Course unit English denomination	Technical innovation in complex building renovation projects
Teacher in charge (if defined)	Prof. Livio Petriccione
Teaching Hours	24
Number of ECTS credits allocated	3
Course period	November - January
Course delivery method	☒ In presence ☐ Remotely ☐ Blended
Language of instruction	English / Italian
Mandatory attendance	☒ Yes (90% minimum of presence) ☐ No
Course unit contents	The topic of building renovation is one of great interest given the large building stock throughout Europe, which needs building adaptation and improvement. The lectures will focus on the relationship, in contemporary integrated design, of artisanal technologies with innovative and industrial technologies with reference to the feasibility of the project and the optimal compliance of the work with the essential requirements. The interaction between requirements, performance and project implementation procedures will be explored through practical examples. The lectures will analyse issues related to the conservation and recovery of existing buildings, methodologically considering the choice of interventions and the use of progressively more advanced technologies, through the flexible integration of multiple multi-professional and multidisciplinary knowledge. The development of the methodological-operational process of the project in its phases will be dealt with, analysing the practices and executive solutions adopted, the use of materials and tools for the appropriate procedures, the evolution of technologies and adaptation to regulations. The lectures will be characterised by the analysis of some case studies on buildings with particular complexity and historical-constructive value. The case studies will highlight the indispensable role of research as the first instrument of knowledge and approach to the building restoration project.
Learning goals	The learning objectives involve the acquisition of skills to approach the issue of the recovery of historical buildings of high complexities. In particular, to acquire advanced research methodologies useful for the realisation of a renovation project of an existing historical building. The topics of architectural, energy, acoustic and structural performance are also studied in detail.
Teaching methods	Lectures with slides

Course on transversal, interdisciplinary, transdisciplinary skills	☒ Yes ☐ No
Available for PhD students from other courses	☒ Yes ☐ No
Prerequisites (not mandatory)	Although not mandatory, it is highly recommended to have knowledge of the building organism in all its parts and the most widely used recovery methodologies. Other knowledge required are in areas of: Drawing, Engineering structures; Architectural engineering and Building Production; History of Architecture.
Examination methods (in applicable)	The examination will be based on the writing of a final report. The content of the report must reflect the knowledge acquired during the course and relate it to the topics of each student's doctoral research.
Suggested readings	- Lombardo S., Chiofalo T., Manuale del rinforzo strutturale. Guida all'adeguamento sismico con sistemi compositi e tecniche tradizionali, Dario Flaccovio Editore, Palermo, 2014. - E. Dassori, R. Morbiducci, Costruire l'Architettura. Tecniche e tecnologie per il Progetto, Tecniche Nuove, Milano, 2010. - Stefano F. Musso, Recupero e restauro degli edifici storici. Guida pratica al rilievo e alla diagnostica, EPC Editore, Roma, 2016. - Petriccione L., Petruzzi R., Costruire ai tempi della guerra fredda. L'architettura della fortificazione permanente della frontiera orientale, Forum Editrice Universitaria, Udine, 2019. - Petriccione L., Chinellato F., Vie d'acqua e ambiente costruito. Le prime centrali idroelettriche in Friuli Venezia Giulia, Forum Editrice Universitaria, Udine, 2019. - Petriccione L., Amendolagine F., Il Teatro Galli. Tecniche e materiali per la ricostruzione degli apparati decorativi del capolavoro di Luigi Poletti, Maggioli Editore, Rimini, 2018. - Petriccione L., La difficile cura nel recupero edilizio. Legittimità del dubbio tra reversibilità e irreversibilità negli interventi post-sisma in Friuli, Franco Angeli, Milano, 2024.
Additional information	