ITINERANT COURSE ON STONE CONSERVATION

Torun, Poland
2012, September 10th-22nd

Deadlines:	**Candidatures: June 15th, 2012**
	Selection of candidates: June 30th, 2012

1. INTRODUCTION

Under the framework of the EU project CHARISMA: "Cultural Heritage Advanced Research Infrastructures: Synergy for a Multidisciplinary Approach to Conservation/Restoration", an itinerant course on stone conservation is to be prepared and implemented in different parts of the European territory. The first venue will take place in Lisbon, in the course of 2012, and the subsequent venue in Torun, Poland.
The course will address subjects ranging from stone materials to conservation methods and products, from the preparatory steps to the implementation phases of conservation interventions, and will aim at providing the students with modern concepts and updated knowledge on the most relevant aspects of this discipline.
The teachers come from different CHARISMA partners and will include additional external invited lecturers.

2. PARTNERS AND LECTURERS

Partners:
LNEC – Laboratório Nacional de Engenharia Civil (National Laboratory of Civil Engineering) – Lisbon, Portugal
CHARISMA Project – Cultural Heritage Advanced Research Infrastructures: Synergy for a Multidisciplinary Approach to Conservation/Restoration
LRMH – Laboratoire de Recherche des Monuments Historiques, Champs-sur-Marne, France
OPD – Oppificio delle Pietre Dure, Firenze, Italy
ICVBC - Institute for Conservation and Promotion of Cultural Heritage, Firenze, Italy
UMK – Nicolaus Copernicus University, Torun, Poland

Lecturers :
JDR - José Delgado Rodrigues, Geologist, LNEC.
IPF - Isabelle Pallot-Frossard, Art Historian, LRMH (availability to be confirmed).
VVB - Véronique Vergès-Belmin, Geologist, LRMH.
JDM - Jean-Didier Mertz, Geologist, LRMH.
DP - Daniela Pinna, Biologist, OPD.
SB - Susanna Bracci, Chemist, ICVBC.
JWL – Jadwiga W. Łukaszewicz, conservator – scientist, UMK.
KP – Katarzyna Polak, conservator-restorer, UMK.

PN – Piotr Niemcewicz, conservator-restorer UMK.
MR – Maria Rudy, conservator-restorer, UMK.
EP – Elżbieta Pilecka, UMK or AM- Anna Mosinkiewicz, Art. Historian, UMK.

3. OBJECTIVES

The course aims at contributing to raise the level of conservation interventions in the European Cultural Heritage by providing to the scientific researchers and professional conservator-restorers the opportunity to learn with international experts and to update knowledge on the major subjects relevant for their activity.
Conservation scientists and conservator-restorers are the target public of the course.
Students will have learning material and tutorial learning at their disposal.

4. APPLICATION REQUIREMENTS AND SELECTION CRITERIA

For all the candidates:

Graduation in Conservation-Restoration, Geology, Biology, Chemistry, Physics, or Engineering are accepted. Candidates with other graduations may be accepted in a case-by-case basis. Master and PhD degrees will be weighted higher.

Candidates shall submit a motivation letter referring, namely, their expectations and the impact they anticipate the course may have in their careers.

Candidates shall submit a brief CV with information on their past and present occupations, and on the published materials as authors or co-authors. A brief description of the present employer institution/firm shall accompany the CV.

Candidates shall submit an extended abstract on a case-study or a research project in which he/she had been involved. The document shall not have more than 3000 words. This abstract will serve as a basis for the homework report mentioned below and for the course final presentation.

A reasonable knowledge of written and spoken English is required.

Selection of candidates:

A *numerus clausus* of 20 is foreseen. A minimum of 12 is necessary to deploy the course.

Selection will be made on the basis of the following criteria: i) educational background; ii) specific education and training in conservation; iii) age; iv) motivation letter; v) quality of the extended abstract; vi) potential of the candidate to disseminate knowledge; vii) professional experience in conservation-restoration or research in conservation sciences.

Should more than 20 candidates apply, preference to cover distinct provenances will be taken into consideration.

