



ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ  
ΥΠΟΥΡΓΕΙΟ ΠΑΙΔΕΙΑΣ ΚΑΙ ΘΡΗΣΚΕΥΜΑΤΩΝ  
**ΑΝΩΤΑΤΗ ΕΚΚΛΗΣΙΑΣΤΙΚΗ ΑΚΑΔΗΜΙΑ ΑΘΗΝΑΣ**  
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## **PROGRAMME OF STUDY: MANAGEMENT OF ECCLESIASTICAL RELICS**

### **Summary Course Material**

#### **1<sup>ST</sup> SEMESTER**

##### **1. INTRODUCTION TO OLD TESTAMENT**

History of manuscript and print text. Ancient and modern translations. Review of the text History of the canon. Language and register of texts. Introduction to particular books: their context, author, readership, time and place of writing, specific theological characteristics and particularities of each text, their language and function as well their message for contemporary people.

##### **2. INTRODUCTION TO NEW TESTAMENT**

- a. Introduction
- b. Text – Canon and Language
- c. Ancient and Modern Translations
- d. Manuscripts – Sources
- e. Brief Analysis of Books
- f. Apocrypha
- g. Synoptic Problem

##### **3. ANCIENT GREEK A'**

Grammar, Syntax and teachings of Classical Greek Writers and Fathers of the Church.

##### **4. BYZANTINE HISTORY**

Origins of the term Byzantium-Byzantine. The Roman state during the first three centuries A.D. The Edict of Milan in 313. The transfer of Roman capital to Constantinople. Constantine the Great and his direct successors. Emperor Julian, Theodosius the Great, Theodosius the Younger, Justinian, and Theodora. Justinian territory reoccupation. The army and the navy in all Roman periods until the fall of Constantinople. Iconoclast. Cyrillus and Methodius teachings. The Manzikert battle. The four crusades. Latin occupation. The re-establishment of the empire by Ioannis Vatatzis. Attempts for unity until the fall of Constantinople. The Conquer of Constantinople. Progress of iconographic art, literature and art in Byzantium. Imperial and Patriarchal institutions. The imperial court, the patriarchal court. Relationship between church and state.

##### **5. HISTORY OF CHRISTIAN ART**

Art and man. Religion and art. The circumstances and the setting under which the Christian art was born. The influences of the Greek-Roman world and the stance adopted by the Church Fathers concerning art. The fundamental characters and the symbolic language of the early Christian art. Sources. Primitive expressions and the creation of the primeval tradition of visual arts. Sculpture and miniature art. The shaping of dogmatics, the development of liturgical life and the honour of martyrs as a factor of the development of Christian art. The donations. The continuity of the union of the

“sanctity” and the “aesthetics” in Byzantium. Periodization. Diagram of the Medieval, Byzantine and post-Byzantine art. The contemporary Christian art.

## **6. ENGLISH**

1. English for Specific Academic Purposes. Emphasis on all four skills:
  - a) Listening to lectures
  - b) Speaking in tutorials and seminars
  - c) Reading for research
  - d) Writing assignments

## **7. ECCLESIASTICAL ARCHITECTURE OF BYZANTINE AND POST-BYZANTINE ERA**

- a) Its beginnings
- b) Christian buildings before Constantine the Great
- c) Ecclesiastical architecture in Byzantium
- d) Post-Byzantium Ecclesiastical architecture
- e) The character of Contemporary architecture
- f) The contemporary Christian church-building
- g) The problems of modernization
- h) The problem of Hagiography in the Orthodox temples of modern architecture (topics-colour-register-movements)
- i) The good order of the internal scenery of modern temples

## **8. WESTERN EUROPEAN CHRISTIAN ART**

The course examines Western European Christian art from late antiquity to modernism.

Taught areas:

- i. Christian art and the transition from late antiquity to medieval era.
- ii. Medieval Christian art and the authority of church.
- iii. Early Medieval Christian art, up to 1000 a.c.
  - Merovingian art: Context, style and aesthetics.
  - Carolingian art: Context, style and aesthetics.
  - Ottonian art: Context, style and aesthetics.
- iv. Late Medieval Christian art up to 15th century.
  - Visual narrative in Romanesque art. Research topics: Context, style and aesthetics within all fields of Romanesque artistic endeavour.
  - Visual narrative in Gothic art. Research topics: Context, style and aesthetics, within all fields of Gothic artistic endeavour.
- iv. Western European Christian art during early, high renaissance, manierism and baroque.
- v. Western European Christian art in Northern Europe.
- vi. Western European Christian art in the eighteenth century and the early nineteenth century.
- vii. Western European Christian art in modern art.

