>Workload (in hours)</b>			
Schädler-Saub		3 LVS		Course attendance time		Home study	
Schütz 0.2 LVS, Albrecht 0.4 LVS, assistant staff member 0.3 LVS		1 LVS		Lecture	45 h	Course accompanying and exam preparation 120 h	
				Exercise	15 h		
				Other			
<b>Total classroom time</b>		<b>4 LVS</b>		<b>Total workload</b>		<b>180 h</b>	
Optional extra							
Individual consultations for the preparation of student research projects or papers presented in written form							
<b>Literature</b> is listed in Stud.IP							

Allocation to course of study <b>Master's Degree in Conservation and Restoration</b>		Module name <b>Basic Principles of Organization</b>		Course code <b>MK7-6SB</b>	Internal WP	Last updated 18.03.2020	
Study semester 7th semester	Offered in WS			Credit points 6 CP		Semester week hours 4 SWS	
Allocation to study specialization <b>Archive material, book and graphics</b>		Responsible for module <b>Prof. Ulrike Hähner</b>		Type of teaching, group size, if applicable <b>2 block weeks</b>			
Can also be credited to study program -				Language of instruction <b>German</b>			
Requirements according to examination regulations				Recommended prerequisites			
Study/examination achievements/ examination types <b>Student research paper with colloquium</b> -				If applicable, weighting of the study/examination achievements			
<b>Module objectives/desired learning outcomes:</b>							
<p>The module can be selected as one part of four parts of the minor in Conservation Management (major: Archive material, book and graphics).</p> <ul style="list-style-type: none"> <li>- Understanding organizational structures - organizational structure and process organization</li> <li>- Understanding business processes</li> <li>- Application of the methods of condition identification and condition assessment</li> <li>- Assessment of conservation and restoration goals</li> <li>- Knowledge of collection and conservation profiles</li> <li>- Knowledge of the characteristic external and endogenous features of archive material</li> </ul>							
<b>Contents:</b>							
<ul style="list-style-type: none"> <li>- Tasks and organizational structures of archives, libraries and museums</li> <li>- Contents and structures of conservation profiles and conservation guidelines</li> <li>- Inductive and descriptive condition surveys, survey implementation and interpretations</li> <li>- Interdisciplinary development of conservation goals, importance for volume treatments</li> <li>- Characteristic external features of archive materials and graphics - the task of preserving the substance and appearance, intrinsic value, formation of restoration goals</li> <li>- Current DIN standards for conservation</li> <li>- Measures of damage prevention in library operations - transfer to workplace practice</li> <li>- Basic principles of successful cooperation and communication</li> </ul>							
<b>Course attendance time (in mandatory hours - LVS)</b>				<b>Workload (in hours)</b>			
Hähner		3 LVS		Course attendance time		Home study	
Schütz		1 LVS		Lecture	45 h	Course accompanying and exam preparation 120 h	
		-		Exercise	15 h		
		-		Other			
<b>Total classroom time</b>		<b>4 LVS</b>		<b>Total workload</b>			<b>180 h</b>
Optional extra							
<b>Literature</b> is listed in Stud.IP							

Allocation to course of study <b>Master's Degree in Conservation and Restoration</b>		Module name <b>Project and Method Development</b>		Course code <b>MK7-6</b>	Internal WP	Last updated 18.03.2020
Study semester <b>7th semester</b>	Offered in <b>WS</b>			Credit points <b>6 CP</b>	Semester week hours <b>4 SWS</b>	
Allocation to study specialization <b>All</b>		Responsible for module <b>Prof. Dr. Michael von der Goltz</b>		Type of teaching, group size, if applicable <b>2 block weeks</b>		
Can also be credited to study program -				Language of instruction <b>German</b>		
Requirements according to examination regulations				Recommended prerequisites		
Study/examination achievements/ examination types <b>Student research paper with colloquium</b> -				If applicable, weighting of the study/examination achievements		
<b>Module objectives/desired learning outcomes:</b>						
<p>Compulsory elective module: Students select a course from a major:</p> <ul style="list-style-type: none"> <li>- Polychrome wooden objects and paintings (1)</li> <li>- Furniture, wooden objects and material combinations (2)</li> <li>- Archive material, book and graphics (3), see MK7-6SBG</li> <li>- Stone objects and architectural surfaces (4)</li> </ul> <ul style="list-style-type: none"> <li>- Analyzing and structuring conservation and restoration tasks</li> <li>- Knowing objectives and their development</li> <li>- Mastery of basic requirements for examination and treatment methods</li> <li>- Mastering the basic conservation and restoration methods for implementation</li> <li>- Assessment of conservation and restoration processes: Requirements for examination, material, labor and time</li> <li>- Use of organizational principles in cooperation with all project participants (workflow)</li> <li>- Apply the knowledge for the realization of the student's own object and project work</li> </ul>						
<b>Contents:</b>						
<ul style="list-style-type: none"> <li>- Options for profile building in the respective field of study Contents will be based on the specific profile requests of the students and profile offers of the professors.</li> <li>- Basic principles of planning and execution</li> <li>- Presentation of current conservation and restoration projects, their objectives and results</li> <li>- Involvement of cooperation and project partners</li> <li>- Object examination, method review and evaluation</li> </ul>						
<b>Course attendance time (in mandatory hours - LVS)</b>			<b>Workload (in hours)</b>			
von der Goltz		3 LVS	Course attendance time		Home study	
N.N.		3 LVS	Lecture	30 h	Course accompanying and exam preparation	
N.N.		3 LVS	Exercise	30 h		
		-	Other			
<b>Total classroom time</b>		<b>9 LVS</b>	<b>Total workload</b>			<b>180 h</b>
Optional extra						
<b>Literature</b> is listed in Stud.IP						

Allocation to course of study <b>Master's Degree in Conservation and Restoration</b>		Module name <b>Digital Methods of Documentation</b>		Course code <b>MK7-7</b>	Internal WP	Last updated 28.02.2019
Study semester <b>7th semester</b>	Offered in <b>WS</b>			Credit points <b>6 CP</b>		Semester week hours <b>4 SWS</b>
Allocation to study specialization <b>All</b>		Responsible for module <b>Prof. Ulrike Hähner</b>		Type of teaching, group size, if applicable <b>2 block weeks</b>		
Can also be credited to study program -				Language of instruction <b>German</b>		
Requirements according to examination regulations			Recommended prerequisites			
Study/examination achievements/ examination types - -			If applicable, weighting of the study/examination achievements  <b>Confirmation of participation</b>			
<b>Module objectives/desired learning outcomes:</b>						
<ul style="list-style-type: none"> <li>- Understanding digital image processing</li> <li>- Knowledge of the basic principles of 3D digitization</li> <li>- Knowing the possibilities and limitations of further processing for 3D models</li> <li>- Knowing different areas of application</li> </ul>						
<b>Contents:</b>						
<ul style="list-style-type: none"> <li>- Advanced digital image processing (Photoshop)</li> <li>- Basic principles and methods of 3D digitization: Hand scanner, photogrammetry, structured light</li> <li>- Digital mapping</li> <li>- MRI, computer tomography</li> <li>- Possibilities of further processing for 3D models</li> <li>- Monitoring using 3D scanning (e.g. at exhibitions in connection with transport)</li> <li>- Digital room data sheet using cross line laser</li> <li>- Advanced and expanded spectroscopic techniques (e.g. IR, NIR)</li>   <li>- Authenticity of digital documentation capabilities</li> </ul>						
<b>Course attendance time</b> (in mandatory hours - LVS)			<b>Workload</b> (in hours)			
Assistant lecturers		3 LVS	Course attendance time		Home study	
Ellesat		1 LVS	Lecture	45 h	Course accompanying and exam preparation	
		-	Exercise	15 h		
		-	Other			
<b>Total classroom time</b>		<b>4 LVS</b>	<b>Total workload</b>			<b>180 h</b>
Optional extra						
<b>Literature</b> is listed in Stud.IP						