Homework and tutorial learning

Students shall bring a draft of a report that might serve as a basis for their final presentation. The draft is to be progressively improved, if necessary, during the learning process with the help of the lecturers. A tutorial period at the end of each working day is allocated for this purpose.

Students will have 15 minutes each in Module 8 to make their presentations in a Power Point format.

5. LANGUAGE AND TECHNICAL REQUIREMENTS

The course official language is English.

Students shall carry their own laptop.

6. SECURITY AND LEGAL REQUIREMENTS

Students shall provide for their own **visa** entrance in the country, if applicable (Poland belongs to the Schengen Area). For detailed information please refer to: http://www.msz.gov.pl/Visa,requirements,2346.html. In case of necessity of possession of visa contact please Piotr Targowski (ptarg@fizyka.umk.pl) immediately after being notified of acceptance for the course.

Students shall provide for their own insurance and health care.

7. CERTIFICATE

A certificate will be granted to all participants that have fulfilled the course requirements, namely the attendance to all the course sessions (one period absence, maximum, allowed), and a successful presentation.

8. VENUE AND LOGISTICS

The course will be held at:

Nicolaus Copernicus University
Institute of Physics , Centre of Quantum Optics
Grudziądzka Street, 5
87-100 Toruń
Poland
Case studies:
Institute for Study, Conservation and Restoration of Cultural Heritage/Department for Conservation and Restoration of Architectonic Elements and Details
Sienkiewicza Street, 30/32
87-100 Toruń, Poland

Students will have access to the University meals facilities at the same rates as local students.

Students shall wear their identification badge all the time when inside the University premises.

Travel and accommodation arrangements are the students' own responsibility.

The course will be free of registration fee.

9. COURSE DIRECTORS AND CONTACTS

Scientific coordinator:

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10. GENERAL LAYOUT

WEEK 1

	Monday to Friday	Saturday
9:00 – 12:30	Lectures	Field visit
	Lunch	
14:00-17:00	Lectures	
17:00-18:00	Tutorial	

WEEK 2

	Monday	Tuesday	Wednesday	Thursday	Friday
9:00 – 12:30	Lectures	Lectures	Case studies	Students presentations	Closing. Awarding of certificates
	Lunch	Lunch	Lunch	Lunch	Farewell lunch
14:00-17:00	Lectures	Lectures		Students presentations	
17:00-18:00	Tutorial	Tutorial	Case studies		

11. CONTENTS AND LEARNING TOPICS

SUMMARY:

- Module 1 - Reception of students and introduction to the course
- Module 2 - Introduction to conservation theory and principles

- Module 3 - Stone as a building material. Genesis, properties, in-work performance
- Module 4 - Deterioration mechanisms & degradation forms. Intrinsic & extrinsic factors of decay
- Module 5 - Diagnosis, testing & documenting
- Module 6 - Conservation measures & treatments
- Module 7 - Case-studies
- Module 8 – Students presentations

LEARNING TOPICS:

Introduction to conservation theory and principles

- Introduction to key-concepts of conservation.
- The international context and charters.
- Stone in Cultural Heritage; from simple objects to masterpieces; from isolated elements to large constructions; from rock art to decorated surfaces.
- Basic steps in conservation interventions. From diagnostics to practice.
- Historical context of the object and conservation concepts to follow.
- Multidisciplinary and interdisciplinary requirements.
- Residing and attributed values of the object.

Stone as a building material. Genesis, properties, in-work performance

- Rocks in their geological context. Igneous, sedimentary and metamorphic rocks.
- Rock-forming minerals.
- Overview of the main physical and mechanical properties of stone.
- Pore space. Pore-shaped and fissure-shaped voids as a distinctive factor.
- Performance of stone in man-made constructions. Overview and typical examples.

