



COURSE: Refurbishment and Renovation Design

TEACHER: Prof. Arch. Filiberto Lembo

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website:

Language: Italian

ECTS: 6

n. of hours: 54

Academic year: 2015-2016

Campus: Potenza

Semester: second

TOPICS

Building Refurbishment and building rules. Refurbishment and Restoration. The D. Lgs. 22/01/2004, n. 42; the L. 457/78. The evolution of Restoration concept. Restorations of Titus' Arc and Coliseum. Camillo Boito and the IVth Congress of Italian engineers and architects in 1883. The Fiorelli Circular 1882. The Italian Restoration Charter of 1932. The *Istruzioni per il restauro dei monumenti* of 1938 and L. n. 1089 of 1939. The reconstructions after IInd World War. Renato Bonelli and the reversal (1955) of the Charter's principles. The Venice Charter of 1964. The Restoration Charter of 1972. The 1987 Charter of *Conservation and Restoration of Art and Culture objects*. Restoration of the matter or of the meaning? Refurbishment v/s Restoration. The role of Refurbishment Manuals. The new international mind on Building Refurbishment. German Pavillion at Biennale di Venezia 2012. The new words on agenda: *Reduce, Reuse, Recycle, Perception, Maintenance, Behavior, Renovation, Conversion, Infill, Redesign, Subtraction, Addition, Material Recycling, Gestalt Recycling*. Flow chart for Refurbishment interventions. Seismic Vulnerability Check for masonry buildings with VM Method. Seismic Vulnerability Check for reinforced concrete buildings with VC Method. Mery Method for arches and vaults checking. Under-foundations, micro-pile, groutings. To operate on pushing structures: chains, shape walls, calottes, fibers, complex systems, spurs, scarp walls. To cross excessive charges: plates, hoops, laces, CAM. Torque problems. New concepts for wooden floors refurbishment, and to prevent masonries from coming out of their plane. Reinforced concrete damaged restoration. Energy Certification of buildings in new Environmental Certification standards and role of people who issues Energy Certification. Normative framing. Energy Certification as part of Environmental Certification. Methodologies for calculating building energy performance: standards, area of use and bounds of use, gathering criteria, data analysis and processing. Energy performance calculation criteria of design following UNI TS 11300. Methodologies and calculation criteria for evaluation of thermal exchanges and free gains. Energy diagnosis of existing buildings, by means of quick evaluations (comparisons with abacus or analogous technical solutions) and/or instrumental evaluations (in situ thermal conductivity measurements and thermography): areas and bounds of use, capabilities and synergies. Living conditions comfort and environmental sustainability of buildings. The defense from rising damp: physical, chemical, electro-physical methods; magic's and reality. Ground floor refurbishment. Historical and contemporary, flat and sloping coverings restoration and upgrade. Waterproofing and his pathologies. Interior and exterior insulations: general rules and concepts, components, performance requirements for different systems, pathologies. Innovatory components for internal and external finishes. Color and texture culture in architecture. To regenerate plants. To add active energy production plants from local renewable sources. To operate on contemporary buildings: *exempla* in Europe. To regenerate buildings, up to bring them to be Nearly Zero Energy Buildings. Energetic efficiency and sustainability.

TEACHING METHODS (please tick one or more options)

- Theoretical lessons
- Tutorials in classroom
- Tutorials in laboratory
- Project works
- Technical visits

Other activities (please specify) _____

TEXTBOOKS

TESTI DI RIFERIMENTO

MARCONI, PAOLO, *Arte e cultura della manutenzione dei monumenti*, Roma-Bari, Laterza, 1984; MARCONI, PAOLO, *Il restauro e l'architetto – Teoria e pratica in due secoli di dibattito*, Venezia, Marsilio, 1993; MARCONI, PAOLO, *Materia e significato – la questione del restauro architettonico*, Roma-Bari, Gius. Laterza & Figli, 1999; LEMBO,



FILIBERTO (a cura di), *Isolare dall'esterno*, 2 Voll., Faenza, Faenza Editrice SpA, 1990; VITTONI, RENE', *Batir – manuel de la construction*, Lausanne, Presses Polytechniques et Universitaires Romandes, 1996; LEMBO FILIBERTO, MARINO FRANCESCO P.R., *Il comportamento nel tempo degli edifici – cause di degrado e soluzioni progettuali dei sistemi “tradizionali” ed “industrializzati” – Casi di studio*, Roma, Ed. EPC Libri, 2002; MARINO FRANCESCO P.R., GRIECO MARIA TERESA, *La certificazione energetica degli edifici ed il D.Lgs. 192 del 19/8/2005 – Algoritmi di calcolo ed esperienze internazionali*, IV^a Edizione, Roma, Ed. EPC Libri, 2006; SISTO MASTRODICASA, *Dissesti statici delle strutture edilizie. Diagnosi – Consolidamento – Istituzioni teoriche – Applicazioni pratiche*, VII^a Edizione, 1980; ARNOLD CHRISTOPHER, REITHERMAN ROBERT, *Building Configuration and Seismic Design*, New York, Wiley-Interscience Publication, 1982; FONTANA, CARLOTTA, *Recuperare – Le parole e le cose*, Firenze, ALINEA, 1991; AA.VV., *Refurbishment Manual – Maintenance, Conversions, Extensions*, München, Edition DETAIL, 2009; PETZET MUCK, HEILMEYER FLORIAN, *Reduce, Reuse, Recycle - Architecture as Resource*, German Pavillion, 13th International Architecture Exhibition, La Biennale di Venezia 2012, Ostfildern, Hatje Cantz Verlag, 2012; RICHARZ CLEMENS, SCHULZ CHRISTINA, *Energy efficiency refurbishments – Principles, Details, Examples*, München, Edition DETAIL Green Books, 2013 .

MATERIALE DIDATTICO ON-LINE

indirizzo web:

ON-LINE EDUCATIONAL MATERIAL

web address:

LEARNING OUTCOMES

The Course aims to contribute to form designers who know design and building methods used in buildings middle-high performing in Europe and other industrialized countries, being able of assessing involvements of choices both on formal domain, and in feasibility, and in economic domain too.

REQUIREMENTS

None

EVALUATION METHODS (please tick one or more options)

X Intermediate verifications

Written examination

Discussion of a project work

Practical test

X Oral examination

Other methods (please specify) _____

DETAILED CONTENT

It is possible to have more detailed and specific bibliographic indications from professor or Ing. Francesco P. R. Marino, Technical Responsible of *Laboratorio di Tecnologia delle Costruzioni – La.Te.C.*

EXAMINATION SESSIONS (FORECAST)

SEMINARS BY EXTERNAL EXPERTS YES x NO

FURTHER INFORMATION

Directly through e-mail of professor.
