



**UNIVERSITÀ DEGLI STUDI DELL'AQUILA
CORSI DI INGEGNERIA**

**A.A. 2025/2026
CONSTRUCTION SITE MANAGEMENT (I4B)
- De Vita Mariangela -**

(Aggiornato il 24-10-2025)

Contenuti del corso (abstract del programma):

The purpose of the course is to provide students with basic knowledge in design, operational-economic planning and management of safety at the construction sites by addressing the different stages of organization and execution in view of integrated management of the construction process. In addition, the student will be also formed on specific issues related to risk management, integrated construction process and post-earthquake reconstruction. The main goal of the course is, therefore, to provide procedures and tools that allow for a systematic control of the use of the available human and economic resources, so that the best choices can be taken. The course also aims to deepen the issues related to the management of safety at the construction site through the analysis of the various procedural steps that contribute to the realization of a work, risk management, the responsibilities of the subjects involved in the construction activity, the assessment of the necessary human and material resources, the organization of safety and accident analysis and prevention seen as a fundamental element of the construction process, from design through production, to the management of the buildings. In particular, the course will focus on the construction site linked to the post-earthquake reconstruction that, due to critical issues, interference, risks, ... needs of specific attentions and skills.

Programma esteso:

PLANNING AND ORGANIZATION OF THE PRODUCTION PROCESSES: the organization of the production of the building industry, the analysis of the evolutionary path in the production of the building industry, the construction site planning, programming and management, the safety process and

the systematic control, the actors of the construction process, Technology transfer, Italy's trend of the construction output, From the construction to the assembly, the dry construction: Crystal Palace and Ballon Frame SAFETY IN TEMPORARY AND MOBILE CONSTRUCTION SITES: from passive safety to integrated safety, EU legislation on safety at work, the Consolidated Law (Testo Unico) 81/08, the OHSAS 18001 standard, Safety and Coordination Plans (PSC) and Operational Safety Plans (POS), Examples SCHEDULING OF THE CONSTRUCTION ACTIVITIES: phases and subphases, scheduling techniques: block diagram, arrow diagram, bar diagram, flowcharts, histograms, scheduling methods, sequential coordination, parallel coordination, cascade coordination or series, control of the scheduling techniques, stages of development OPERATIONAL CONTROL: planning, accounting, reporting, management control, the company as a system, contract management, project management, UNI EN ISO 9001 company's quality certification ADMINISTRATIVE CONTROL: the Director of works, tasks, functions and main legislative references, the Director of works office, the Director of works for private clients, the responsibilities, the technical compliances, the management of the works, delivery, interruptions, restarting, variants, service orders, reservations and completion of works, the administrative and accounting activities, the accounting documents from the site activities log to the certificate for payment, completion of works, final bill, work completion certificate and assistance during the final inspection LOGISTICS AT CONSTRUCTION SITE: organization of site activities, logistics setting criteria, service areas, offices, auxiliary and equipment rooms, site equipment, nodal, circulation and plant engineering equipment, static and dynamic equipment BIM: The traditional building process and the BIM process, asset renewal, Building Information Model, Building Information Modeling, Building Information Management, Bim dimension, Bim diffusion, European legislation and the Italian one, Characterization of the project through BIM systems, Potential and advantages in the use of BIM system, The BIM in the process of setting-up the construction site, BIM platforms, Case studies DOMOTICS AND BUILDING AUTOMATION: Automation areas, Building automation and building sustainability, Historical facts, The application of domotics to the built heritage, Low cost and user- friendly technology development, Examples, smart grids, smart cities, smart site (brief hints): Smart construction experiments THE SUSTAINABLE PLAN: The concept of sustainability: environmental, social, and economic. The limits of development and the ecological footprint. Sustainable development: from the energy crisis of the 70s to the environmental emergencies of the 2000s (brief hints), The rating systems: Leed, Breeam and GBC, The building and demolition waste: The management of construction waste according to the protocols of certification of sustainability in construction and related figures (reuse and recycling), Video of demolitions showing the dust control methods, The environmental control of the building site (the legislative references, the role of the designer and the building contractor..., the acoustic emissions, Air Quality, dust, Environmental Management System, Construction and Eco-Management, Examples MANAGEMENT OF THE POST-EARTHQUAKE RECONSTRUCTION: critical issues and project of construction sites RISK IDENTIFICATION AND MANAGEMENT: Asbestos, noise and vibration risk, fire, electrical and collision risk.

Modalità d'esame:

The exam will be based on the assessment of the knowledge and the deepening of the topics listed in the detailed programme, explained during the lessons of the course. This verification will take place through a written and / or oral test and the assessment of the exercise carried out by the student during the semester in the design workshops. This exercise will cover a topic related to the territory. The

student will be admitted to the final exam after obtaining a positive opinion of the university teacher in the final review of the work.

Risultati d'apprendimento previsti:

The purpose of the course is to respond to the widespread demand for technological innovation in production that requires professionals able to compete with an increasingly demanding market and strongly integrated with the specific needs of companies and operators in the sector. All this requires, in fact, a professional figure who knows how to act with competence in managing the complexity of the building production process and who is able to correlate the technical, constructional and procedural aspects related to the construction of the works. Furthermore, another objective of the course is to train the student in the integrated management of the construction process, in the management of risks and fragile territories, so as to respond to the growing market demand of professionals able to operate in highly vulnerable contexts typical of Italian country. At the end of the course students will have acquired a working methodology that will start them to critically use all the topics related to the subject and will help them to face the complex problems of professional work. The final aim is, therefore, to contribute to forming a cultural and professional figure capable of planning and controlling technical and economic actions that allow us to rationalize the production process and optimize the use of resources, including in the case of post-earthquake reconstruction.

Link al materiale didattico:

ELearning@AQ

Testi di riferimento: