



ESCUELA SUPERIOR  
DE ARTE  
DE ASTURIAS

# **Conservation and Restoration of Cultural Heritage**

Course catalogue for Erasmus+ students

## Core curriculum

### Year 1. First semester.

Code	Course title	Description	ECTS
1R_INTROCR	Introduction to the conservation-restoration. Analysis, documentation and materials	First contact with the constituent materials of Cultural Heritage, causes and forms of alteration, systems and methodologies of their documentation and characteristics of products and materials related to the processes of conservation and restoration.	7
1R_DIBCO	Drawing and colour	Perception and representation of reality. Freehand drawing, form and structure analysis. Light as a structuring element of volume (chiaroscuro). Color theory and practice.	4
1R_DIGIBC	Digitalization and processing of cultural property	Introduction to artwork photography	6
1R_MINFO1	Information technology tools I	Introduction to the digital image and digital language oriented to conservation projects. Working with digital tools of representation to bring the students capacities to be able to do graphic and visual restoring and conservation projects.	4
1R_FUNFQ	Principles of physics and chemistry	Gases and kinetic molecular theory. Heat and temperature. States of matter. Atoms, compounds and ions. Electromagnetic radiation. Interaction of radiation and matter. Chemical bonds. Water: structure and properties. pH. Chemical reactions.	3
1R_HISG1	General history of cultural heritage I	Introduction to knowledge of cultural societies from prehistory to the present day.	3
1R_TEOHIS1	Theory and history of conservation-restoration. Law and institutions I	History and theory of conservation, restoration, laws and institutions for the protection of the historical-artistic heritage from antiquity to the present day.	3

### Year 1. Second semester.

Code	Course title	Description	ECTS
1R_TECRE	Reintegration techniques. Criteria and materials	Reintegration and intervention criteria, their materials and execution techniques. Reintegration of the support, preparation of the layers, chromatic reintegration and the different systems that are commonly used in the finishing stages and protection.	8
1R_IESP	Spatial drawing	Study of systems representation, standardization, sketches and scales and interpretation of space in cultural goods and artistic works.	5
1R_MINFO2	Information technology tools II	Digital tools of documentation and presentation of projects applied to the conservation and restoration of cultural property.	3
1R_FUNBB	Principles of biology and biochemistry	The chemistry of carbon. Biochemistry: biomolecules and natural polymers, proteins, carbohydrates, lipids, nucleic acids. Cell biology: levels of cell organization, eukaryotic and prokaryotic cells. Cell metabolism. Classification of living things.	3
1R_MATC	Cultural heritage materials	Material systems: classification and general properties. Colored substances: physico-chemical principles of color chemistry. Pigment-medium interaction. Inorganic traditional substrates: metal, stony and other. Traditional organic substrates: wood, cellulosic, protein and other. New materials: polymers.	5
1R_HISG2	General history of cultural heritage II	Introduction to knowledge of cultural societies from prehistory to the present day.	3
1R_TEOHIS2	Theory and history of conservation-restoration. Law and institutions II	History and theory of conservation, restoration, laws and institutions for the protection of the historical-artistic heritage from antiquity to the present day.	3

**Year 2. First semester.**

<b>Code</b>	<b>Course title</b>	<b>Description</b>	<b>ECTS</b>
2R_TECCO	Consolidation, fixative and adherence techniques. Criteria and materials.	General introduction to treatments for consolidation, fixing and accession of the different components and different materials that we can find in artworks.	8
2R_TECART1	Artistic techniques I	Fundamentals of procedures and techniques of different artistic languages. Drawing on paper and writing supports. Wood carving.	4
2R_MINFO3	Information technology tools III	Data acquisition and processing using computer systems to automatically generate new data or graphical representation. Software project management, databases and systems for graphical data representation.	4
2R_BASFQ	Physics and chemistry of the alteration processes	Alteration processes of cultural property. Agents and mechanisms. Acids and bases as agents of deterioration. Formation and dissolution of precipitates. Redox processes. Alteration mechanisms in organic systems.	4
2R_MATLA	Cleaning and adhesive materials	Adhesive materials: film formers and binding materials: Features and functionality. Cleaning materials: Solvents: Solubility test . Aqueous systems.	3
2R_METII	Iconographic and-iconological method	Use of the iconographic – iconological method for the value of the figurative Western tradition to apply in the field of conservation and restoration of cultural property.	4
2R_HISG3	General history of cultural heritage III	Introduction to knowledge of cultural societies from prehistory to the present day.	3

