

# CONSTRUCTION PROJECT MANAGEMENT (COPM1-CE)

## COPM1-CE 9100 The Construction Process: Life Cycle, Organizations, and Delivery Methods (2 Credits)

This course provides an introduction to the construction industry and the construction process, with a focus on alternative project delivery methods and contractual approaches. After exploring the characteristics and scope of the industry with its various sectors, specialties, and types of projects, learn the roles and responsibilities of project stakeholders and examine the advantages and disadvantages of the various methods of project delivery. Topics include the phases of the project life cycle, from design development through construction; project participant roles and responsibilities; organizational models; pertinent labor laws; union versus open shop; project delivery methods, including traditional, general contracting, construction management, and design-build; LEAN; and types of contracts, including lump sum, unit price, negotiated cost-plus-fixed-fee, and guaranteed maximum price.

**Grading:** SPS Non-Credit Graded

**Repeatable for additional credit:** Yes

## COPM1-CE 9102 Principles of Project Management (2 Credits)

Learn the industry-recognized framework for effective cost and time management of a construction project during the design, planning, implementation, and evaluation stages. Topics include organizing the project and selecting a team; establishing objectives; determining project duration and the critical path; planning the master schedule and resource allocation; utilizing controls, performance measurement, forecast, status, and reporting techniques; and developing a project management plan.

**Note:** Registering at least two weeks prior to the start of the course date is highly recommended. Popular classes fill up quickly and more specialized classes need sufficient enrollment.

For general information about this course, please call 212-992-3336 or email [sps.realestate@nyu.edu](mailto:sps.realestate@nyu.edu).

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**Grading:** SPS Non-Credit Graded

**Repeatable for additional credit:** Yes

## COPM1-CE 9103 Managing Construction in a Global Pandemic (2 Credits)

This course is an immersion into the adverse effects presented when conditions dictated by the environment, such as a global pandemic, require capable firms to adapt in order to manage through critical issues while protecting their workforce and company profits. Quickly gain the knowledge required to manage through nuances associated with a global pandemic, shelter-in-place orders, essential construction privileges, and new workforce requirements, with a high priority on the health and safety of all on-site construction workers. This course will explore current issues and modern developments as documented by *Engineering News-Record (ENR)* magazine, as well as NYC Department of Buildings (DOB) regulations and bulletins, in accordance with New York State Governor Cuomo's coronavirus recommendations.

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**Grading:** SPS Non-Credit Graded

**Repeatable for additional credit:** Yes

## COPM1-CE 9104 Reading and Interpreting Construction Documents: Architectural (2 Credits)

Construction project managers need to be able to read construction drawings accurately. This course covers the fundamentals of reading construction documents, as well as floor plans, elevations, sections, details, symbols, abbreviations, schedules, and specifications that are used in architectural construction documents. Topics covered include walls, windows, roofs, doors, and interior finishes.

**Grading:** SPS Non-Credit Graded

**Repeatable for additional credit:** Yes

## COPM1-CE 9106 Reading and Interpreting Construction Documents: Structural (2 Credits)

Construction project managers need to be able to read construction drawings accurately. This course covers framing floor plans, elevations, sections, details, symbols, abbreviations, schedules, and specifications used in structural drawings. Topics include steel, concrete, and wood.

**Grading:** SPS Non-Credit Graded

**Repeatable for additional credit:** Yes

**COPM1-CE 9108 Reading and Interpreting Construction Documents: MEP (2 Credits)**

Construction project managers need to be able to read construction drawings accurately. This course covers elements specific to the mechanical, electrical, and plumbing (MEP) components of a building, including equipment schedules, riser diagrams, specifications, and abbreviations used in the MEP drawings. Topics include mechanical equipment, ductwork layouts, lighting, electrical components, and drainage.