## **9. INTRODUCTION TO THE SCIENCE OF MANAGEMENT - CONSERVATION OF RELICS**

The present course aims at acquainting students with the concept of civilization management, the abilities of a manager of a cultural organization as well as the laws that abide to the management of ecclesiastical museums.

The course focuses on the following units:

Introduction to civilization management, definition of concepts, the timeless concept of civilization, manager of cultural organizations, manager’s activities, duties and abilities, basic principles of administrating cultural organizations, contemporary developments and cultural manager, tackling managerial issues, ecclesiastical legacy and management, basic principles of funding cultural organizations and ecclesiastical museums, institutional bodies for the protection and salience of the

cultural and ecclesiastical heritage, international organizations, European scheme of things, cultural politics, preservation principles of cultural and ecclesiastical heritage, case-studies.

## 2<sup>nd</sup> SEMESTER

### 1. CHRISTIAN ARCHEOLOGY

The birth, nature and aims of Archaeology. Christian Archaeology as a science. Sources and teaching aids. Paleochristian period: burial monuments, organisation and use of the underground burial places. Home churches. The wooden-roof Basilica of the Mediterranean basin. Circumcenter and cruciform worship buildings. Proto-Byzantine period: the iconoclastic crisis. Transitional monuments. Meso-Byzantine and post-Byzantine period: The revival of Macedonians and the byzantine classicism. Typology of the cross inscribed in a square dome-shaped church, octagonal buildings. Post-Byzantine period: the Palaeologan revival, main monuments.

### 2. SCIENCE AND TECHNOLOGY OF CONSTRUCTION MATERIALS (T+W)<sup>i</sup>

- a. Historical and technological progress. Distinction between supporting and non-supporting materials –principles for the functionality and use of traditional materials – material and information – documentation methodology – hands-on practice (sampling, recording, analysis)
- b. Stones. Origin, types, treatment and application technology. Technical characteristics. Documentation examples. Bricks and tiles. Types, production and application technology, technical characteristics. Documentation and analysis examples. Bonding slurry and mortars. Classification, distinction, construction and application technology. Technical characteristics. Examples of historical mortars' study.
- c. Metallic materials. Types, mining, processing and application technology. Technical characteristics. Examples of metal analysis of historical buildings.
- d. Wood. Types, processing and application technology, morphology of woodwork, technical characteristics, examples of old wood documentation.
- e. Non supporting materials. Glass, porcelain (composition – morphology, characteristics, use)
- f. Colours. History, technology, application, technical characteristics, examples.

### 3. FREE-HAND DRAWING

- a) Elements and syntax of the artistic language-expression
- b) Materials and means of artistic expression in the floor
- c) Free-hand drawing – organisation principles
- d) Drawing – constitution principles
- e) The artistic expression of time, space and light of the Byzantine Hagiography figures
- f) Actualisation techniques of the works of Byzantine Hagiography: Necessary teaching equipment: board teaching, teachers showing how to handle artistic drawing and slides of exemplary artistic work

### 4. ENGLISH

1. English for Specific Academic Purposes. Emphasis on all four skills:
  - e) Listening to lectures
  - f) Speaking in tutorials and seminars
  - g) Reading for research
  - h) Writing assignments

### 5. ANALYTICAL CHEMISTRY

- a. Definition of Analytical Chemistry- terminology
- b. Solutes – solute concentration – concentration units
- c. Chemical balance

- d. Weak acids and bases constants
- e. Water ionization. Balances of compounds to dissolve (solubility product) complex compounds, redox systems
- f. Sampling, sample treatment, measuring techniques, instruments and reactors, statistical processing of analytical data, mistakes, reporting of results
- g. Cation splitting into analytical groups
- h. Sedimentation, splitting and certification reactions of cations
- i. Qualitative analysis of anions
- j. Anions reactions
- k. Anion exclusion test reactions
- l. Anion certification test reactions
- m. Qualitative analysis of minerals and raw materials

## **6. COMPUTER SCIENCE**

- a) Introduction to the course and historical background
- b) Data presentation
- c) Digital systems
- d) Structural elements of computers
- e) Basic architectural elements
- f) Operating systems
- g) Introduction to Windows
- h) Algorithms, data and procedures
- i) Elements of Theoretical Computer Science
- j) Applied Computer Science. Word processing
- k) Computerisation systems

## **7. ANCIENT GREEK B'**

- a. Grammar- Syntax
- b. Teaching of Classical Greek Writers and Fathers of the Church.