**Year 2. Second semester.**

<b>Code</b>	<b>Course title</b>	<b>Description</b>	<b>ECTS</b>
2R_HISG4	General history of cultural heritage IV	Introduction to knowledge of cultural societies from prehistory to the present day.	3
2R_TECART2	Artistic techniques II	Procedures and traditional painting techniques on wood and canvas. New materials and possibilities.	4
2R_SISLI	Cleaning systems. Criteria and materials	Cleaning systems, intervention criteria, standards and materials applied to artworks cleaning.	8
2R_CONPRE1	Preventive conservation I	Basic techniques for the preservation of the cultural goods; recognition, prevention and neutralization of the most important risks to which a piece is exposed in the context of an exhibition, storage or custody.	5
2R_BIOCP	Biodeterioration and pest management	Types of biodeterioration of cultural heritage. Ecology and biology of biodeterioration. Methods for controlling biodeterioration.	4
2R_ORGM	Organization and museum management	Acquirement of basic knowledge about the organization and management of assets housed in museums	4
2R_TECDOC	Documentation techniques	Methodological application of bibliographical and documentary research techniques in the field of the conservation and restoration of cultural property.	2

## Conservation and Restoration of Graphic Documents

### Year 3. First semester.

Code	Course title	Description	ECTS
3R_TAA1	Analytic techniques applied to conservation-restoration I	Methods of scientific analysis. Optic and electronic microscopy. Analysis of organic compounds. Biological analysis.	3
3R_GESPC	Cultural heritage management	Acquirement of basic knowledge about the management of cultural heritage and its application in institutions and businesses	3
3RD_CRCEL	Preservation and conservation of paper based artefacts. Cellulose supports.	Conservation and restoration of cellulosic materials: study, degradation mechanisms, products and techniques for conservation and restoration.	13
3RD_TECGE	Printmaking and engraving techniques	Use of different engraving and printmaking techniques. Identification and contextualization in history.	4
3RD_HISLI1	History of book and graphic documents I	The study of the history of books and manuscripts through their evolution and general characteristics from the ancient world up until present day.	3
	Optional courses		4

### Year 3. Second semester.

Code	Course title	Description	ECTS
3R_CONPRE2	Preventive conservation II	Packaging specific for transportation, exhibition and storage of artworks. Drafting of packaging documentation. Making reports on exhibition facilities and conditions to ensure the conservation of artworks during transfer processes and loan. Regulations and insurance.	5
3R_TAA2	Analytic techniques applied to conservation-restoration II	Microchemical analysis: fundamentals and application. Protocols. Instrumental methods: spectroscopy, chromatography, case studies. Dating methods.	3
3RD_HISLI2	History of book and graphic documents II	The study of the history of books and manuscripts through their evolution and general characteristics from the ancient world up until present day.	3
3RD_CRPRO	Preservation and conservation of paper based artefacts. Leather supports.	Study of graphic documents made of leather or parchment: characteristics, composition, manufactures, deterioration and possible conservation and restoration treatments; as well as their associated elements (e.g. seals).	6
3RD_TECEN	Historic and contemporary binding techniques	Study and implementation of techniques of historical and contemporary bookbinding most representative, using the methods, tools and more suitable materials.	10
3RD_CODIPA	Codicology, diplomatics and paleography.	Methods to analysis and critical appraisal of the historical document	3

**Year 4. First semester.**

<b>Code</b>	<b>Course title</b>	<b>Description</b>	<b>ECTS</b>
4R_TAA3	Analytic techniques applied to conservation-restoration III	Selection, realization and interpretation of analysis and tests on real artworks or models.	2
4R_ORGP	Professional organization and planning	Development of a business project. Legal basis for business.	4
4R_INVES	Scientific research: techniques and methods	The scientific method. Design of experiments. Resources of scientific research applied to the exam and study of cultural heritage.	2
4RD_HISLI3	History of book and graphic documents III. Historic-artistic assessment training.	The study of the history of books and manuscripts through their evolution and general characteristics from the ancient world up until present day.	3
4RD_CRENC	Preservation and conservation of paper based artefacts. Bookbinding.	Proposals of intervention in bound graphic documents, establishing and justifying criteria and most appropriate intervention.	9
4RD_EMTF	Development and methodology of photography techniques	Practical course on traditional photographic techniques and evolution of photograph technology.	3
4RD_ARTEA	Contemporary art	Study of artistic movements or major trends from 1945 to the present day.	4
	Optional courses		3