Allocation to course of study <b>Master's Degree in Conservation and Restoration</b>		Module name <b>Biotic Degradation Processes</b>		Course code <b>MK8-1</b>	Internal P	Last updated 18.03.2020
Study semester <b>8th semester</b>	Offered in <b>SS</b>			Credit points <b>6 CP</b>	Semester week hours <b>5 SWS</b>	
Allocation to study specialization <b>All</b>		Responsible for module <b>Prof. Dr. Karin Petersen</b>		Type of teaching, group size, if applicable <b>2 block weeks, maximum of 12 persons</b>		
Can also be credited to study program -				Language of instruction <b>German</b>		
Requirements according to examination regulations			Recommended prerequisites			
Study/examination achievements/ examination types <b>Student research paper with colloquium</b> -			If applicable, weighting of the study/examination achievements			
<b>Module objectives/desired learning outcomes:</b>						
<ul style="list-style-type: none"> <li>- Distinguishing between the different biogenically induced or influenced damage processes to art and cultural property</li> <li>- Knowing the appropriate techniques to take samples</li> <li>- Knowing and evaluating different laboratory tests</li> <li>- Assessing the susceptibility to biogenic damage according to manufacturer and literature data</li> <li>- Evaluating the durability of different material groups against different biogenic infestations</li> <li>- Knowing the living conditions of biogenic infestation</li> <li>- Evaluating and recommending appropriate materials for specific uses in the context of restoration/conservation issues</li> </ul>						
<b>Contents:</b>						
<ul style="list-style-type: none"> <li>- Recent research findings on the effect of climate on the colonization situation</li> <li>- Studies on the durability of natural materials, natural material derivatives and synthetic consolidation materials against microbial infestation</li> <li>- Testing of detection methods for biogenic infestation on real sample material under consideration of microinvasive and non-destructive techniques</li> <li>- Presentation and implementation of suitable examination procedures</li> </ul>						
<b>Course attendance time</b> (in mandatory hours - LVS)			<b>Workload</b> (in hours)			
Petersen (1st group)		5 LVS	Course attendance time		Home study	
Petersen (2nd group)		5 LVS	Lecture	30 h	Course accompanying and exam preparation 105 h	
		-	Exercise	45 h		
		-	Other			
<b>Total classroom time</b>		<b>11 LVS</b>	<b>Total workload</b>			<b>180 h</b>
Optional extra						
<b>Literature</b> is listed in Stud.IP						

Allocation to course of study <b>Master's Degree in Conservation and Restoration</b>		Module name <b>Old Restorations and Re-restoration</b>		Course code <b>MK8-2</b>	Internal P	Last updated 3
Study semester <b>8th semester</b>	Offered in <b>WS</b>			Credit points <b>6 CP</b>	Semester week hours <b>4 SWS</b>	
Allocation to study specialization <b>All</b>		Responsible for module <b>Prof. Ulrike Hähner</b>		Type of teaching, group size, if applicable <b>2 block weeks</b>		
Can also be credited to study program -				Language of instruction <b>German</b>		
Requirements according to examination regulations			Recommended prerequisites <b>MK 7-2</b>			
Study/examination achievements/ examination types <b>Student research paper with colloquium</b> -			If applicable, weighting of the study/examination achievements <b>Student research paper 50%, colloquium 50%</b>			
<b>Module objectives/desired learning outcomes:</b>						
<p>Compulsory elective module: Students select a course from a major:</p> <ul style="list-style-type: none"> <li>- Polychrome wooden objects and paintings (1)</li> <li>- Furniture, wooden objects and material combinations (2)</li> <li>- Archive material, book and graphics (3)</li> <li>- Stone objects and architectural surfaces (4)</li> </ul> <ul style="list-style-type: none"> <li>- Proficiency in handling the methods used in object examination</li> <li>- Mastering issues for materials science investigations to identify and characterize the original materials and historical supplementary materials</li> <li>- Using and analyzing appropriate restorative treatments for re-treatment: e.g. dissolving materials</li> <li>- Evaluating historical and current restoration materials (supplementary materials, substances, auxiliary materials) on the basis of material properties</li> <li>- Using treatment methods and discussing the student's own choice of methods and materials</li> </ul>						
<b>Contents:</b>						
<ul style="list-style-type: none"> <li>- Methods of examining the condition, identifying and evaluating the material</li> <li>- Basic principles of interpreting the existing original materials with materials of the old repairs or old restorations</li> <li>- Basic principles of detaching/dissolving aged adhesive bonding/coating</li> <li>- Organic solvents and water-based systems</li> <li>- Developing appropriate treatment goals and methods, as well as their communication to other professionals</li> <li>- Conservation and restoration treatment methods</li> <li>- Basic principles for the development of reproducible treatment steps</li> <li>- Methods of (long-term) review of the individual treatment steps and results</li> <li>- Importance of materials and auxiliary materials in restoration, requirements for their material condition</li> </ul>						
<b>Course attendance time (in mandatory hours - LVS)</b>			<b>Workload (in hours)</b>			
Professors for majors, 2 LVS each	4 LVS	Course attendance time		Home study		
Professors for majors, 2 LVS each	4 LVS	Lecture	30 h	Course accompanying and exam preparation		120 h
H. Schulz, M. Schulz	2 LVS	Exercise	30 h			
Assistant staff members for majors, 0.5 LVS each	2 LVS	Other				
<b>Total classroom time</b>	<b>12 LVS</b>	<b>Total workload</b>			<b>180 h</b>	
Optional extra						
<b>Literature</b> is listed in Stud.IP						

Allocation to course of study <b>Master's Degree in Conservation and Restoration</b>		Module name <b>Preservation of Historical Monuments and Building Research 2</b>		Course code <b>MK8-3</b>	Internal WP	Last updated 28.02.2019
Study semester 8th semester	Offered in SS	Responsible for module Prof. Dr. Ursula Schädler-Saub		Credit points 6 CP	Semester week hours 4 SWS	
Allocation to study specialization All				Type of teaching, group size, if applicable 2 block weeks		
Can also be credited to study program -		Requirements according to examination regulations		Language of instruction German		
				Recommended prerequisites BA 7-3		
Study/examination achievements/ examination types - -		If applicable, weighting of the study/examination achievements Confirmation of participation				
<b>Module objectives/desired learning outcomes:</b>						
<ul style="list-style-type: none"> <li>- Knowing and understanding the modern documentation techniques of historical building research, including restoration surveys, with 2D CAD drawings and 3D CAD drawings, etc.</li> <li>- Ability to work in a team when creating and evaluating accurate deformation measurements of architectural monuments and fittings (altar architecture, choir stalls, etc.) in cooperation with historians, archaeologists, structural engineers, monument conservators, etc., with reference to source research and restoration research</li> <li>- Technical ability to create deformation-accurate building measurements of monuments and equipment using digital technology, working in a team with other professionals</li> <li>- Technical ability to create virtual 2D and 3D reconstructions of historical building and equipment phases, in a team with other professionals</li> <li>- Ability to use deformation-appropriate building measurements, building age plans, etc. and their implementation in repair and restoration concepts, profitably in the practice of building preservation, in interdisciplinary exchange with other experts</li> </ul>						
<b>Contents:</b>						
<ul style="list-style-type: none"> <li>- Theoretical instruction in the use of modern methods and techniques of historical building research, creation of measurement data by means of laser scanning, 3D scanning processes, etc. (Lecture)</li> <li>- Theoretical instruction in modern documentation techniques of historical building research, with 2D CAD drawings and 3D CAD drawings, including digital documentation of restorative findings (Lecture)</li> <li>- Theoretical explanation and practical exercises for interdisciplinary cooperation in creating and evaluating deformation-accurate building measurements (Lecture, exercise)</li> <li>- Creating a deformation-accurate structural survey of parts of a monument or of a fitting-out piece, using digital technology, in a team with other professionals (Exercise)</li> <li>- Creating and evaluating digital documentation of building research, in conjunction with restoration documentation, as part of a team with other professionals (Exercise)</li> <li>- Creation of virtual 2D or 3D reconstructions of monuments and their fittings/fixtures, in teamwork with other professionals (Exercise)</li> </ul>						
<b>Course attendance time</b> (in mandatory hours - LVS)			<b>Workload</b> (in hours)			
Assistant lecturers		3 LVS	Course attendance time		Home study	
Ellesat		1 LVS	Lecture	30 h	Course accompanying and exam preparation 120 h	
		-	Exercise	30 h		
		-	Other			
<b>Total classroom time</b>		<b>4 LVS</b>	<b>Total workload</b>			<b>180 h</b>
Optional extra						
Participation in the lectures on the preservation of historical monuments of the Master's program in architecture by Prof. Dr. Birgit Franz						
<b>Literature</b> is listed in Stud.IP						

Allocation to course of study <b>Master's Degree in Conservation and Restoration</b>		Module name <b>Contamination</b>		Course code <b>MK8-4</b>	Internal WP	Last updated 28.02.2019
Study semester <b>8th semester</b>	Offered in <b>SS</b>	Responsible for module <b>Prof. Dr. Karin Petersen</b>		Credit points <b>6 CP</b>		Semester week hours <b>4 SWS</b>
Allocation to study specialization <b>All</b>				Type of teaching, group size, if applicable <b>2 block weeks, maximum of 12 persons</b>		
Can also be credited to study program -				Language of instruction <b>German</b>		
Requirements according to examination regulations			Recommended prerequisites			
Study/examination achievements/ examination types <b>Written examination (K1)</b> -			If applicable, weighting of the study/examination achievements			
<b>Module objectives/desired learning outcomes:</b>						
<p>Overview of synthetic (anorg. and org.) herbicides, pesticides, insecticides and fungicides  Assessment of health risks when handling contaminated surfaces and objects  Catalog of measures for recording and evaluating contaminated objects and rooms (depot, exhibition, studio)</p> <p>Biogenic contamination:  - Knowledge of possible biogenic contaminants (allergens, cell wall glucans, endotoxins, mycotoxins) depending on the type of infestation and in different material groups  - Assessment of health risks when handling materials affected by biogenic contamination  - Assessing the risk of handling dead or live infestations  - Evaluating physical decontamination methods for biogenic contaminants  - Knowing the options for using bacteriophages in bacterial infestations  Recommending appropriate methods in specific infestation situations</p>						
<b>Contents:</b>						
<ul style="list-style-type: none"> <li>- Legal basis (e.g. EU Declaration of Conformity, Directive 2011/65/EU)</li> <li>- Limits and guide values (MAK, BAT, TGK), evaluation in depot and studio</li> <li>- Handling chemicals and hazardous substances (EU chemicals regulation (EC) No. 1907/2006 (REACH regulation, Registration, Evaluation, Authorization and Restriction of Chemicals))</li> <li>- Materials science (anorg. and organic pollutants, e.g. wood preservation PCP, PCB, HCH)</li> <li>- Instrumental methods for the detection of specific pollutants in the depot</li> <li>- Rapid test on contaminated surfaces</li> <li>- Health safety and first aid measures</li> </ul> <p>Biogenic contamination:  - Case studies  - UV-C, cold plasma, ionization- ozone application for decontamination  -Testing the efficacy  -Testing for material compatibility  -Testing the health risks of possible reaction products</p>						
<b>Course attendance time (in mandatory hours - LVS)</b>			<b>Workload (in hours)</b>			
Petersen		2 LVS	Course attendance time		Home study	
H. Schulz		2 LVS	Lecture	20 h	Course accompanying and exam preparation 120 h	
		-	Exercise	40 h		
		-	Other			
<b>Total classroom time</b>		<b>4 LVS</b>	<b>Total workload</b>			<b>180 h</b>
Optional extra						
<b>Literature</b> is listed in Stud.IP						



Allocation to course of study <b>Master's Degree in Conservation and Restoration</b>		Module name <b>Use of Methods in Practice</b>		Course code <b>BA 8-6</b>	Internal WP	Last updated 18.03.2020
Study semester <b>8th semester</b>	Offered in <b>SS</b>			Credit points <b>6 CP</b>	Semester week hours <b>3 SWS</b>	
Allocation to study specialization <b>All</b>		Responsible for module <b>Prof. Dr. Michael von der Goltz</b>		Type of teaching, group size, if applicable <b>2 block weeks</b>		
Can also be credited to study program -				Language of instruction <b>German</b>		
Requirements according to examination regulations			Recommended prerequisites			
Study/examination achievements/ examination types - -			If applicable, weighting of the study/examination achievements <b>Confirmation of participation, examination in 9th semester</b>			
<b>Module objectives/desired learning outcomes:</b>						
<ul style="list-style-type: none"> <li>- Confidence in the planning, organization and practical implementation of demanding conservation and restoration projects</li> <li>- Confidence in interdisciplinary and intercultural professional exchange</li> </ul> <p>Compulsory elective module: Students select a course from a major:</p> <ul style="list-style-type: none"> <li>- Polychrome wooden objects and paintings (1)</li> <li>- Furniture, wooden objects and material combinations (2)</li> <li>- Archive material, book and graphics (3)</li> <li>- Stone objects and architectural surfaces (4)</li> </ul>						
<b>Contents:</b>						
<ul style="list-style-type: none"> <li>- On-site practical project work</li> <li>- Planning, organization and practical implementation of demanding conservation and restoration projects</li> <li>- Interdisciplinary and intercultural team work</li> <li>- Basic principles of communication</li> </ul>						
<b>Course attendance time (in mandatory hours - LVS)</b>			<b>Workload (in hours)</b>			
Hähner	3 LVS		Course attendance time		Home study	
N.N.	3 LVS		Lecture	30 h	Course accompanying and exam preparation 120 h	
von der Goltz	3 LVS		Exercise	30 h		
N.N.	3 LVS		Other			
<b>Total classroom time</b>		<b>12 LVS</b>	<b>Total workload</b>			<b>180 h</b>
Optional extra						
<b>Literature</b> is listed in Stud.IP						

Allocation to course of study <b>Master's Degree in Conservation and Restoration</b>		Module name <b>Treatments for Large Volumes</b>		Course code <b>MK8-7</b>	Internal WP	Last updated 28.02.2019
Study semester <b>8th semester</b>	Offered in <b>SS</b>			Credit points <b>6 CP</b>	Semester week hours <b>4 SWS</b>	
Allocation to study specialization <b>Archive material, book and graphics</b>		Responsible for module <b>Prof. Ulrike Hähler</b>		Type of teaching, group size, if applicable <b>2 block weeks</b>		
Can also be credited to study program -				Language of instruction <b>German</b>		
Requirements according to examination regulations			Recommended prerequisites <b>for minor MK 7-6</b>			
Study/examination achievements/ examination types <b>Written examination (K2)</b> -			If applicable, weighting of the study/examination achievements			
<b>Module objectives/desired learning outcomes:</b>						
<p>The module may be chosen as one of four parts of the Conservation Management minor.</p> <ul style="list-style-type: none"> <li>- Understanding the methods of mass deacidification of written materials, the objectives, side effects, risks, long-term effects, and quality control methods</li> <li>- Understanding the basic principles of volume cleaning of written and graphic materials, manual and machine processes, objectives, side effects, risks, long-term effects, quality control methods</li> <li>- Understanding the content of logistics in the efficient management of large volumes as a hedging tool</li> <li>- Using the different methods of quality control</li> <li>- Knowing the basic principles of employee training and motivation</li> <li>- Understanding DIN standards development for mass deacidification</li> <li>- Understanding the basic principles of occupational health and safety</li> </ul>						
<b>Contents:</b>						
<ul style="list-style-type: none"> <li>- Development and basic principles of mass deacidification of written material from the beginning of the 1990s until today. Evaluation of measures – side effects, risks, long-term effect, quality control Institutions that use the measures: Swiss National Library, German Library, Berlin State Library, Lower Saxony State Archives, Marbach Literary Archives, Federal Archives, BBF Berlin</li> <li>- Development and basic principles of volume cleaning Evaluation of measures – side effects, risks, long-term effect, quality control Manual processes, machine processes. Cleaning as a conservation quantity task – assessing contamination Contents and importance of logistics – efficient management of large volumes as a hedging tool Methods of quality control – measurement methods, limits of visual evaluation, feedback of measurement results for process improvement</li> <li>- Use of spectroscopic methods for the selection of treatment material (SurveNIR)</li> <li>- Status of DIN standards development and implementation in Germany, Switzerland and Austria</li> <li>- Basic principles of occupational health and safety</li> <li>- Formation of work processes and their presentation</li> <li>- Methods of employee motivation in volume treatments</li> </ul>						
<b>Course attendance time (in mandatory hours - LVS)</b>			<b>Workload (in hours)</b>			
Hähler		3 LVS	Course attendance time		Home study	
Assistant lecturer		1 LVS	Lecture	45 h	Course accompanying and exam preparation	
		-	Exercise	15 h		
		-	Other		120 h	
<b>Total classroom time</b>		<b>4 LVS</b>	<b>Total workload</b>			<b>180 h</b>
Optional extra						
<b>Literature</b> is listed in Stud.IP						

Allocation to course of study <b>Master's Degree in Conservation and Restoration</b>		Module name <b>Process Development</b>		Course code <b>MK8-8</b>	Internal WP	Last updated 28.02.2019
Study semester <b>8th semester</b>	Offered in <b>SS</b>			Credit points <b>6 CP</b>	Semester week hours <b>4 SWS</b>	
Allocation to study specialization <b>Archive material, book and graphics</b>		Responsible for module <b>Prof. Ulrike Hähner</b>		Type of teaching, group size, if applicable <b>2 block weeks</b>		
Can also be credited to study program -				Language of instruction <b>German</b>		
Requirements according to examination regulations			Recommended prerequisites <b>for minor MK 7-6, MK 8-7</b>			
Study/examination achievements/ examination types <b>Student research paper with colloquium</b> -			If applicable, weighting of the study/examination achievements <b>Student research paper 50%, colloquium 50%</b>			
<b>Module objectives/desired learning outcomes:</b>						
<p>The module may be chosen as one of four parts of the Conservation Management minor.</p> <ul style="list-style-type: none"> <li>- Assessing workflows in archives, libraries and museums</li> <li>- Assessing the necessary occupational health and safety regulations and evaluating the existing health risks</li> <li>- Understand quality control methods</li> <li>- Understanding specifications</li> <li>- Using questions in research and transferring them to actual practice</li> <li>- Mastering the planning of processes</li> <li>- Knowing how to use the basic principles of public relations/communication</li> </ul>						
<b>Contents:</b>						
<ul style="list-style-type: none"> <li>- Work processes and their flow: Retrieval of stocks, documentation methods, transports, treatment implementation</li> <li>- Control and testing methods of restorative treatments, notations in catalogs on treatment, aspects of sustainability</li> <li>- Focus on logistics: Workflow planning, ensuring completeness, order, efficiency, safety</li> <li>- Integration of work safety: Working environment, workloads, health safety</li> <li>- Integration of quality control: Sampling, measurement technology, visual inspection, feedback for process improvement</li> <li>- Specifications and legal basis: Writing up specification, making applications on the basis of specifications</li> <li>- Tasks for workshop management in the development and implementation of volume treatments</li> <li>- Integration of research, interdisciplinary exchange, transfer of research into practice</li> <li>- Basic principles for the communication of method developments and process flows</li> </ul>						
<b>Course attendance time (in mandatory hours - LVS)</b>			<b>Workload (in hours)</b>			
Hähner		3 LVS	Course attendance time		Home study	
Assistant lecturer		1 LVS	Lecture	30 h	Course accompanying and exam preparation 120 h	
		-	Exercise	15 h		
		-	Other	15 h		
<b>Total classroom time</b>		<b>4 LVS</b>	<b>Total workload</b>			<b>180 h</b>
Optional extra						
<b>Literature</b> is listed in Stud.IP						