**Grading:** SPS Non-Credit Graded

**Repeatable for additional credit:** Yes

**COPM1-CE 9110 Navigating Common Construction Contracts (2 Credits)**

Become familiar with the essential elements of the most commonly used construction contracts and the risks inherent in each. Acquire the tools to effectively review and amend contracts to minimize the risk of claims, disputes, and litigation and to improve the financial performance of projects. Topics include the rights, duties, and obligations of the owner and contractor; GMP contracts, stipulated sum contracts, design-build contracts, and CM contracts; contract formation; typical contracts and conditions; subcontracts; privity of contracts; defaults and terminations; changed conditions; changes and extra work; payments; lien law; surety bonds; and fraud, duress, and mistakes.

Note: Registering at least two weeks prior to the start of the course date is highly recommended.

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**Grading:** SPS Non-Credit Graded

**Repeatable for additional credit:** Yes

**COPM1-CE 9112 Construction Insurance, Bonds, and Risk Management (2 Credits)**

Learn how to assess your requirements for insurance coverage and to manage your insurance costs, which lately have become a significant expense on construction projects. Examine the roles of insurance brokers and carriers regarding insurance, bonding placement, claims, and litigation management. Also, learn how to identify and mitigate construction risks. Additional topics include surety bonds, the bonding process for contractors and subcontractors, bonding compliance, contractual insurance coverage and indication requirements, first-party coverage, and third-party coverage. The course also will cover safety management, cost-benefit of safety and loss control, commercial general liability insurance, builder's risk insurance, owner-controlled insurance programs (OCIPs), contractor controlled insurance programs (CCIPs), workers' compensation insurance, environmental issues and liability insurance, professional liability or errors and omissions insurance, and the carriers' and sureties' roles in litigation. Develop a strategy for a surety project or program default and for the use of experts and counsel.

**Grading:** SPS Non-Credit Graded

**Repeatable for additional credit:** Yes

**COPM1-CE 9114 Construction Cost Estimating and Bidding (2 Credits)**

Learn the theory, procedures, and practices that are used to develop construction project estimates and final bid price. Topics include the bidding process; the bid package; general conditions; subcontractor bid comparisons; planning for the estimate; internal and external management considerations; and the predesign, conceptual, and preliminary budgets. Also, discuss design review, preconstruction and detailed estimates, unit prices, lump-sum bids, direct and indirect costs, overhead, bonds, and insurance.

Note: Registering at least two weeks prior to the start of the course date is highly recommended.

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**Grading:** SPS Non-Credit Graded

**Repeatable for additional credit:** Yes

**COPM1-CE 9116 Construction Project Scheduling and Control (2 Credits)**

This comprehensive project management course provides an overview of the critical path method (CPM) and other analytical and quantitative scheduling and management techniques as they apply to construction projects. Microsoft Project, case studies, and exercises are used extensively. Topics include feasibility studies, project plan and network development, manpower/resource allocation and costs, schedule and budget control programs, and time/cost analysis.

**Note:** Registering at least two weeks prior to the start of the course date is highly recommended. Popular classes fill up quickly and more specialized classes need sufficient enrollment.

**This course has a mandatory requirement that students must have their own access to Microsoft Project software.**

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**Grading:** SPS Non-Credit Graded

**Repeatable for additional credit:** Yes

**COPM1-CE 9118 Construction Budgets and Financial Management (2 Credits)**

Examine the concepts and techniques of project and program cost management as applied to construction projects. Topics include project budget development and management, cost estimating and scheduling, cost allocation, direct and indirect costs, overhead, risk and contingency, and change orders. In addition, discuss dispute resolution; financial evaluation techniques and earned value analysis, including cost-to-complete, percent-complete, cost-at-completion, and variance; and preconstruction services for budget management.

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**Grading:** SPS Non-Credit Graded

**Repeatable for additional credit:** Yes

**COPM1-CE 9120 Preconstruction Project Planning and Organizing (2 Credits)**

Examine preconstruction planning and organizing methods and procedures for defining a project, identifying potential issues, preventing project delays, avoiding cost overruns, and achieving successful project outcomes. Learn how to develop budgets, estimates, and schedules and how to assemble the team. This course covers concept, scope, constructability, and construction documentation review. Become familiar with the bid package; subcontractor qualification; bid solicitation, leveling, and notification; and bid analysis and awarding. Additional topics covered include job site investigation, assessment, and risk identification; site layout and surveying; site planning; site security and the safety plan; street closings; permits; labor availability; temporary facilities, utilities, and storage areas; and the project field office. Also, discuss general conditions, value engineering and analysis, project organization, logistics, long-lead items, mobilization, the procurement plan, the procedures outline and plan, cash flow requirements, and the execution plan.