## **8. ENVIRONMENTAL CONDITIONS FOR THE PRESERVATION OF RELICS**

- a. Institutional environment of conservation (administrative and managerial procedures)
- b. Natural environment (storage space and conditions of storage)
- c. Communication policy of relics

## **9. CERAMIC ART**

- a. Byzantine
- b. Post Byzantine
- c. Modern
- d. Construction techniques
- e. Deterioration diagnosis
- f. Restoration methods

## **10. ORTHODOXY AND CULTURE**

- a. Religion and civilization
- b. Orthodoxy and art
- c. Content of fundamental forms of Orthodox art
- d. Orthodoxy and artistic attitudes and trends
- e. Orthodoxy and cultural ideologies and movements
- f. Orthodox Theology influences on cultural transformation
- g. Orthodoxy and philosophical thinking

### 3<sup>rd</sup> SEMESTER

#### 1. PALAEOGRAPHY

- a. Subject and content of Paleography
- b. Copying of manuscripts
- c. Sheet arrangement and code dimensions
- d. Papyri and parchments
- e. Collections and publications
- f. Relationship between Paleography and papyri
- g. Types of writings and their reading
- h. Paleography and computers
- i. Numeration, copying, dating and correction of manuscripts
- j. The contribution of Paleography in the Theological Science

#### 2. GENERAL ECCLESIASTICAL HISTORY A'

It focuses on the founding of the Christian Church, the Apostolic teachings, teachings of their successors, prophets, scholars and Arch-priests. First heresies. Ecumenical synods A-Z, reasons for their convocation and their outcomes. Cyrillus and Methodius teachings. Charles the Great and the founding of the Frankish state. Scholastic Theology. The Great Schism of West and East. First reunification efforts. Investiture Controversy in the West.

#### 3. INSTRUMENTAL ANALYSIS

- a) Introduction to Instrumental Analysis (methods' classification)
- b) General principles of chromatography (introduction, organology, qualitative and quantitative analysis) Gas chromatography. Liquid chromatography. Level chromatography. HPLC chromatography.
- c) Electrochemical methods: Introduction to electrochemical methods. Potentiometry (introduction, organology, potentiometric and volumetric measurements, potentiometric kinetic methods)
- d) Electrodeposition – Coulometry – Polarography
- e) Interaction of radiation and material
- f) Quantitative analysis with radiation absorption
- g) Phasmatoscopy organology
- h) Flame photometry and spectroscopy of atomic absorption
- i) Spectroscopy NMR and X-rays.

#### 4. ASSESSMENT OF RELICS AND BUSINESS PLAN

- a. Development of the artwork market
- b. Development parameters and value evaluation
- c. Optimization procedures
- d. Sociological connection between value and commercial price
- e. Elements of Economical theory
- f. Institutional planning for developing collections

#### 5. ELEMENTS OF PHYSICS

- a) General coordinates
- b) Conservation laws
- c) Movement in central voltage
- d) Conflict of particles
- e) Oscillations

- f) Wave definition and propagation
- g) Nature and light transmission
- h) Phenomena of reflection and refraction
- i) Light interference and diffraction
- j) Polarization. Absorption and emission spectrums
- k) Coulomb Law
- l) Dynamic electric charge
- m) Electromagnetic field. Maxwell equations
- n) Electric and magnetic fields

## **6. ENGLISH**

The present course aims at introducing students to the concepts of ESP and translation through the use of theological texts that primarily focus on the life and martyrdom of saints. Issues pertaining to lexis, grammar, register and genre with respect to these theological texts are critically discussed in an effort to shed light on both translational and terminological aspects of English theological texts.

## **7. COMPUTER-AIDED DESIGN**

- a. General principles of computer-aided design
- b. Autocad
- c. CAD/CAM
- d. Three-dimensional design (3-D)
- e. Printouts
- f. Analyzing and teaching of escalating difficulty commands
- g. Applications of architectural compositions
- h. Composite design applications

## **8. NUMISMATICS**

This course presents and describes the coins and the history of Byzantine numismatics through the comparison with the coins of other cultural periods and times. It examines coin from an archaeological, historical, typological and morphological point of view. A detailed analysis of the types and uses of coins is provided as well as the role of their circulation in finance is explained. The practical and sociological usefulness of the coins' depictions and graphic symbolisms in the communication of the state with the citizens is foregrounded. Students get the chance to visit the Numismatic Museum of Athens and attend seminars that primarily aim at helping them recognize coins, acquaint them with the use of new technologies and monetary sources.

## **9. EPIGRAPHY**

- a) Introduction to Greek Epigraphy
- b) Christian and Byzantine Epigraphy
- c) Current Epigraphy
- d) Technique of amending interventions in the reading and restoration of epigraphs.