Allocation to course of study <b>Master's Degree in Conservation and Restoration</b>		Module name <b>Bioremediation and Enzyme Use</b>		Course code <b>MK8-9</b>	Internal WP	Last updated 18.03.2020
Study semester <b>8th semester</b>	Offered in <b>SS</b>			Credit points <b>6 CP</b>	Semester week hours <b>4 SWS</b>	
Allocation to study specialization <b>All</b>		Responsible for module <b>Prof. Dr. Karin Petersen</b>		Type of teaching, group size, if applicable <b>2 block weeks, maximum of 12 persons</b>		
Can also be credited to study program -				Language of instruction <b>German</b>		
Requirements according to examination regulations				Recommended prerequisites		
Study/examination achievements/ examination types <b>Student research paper with colloquium</b> -				If applicable, weighting of the study/examination achievements		
<b>Module objectives/desired learning outcomes:</b>						
<p>The module can be selected as one part of four parts of the minor in Analytics and Development.</p> <ul style="list-style-type: none"> <li>- Distinguishing between the uses of microbes to consolidate damaged art objects</li> <li>- Characterizing and selecting appropriate species for the particular damage situation</li> <li>- Distinguishing between the uses of enzymes for consolidation</li> <li>- Knowledge of possible effects of e.g. heavy metal pigments on the use of microbes and enzymes</li> <li>- Evaluating the results and methods in comparison to abiotic processes</li> <li>- Evaluating the possible uses of microbes and enzymes in the context of the particular conditions of real objects</li> </ul>						
<b>Contents:</b>						
<ul style="list-style-type: none"> <li>- Introduction to theoretical principles of the use of microorganisms and enzymes for material improvement</li> <li>- Execution and evaluation of salt reduction by nitrate- or sulfate-reducing microorganisms under consideration of possible inhibitions by toxic object components on dummies</li> <li>- Execution and evaluation of biogenic consolidation processes through the use of calcite-forming bacteria</li> <li>- Execution and evaluation of ways to reduce harmful consolidation materials on dummies</li> <li>- Evaluation of published case studies on the use of microorganisms and/or enzymes</li> </ul>						
<b>Course attendance time</b> (in mandatory hours - LVS)				<b>Workload</b> (in hours)		
Petersen		4 LVS	Course attendance time		Home study	
		-	Lecture	30 h	Course accompanying and exam preparation 120 h	
		-	Exercise	30 h		
		-	Other			
<b>Total classroom time</b>		<b>4 LVS</b>	<b>Total workload</b>			<b>180 h</b>
Optional extra						
<b>Literature</b> is listed in Stud.IP						

Allocation to course of study <b>Master's Degree in Conservation and Restoration</b>		Module name <b>Instrumental Analytics</b>		Course code <b>MK8-10</b>	Internal WP	Last updated 18.03.2020
Study semester <b>8th semester</b>	Offered in <b>SS</b>			Credit points <b>6 CP</b>	Semester week hours <b>5 SWS</b>	
Allocation to study specialization <b>All</b>		Responsible for module <b>Prof. Dr. Henrik Schulz</b>		Type of teaching, group size, if applicable <b>2 block weeks, maximum of 12 persons</b>		
Can also be credited to study program -				Language of instruction <b>German</b>		
Requirements according to examination regulations				Recommended prerequisites		
Study/examination achievements/ examination types <b>Student research paper with colloquium</b> -				If applicable, weighting of the study/examination achievements		
<b>Module objectives/desired learning outcomes:</b>						
<ul style="list-style-type: none"> <li>- Using contextual issues to identify and change materials.</li> <li>- Creating an analysis plan and selecting individual methods and procedures of material analytics (instrumental analytics) to solve the problem (awarding contracts to specialized laboratories, analytical service providers)</li> <li>- Knowing non-destructive surface diagnostics (IR, UV and X-ray) and surface analytics (reflectance spectroscopy)</li> <li>- Using the methods of paper and textile fiber determination</li> <li>- Ability to facilitate the communication between restorers and natural scientists</li> <li>- Development of the "Restoration Question" to special laboratories for the examination of art and cultural property</li> <li>- Mastering the possibilities and limits of preliminary scientific examinations by the restorer (in particular microscopic methods, pigment and binder examinations)</li> <li>- Applying the interpretation of material-analytical examination results</li> </ul>						
<b>Contents:</b>						
The module can be selected as one part of four parts of the minor in Analytics and Development.						
<ul style="list-style-type: none"> <li>- Use of the polarizing microscope to determine pigments, fibers and wood</li> <li>- Chemical microscopy (microchemical detection tests for binders, dyes and pigments)</li> <li>- Using instrumental analytics (especially spectroscopy, FTIR, XRF)</li> <li>- Imaging and material analysis techniques (e.g. combination of SEM and XRF)</li> <li>- Methods of determining paper and textile fiber</li> <li>- Writing material-analytical texts in the context of conservation and restoration measures</li> </ul>						
<b>Course attendance time</b> (in mandatory hours - LVS)				<b>Workload</b> (in hours)		
H. Schulz		2 LVS	Course attendance time		Home study	
M. Schulz		2 LVS	Lecture	60 h	Course accompanying and exam preparation	
Assistant lecturers		1 LVS	Exercise	15 h		
		-	Other			
<b>Total classroom time</b>		<b>5 LVS</b>	<b>Total workload</b>		<b>180 h</b>	
Optional extra						
<b>Literature</b> is listed in Stud.IP						

Allocation to course of study <b>Master's Degree in Conservation and Restoration</b>		Module name <b>Biochemical Analysis Methods</b>		Course code <b>MK8-11</b>	Internal WP	Last updated 18.03.2020
Study semester <b>8th semester</b>	Offered in WS			Credit points <b>6 CP</b>		Semester week hours <b>4 SWS</b>
Allocation to study specialization <b>All</b>		Responsible for module <b>Prof. Dr. Karin Petersen</b>		Type of teaching, group size, if applicable <b>2 block weeks, maximum of 6 persons</b>		
Can also be credited to study program -				Language of instruction <b>German</b>		
Requirements according to examination regulations			Recommended prerequisites			
Study/examination achievements/ examination types <b>Student research paper with colloquium</b> -			If applicable, weighting of the study/examination achievements			
<b>Module objectives/desired learning outcomes:</b>						
<ul style="list-style-type: none"> <li>- Distinguishing between the potential uses of immunological and molecular genetic analysis methods and other detection methods in the context of issues in the field of scientific restoration and conservation</li> <li>- Adapting immunological and molecular genetic detection techniques from medical and environmental diagnostics for this field of science</li> <li>- Characterizing, selecting appropriate sampling and sample processing methods</li> <li>- Adapting commercially available production tests from the food processing industry and medical technology</li> <li>- Evaluating the possible uses of immunological and molecular genetic methods in the context of the special conditions on real objects (microsamples) for the detection of colonization as well as for the identification of animal binders</li> </ul>						
<b>Contents:</b>						
<ul style="list-style-type: none"> <li>- Basic theoretical principles of immunology and molecular genetics</li> <li>- Basic theoretical principles of detection techniques in medical diagnostics and environmental analysis</li> <li>- Direct and indirect ELISA</li> <li>- Competitive ELISA</li> <li>- Immunofluorescence labeling on the polished thin section</li> <li>- Immunofluorescence labeling of single cells</li> <li>- Preparation of samples for molecular genetic testing</li> <li>- Performance of polymerase chain reactions</li> <li>- Use of gene probes</li> <li>- Detection of wood-destroying microorganisms</li> <li>- Application examples from the field of scientific conservation</li> <li>- Cost factors for consumables and equipment</li> <li>- Commercial rapid tests</li> </ul>						
<b>Course attendance time (in mandatory hours - LVS)</b>			<b>Workload (in hours)</b>			
Möhlenhoff	4 LVS	Course attendance time		Home study		
	-	Lecture	15 h	Course accompanying and exam preparation		120 h
	-	Exercise	45 h			
	-	Other				
<b>Total classroom time</b>	<b>4 LVS</b>	<b>Total workload</b>			<b>180 h</b>	
Optional extra						
<b>Literature</b> is listed in Stud.IP						