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**Grading:** SPS Non-Credit Graded

**Repeatable for additional credit:** Yes

**COPM1-CE 9122 Construction Field Management (2 Credits)**

Learn how to manage the construction phase of a project, from start-up to closeout, and examine the role, responsibilities, and specific tasks of a project superintendent on a construction site. Gain insights into all facets of construction field management: scope of work; layouts and surveying; security, safety, and environmental considerations; shop drawings and cut sheets; logistics and control of material; project documentation, logs, and reports; project activity coordination; change order and schedule management; testing and quality control; risk management and problem solving; the impacts of uncovering unknown conditions; and the project punch list and closeout. Learn about securing Temporary Certificates of Occupancy and interfacing with municipalities, and discuss code compliance and permits, inspection requirements, and community relations. The course also covers the coordination of trades, requests for information, labor union requirements and relationships, labor management, cost and manpower responsibilities, and shanty setup. In addition, hone your knowledge of leadership, motivation, meeting management, communications, ethics, and personnel management skills.

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**Grading:** SPS Non-Credit Graded

**Repeatable for additional credit:** Yes

**COPM1-CE 9124 New Construction Commissioning: Process and Planning (2 Credits)**

Gain an understanding of building commissioning (Cx) planning and management practices for new construction projects. Acquire the knowledge to develop a commissioning plan that defines the scope, process, responsibilities, budget, and documentation requirements in order to convey accurately and completely the building owner's and building designer's project performance expectations. Learn how to establish goals for quality, efficiency, and functionality; a commissioning approach and scope; and budgets, plans, and schedules. Additional topics covered include testing and inspection plans, special testing, commissioning specifications, the building envelope, MEP, interior systems, cogeneration, utility plants, sustainable systems, fire/life safety, and lighting and building controls and security.

**Grading:** SPS Non-Credit Graded

**Repeatable for additional credit:** Yes

**COPM1-CE 9126 Obtaining New York City Building Permits, Approvals, and Certificates of Occupancy (2 Credits)**

Learn how to tailor your construction projects to comply with New York City Building Codes and regulatory agencies, such as the Fire, Housing Preservation and Development, and Parks Departments. Examine recent procedural changes that have an impact on the design and project management process. Topics include the effects of zoning on a project, Department of Buildings filing and permitting procedures, egress calculations and layout for public assembly spaces, basic plan requirements for submission to regulatory agencies, and types of applications. Discuss the city violation process, and learn how to obtain approvals/permits in a shorter amount of time.

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**Grading:** SPS Non-Credit Graded

**Repeatable for additional credit:** Yes

**COPM1-CE 9128 Construction Claims, Liability, and Dispute Resolution (2 Credits)**

Learn how to avoid claims and, if necessary, how to prosecute and defend claims from presentation to formal dispute resolution. Topics include conflict management plans, sources of conflict and dispute, dispute prevention, risk sharing, and dispute resolution clauses. In addition, discuss documentation and record keeping, storage and retrieval, correspondence, pictures, and claims procedures. This course also covers partnering, negotiation, standing neutral, nonbinding and binding dispute resolution, court alternatives and litigation, negotiations, arbitration, and formal dispute resolution.

**Grading:** SPS Non-Credit Graded

**Repeatable for additional credit:** Yes

**COPM1-CE 9130 Sustainable Design and Construction (2 Credits)**

Examine the current industry initiatives and practices used to economically and successfully implement ecofriendly measures in the design, construction, development, and occupancy of commercial and residential high-rise properties. Topics include integrated design, LEED and other rating systems, regulatory requirements, financial incentives, project delivery and the project team, site evaluation, energy efficiency, building performance analysis, commissioning, life-cycle assessment, and waste management. Also, discuss building information modeling (BIM), indoor environmental quality (IEQ), bid documents and the bidding process, risk management, construction administration, operations and management, and postoccupancy evaluation.