Deterioration mechanisms & degradation forms. Intrinsic & extrinsic factors of decay

- Alteration in natural environments. Decay in man-made constructions.
- Introduction to the terminology of degradation forms. The ICOMOS glossary.
- Deterioration mechanisms.
- Intrinsic factors. Mineralogic composition, porosity, permeability and other physical properties.
- Decay of carbonate rocks. General and specific features. Limestones and marbles.
- Decay of silicate rocks. General and specific features. Sandstones, granites and other igneous rocks.
- Formation of black crusts and swelling as paradigmatic decay mechanisms.
- Patinas and gilding layers. Polychromy.
- External factors of decay. Monitoring of climatic parameters.
- The role of water. Rising damp. Salts as major decay agents.
- Biodeterioration.

Diagnosis, testing & documenting

- Assessing the stone condition.
- Designing of a diagnostic project.
- Laboratory versus onsite testing. Testing standards.
- Destructive versus non-destructive testing.
- Sampling. Limitations of direct sampling. Significance of spot samples. Overcoming sampling limitations.
- Overview of most common physical tests.
- Introduction to petrographic, chemical and physico-chemical characterization.
- Documentation: a required process in all the intervention phases.
- Survey and mapping as specific documenting tools.

Conservation measures & treatments

- Introducing the conservation practice: cleaning, consolidation and surface protection as typical intervention operations.
- Deciding on the conservation actions: from the problem identification to the implementation of actions.
- Defining and monitoring cleaning operations: why and what to clean. Selecting and adapting the cleaning tools to the local specificities. Values to be preserved. Harmfulness as a major issue. Traditional and modern cleaning technologies.
- Desalination. Principles and practical issues.
- Deciding on and recommending protection actions. Testing and selecting water repellents. Antigraffiti.
- Mechanical, physical, and chemical methods to control the biological growth. Evaluation of the efficiency of the methods. Prevention of biological growth. Use of mixtures of biocides and water-repellents or consolidants.
- Deciding on and recommending consolidation actions. Testing and selecting consolidation products. Consolidation of carbonate stones. Consolidation of granite-type stones. Marbles and their specificities.
- Repair mortars. Lime, cement, and pozzolanic mortars. Working principles and typical properties. Functional interaction and induced damage in stone elements.
- Compatibility issues. Broad and strict significances in compatibility.
- Maintenance actions.

Case studies

- From diagnostic to practice. Formulation of repair programmes based on sound ethical and practical considerations.
- The 8-phases model of conservation interventions.
- Contact with relevant case-studies on different materials, depicting current as well as specific problems, aiming at getting the necessary awareness on practical methodologies in conservation interventions.

Students presentations

- Students shall prepare a report on a case-study or on a research project, where he/she has participated actively, to serve as a basis for their final presentation. The report is to be progressively improved, if necessary, during the learning process with the help of the lecturers. A tutorial period at the end of each working day is allocated for this purpose.
- Students will have 15 minutes each in Module 8 to make their presentations in a Power Point format.
- Students are to be prepared to answer questions on their presentations.

TUTORIAL

Resident and invited lecturers will be available during the tutorial period to work with the students in the preparation of their presentations.

12. CALENDAR

Day 1 Monday	Lecture Topics	Lecturers
09:00	Registration.	
10:00	Welcome session. Introduction to the course facilities. Introducing students and teachers.	JWL; JDR; CHARISMA
11:00	**Break**	
11:30	Explaining the course layout. Introducing the working mode of "Module 8 – Students presentations"	JDR;
12:00	Introduction to conservation of Cultural Heritage items. Theory and practice.	IPF
12:30	**Lunch**	
14:00	Historical context of the object. Residing and attributed values.	IPF
15:30	Basic steps in conservation interventions. Multidisciplinary and interdisciplinary requirements.	JDR
16:00	**Break**	
16:30	Introduction to Art History of gothic architecture in Toruń	EP or AM
17:30	**Tutorial**	

Day 2 Tuesday	Lecture Topics	Lecturers
09:00	Stone in Cultural Heritage. Diversity, uniqueness, and complexity of heritage items.	JDR
10:00	Rocks in their geological context. Igneous, sedimentary and metamorphic rocks. Rock-forming minerals.	JDR
11:00	**Break**	
11:30	Overview of the main physical and mechanical properties of stone.	JDR
12:30	**Lunch**	
14:00	Pore space. Description and measurement. Hydric properties.	JDM
15:00	Drying of porous materials.	JDR
16:00	**Break**	