Allocation to course of study <b>Master's Degree in Conservation and Restoration</b>		Module name <b>Sacred and secular buildings ■</b>		Course code <b>MK8-12 (6 CP)</b>	Internal WP	Last updated 28.02.2019	
Study semester <b>8th semester</b>	Offered in SS	Responsible for module Prof. Dr. Ursula Schädler-Saub		Credit points 6 CP		Semester week hours 4 SWS	
Allocation to study specialization All				Type of teaching, group size, if applicable <b>2 block weeks, maximum of 18 persons</b>			
Can also be credited to study program -				Language of instruction German			
Requirements according to examination regulations			Recommended prerequisites MK 7-5				
Study/examination achievements/ examination types Seminar paper Student research paper with colloquium			If applicable, weighting of the study/examination achievements For seminar papers: Oral presentation (50%), written seminar paper (50%)				
<b>Module objectives/desired learning outcomes:</b>							
<p>The module can be selected as one part of four parts of the minor in History, Theory and Ethics of Restoration.</p> <p>Students are enabled to critically examine and deepen their understanding of developments in the history of art and culture in Italy in the late 14th and 15th centuries and their impact on European art and culture.</p> <ul style="list-style-type: none"> <li>- Students are enabled to critically examine and gain a deeper understanding of Renaissance reception and its impact on the concept and practice of restoration from the 19th century to the present.</li> <li>- Students are enabled to critically examine and deepen their understanding of art and cultural historical developments in secular building, especially palace building in the 16th-18th centuries in southern Germany, in the European context.</li> <li>- Students are enabled to critically examine and gain a deeper understanding of the preservation and restoration of representative residences and palace buildings from the 19th century to the present day.</li> <li>- Students are enabled to independently analyze, evaluate, and critically appreciate older and contemporary views and methods of restoration and historic preservation.</li> <li>- Students are enabled to critically compare different views and methods of restoration and historic preservation, with an emphasis on Italy and Germany.</li> </ul>							
<b>Contents:</b>							
<p>One block week of the seminar can be replaced by an e-learning module offered by Prof. U. Schädler-Saub starting in summer semester 2020.</p> <ul style="list-style-type: none"> <li>- Italian early Renaissance: historical, artistic and cultural aspects, examples in Florence and Tuscany</li> <li>- Renaissance reception from the 19th century to the present and its impact on restoration</li> <li>- Advanced study of case studies in situ (church building and interior, secular building and interior, wall painting, panel painting, book art), with regard to the history of art and culture as well as the history of restoration</li> <li>- Theories and methods of restoration in Italy, presented on the basis of current examples</li> <li>- The courtly architecture of the 16th-18th centuries, with its built-in and movable furnishings, from a historical as well as art- and cultural-historical perspective, presented on the basis of examples from Franconia, Upper Bavaria and Swabia</li> <li>- Historic preservation and restoration developments in dealing with courtly architecture and its interior decoration from the 19th century to the present day</li> <li>- Restoration history, methodology and practice of restoration and historical preservation in southern Germany, presented on the basis of examples of historical residences and palace buildings in Franconia, Upper Bavaria and Swabia</li> </ul>							
<b>Course attendance time (in mandatory hours - LVS)</b>			<b>Workload (in hours)</b>				
Schädler-Saub		4 LVS	Course attendance time		Home study		
		-	Lecture	60 h	Course accompanying and exam preparation 120 h		
		-	Exercise				
		-	Other				
<b>Total classroom time</b>		<b>4 LVS</b>	<b>Total workload</b>			<b>180 h</b>	
Optional extra							
One block week of the seminar can be replaced by an e-learning module starting in summer semester 2020.							

**Literature**  
is listed in Stud.IP



Allocation to course of study <b>Master's Degree in Conservation and Restoration</b>		Module name <b>Historical and Current Theories of Restoration</b>		Course code <b>MK8-13</b>	Internal WP	Last updated 18.03.2020
Study semester 8th semester	Offered in SS			Credit points 6 CP	Semester week hours 4 SWS	
Allocation to study specialization All		Responsible for module Prof. Dr. Ursula Schädler-Saub		Type of teaching, group size, if applicable 2 block weeks		
Can also be credited to study program -				Language of instruction German		
Requirements according to examination regulations				Recommended prerequisites For the minor: MK 7-5 und MK8-12		
Study/examination achievements/ examination types Seminar paper Student research paper with colloquium				If applicable, weighting of the study/examination achievements For seminar papers: Oral presentation (50%), written seminar paper (50%)		
<b>Module objectives/desired learning outcomes:</b>						
<p>The module can be selected as one part of four parts of the minor in History, Theory and Ethics of Restoration.</p> <ul style="list-style-type: none"> <li>- Understanding and analyzing theories of restoration and historic preservation from the 19th century to the present, with critical evaluation of their relevance to practice</li> <li>- Understanding and analyzing basic ethical principles of conservation and restoration of art and cultural property and their implementation in practice, from the Middle Ages to the present day, with critical evaluation of current case studies</li> <li>- Compiling and evaluating written sources and findings on the object on restoration methodology and techniques in the 19th and 20th centuries, as a contribution to the history of restoration</li> <li>- Compiling and evaluating selected examples of historic restorations in the 19th and 20th centuries, with particular attention to historic materials and techniques</li> <li>- Analyzing and synthesizing complex ethical, restoration history, and cultural history contexts, to evaluate the value of historic restoration today and its impact on the appearance and substance of art and cultural property</li> <li>- Analyzing and evaluating basic theoretical principles of restoration and historic preservation from today's perspective, with practical application on the basis of current case studies</li> </ul>						
<b>Contents:</b>						
<ul style="list-style-type: none"> <li>- Terminology, theories, and basic principles of restoration and historic preservation from its beginnings to the present day</li> <li>- Early examples of repair and restoration of art and cultural property, monuments and their fittings</li> <li>- The practice of restoration in the 19th and 20th centuries: an overview of the basic principles, methods, techniques and materials</li> <li>- Ethical principles and cultural-historical bases for the evaluation of historical restorations from today's perspective</li> <li>- Historical restorations of panel and canvas paintings, murals, works on paper and sculptures</li> <li>- Examples of historic preservation, reworking, and repair of "everyday objects", with special attention paid to furniture and books</li> <li>- Object-related cooperation for the analysis and evaluation of historical restorations, with all fields of study in conservation and restoration</li> <li>- Today's status and further development of the theories of restoration and preservation of monuments of the 19th-20th centuries</li> <li>- Basic principles of restoration ethics today and their relevance to practice, presented on the basis of current examples</li> </ul>						
<b>Course attendance time (in mandatory hours - LVS)</b>				<b>Workload (in hours)</b>		
Schädler-Saub		4 LVS	Course attendance time		Home study	
of those, Schütz 0.4 LVS		-	Lecture	45 h	Course accompanying and exam preparation 120 h	
		-	Exercise			
		-	Other	15 h		
<b>Total classroom time</b>		<b>4 LVS</b>	<b>Total workload</b>			<b>180 h</b>
Optional extra						
Starting from winter semester 2019/20, both block weeks can be replaced by completing two supervised e-learning modules.						

**Literature**  
is listed in Stud.IP

Allocation to course of study <b>Master's Degree in Conservation and Restoration</b>		Module name <b>Inhibition of Biotic Degradation Processes</b>		Course code <b>MK9-1</b>	Internal P	Last updated 18.03.2020
Study semester <b>9th semester</b>	Offered in <b>SS</b>			Credit points <b>6 CP</b>	Semester week hours <b>5 SWS</b>	
Allocation to study specialization <b>All</b>		Responsible for module <b>Prof. Dr. Karin Petersen</b>		Type of teaching, group size, if applicable <b>2 block weeks, maximum of 12 persons</b>		
Can also be credited to study program -				Language of instruction <b>German</b>		
Requirements according to examination regulations			Recommended prerequisites			
Study/examination achievements/ examination types <b>Student research paper with colloquium</b> -			If applicable, weighting of the study/examination achievements			
<b>Module objectives/desired learning outcomes:</b>						
<ul style="list-style-type: none"> <li>- Distinguishing and classifying classical and innovative methods for inhibiting degradation processes</li> <li>- Testing suitable presentation and storage conditions for specific purposes of use in the context of restoration/conservation issues</li> <li>- Knowledge of appropriate usage parameters of the various options for inhibiting biotic degradation</li> <li>- Recommending procedures and methods for use in real-life situations</li> <li>- Reviewing and evaluating appropriate chemical and physical methods of inhibiting degradation</li> <li>- Evaluating material compatibility</li> <li>- Evaluating possible health risks</li> <li>- Evaluating processes based on nanotechnology</li> <li>- Recommending a suitable course of action for a real situation</li> </ul>						
<b>Contents:</b>						
<ul style="list-style-type: none"> <li>- Case studies</li> <li>- Recent research findings on the prevention of degradation processes</li> <li>- IR drying</li> <li>- Feasible technical processes for oxygen deprivation</li> <li>- Using ionization/ozone for disinfection</li> <li>- Using cold plasma for disinfection</li> <li>- Using microwaves for disinfection</li> <li>- UVC for disinfection</li> <li>- Freeze drying</li> <li>- Biocide use and material compatibility, efficacy and health risks</li> </ul>						
<b>Course attendance time (in mandatory hours - LVS)</b>			<b>Workload (in hours)</b>			
Petersen		5 LVS	Course attendance time		Home study	
Petersen		5 LVS	Lecture	30 h	Course accompanying and exam preparation 105 h	
		-	Exercise	45 h		
		-	Other			
<b>Total classroom time</b>		<b>10 LVS</b>	<b>Total workload</b>			<b>180 h</b>
Optional extra						
<b>Literature</b> is listed in Stud.IP						