**Year 4. Second semester.**

<b>Code</b>	<b>Course title</b>	<b>Description</b>	<b>ECTS</b>
4R_PROY	Conservation-restoration projects	Planning, presentation and defense of technical projects for conservation and restoration	4
4RD_CRTRA	Preservation and conservation of paper based artefacts. Works of art on paper: contemporary and traditional artistic techniques.	Conservation and restoration of traditional and contemporary graphic works: study, degradation mechanisms, products and techniques for conservation and restoration.	11
4RD_CRFA	Preservation and conservation of paper based artefacts. Photography and time-based media.	Study of photographic and audiovisual document disturbance factors, criteria and intervention techniques.	6
4RD_PRAEX	External training		3
4RD_TRFIN	Degree thesis	These subjects are not eligible for Erasmus+ exchanges	6

## Conservation and Restoration of Sculptures

### Year 3. First semester.

Code	Course title	Description	ECTS
3R_TAA1	Analytic techniques applied to conservation-restoration I	Methods of scientific analysis. Optic and electronic microscopy. Analysis of organic compounds. Biological analysis.	3
3RE_CRMAD	Sculpture conservation-restoration. Wood supports.	Proposal and Implementation of the most appropriate intervention based on the study of materials, techniques and pathologies in order to conserve 3D artworks made on wood materials, within the established conservation criteria.	12
3RE_EMTE1	Evolution and methodology of sculptural techniques I	Knowledge and implementation of the methodology and techniques of three-dimensional cultural property and its evolution throughout history.	4
3RE_SISREP1	Sculptural work reproduction systems I	Making copies of three-dimensional works by implementing various methods of reproduction.	4
3RE_HISES1	History of sculpture I	The study of the characteristics, functions and the most representative sculptures from the ancient times until present day.	3
	Optional courses		4

### Year 3. Second semester.

Code	Course title	Description	ECTS
3R_CONPRE2	Preventive conservation II	Packaging specific for transportation, exhibition and storage of artworks. Drafting of packaging documentation. Making reports on exhibition facilities and conditions to ensure the conservation of artworks during transfer processes and loan. Regulations and insurance.	5
3R_TAA2	Analytic techniques applied to conservation-restoration II	Microchemical analysis: fundamentals and application. Protocols. Instrumental methods: spectroscopy, chromatography, case studies. Dating methods.	3
3RE_EMTE2	Evolution and methodology of sculptural techniques II	Knowledge and implementation of the methodology and techniques of three-dimensional cultural property and its evolution throughout history.	3
3RE_SISREP2	Sculptural work reproduction systems II	Making copies of three-dimensional works by implementing various methods of reproduction.	4
3RE_HISES2	History of sculpture II	The study of the characteristics, functions and the most representative sculptures from the ancient times until present day.	3
3RE_CRMEVI	Sculpture conservation-restoration. Metal and glass supports.	Proposal and implementation of the most appropriate intervention based on the study of materials, techniques and pathologies in order to conserve 3D artworks made on metal and glass materials, within the established conservation criteria.	12

**Year 4. First semester.**

<b>Code</b>	<b>Course title</b>	<b>Description</b>	<b>ECTS</b>
4R_TAA3	Analytic techniques applied to conservation-restoration III	Selection, realization and interpretation of analysis and tests on real artworks or models.	2
4R_ORGP	Professional organization and planning	Development of a business project. Legal basis for business.	4
4R_INVES	Scientific research: techniques and methods	The scientific method. Design of experiments. Resources of scientific research applied to the exam and study of cultural heritage.	2
4RE_HISES3	History of sculpture. Historic-artistic assessment training	The study of the characteristics, functions and the most representative sculptures from the ancient times until present day.	3
4RE_CRPECE	Sculpture conservation-restoration. Stone and ceramic materials	Proposal and implementation of the most appropriate intervention based on the study of materials, techniques and pathologies in order to conserve 3D artworks made on stone and ceramic materials, within the established conservation criteria.	9
4RE_ARTEA	Contemporary art	Study of artistic movements or major trends from 1945 to the present day.	3
	Optional courses		3