**Grading:** SPS Non-Credit Graded

**Repeatable for additional credit:** Yes

**COPM1-CE 9178 Construction Safety Management (0 Credits)**

Learn effective safety management techniques used by construction managers, safety professionals, and owners to run safe projects, to avoid costly accidents, to achieve outstanding safety records, and to attain the highest safety rating. Topics include Occupational Safety and Health Administration (OSHA) history and regulations, common OSHA violations, personnel training and certifications, safety meetings, accident investigation and reporting, controlled inspections, temporary safety systems during construction, emergency procedures, trade union rules, and final safety system testing.

**Grading:** SPS Non-Credit Graded

**Repeatable for additional credit:** Yes

**COPM1-CE 9301 Construction Project Management (0 Credits)**

Gain an understanding of the construction industry, the construction process, and how projects are managed. Topics include the roles of the owner, architect, engineer, and contractor; project teams and organizations; types of contracts; construction management versus general contracting; bidding and award procedures; construction budgets; cost estimating; construction planning and scheduling; cost control; monitoring and accounting systems; change orders; claims; dispute resolution; safety; insurance; bonds; and liens.

**Grading:** SPS Non-Credit Graded

**Repeatable for additional credit:** Yes

**COPM1-CE 9305 Construction Project Scheduling and Control (0 Credits)**

This comprehensive project management course emphasizes the critical path method (CPM) and other analytical and quantitative scheduling and management techniques. Microsoft Project, case studies, problems, and exercises are used extensively. Topics include feasibility studies, project plan and network development, manpower/resource allocation and costs, schedule and budget control programs, and time/cost analysis.

**Grading:** SPS Non-Credit Graded

**Repeatable for additional credit:** Yes



**COPM1-CE 9307 Construction Project Planning Using Microsoft Project (1 Credit)**

Learn to develop a construction project schedule with the Microsoft Project software program. Beginning with a review of Critical Path Method (CPM) concepts, this course quickly moves on to cover Work Breakdown Schedule (WBS), organizing and summarizing projects, linking activities with relationships, defining project calendars, assigning resources and cost, updating, basic reporting and graphics, basic schedule analysis, customizing a bar chart, and working with target dates.

**Grading:** SPS Non-Credit Graded

**Repeatable for additional credit:** Yes

**COPM1-CE 9401 Construction Field Management (0 Credits)**

Examine the role, responsibilities, and specific tasks of the superintendent on a construction site. Topics include site preparation, logistics, and mobilization; temporary facilities and services; permits; contract drawings, specifications, and coordination of trades; shop drawings and cut sheets; scope of work; and field reporting and record keeping. Also covered are punch lists; inspection requirements; scheduling and coordinating project activities; cost and manpower responsibilities; labor union requirements and relationships; site safety coordination; and leadership, motivation, communication, and personnel management skills.

**Grading:** SPS Non-Credit Graded

**Repeatable for additional credit:** Yes

**COPM1-CE 9420 Principles of Project Management (0 Credits)**

Learn the industry-recognized framework for effective cost and time management of a construction project during the design, planning, implementation, and evaluation stages. Topics include organizing the project and selecting a team; establishing objectives; determining project duration and the critical path; planning the master schedule and resource allocation; and utilizing controls, performance measurement, forecast, status, and reporting techniques.

**Grading:** SPS Non-Credit Graded

**Repeatable for additional credit:** Yes

**COPM1-CE 9422 Construction Project Management (0 Credits)**

Discuss best practices for managing construction projects. This course will present concepts and techniques to coordinate, monitor, and supervise construction projects, from kickoff to closeout, with an emphasis on cost, quality, safety, and schedule management. Explore how and why various practices should be implemented, discussing benefits from the perspective of the owner, contractor, and construction manager. Topics include project stakeholder communication, project delivery and procurement methods, estimating, bonds and insurance, project scheduling, change orders and claims, accounting/cost control procedures, technology, and sustainable construction.