Allocation to course of study <b>Master's Degree in Conservation and Restoration</b>		Module name <b>Treatment of Degraded Materials 2</b>		Course code <b>MK9-2</b>	Internal P	Last updated 15.10.2020
Study semester 9th semester	Offered in WS			Credit points 6 CP	Semester week hours 4 SWS	
Allocation to study specialization All		Responsible for module Prof. Ulrike Hähner		Type of teaching, group size, if applicable 2 block weeks		
Can also be credited to study program -				Language of instruction German		
Requirements according to examination regulations			Recommended prerequisites MK 7-2, MK8-2			
Study/examination achievements/ examination types Student research paper with colloquium -			If applicable, weighting of the study/examination achievements Student research paper 50%, colloquium 50%			
<b>Module objectives/desired learning outcomes:</b>						
<p>Compulsory elective module: Students select a course from a major:</p> <ul style="list-style-type: none"> <li>- Polychrome wooden objects and paintings (1)</li> <li>- Furniture, wooden objects and material combinations (2)</li> <li>- Archive material, book and graphics (3)</li> <li>- Stone objects and architectural surfaces (4)</li> </ul> <ul style="list-style-type: none"> <li>- Examining and assessing degraded objects in the object network</li> <li>- Using and analyzing conservation and restoration treatments, testing and adapting them for a defined task as the student's own</li> <li>- Evaluating and using restoration materials (supplementary materials, substances, auxiliary materials)</li> <li>- Mastering the corresponding methods of conservation and restoration</li> <li>- Evaluating, discussing and justifying the student's own choice of methods and materials and their results</li> <li>- Mastering of questions dealing with scientific material examination for the preliminary examination as well as for checking or improving the treatment results</li> </ul>						
<b>Contents:</b>						
<p>Treating degraded materials in the object network</p> <ul style="list-style-type: none"> <li>- Repeating the methods of condition investigation and condition assessment</li> <li>- Characteristics of material composites or material combinations and aspects to be considered in the selected major</li> <li>- Repetition on conservation and restoration techniques according to a selected focus - mechanical, physical and chemical methods</li> <li>- Basic principles on the development of treatment processes, methods of checking the individual treatment steps – Process monitoring (use of various measurement and monitoring methods)</li> <li>- Importance of materials and auxiliary materials in restoration, requirements for their material condition</li> <li>- Requirements for re-treatment capability</li> <li>- Communication of treatment plans, exchange with collection managers and other professional groups</li> </ul>						
<b>Course attendance time (in mandatory hours - LVS)</b>			<b>Workload (in hours)</b>			
Hähner, Schulz		6 LVS	Course attendance time		Home study	
von der Goltz, N. N.		6 LVS	Lecture	30 h	Course accompanying and exam preparation 120 h	
M. Schulz, Fritz 0.5 LVS each		1 LVS	Exercise	30 h		
Assistant staff members for the majors, 0.5 LVS each		2 LVS	Other			
<b>Total classroom time</b>		<b>15 LVS</b>	<b>Total workload</b>			<b>180 h</b>
Optional extra						

**Literature**  
is listed in Stud.IP

Allocation to course of study <b>Master's Degree in Conservation and Restoration</b>		Module name <b>Business Management, Contract Award Law</b>		Course code <b>MK9-5</b>	Internal P	Last updated 28.02.2019
Study semester 9th semester	Offered in WS			Credit points 6 CP	Semester week hours 4 SWS	
Allocation to study specialization All		Responsible for module Prof. Ulrike Hähner		Type of teaching, group size, if applicable 2 block weeks		
Can also be credited to study program -				Language of instruction German		
Requirements according to examination regulations				Recommended prerequisites		
Study/examination achievements/ examination types Student research paper without colloquium -				If applicable, weighting of the study/examination achievements Student research paper without colloquium PVL, Confirmation of participation		
<b>Module objectives/desired learning outcomes:</b>						
<ul style="list-style-type: none"> <li>- Understanding the basic principles of management and business operations</li> <li>- Understanding the basic principles of business administration</li> <li>- Applying basic knowledge of public procurement and contract law</li> <li>- Calculating prices</li> <li>- Applying insurance law</li> </ul>						
<b>Contents:</b>						
<p>Basic theoretical principles:</p> <ul style="list-style-type: none"> <li>- Leadership: Planning, organizing, guiding</li> <li>- Contents of calculations, basic principles of preparing them</li> <li>- Contract and awarding law BGB (German Civil Code), VOL (service performance contracts), VOB (German Construction Contract Procedures)</li> <li>- Bookkeeping and controlling</li> <li>- Basic principles of employee management, including motivation, duty of care</li> <li>- Insurances for restoration work</li> </ul> <p>Practical exercises:</p> <ul style="list-style-type: none"> <li>- on founding a company/freelance work</li> <li>- Planning and organizing large-scale projects</li> <li>- Examples of use of contract and procurement law in restoration projects</li> <li>- Exercises on cost calculation on the basis of concrete projects in volume restoration</li> <li>- Reports and examples from actual practice</li> </ul>						
<b>Course attendance time (in mandatory hours - LVS)</b>				<b>Workload (in hours)</b>		
Assistant lecturers		4 LVS		Course attendance time		Home study
		-		Lecture	60 h	Course accompanying and exam preparation 120 h
		-		Exercise		
		-		Other		
<b>Total classroom time</b>		<b>4 LVS</b>		<b>Total workload</b>		<b>180 h</b>
Optional extra						
In addition, HAWK plus modules on business administration are also available (optional).						
<b>Literature</b> is listed in Stud.IP						

Allocation to course of study <b>Master's Degree in Conservation and Restoration</b>		Module name <b>Project Organization</b>		Course code <b>MK9-6</b>	Internal WP	Last updated 15.10.2020
Study semester <b>9th semester</b>	Offered in <b>WS</b>	Responsible for module <b>Prof. Dr. Julia Schultz</b>		Credit points <b>6 CP</b>	Semester week hours <b>3 SWS</b>	
Allocation to study specialization <b>All</b>				Type of teaching, group size, if applicable <b>2 block weeks</b>		
Can also be credited to study program -		Requirements according to examination regulations		Language of instruction <b>German</b>		
				Recommended prerequisites		
Study/examination achievements/ examination types <b>Project work with colloquium</b>		If applicable, weighting of the study/examination achievements				
<p><b>Module objectives/desired learning outcomes:</b></p> <ul style="list-style-type: none"> <li>- Identifying, assessing and defining objectives and tasks for complex restoration projects</li> <li>- Competence in the conception of content</li> <li>- Proficient in communication strategies, team building, and employee motivation</li> <li>- Ability to create, manage, and control schedules and funding plans</li> <li>- Structuring and delegating work areas</li> <li>- Ability to assess and correct work progress (milestones), quality control and reflection</li> <li>- Acquiring planning competence and cultivating leadership skills</li> <li>- In-depth knowledge of occupational safety and prevention, risk management</li> </ul>						
<p><b>Contents:</b></p> <ul style="list-style-type: none"> <li>- Presentation and analysis of complex case studies on restoration project management</li> <li>- Definition of project content and objectives as well as clarification of client and stakeholder expectations</li> <li>- Process development, scheduling, organization and structure of work processes (workflow) to achieve the project goals</li> <li>- Establish up-to-date communication structures between decision-makers, co-responsible parties, external parties and executors with the help of PM software</li> <li>- Dealing with crisis situations, risk and opportunity assessment</li> <li>- Budget controlling, fundraising</li> <li>- Quality control, evaluation, reporting</li> <li>- Health protection, occupational safety</li> <li>- Planning the optimal procurement of materials</li> <li>- Planning the optimal use of materials</li> </ul>						
<b>Course attendance time (in mandatory hours - LVS)</b>			<b>Workload (in hours)</b>			
von der Goltz	3 LVS	Course attendance time		Home study		
Schultz	3 LVS	Lecture	30 h	Course accompanying and exam preparation		120 h
N.N.	3 LVS	Exercise	30 h			
	-	Other				
<b>Total classroom time</b>		<b>9 LVS</b>	<b>Total workload</b>			<b>180 h</b>
Optional extra						
<p><b>Literature</b> is listed in Stud.IP</p>						