## **10. EXCAVATIONS AND FINDINGS**

- a. Excavation principles
- b. Excavation methods
- c. Evaluation of excavation findings
- d. Evaluation and protective and conservation measures of findings

## 4<sup>TH</sup> SEMESTER

### 1. GENERAL ECCLESIASTICAL HISTORY B'

Reunification efforts between the west and the east. Heresies in Byzantine Empire (Michael Psellos, Ioannes Italus, Bogomiles). Constance, Pisa, Basel synods. Hesychast dispute. Conquer of Constantinople. Reformationists: Luther, Calvin, Zwingli. Counter-Reformation: Jesuits – Ignatius of Loyola. Protestant branches (Quakers, Church of the Pentecost, Huguenots, Salvation Army), Unia.

### 2. GREEK ECCLESIASTICAL HISTORY

- a. Founding of the Christian Church through Saint Paul's teachings.
- b. Corinth Metropolitan
- c. Founding of the other Greek Metropolitans
- d. Participation of bishops of Greece in regional and ecumenical synods
- e. Vicariate of Thessaloniki
- f. Annexation of east Illyria to the throne of Constantinople
- g. Repercussions of Iconoclast conflicts for the Church of Greece
- h. The teachings of Nikon the "Metanoite"
- i. Monastic life in Greece until the 15<sup>th</sup> century
- j. Greece during Turkish occupation
- k. Declaration of Autocephaly in 1833
- l. «Tomos» decree of 185
- m. Legislative orders Σ' and ΣΑ'
- n. Contemporary heresies and schisms
- o. Movements during 18<sup>th</sup> and 19<sup>th</sup> centuries
- p. Founding of "Zoi" and "Sotir" brotherhoods
- q. The Church during World War I
- r. Metaxas dictatorship and cooperation of "Zoi" brotherhood
- s. The position of the Church during World War II
- t. The Synod of "Αριστίδην" during the "Junta" dictatorship
- u. The 12 bishops problem
- v. 590/1977 law

### 3. CHEMISTRY OF RELICS CONSERVATION I (T+W)

- a. Chemical analysis of metallic objects. Weighted and volumetric analysis. Microanalysis. Computation and interpretation of results.
- b. Radioactivity and nuclear energy. Isotopes, nuclear fission, nuclear reactions, half-life time, stable isotopes in archeology.
- c. Dating methods. Organic and inorganic materials. Development of absolute graduated ages. Paleoclimate - Paleoenvironment
- d. Ceramics. Geochemistry of clay, its structure and firing. Mineral ceramic composition. Clay element geochemistry. Detection of place of origin. Paints and coating in ceramics.
- e. Stone items. Stone, obsidian, marble
- f. Glass. Structure, colour and chemistry of glass. Erosion and disintegration of glass. Glass technology investigation
- g. Dyes. Classification and characterization of dyes. Paint chemistry. Identification of ancient dyes. Natural and artificial resins. Chemistry and use of resins. Resins analysis. Fats, oils and waxes. Organic materials in art and archeology. Leather and leather products, papyri, paper, fabrics, wood, bones and ivory. Aminoacids Stereochemistry. Bone collagen structure. Aminoacids Racemization as dating starting point.

### 4. ECCLESIASTICAL SILVER-GOLD SMITHERY

- a. Historical development

- b. Morphology
- c. Materials and techniques
- d. Contemporary needs and trends

#### **5. ECCLESIASTICAL GOLD-EMBROIDERY**

- a. Historical development and important workshops
- b. Morphology
- c. Materials and techniques
- d. Contemporary needs and trends

#### **6. DOGMATICS AND ECCLESIOLOGY**

- a. Theology – Oikonomia
- b. Christology
- c. Ecclesiology

#### **7. MUSEOLOGY**

- a. History interpretation – cases in Greece and abroad
- b. Eco-museums – open museums – open-air museums – city museum – archeological parks
- c. Monuments in use
- d. Storage of museum collections (planning – location – air conditioning, lighting, storage methods, equipment)
- e. Basic principles of preventive conservation and restoration of museum exhibits
- f. Excavations, documentation and publication
- g. Treatment of museum objects
- h. Keeping and classification of museum collections

#### **8. ENGLISH**

In this course, an attempt is made to provide a thorough investigation of the concepts of the Divine Liturgy, baptism and the sign of the cross. Through the detailed description of the concepts of water, baptism, spiritual renewal and the presence of our Lord in the Divine Liturgy, students get the chance to become familiarised with some basic English theological terminology which is essential for their professional development. Lastly, grammatical and stylistic issues that come into play are also critically discussed.