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**Repeatable for additional credit:** Yes

**COPM1-CE 9424 Construction Cost Estimating (0 Credits)**

Acquire an overview of the theory, procedures, and practices used to develop project estimates and final bid price. Topics include the bidding process; the bid package; general conditions; subcontractor bid comparisons; planning for the estimate; internal and external management considerations; the predesign, conceptual, and preliminary budgets; design review; preconstruction and detailed estimates; unit prices; lump-sum bids; direct and indirect costs; overhead; bonds; and insurance.

**Grading:** SPS Non-Credit Graded

**Repeatable for additional credit:** Yes

**COPM1-CE 9425 Construction Project Management Leadership and Communication (0 Credits)**

Gain the essential communication tools, skills, and behaviors that lead to successful project outcomes. This interactive course focuses on the essential skills that enable managers to become more effective and productive while managing teams and projects. Topics include collaborating, coordinating, and communicating with project stakeholders; improving interpersonal communication skills; reporting and presenting; incorporating managerial principles in your communications; and mastering the basics of leadership proficiencies and dispute resolution. Learn how to increase your competitive advantage and self-confidence by understanding the role that body language plays in business interactions.

**Grading:** SPS Non-Credit Graded

**Repeatable for additional credit:** Yes

**COPM1-CE 9426 Construction Financial and Cost Management (0 Credits)**

Examine the concepts and techniques of project and program cost management. Topics include project budget development and management; cost estimating and scheduling; cost allocation; direct and indirect costs; overhead; risk and contingency; change orders; dispute resolution; financial evaluation techniques and earned value analysis, including cost-to-complete, percent complete, cost at completion, and variance; and pre-construction services for budget management.

**Grading:** SPS Non-Credit Graded

**Repeatable for additional credit:** Yes

**COPM1-CE 9427 Construction Project Scheduling and Control (0 Credits)**

This comprehensive project management course emphasizes the critical path method (CPM) and other analytical and quantitative scheduling and management techniques. Microsoft Project, case studies, and exercises are used extensively. Topics include feasibility studies, project plan and network development, manpower/resource allocation and costs, schedule and budget control programs, and time/cost analysis.

**Grading:** SPS Non-Credit Graded

**Repeatable for additional credit:** Yes

**COPM1-CE 9428 Construction Financial and Cost Management (0 Credits)**

Examine the concepts and techniques of project and program cost management. Topics include project budget development and management, cost estimating and scheduling, cost allocation, direct and indirect costs, overhead, risk and contingency, and change orders. In addition, discuss dispute resolution; financial evaluation techniques and earned value analysis, including cost-to-complete, percent-complete, cost-at-completion, and variance; and preconstruction services for budget management.

**Grading:** SPS Non-Credit Graded

**Repeatable for additional credit:** Yes

**COPM1-CE 9431 Managing Interior Construction Projects (0 Credits)**

Learn the techniques involved in managing the unique challenges of a commercial interior gut renovation project, knowledge that is beneficial to owners, reps, project managers, and contractors. Topics include selecting the design and construction team; preparing a construction budget; choosing among contract types; preparing the schedule; managing for on-time/on-budget results; handling extras and change orders; and securing a Certificate of Occupancy. Recognize the effects on budget and schedule of uncovering unknown conditions within walls, floors, and structures, and learn how to avoid them early on. Also, understand the importance of proper completion of projects per municipal agency guidelines and of complying overall with code.

**Grading:** SPS Non-Credit Graded

**Repeatable for additional credit:** Yes

**COPM1-CE 9432 Construction Legal Issues (0 Credits)**

Gain a thorough understanding of the legal issues encountered by those who are involved in the construction process. Topics include an overview of participants; bidding and contract formation; typical construction contracts and conditions; subcontracts; architects and engineers; privity of contracts; defaults and termination; changed conditions; changes and extra work; lien law; surety bonds; fraud, duress, and mistakes; delays; and alternative dispute resolution.

**Grading:** SPS Non-Credit Graded

**Repeatable for additional credit:** Yes

**COPM1-CE 9466 Construction Law (0 Credits)**

Gain a thorough understanding of the legal issues encountered by those who are involved in the construction process. Topics include an overview of participants; bidding and contract formation; typical construction contracts and conditions; subcontracts; architects and engineers; privity of contracts; defaults and termination; changed conditions; changes and extra work; lien law; surety bonds; fraud, duress, and mistakes; delays; and alternative dispute resolution.