Allocation to course of study <b>Master's Degree in Conservation and Restoration</b>		Module name <b>Digital Methods of Conservation/ Restoration</b>		Course code <b>MK9-7</b>	Internal WP	Last updated 28.02.2019
Study semester 9th semester	Offered in WS			Credit points 6 CP	Semester week hours 4 SWS	
Allocation to study specialization All		Responsible for module Prof. Dr. Michael von der Goltz		Type of teaching, group size, if applicable 2 block weeks		
Can also be credited to study program -				Language of instruction German		
Requirements according to examination regulations				Recommended prerequisites		
Study/examination achievements/ examination types - -				If applicable, weighting of the study/examination achievements Confirmation of participation		
<b>Module objectives/desired learning outcomes:</b>						
<ul style="list-style-type: none"> <li>- Knowing digital virtual additions in 2D and 3D processes</li> <li>- Applying the processes, e.g. light projection, digital retouching</li> <li>- Knowing digital supplements and 3D printing in different materials: Plastics, wood filament, cellulose, metal</li> <li>- Knowing digital additions using ablative processes: CNC milling, laser cutting</li> <li>- Knowing the virtual assembly of fragments (Fraunhofer method)</li> </ul>						
<b>Contents:</b>						
<ul style="list-style-type: none"> <li>- Digital virtual additions in 2D and 3D processes, e.g. light projection, digital retouching</li> <li>- Digital additions and 3D printing in different materials: Plastics, wood filament, cellulose, metal</li> <li>- Digital additions using ablative processes: CNC milling, laser cutting</li> <li>- Virtual assembly of fragments (Fraunhofer method)</li> </ul>						
<b>Course attendance time</b> (in mandatory hours - LVS)				<b>Workload</b> (in hours)		
Assistant lecturers		3 LVS	Course attendance time		Home study	
		-	Lecture	45 h	Course accompanying and exam preparation 120 h	
		-	Exercise	15 h		
		-	Other			
<b>Total classroom time</b>		<b>3 LVS</b>	<b>Total workload</b>			<b>180 h</b>
Optional extra						
<b>Literature</b> is listed in Stud.IP						



Allocation to course of study <b>Master's Degree in Conservation and Restoration</b>		Module name <b>Specialist and Leadership Task</b>		Course code <b>MK9-8</b>	Internal WP	Last updated 28.02.2019
Study semester 9th semester	Offered in WS			Credit points 6 CP	Semester week hours 4 SWS	
Allocation to study specialization Archive material, book and graphics		Responsible for module Prof. Ulrike Hähner		Type of teaching, group size, if applicable 2 block weeks		
Can also be credited to study program -				Language of instruction German		
Requirements according to examination regulations				Recommended prerequisites For the minor: MK 7-6, MK 8-8		
Study/examination achievements/ examination types Student research paper with colloquium -				If applicable, weighting of the study/examination achievements		
<b>Module objectives/desired learning outcomes:</b>						
<p>The module may be chosen as one of four parts of the Conservation Management minor.</p> <ul style="list-style-type: none"> <li>- Understanding the organizational structure according to line and matrix</li> <li>- Knowing leadership/management tasks in archives and libraries</li> <li>- Assessing the permanent task of conservation</li> <li>- Knowing implementation strategies for the ongoing task of damage prevention</li> <li>- Knowing important processes of digitization</li> <li>- Knowing the peculiarities of special collections and estates</li> </ul>						
<b>Contents:</b>						
<ul style="list-style-type: none"> <li>- Preservation as a specialist and leadership task</li> <li>- Competences of a leader/executive</li> <li>- Contents and differences of project work vs. permanent task</li> <li>- Interdisciplinary restoration and its implementation</li> <li>- Conservation profiles and development of business processes</li> <li>- Digitization processes in archives and libraries</li> <li>- Strategies of conservation in archives and libraries</li> <li>- Coordination Office for the Preservation of Written Cultural Property, Competence Centers for the Preservation of Cultural Property</li> <li>- Significance of university collections and personal estates: Strategies of conservation</li> <li>- Nomenclature</li> </ul>						
<b>Course attendance time</b> (in mandatory hours - LVS)				<b>Workload</b> (in hours)		
Hähner		3 LVS		Course attendance time		Home study
Assistant lecturers		1 LVS		Lecture	45 h	Course accompanying and exam preparation 120 h
		-		Exercise	15 h	
		-		Other		
<b>Total classroom time</b>		<b>4 LVS</b>		<b>Total workload</b>		<b>180 h</b>
Optional extra						
<b>Literature</b> is listed in Stud.IP						

Allocation to course of study <b>Master's Degree in Conservation and Restoration</b>		Module name <b>Light: Influence of Biotic Processes</b>		Course code <b>MK9-9</b>	Internal WP	Last updated 18.03.2020
Study semester <b>9th semester</b>	Offered in <b>WS</b>			Credit points <b>6 CP</b>	Semester week hours <b>4 SWS</b>	
Allocation to study specialization <b>All</b>		Responsible for module <b>Prof. Dr. Karin Petersen</b>		Type of teaching, group size, if applicable <b>2 block weeks, maximum of 12 persons</b>		
Can also be credited to study program -				Language of instruction <b>German</b>		
Requirements according to examination regulations				Recommended prerequisites		
Study/examination achievements/ examination types <b>Student research paper with colloquium</b> -				If applicable, weighting of the study/examination achievements		
<b>Module objectives/desired learning outcomes:</b>						
<p>The module can be selected as one part of four parts of the minor in Analytics and Development.</p> <ul style="list-style-type: none"> <li>- Knowing how to use different means of illumination/lighting</li> <li>- Knowing the living conditions of the various relevant microorganisms with regard to exposure to light</li> <li>- Analyzing the possibilities of reducing photosynthetic organisms by illumination with specific wavelengths</li> <li>- Knowing the effect of specific wavelengths on the developmental stages of molds (swelling and germination of conidia, length growth of hyphae, development of asexual conidia, formation of spores)</li> <li>- Analyzing the effect of lighting on insects and on the possibility of targeted use in collections and museums</li> <li>- Knowing the possible material damage caused by different lighting situations with regard to the art object's particular situation</li> </ul>						
<b>Contents:</b>						
<ul style="list-style-type: none"> <li>- Introduction to basic theoretical principles of light</li> <li>- Conducting and evaluating growth experiments with algae/cyanobacteria under different lighting with regard to use in permanently humid situations</li> <li>- Conducting experiments on the effect of different wavelengths on the development of relevant molds</li> <li>- Evaluation of the possibly opposing needs of algae and mold on the object</li> <li>- Evaluation of the potential for targeting insects with light traps</li> <li>- Evaluation of published case studies on the application with regard to the effect on microbes but also on possible material damage</li> </ul>						
<b>Course attendance time (in mandatory hours - LVS)</b>			<b>Workload (in hours)</b>			
Petersen		3 LVS	Course attendance time		Home study	
Assistant lecturers		1 LVS	Lecture	30 h	Course accompanying and exam preparation	120 h
		-	Exercise	30 h		
		-	Other			
<b>Total classroom time</b>		<b>4 LVS</b>	<b>Total workload</b>			<b>180 h</b>
Optional extra						
<b>Literature</b> is listed in Stud.IP						