#### **9. ART AND CONSERVATION OF MOSAIC-INLAY**

- a. Ancient mosaics (materials, colours, shapes)
- b. Mosaic decoration in relation to the floor surface. Emblems and carpets.
- c. Pictorial representations
- d. Temple Mosaic floors (themes – dedicative inscriptions)
- e. Temple decoration materials
- f. Wall mosaics. Hagiographical representations (prominent temples)
- g. Colour in mosaics
- h. Mosaic construction methods
- i. Materials and methods of cleaning and restoration

#### **10. THEOLOGY OF THE ICON**

- a. Man as God's "image"
- b. Concept and use of icon
- c. Iconoclast and Art
- d. Orthodox teaching of icons (veneration and worship, relationship between icon and pictured figures, the aniconism of the divine essence)



- e. Pedagogical and Theological significance of icons
- f. Icon miracles
- g. The icons status in the liturgical life of the Church

## **11. CAUSES AND MECHANISMS OF MATERIALS DAMAGE**

- a. Causes, symptoms, methodology, diagnostic and evaluation means of degree of deterioration. Hands-on practice in diagnostic and analytical methods.
- b. Interventions. Distinction of interventions, criteria for selecting materials based on a holistic approach of the historical structure.

## **5<sup>th</sup> SEMESTER**

### **1. CHEMISTRY OF RELICS CONSERVATION II (T+W)**

- a. Object characterization and place of origin detection methods
- b. Combined approach of origin – technology- dating.
- c. Combined methods for checking authenticity
- d. Exercises on paper for understanding and processing analytical data
- e. The most important landmarks of Greco-Roman Byzantine expertise
- f. Causes and symptoms of archeological materials deterioration
- g. Metal deterioration. Coins and their adulteration
- h. Chemical interaction of substrate and colour layer
- i. Conservation chemistry of organic and inorganic materials
- j. Polymeric materials in works of art conservation. Inter-surface phenomena – solubility and solvent selection – TEAS

### **2. THE COLOUR AS MATERIAL AND SYMBOL IN RELICS**

- a. Introduction: Man – Light – Form – Colour
- b. Colour as a means of communication and expression
- c. The language of colours: Semantic – Symbolic
- d. Basic principles of colour theory and practice
- e. Special application techniques (encaustic, fresco, watercolours, oil paints, synthetic colours, mosaics)
- f. Presentation of applied research for the restoration of colour arrangements on listed buildings and relics
- g. Colour measuring representation systems
- h. Using colour science in measuring and depicting the works of art palette

### **3. METHODS FOR RELIC IMAGING AND DOCUMENTATION I (T+W)**

- a. Introduction
- b. Role and need of surveying
- c. Principles, instruments, photogrammetry methods
- d. Surveying flat surfaces
- e. Surveying of flat surfaces workshop
- f. 3-dimensional surveying
- g. 3 – dimensional surveying workshop

### **4. PHYSICAL - CHEMICAL METHODS FOR ECCLESIASTICAL RELICS DIAGNOSIS I (T+W)**

- a. Conservation science. Introduction to non-destructive and sampling methods of diagnosis
- b. Conservation condition study and description. Analog and digital photography shooting in visible and ultraviolet area – Infrared reflectography - Roentgen x-ray – radar technique – use of laser – Holography – Ultra sound Technique

- c. Spectroscopy principles – Fluorescence UV/VIS Spectroscopy – IR Spectroscopy, MFTIR combined techniques – Raman Spectroscopy,  $\mu$ Raman technique – X-XRD/XRF-SAXS/WAXS ray Spectroscopy – NMR Spectroscopy- Tomography
- d. Optical Microscopy – principles and instrumentation – Scan Electron Microscopy (SEM) – X- rays – Scanning tunneling Microscopy and Atomic force microscopy

## **5. INTERVENTION AND RESTORATION MATERIALS**

- a. Upgraded or modified traditional materials
- b. Modern materials in restoration interventions
- c. Cleaning, impregnation, protective (silicon) materials
- d. Synthetic plastic materials
- e. Modern methods of treating moisture as a deterioration factor of masonry relics
- f. Modern materials and methods of the reinforcement – fastening of constructions
- g. Modern materials and methods of the conservation-restoration of relics
- h. Methods for monitoring the effectiveness of interventions
- i. Intervention materials. Distinction. Construction and surface intervention materials. Stone, bricks, mortars, grouts, metals, wood, colours, chemicals. Specification of technical characteristics, control methods, reliability, application instructions, hands-on practice. Surface restoration materials. Cleaning, impregnation and protective materials and techniques for the façade materials of historical buildings. Hands-on practice.

## **6. FRESCO PAINTING IN ART**

- a. Progress from antiquity until today
- b. Methods – construction materials
- c. Contemporary techniques
- d. Construction propositions using modern technology
- e. Restoration techniques and intervention materials

## **7. ELEMENTS OF ECCLESIASTICAL LITERATURE**

- A.1. Introduction to Patrology and its importance in the Orthodox Theology
- 2. Concept and authority of the father and teacher. Fathers of the Church, Ecumenical Fathers- Ecclesiastical authors. The cultural and spiritual context of the Fathers “era”: education, language, philosophy
- B. CENTURIES: 1. Apostolic Fathers. 2. 3rd century: Christian Apocrypha, Gnosticism and anti-heretic theologians. 3. Heresy and Orthodoxy during the 4<sup>th</sup> century. Arianism and the exponents of the Nicea doctrine. Cappadokian Fathers.