16:30	Performance of stone in man-made constructions. Overview and typical examples.	JDR
17:30	**Tutorial**	

Day 3 Wednesday	Lecture Topics	Lecturers
09:00	Sandstones. Properties and performances. Clay swelling.	JDM
10:00	Carbonate stones. Properties and performances.	JDR
11:00	**Break**	
11:30	Granites and other igneous rocks. Properties and performances.	JDR
12:30	**Lunch**	
14:00	Gotland sandstone. Properties and performances	MR
15:00	Brick walls. Properties and performances	JWL
16:00	**Break**	
16:30	Alteration in natural environments. Intrinsic factors	JDR
17:30	**Tutorial**	

Day 4 Thursday	Lecture Topics	Lecturers
09:00	Degradation in man-made constructions. Introduction to the terminology of degradation patterns. The ICOMOS glossary.	VVB
10:00	Impact of atmospheric pollution on stone: sulphation, black crusts.	VVB
11:00	**Break**	
11:30	Decay of carbonate stones.	JDR
12:30	**Lunch**	
14:00	Decay of silicate stones.	JDR
15:00	Nature of natural and artificial patinas, introduction to the technology and degradation of stone polychromy.	VVB
16:00	**Break**	
16:30	External factors of decay. Climatic parameters.	JDR
17:30	**Tutorial**	

Day 5 Friday	Lecture Topics	Lecturers
09:00	Salts as major decay agents. Sampling and testing for salts.	JWL, WO
10:00	Assessing the stone condition. Designing of a diagnostic project. Lab versus field tests. Sampling and its limitations in heritage items.	JDR
11:00	**Break**	
11:30	Current physical lab and field tests.	JDR
12:30	**Lunch**	
14:00	Introducing the conservation practice: cleaning, consolidation and surface protection as typical intervention operations. Documenting the different intervention phases.	JDR
14:30	Defining and monitoring cleaning operations. Efficacy and harmfulness.	JDR
15:00	Diversity of cleaning techniques and their impact on stone surface parameters: water absorption, colour, roughness...	VVB
16:00	**Break**	
16:30	Desalination. Theory and working principles.	VVB
17:30	**Tutorial**	

Day 6 Monday	Lecture Topics	Lecturers
09:00	Desalination. Materials and application procedures.	VVB
10:00	History of a catastrophe. Desalination of Notre Dame la Grande, Poitiers.	VVB
11:00	**Break**	
11:30	Cleaning of polychromed surfaces.	SB; DP
12:30	**Lunch**	
14:00	Chemical products in conservation. Brief introduction.	SB
15:00	Testing and selecting consolidation products. General aspects.	JDR
16:00	**Break**	
16:30	Testing consolidants in porous stones.	JWL
17:30	**Tutorial**	

Day 7 Tuesday	Lecture Topics	Lecturers
09:00	Testing consolidants in fissured stones.	JDR
10:00	Surface protection with water repellents and antigraffiti. Testing and selection procedures.	JDR
11:00	**Break**	
11:30	Biodeterioration and its treatment.	DP
12:30	**Lunch**	
14:00	Biocides. Lab and field studies. Environmental issues.	DP
15:00	Repair mortars. Lime, cement, and pozzolanic mortars. Working principles and typical properties.	TG
16:00	**Break**	
16:30	From diagnostic to practice. The 8-phases model of conservation interventions. Compatibility issues. Broad and strict significances in compatibility.	JDR
17:30	**Tutorial**	

Day 8 Wednesday	Lecture Topics	Lecturers
09:00	case-studies	PN KP
10:00	case-studies	MR
11:00	**Break**	
11:30	Case-studies	JWL
12:30	**Lunch**	
14:00	Students presentations	
16:00	**Break**	
16:30	Students presentations	

Day 9 Thursday	Lecture Topics
09:00 - 18:00	Students presentations

Day 10 Friday	Lecture Topics
10:00	Awarding of certificates
11:00	Closing
12:30	**Farewell Lunch**