Allocation to course of study <b>Master's Degree in Conservation and Restoration</b>		Module name <b>Ethics regarding the Preservation of Modern Art</b>		Course code <b>MK9-12</b>	Internal WP	Last updated 18.03.2020
Study semester 9th semester	Offered in WS			Credit points 6 CP	Semester week hours 4 SWS	
Allocation to study specialization All		Responsible for module Prof. Dr. Ursula Schädler-Saub		Type of teaching, group size, if applicable Block course: 2 block weeks		
Can also be credited to study program -				Language of instruction German		
Requirements according to examination regulations				Recommended prerequisites For the minor: MK 7-5, MK 8-12, MK 8-13		
Study/examination achievements/ examination types Seminar paper Student research paper with colloquium				If applicable, weighting of the study/examination achievements For seminar papers: Oral presentation (50%), written seminar paper (50%)		
<b>Module objectives/desired learning outcomes:</b>						
<p>The module can be selected as one part of four parts of the minor in History, Theory and Ethics of Restoration.</p> <ul style="list-style-type: none"> <li>- Knowing, understanding, and analyzing various artistic movements and developments, in Europe and internationally, from the 19th century to the present, in their cultural and social context, with particular attention to the materials, techniques, and media used</li> <li>- Knowing, understanding, and analyzing the basic ethical and theoretical principles of the preservation of modern and contemporary art</li> <li>- Bringing together complex restoration theoretical and cultural-historical contexts, taking into account the will of the authors, i.e. the artists, as well as the ideas of owners, administrators and users</li> <li>- Knowing and analyzing the basic ethical and theoretical principles of the preservation of modern and contemporary art</li> <li>- Analyzing and evaluating methods of preservation and documentation of modern and contemporary art as well as artists' estates; examples put into practice</li> </ul>						
<b>Contents:</b>						
<ul style="list-style-type: none"> <li>- Art history of the modern age from the mid-19th century to the present: Painting, graphics and book art, sculpture, object art, space installation, photography and video, happenings and ephemeral art</li> <li>- Modern and contemporary art in sacred spaces</li> <li>- Basic theoretical and ethical principles of preservation, care and documentation of modern and contemporary art and their relevance for practice – in exchange with collections, museums, galleries and other specialized institutions as well as with private collectors</li> <li>- Evaluation of "classical" restoration theories and their relevance to the conservation of modern and contemporary art Supplementing and revising these principles for the specific needs of modern and contemporary art conservation</li> <li>- Methods of preservation and documentation of contemporary art: Oral history – artist interviews, databases, digitization, etc.</li> <li>- Preserving, documenting and communicating artists' estates: Basic principles and examples from actual practice</li> </ul>						
<b>Course attendance time (in mandatory hours - LVS)</b>			<b>Workload (in hours)</b>			
Schädler-Saub		4 LVS	Course attendance time		Home study	
of those Albrecht 0.3 LVS, Schütz 0.2 LVS		-	Lecture	45 h	Course accompanying and exam preparation 120 h	
		-	Exercise			
		-	Other	15 h		
<b>Total classroom time</b>		<b>4 LVS</b>	<b>Total workload</b>			<b>180 h</b>
Optional extra Individual consultations for the preparation of student research projects or papers presented in written form						
<b>Literature</b> is listed in Stud.IP						

Allocation to course of study <b>Master's Degree in Conservation and Restoration</b>		Module name <b>Museology and Public Relations</b>		Course code <b>MK9-14</b>	Internal WP	Last updated 18.03.2019
Study semester <b>9th semester</b>	Offered in <b>WS</b>			Credit points <b>6 CP</b>	Semester week hours <b>3 SWS</b>	
Allocation to study specialization <b>All</b>		Responsible for module <b>Prof. Dr. Michael von der Goltz</b>		Type of teaching, group size, if applicable <b>1 kick-off meeting + 1 block week</b>		
Can also be credited to study program -				Language of instruction <b>German</b>		
Requirements according to examination regulations				Recommended prerequisites		
Study/examination achievements/ examination types <b>Seminar paper</b> -				If applicable, weighting of the study/examination achievements		
<b>Module objectives/desired learning outcomes:</b>						
<ul style="list-style-type: none"> <li>- Knowing the basic principles of museology</li> <li>- Confidence in interdisciplinary and intercultural professional exchange; understanding of the concerns of the professional groups involved - curator and conservator; understanding each other's tasks, goals, and approaches</li> <li>- Bringing together conservation and curatorial ways of thinking and working in the preparation of exhibitions in exchange with museum professionals</li> <li>- Confidence in project planning including technical-logistical requirements, costs incurred, necessary fundraising and time management</li> </ul>						
<b>Contents:</b>						
<p>The interdisciplinary module takes place as a joint MA seminar with the Central Custody, the Chair of Materiality of Knowledge, and the Institutes of Art History, Ethnology, and Archaeology at the Georg-August-Universität Göttingen.</p> <ul style="list-style-type: none"> <li>- Contents of museology and public relations in museums</li> <li>- Introduction to the content and methods of collection and exhibition management and modern scientific communication</li> <li>- Introduction to object science, divided into subject and material groups (e.g. identification and description, inventory and digitization, preventive conservation and restoration)</li> <li>- Identifying the effect of object selection on conservation and research How can "visual association and thinking processes" be trained by which presentation in which spaces Which presentation can be justified terms of conservation</li> <li>- Bringing together conservation and curatorial ways of thinking and working in the preparation of exhibitions in exchange with museum professionals</li> </ul>						
<b>Course attendance time (in mandatory hours - LVS)</b>			<b>Workload (in hours)</b>			
von der Goltz	1 LVS	Course attendance time		Home study		
Professors from the major	1 LVS	Lecture	45 h	Course accompanying and exam preparation		120 h
Chair of the Materiality of Knowledge Central	2 LVS	Exercise	15 h			
	-	Other				
<b>Total classroom time</b>	<b>4 LVS</b>	<b>Total workload</b>			<b>180 h</b>	
Optional extra						
<b>Literature</b> is listed in Stud.IP						

Allocation to course of study <b>Master's Degree in Conservation and Restoration</b>		Module name <b>Project Management</b>		Course code <b>MK10-5</b>	Internal P	Last updated 28.02.2019	
Study semester <b>10th semester</b>	Offered in <b>SS</b>			Credit points <b>6 CP</b>		Semester week hours <b>2 SWS</b>	
Allocation to study specialization <b>All</b>		Responsible for module <b>Prof. Dr. Michael von der Goltz</b>		Type of teaching, group size, if applicable <b>including individual appointments</b>			
Can also be credited to study program -				Language of instruction <b>German</b>			
Requirements according to examination regulations				Recommended prerequisites			
Study/examination achievements/ examination types <b>Seminar paper</b> -				If applicable, weighting of the study/examination achievements			
<b>Module objectives/desired learning outcomes:</b>							
<ul style="list-style-type: none"> <li>- Developing the thesis topic including goals and time planning</li> <li>- Applying the basic theoretical principles and scientific tools to be used in the preparation of the thesis</li> <li>- Asking interdisciplinary questions in other scientific fields</li> <li>- Carrying out the planning and organization of the thesis project including financing concept</li> <li>- Creation of a time schedule and identification of milestones (work stages)</li> <li>- Proficiency in communication with the supervisors of the work and cooperation partners</li> <li>- Mastery of the thesis</li> </ul>							
<b>Contents:</b>							
<ul style="list-style-type: none"> <li>- Basic principles of academic research/writing (repetition)</li> <li>- Basic principles of time planning, project management, division of work, work breaks, dealing with crisis situations (e.g. writer's block)</li> <li>- Possibilities of communication and discussion on project goals and contents</li> <li>- Recommendations on working towards specific goals</li> </ul>							
<b>Course attendance time</b> (in mandatory hours - LVS)				<b>Workload</b> (in hours)			
Professors for majors		2 LVS		Course attendance time		Home study	
Schädler-Saub, Petersen, Schulz, 0.3 LVS each		1 LVS		Lecture	80 h	Course accompanying and exam preparation	90 h
		-		Exercise	10 h		
		-		Other			
<b>Total classroom time</b>		<b>3 LVS</b>		<b>Total workload</b>		<b>180 h</b>	
Optional extra							
<b>Literature</b> is listed in Stud.IP							

Allocation to course of study <b>Master's Degree in Conservation and Restoration</b>		Module name <b>Master's Thesis with Colloquium</b>		Course code <b>MK 10-15</b>	Internal P	Last updated 15.10.2020	
Study semester <b>10th semester</b>	Offered in <b>SS</b>			Credit points <b>24 LP</b>		Semester week hours <b>2 SWS</b>	
Allocation to study specialization <b>All</b>		Responsible for module <b>Prof. Dr. Michael von der Goltz</b>		Type of teaching, group size, if applicable			
Can also be credited to study program -				Language of instruction <b>German</b>			
Requirements according to examination regulations				Recommended prerequisites			
Study/examination achievements/ examination types <b>Project work with colloquium</b> -				If applicable, weighting of the study/examination achievements <b>Written work 75%, colloquium 25%</b>			
<b>Module objectives/desired learning outcomes:</b>							
<ul style="list-style-type: none"> <li>- Independent completion of a thesis according to scientific methods within a prescribed period of time</li> <li>- Proof of independent, topic-related work on a scientific basis, incorporating the knowledge acquired during the Master's degree program</li> </ul>							
<b>Contents:</b>							
<ul style="list-style-type: none"> <li>- Planning the work content according to the topic and the deadline for completion</li> <li>- Presentation of the results of the work in the form of an academic thesis as well as a colloquium with a short presentation and defense of the work in a professional discussion</li> <li>- Examination regulations</li> </ul>							
<b>Course attendance time</b> (in mandatory hours - LVS)				<b>Workload</b> (in hours)			
First supervisor: 0.3 LVS per thesis, maximum of 2 LVS		2 LVS		Course attendance time		Home study	
Second supervisor: 0.1 LVS per thesis, maximum of 2 LVS		2 LVS		Lecture		Course accompanying and exam preparation	890 h
		-		Exercise			
		-		Other	10 h		
<b>Total classroom time</b>		<b>4 LVS</b>		<b>Total workload</b>			<b>900 h</b>
Optional extra							
Other: Contact to the supervisors							
<b>Literature</b> is listed in Stud.IP							

September, 2021

This Module Handbook has been translated from German to English by Johnson Translations,  
Hildesheim.

The translation was co-funded by the ERASMUS+ Programme of the European Union.