**Grading:** SPS Non-Credit Graded

**Repeatable for additional credit:** Yes

**COPM1-CE 9630 Construction Methods, Materials, and Drawings Intensive (0 Credits)**

The ability to accurately read construction drawings and plans, and to understand the practices associated with those drawings, is a required skill for construction managers. This one-week intensive begins with an examination of the materials, systems, and techniques used in commercial and high-rise residential building construction and concludes with a thorough review of construction plans and working drawings. Construction activities covered include site work; logistics, including cranes and hoists; foundations; concrete; steel; exterior wall and roof systems; elevators; and mechanical and electrical systems. In addition, construction specifications and standards, building codes, constructability, and life cycle assessment are discussed.

**Grading:** SPS Non-Credit Graded

**Repeatable for additional credit:** Yes

**COPM1-CE 9649 Construction Project Management Intensive I: PM Principles (0 Credits)**

This intensive, three-day course provides construction project managers with a solid foundation in the theories, tools, and techniques of successful project management. Receive a globally recognized framework and an arsenal of best practices to complete projects on time, on budget, and within scope. Learn to effectively communicate with core teams, stakeholders, and sponsors in both collocated and virtual environments. The content provided in this course is applicable to any industry, any project, and any project manager.

**Grading:** SPS Non-Credit Graded

**Repeatable for additional credit:** Yes

**COPM1-CE 9650 Construction Project Management Intensive II: Planning, Scheduling, and Control (0 Credits)**

The project manager's role is increasingly critical in the dynamics of the building and construction industry. This intensive, one-week course provides a solid foundation, with a focus on the complexities and techniques of effective construction project management. Gain a greater understanding of the industry by week's end, and acquire practical tools to put to use immediately in your current position. Topics include a construction industry overview, project teams and organizations, project management techniques, construction management versus general contracting, bidding and contract award procedures, construction budgets, cost estimating, planning and scheduling, and change order management.

**Grading:** SPS Non-Credit Graded

**Repeatable for additional credit:** Yes

**COPM1-CE 9651 Construction Project Management Intensive III: Risk Management (0 Credits)**

To succeed and grow professionally as a project stakeholder in today's construction industry, you must have an understanding of the risks inherent in construction projects and the differing objectives, responsibilities, and risk tolerances of each party. You also must know how these elements can affect project delivery, profitability, and the final product. This intensive course provides insight into how project managers can identify, evaluate, and mitigate the consequences of financial, operational, and managerial uncertainty with knowledge of the principles of risk management, contracts, cost management, insurance and bonding, and site safety management. In class, discuss how to integrate risk management and project management and how to assess, monitor, and mitigate risk. Additional topics covered include contractual, technical, business, environmental, regulatory, and communication risk; cost control methods and systems; standard construction contracts, forms, and clauses; change orders and claims; time and delay problems; liquidated damages; bonds and insurance; default; payment and mechanic's liens; substantial completion and final completion; indemnification; dispute resolution; mediation, arbitration, and litigation; and site safety management.

**Grading:** SPS Non-Credit Graded

**Repeatable for additional credit:** Yes

**COPM1-CE 9652 Construction Project Management Intensive (4 Credits)**

Gain a solid understanding of the construction project management process, and acquire an arsenal of practical tools and best practices to complete projects on time, on budget, and within scope. In this intensive course, become knowledgeable about the project life cycle from design development through project closeout, project teams and organizations, project management techniques, project communication, and project delivery methods. Also, discuss contracts, forms, and clauses; bidding and contract award procedures; insurance, bonds, and risk management; construction budgets; cost estimating; planning and scheduling; procurement; change orders; quality control; site safety; community relations; and mechanic's liens. Additional topics to be covered include claims, time and delay problems, liquidated damages, dispute resolution, mediation, arbitration, and litigation. Finally, learn about substantial and final completion, permits, punch lists, and temporary certificates of occupancy.

**Grading:** SPS Non-Credit Graded

**Repeatable for additional credit:** Yes