Università degli Studi della Basilicata
Scuola di Ingegneria

COURSE: Technology & Architecture				
TEACHER: Prof. Arch. Filiberto Lembo				
e-mail: filiberto.lembo@unibas.it		website:		
Language: Italian				
ECTS: 9	n. of hours: 81	Academic year: 2015-2016	Campus: Potenza	Annual teaching

TOPICS

Performance design of building system. Environmental and technological systems. Performance-based and descriptive-based standards. Quality in building. Principal rules for design of public works in Italy. Law n. 109/1994 and DPR n. 554/1999. D. Lgs. n. 163/2006 and DPR n. 207/2010. D. Lgs. n. 81/2008. Fundamentals: modular design, design with modular components; natural and artificial materials; the building and the environment; sustainability and free resources for warming and for cooling; the so-called "bio-climatic design" and solar passive systems; design for the winter and/or for the summer; water tightness of building casings; acoustic insulation and acoustics of the spaces; thermal and hydrometrical conditions of the spaces and of the building casings; thermal inertia, attenuation and phase shift; natural ventilation; natural lighting, daylight factor; plant integration, mechanically controlled ventilation; fire protection; anti-seismic design. Coherence v/s dissociation between structure and form: the arranged-in-layers casing, buildings *shell and core*, massive buildings, dry stratified buildings. Bearing masonry buildings today: masonry of little elements, in situ reinforced concrete walls cast in industrial formworks, great load-bearing precast panels, precast tree-dimensional cellules, wood structures, massive, platform, with X-LAM panels. Pillar-beam frame buildings today: in situ or precast, in reinforced concrete, in steel, in wood and glulam elements. "Mediterranean" architecture and cold countries architecture. Multi-layer walls, blind and transparent (DSF), with high thermal efficiency. "Passive houses". Ground, semi-underground and bermed buildings. Suspended floors today. Coverings and their new roles. To remove barriers to mobility. Balconies and loggias. Pathology prevention and maintenance design. To add active energy production plants from local renewable sources: thermal solar, mini-eolic, photovoltaic, geothermic, mini-hydraulic, hydrogen-based, for designing of Nearly Zero Energy Buildings. Energy-efficient buildings and sustainable buildings. Sustainability evaluation methods, qualitative or quantitative.

TEACHING METHODS (please tick one or more options)

X Theoretical lessons
X Tutorials in classroom
X Tutorials in laboratory
□ Project works
□ Technical visits
Other activities (please specify) _____

TEXTBOOKS

LEMBO, FILIBERTO, *Prestazioni dei materiali per l'edilizia*, Empoli, Sto Italia Srl, not for sale, 2012; MAZRIA, EDWARD, *Sistemi solari passivi,* Padova, Franco Muzzio & C., 1980; LEMBO, FILIBERTO (a cura di), *Isolare dall'esterno*, 2 Voll., Faenza, Faenza Editrice SpA, 1990; VITTONE, RENE', *Batir – manuel de la construction*, Lausanne, Presses Polytéchniques et Universitaires Romandes, 1996; ARNOLD CHRISTOPHER, REITHERMAN ROBERT, *Building Configuration and Seismic Design*, New York, Wiley-Interscience Publication, 1982. 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^ Edizione, Roma, Ed. EPC Libri, 2006; SCHITTICH, CHRISTIAN (a cura di), *Cost-Effective Building – Economic concepts and constructions*, München, Editions DETAIL, 2007; AA.VV., *Energy Manual – Sustainable Architecture*, München, Edition DETAIL – Birckhäuser, 2007; VOSS KARSTEN, MUSALL EIKE, *NET ZERO ENERGY BUILDINGS – International projects of carbon neutrality in Buildings*, München, DETAIL Green Books, 2013; GONZALO ROBERTO, VALLENTIN RAINER, *Passive House*

Design – Planning and design of energy-efficient buildings, München, Edition DETAIL Green Books, 2014.

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
Il is possible to have more detailed and specific bibliographic indication 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.