**Year 4. Second semester.**

<b>Code</b>	<b>Course title</b>	<b>Description</b>	<b>ECTS</b>
4R_GESPC	Cultural heritage management	Acquirement of basic knowledge about the management of cultural heritage and its application in institutions and businesses	3
4R_PROY	Conservation-restoration projects	Planning, presentation and defense of technical projects for conservation and restoration	4
4RE_CRPACE	Sculpture conservation-restoration. Paper pulp, wax and other three-dimensional supports	Proposal and implementation of intervention most adequate conservation and restoration based on the study of materials and deterioration of works in papier-mache, wax, and other three-dimensional media within the established criteria.	7
4RE_CRAA	Sculpture conservation-restoration. Contemporary art	Proposal and implementation of the most appropriate intervention based on the study of materials, techniques and pathologies of contemporary non-traditional artworks.	7
4RD_PRAEX	External training	These subjects are not eligible for Erasmus+ exchanges	3
4RD_TRFIN	Degree thesis		6

## Conservation and Restoration of Sculptures

### Year 3. First semester.

Code	Course title	Description	ECTS
3R_TAA1	Analytic techniques applied to conservation-restoration I	Methods of scientific analysis. Optic and electronic microscopy. Analysis of organic compounds. Biological analysis.	3
3RP_CRTEL	Painting conservation-restoration. Canvas painting	Conservation and restoration of painting on canvas: study, degradation mechanisms, products and techniques for conservation and restoration.	12
3RP_EMTE1	Evolution and methodology of painting techniques I	Knowledge and implementation of the methodology and techniques of two-dimensional cultural property and its evolution throughout history.	4
3RP_SISREP1	Painting reproduction systems I	Making copies and reproductions of traditional paintings and three-dimensional elements implementing the most appropriate painting techniques	4
3RP_HISPI1	History of painting I	The study of the characteristics, functions and the most representative pictorial works of art from the ancient times until present day.	3
	Optional courses		4

### Year 3. Second semester.

Code	Course title	Description	ECTS
3R_CONPRE2	Preventive conservation II	Packaging specific for transportation, exhibition and storage of artworks. Drafting of packaging documentation. Making reports on exhibition facilities and conditions to ensure the conservation of artworks during transfer processes and loan. Regulations and insurance.	5
3R_TAA2	Analytic techniques applied to conservation-restoration II	Microchemical analysis: fundamentals and application. Protocols. Instrumental methods: spectroscopy, chromatography, case studies. Dating methods.	3
3RP_EMTE2	Evolution and methodology of painting techniques II	Knowledge and implementation of the methodology and techniques of two-dimensional cultural property and its evolution throughout history.	3
3RP_SISREP2	Painting reproduction systems II	Making copies and reproductions of traditional paintings and three-dimensional elements implementing the most appropriate painting techniques	4
3RP_HISPI2	History of painting II	The study of the characteristics, functions and the most representative pictorial works of art from the ancient times until present day.	3
3RP_CRPIMA	Painting conservation-restoration. Wood painting	Planning and implementation of restoration and conservation projects of painted wood. Criteria to analyse the artworks' materials, techniques and damages.	12



**Year 4. First semester.**

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4R_TAA3	Analytic techniques applied to conservation-restoration III	Selection, realization and interpretation of analysis and tests on real artworks or models.	2
4R_ORGP	Professional organization and planning	Development of a business project. Legal basis for business.	4
4R_INVES	Scientific research: techniques and methods	The scientific method. Design of experiments. Resources of scientific research applied to the exam and study of cultural heritage.	2
4RP_HISPI3	History of painting. Historic-artistic assessment training	The study of the characteristics, functions and the most representative pictorial works of art from the ancient times until present day.	3
4RP_CRPIMU	Painting conservation-restoration. Mural painting	Planning and implementation of restoration and conservation projects of wall paintings and mosaics. Criteria to analyse the artworks' materials, techniques and damages.	9
4RP_ARTEA	Contemporary art	Study of artistic movements or major trends from 1945 to the present day.	3
	Optional courses		3

**Year 4. Second semester.**

<b>Code</b>	<b>Course title</b>	<b>Description</b>	<b>ECTS</b>
4R_GESPC	Cultural heritage management	Acquirement of basic knowledge about the management of cultural heritage and its application in institutions and businesses	3
4R_PROY	Conservation-restoration projects	Planning, presentation and defense of technical projects for conservation and restoration	4
4RP_CRMEVI	Painting conservation-restoration. Metal, glass and other supports.	Conservation and restoration of underglass painting, stained glass, painting on metal and painting on other supports: study, degradation mechanisms, products and techniques for conservation and restoration.	7
4RP_CRAA	Painting conservation-restoration. Contemporary art	Proposal and Implementation of the most appropriate intervention based on the study of materials, techniques and pathologies of contemporary non-traditional artworks.	7
4RD_PRAEX	External training		3
4RD_TRFIN	Degree thesis	These subjects are not eligible for Erasmus+ exchanges	6