## **8. MONUMENT TOPOGRAPHY AND IMAGING**

- a. Topography’s subject of study
- b. Monuments and static reports
- c. Main tools of topographic measures and mapping
- d. Monument in relation to space
- e. Tools, errors and accuracy of measurements and mappings
- f. Mapping methods and applications
- g. Mass computation and topographic designs
- h. Optical overview, estimates, components analysis (optical quality, form, structure and installation prototypes) and area delimitation
- i. Cognitive and experiential approach of monuments
- j. Geographical correlation and incorporation in a more widely structured environment
- k. Visits to monuments

## **9. TECHNICAL DRAWING**

- a. Types of technical drawing
- b. Its role in preserving monument heritage
- c. Contemporary possibilities
- d. Drawing at different levels

## **10. PHOTOGRAPHY**

Main theory and principles of photography analysis. Basic functions of the camera, theoretical and technical knowledge which will help students understand and use the jargon of photography as a means of expression and communication. Emphasis is put on the most common approaches and techniques of an image capture (portrait, object, landscape, etc.)

## **6<sup>th</sup> SEMESTER**

### **1. PAINTING (MATERIALS TECHNIQUES)**

- a. Progress from natural materials to polymers
- b. Materials and methods
- c. Types of bearers (wood – paper - metal – wall – fabric)
- d. Sociological analysis of painting through different eras and societies

### **2. PHYSICAL-CHEMICAL METHODS FOR ECCLESIASTICAL RELICS DIAGNOSIS (II) (T+W)**

- a. Chromatography: Principles, Chromatic coordinates – colour measuring with UV/VIS/Integrating Sphere – Colour representation through scanning – Digital image processing - Database structure and use
- b. Chromatography: Principles and instrumentation – gas Chromatography, cGC, HRGC, HPLC Chromatography, ion Chromatography, SEC Chromatography – GC – LC mass Spectroscopy – TLC mass Spectroscopy – Electrophoresis
- c. Thermal analysis. Principles and instrumentation – Scan Differential scanning calorimetry, thermal balance, thermal mechanical analysis, combustion calorimetry
- d. Critical evaluation of diagnostic techniques. Techniques combination and complementarity

### **3. CONSERVATION OF WOOD CURVED RELICS (I)**

- a. Wood-curved relics' historical progress
- b. Historic buildings' wooden structural elements (roofs, floors, staircases, frames)
- c. Morphology and methods of construction
- d. Construction problems
- e. Conservation – Restoration
- f. Wood structure and qualities. Damage causes and deterioration factors. Wood enemies and defects. Wood life cycle.
- g. Materials and preventive protection methods
- h. Wooden artifacts assembly
- i. Historical and contemporary solutions
- j. Wooden structure mechanics. Strength, computational methods
- k. Regulations
- l. Wooden structure heat insulation, water insulation, soundproofing
- m. Fire protection of wooden structural elements and structure
- n. Wooden structure pathology
- o. Damage diagnosis methods and equipment. Corrective interventions. Damage recovery
- p. Conservation. Reinforcement. Materials and methods used for intervention

#### **4. CONSERVATION OF ICON PAINTING (I)**

- a. Studying and describing the current situation in the conservation of the painted surface (digital and macrophotography. Observation and digital photographing in a stereomicroscope)
- b. Describing the condition of preservation of the work of art and detecting the presence of overpaintings (Roentgen x-ray and infrared reflectoscopy – reflectography)
- c. Study of the design of the work of art (possible changes)
- d. Detection of first painted layers underlying the surface
- e. Study of the condition of preservation of the surface of the work of art
- f. Colour study of the work of art. Comparative study before and after the conservation
- g. Identifying the dyes of surface colours in small-dimensional works of art (illustrated manuscripts). Theory and lab practice.

#### **5. ELEMENTS OF BIOLOGY AND PRINCIPLES OF BIO-CORROSION**

- a. Prokaryotic and Eukaryotic cell function and structure
- b. Replication, transfer, translation
- c. Cell cycle
- d. Viruses and phages
- e. Structure of multicellular organisms
- f. Basic knowledge of physiology and genetics
- g. Bioerosion and aging mechanisms
- h. Environmental factors, ecosystems
- i. Biological populations and their progress
- j. Bioerosion mechanisms and phenomenology
- k. Aesthetic damage and biological deterioration

#### **6. DIAGNOSIS – HISTORICAL ASSESSMENT AND CONSERVATION OF WORKS OF ART (T+W)**

- a. Topics – style
- b. Comparative methods of dating – time and space positioning
- c. Evaluation of visible structural and aesthetic problems
- d. Materials – Physicochemical diagnostic methods, pathology
- e. Critical evaluation and selection of conservation methods
- f. Valid technical description of the conditions and problems of the conservation
- g. Preventive conservation
- h. Conservation of load bearing structure and substrate
- i. Stabilization of colour layers
- j. Valid technical description of conservation progress
- k. Final cleaning
- l. Aesthetic restoration of the artwork

#### **7. THE CHRISTIAN ART IN GREECE (PALEOCHRISTIAN AND BYZANTINE ERA)**

- a. Architecture (Church building – styles)
- b. Painting (Frescos – portable icons)
- c. Sculpture (pillars – parapets – icon screens – shelves)
- d. Miniature art (objects of worship)

#### **8. THE CHRISTIAN ART IN GREECE (MODERN ERA)**

- a. Neo Byzantine temples (architecture)
- b. Sculpture (pillars, capitals, parapets)
- c. Painting (danger of westernization)

- d. F. Kontoglou
- e. Miniature art (ecclesiastical objects and sacred vessels)

## **9. THEORY AND METHODOLOGY OF WORKS OF ARTS ANALYSIS**

Main goals: the students should be able to appreciate art, evaluate works of art, connect the past and the present in the historical development of art, learn to observe and analyze, experience the aesthetic result. Methodology: study of the visual and morphological elements of the works of art, their interpretation, analysis and evaluation.

Course components: diachronic and synchronic study of the societal role of the work of art, the aim of art, the creator's role, the recipient's role in the art of the ancient, medieval, renaissance, modern and postmodern civilizations.

## **7<sup>th</sup> SEMESTER**

### **1. CONSERVATION OF WOODEN CURVED RELICS (II) (T+W)**

- a. Restoration techniques (methods – tools – materials)
- b. Lab class

### **2. PATHOLOGY AND MANAGEMENT OF PREVIOUS UNSUCCESSFUL INTERVENTIONS FOR CONSERVATION AND RESTORATION OF RELICS**

- a. Types of intervention
- b. Ways and methods of diagnosis
- c. Measuring methods of existing decay
- d. Techniques and ability of reversing decay

### **3. MATERIALS AND TECHNIQUES FOR THE MANUFACTURING OF BOOKS (T+W)**

- a. History of the progress of writing materials
- b. History of bookbinding techniques
- c. Ink and colour technology
- d. Miniatures
- e. Documents

### **4. ARCHIVE MATERIAL MANAGEMENT (T+W)**

- a. Types of documents
- b. Collections and documents pathology
- c. Archiving methods
- d. Environmental conditions

### **5. CONSERVATION OF BOOKS – CODES – DOCUMENTS (I) (T+W)**

- a. Library bioerosion treatment
- b. Bookbinding restoration
- c. Map restoration
- d. Parchment restoration
- e. Paper supplementation techniques
- f. Paper washing
- g. Palimpsest reading techniques
- h. Codicology

### **6. ECCLESIASTICAL MICRO-CRAFTS (T+W)**

- a. Miniature art as decorative art
- b. Ivory

- c. Imperial pyxes
- d. Steatites
- e. Metalwork
- f. Bronze tablets – goldsmiths
- g. Enamels
- h. Icons with forged metal covering and enameled medals
- i. Conservation and restoration techniques and materials

## **7. DIGITIZATION TECHNIQUES FOR MONUMENTS AND RELICS (T+W)**

- a. Introduction to multimedia
- b. Sound, still and moving image digitization through appropriate peripheral devices
- c. Audio, image and video storage and compression techniques
- d. Archiving of multimedia material and database creation
- e. Developing virtual reality applications
- f. GPS use and topographic mapping of monuments
- g. Utilizing special applications and the internet

## **8. THE ECCLESIASTICAL WEAVING**

- a. Weaving art types
- b. Historical progress
- c. Contemporary methods and trends
- d. Weaving in Greece and abroad
- e. Textile restoration methods and materials

## **9. IMAGE DIGITALIZATION AND ANALYSIS**

- a. Introduction to the concept of digital image
- b. Definition of relevant terms (Dimensions, analysis, colour depth, compression)
- c. Image digitization techniques
- d. Image digitization through scanner
- e. Image insertion from digital camera. Inserting image from PhotoCD. Finding image from the web
- f. Basic characteristics of digital image programmes
- g. Photoshop
- h. Size alteration – image analysis
- i. Mirroring and rotations, part of image copy-cut-paste
- j. Colour balance, colour depth alteration, hue – saturation – brightness – contrast
- k. Text input and formatting
- l. Dynamic effects, work with layers, filters, image composition
- m. Digital image printing, page format, preview and printing

## **10. MODERN COATING MATERIALS FOR THE PROTECTION OF RELICS**

- a. Phasmatoscopy
- b. Determining construction period of the object
- c. Assessing damages
- d. Proposed modern materials for restoration of damages
- e. Identification of metal erosion
- f. Definition of Mediterranean copper slabs and their differences
- g. Erosion stabilizers
- h. Ways of steel preservation
- i. Colours (quality of colours)
- j. UV rays
- k. Infrared radiation and its effect on colours
- l. Polymerization

## 8<sup>TH</sup> SEMESTER

### 1. AESTHETICS OF ORTHODOX CHRISTIAN ART

- a. Modern church building structure – Monuments
- b. Orthodox temple aesthetics
- c. Necessity of symmetry of spaces
- d. Modern woodcarving – furnishings
- e. Paleochristian art (Hellenistic – Catacombs)
- f. Mosaics (Art – Origin – Aesthetics – mosaic adorned floor – inscriptions etc.)
- g. Painting – Hagiography (Secular – Ecclesiastical – perspectives)
- h. The Icon (its Art and technique – types)
- i. Byzantine painting and Hagiography schools
- j. Iconographic cycles
- k. The influence of the Byzantine Art on the West and vice versa.
- l. Other types of Ecclesiastical Art (Sculpture – Woodcarving – Metalwork – Fabrics – Embroidery)

### 2. CONSERVATION OF INLAYS, GLASS, VITRO (T+W)

- a. Technology: basic ingredients and ways of manufacturing glass objects from antiquity till the 18<sup>th</sup> century – Terminology
- b. Basic glass chemistry: the nature of the material - how the construction ingredients influence the objects' deterioration through time
- c. Deterioration – glass objects erosion: mechanical decay – “Watering” – Peeling – surface crusts – blackening of excavation material
- d. Examination of glass objects - documentation
- e. Glass objects conservation: i) First-Aid ii) Packing and storage iii) Cleaning iv) Fastening v) Restoration (welding and supplementing)
- f. Mosaic conservation. Materials and methods

### 3. CONSERVATION OF FABRICS – VESTMENTS (T+W)

- a. Technology
- b. Identification of techniques. Fabric and dye chemistry
- c. Conservation and storage methods
- d. Conservation and use proposals

### 4. CONSERVATION OF METAL OBJECTS OF WORSHIP (T+W)

- a. Register – documentation of object under conservation process (initial and during conservation)
- b. Physicochemical examination methods
- c. Cleansing methods with chemical and mechanical ways
- d. Evaluating the necessity of specific interventions, methods, conservation materials and evaluation of repercussions
- e. Fastening and support
- f. Welding and supplementation
- g. Storing and exposure (environmental conditions, materials)

### 5. CONSERVATION OF SCULPTURED AND MARBLE MONUMENTS (T+W)

- a. Sculpture in the round – reliefs
- b. Religious themes in stone – marble
- c. Parapets – sarcophagi
- d. Conservation, cleansing and restoration techniques

## **6. CONSERVATION OF ICONS (II) (T+W)**

- a. Micro-analytical methods of study
- b. Stratigraphy study and description (preparing cross-section samples, digital photographing of stratigraphic sections optical microscopy, mathematical processing of digital images)
- c. Identification of stratigraphic constituents
- d. Identification of dyes and all inorganic constituents
- e. Identification of organic constituents
- f. Detailed result report
- g. Methodology (mass gas chromatography, x-ray, sampling and optical microscopy – image processing, scanning electron microscopy and liquid chromatography, infrared reflectography, spectography, visible spectrum photography, tangential lighting photography, ultraviolet fluorescence photography, chromatometry, image digitization).

## **7. CULTURAL PROPERTY LAW**

The course delves into the important issue of Cultural Objects and Ecclesiastical Heritage protection which is provided in accordance with the provisions of the national cultural heritage law. The protection concerns the conservation of the historical memory and the upgrading of the cultural environment. The cultural heritage includes both tangible and intangible objects. The course describes the framework of national and international law rules which ensure the cultural objects protection. According to the law, the Cultural Objects and Ecclesiastical Heritage protection mainly consists of the detection, research, recording, documentation and study of their elements as well as the objects' conservation and the prevention of their destruction or alteration and in general any direct or indirect damage. It also entails the prevention of any illegal excavation, their theft and/or their illegal exportation, their preservation and necessary restoration, the facilitation of the public's access and communication, their enhancement and inclusion in the contemporary social life and education as well as aesthetic education and the awareness-building of the public as far as cultural heritage is concerned.

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<sup>i</sup> T stands for Theory and W for Workshop