OUTLINE SYLLABUS

The syllabuses for the comprehensive set of courses in alphabetical order (core, fundamental and electives) for all the specialisations are presented below.

1. Accounting and Project Finance

   Introduction to financial & management accounting: the balance sheet, profit measurement, cash flow statements; Financial analysis, cost classification, budgeting, investment analysis; Understanding property company accounts; Property and investment theory: residual valuation and development appraisal; Project finance

2. Advanced Measurement and Estimating

   Use of IT in measurement and estimating; Quantification and pricing of complex building projects and associated services; Quantification and pricing of civil and heavy engineering construction

3. Building Energy Analysis and Management

   Insights Into Building Design: Legislation and the design process; Design process and environmental issues; Building morphology, adaptability and obsolescence; Cost implications
   Maintenance Management: Maintenance Organisations & Policies; Management of the built asset; Legal obligations (including health & safety, fire safety); Security; Environmental issues
   Managing Building Services: Introduction to services & services design; Maintenance strategies and policies; Environmental concerns; Planned maintenance of services; Software packages
   Energy Management: Energy & the environment; Energy management policies; Energy audits and surveys; Energy budgeting and targeting; Building Energy Management Systems; Energy monitoring and simulation

4. Business and Construction Economics

   Managerial economics: economics for decision makers; Construction in the macroeconomic context: the impact of economic factors, construction demand,
construction supply, government policy and the construction industry; Design economics: the application of economic analysis techniques to building design, life-cycle costing

5. Capital Equipment Purchasing

Special characteristics applicable to purchasing capital equipment; Purchasing role in capital equipment procurement; Procedures for purchasing capital equipment; Economic feasibility analysis; Used equipment; Leasing equipment; Make or buy policy; Factors influencing make or buy decisions; Cost considerations; Volatile nature of the make or buy decision; Administration of make or buy activities; Purchasing negotiations; International purchasing; Purchasing research and value analysis

6. Construction Contracts and Procurement

Principles of the law of contract; Procurement of construction and engineering contracts, roles of the parties, some features of standard contract forms used in construction and engineering; Negligence in the construction context; Procurement methods and the allocation of risk; Civil liability for construction defects; Remedies for breach of contract, arbitration and litigation; Health & safety legislation and employment law; Contractual abuse

7. Construction Marketing

Principles of marketing, including development, delivery, promotion and pricing of services (fees and fee scales); Characteristics of service delivery; Business opportunities in local and international markets; Principles of business-to-business marketing; E-commerce

8. Corporate Strategy

Strategic management, corporate decision making, marketing and business planning, competitive advantage in a global market; Business success in construction and other organisations: the organisational, economic and social factors which influence the performance of firms; Environments of projects

9. Design Management

Understanding design processes; Managing design information; Client briefing; Design control and planning approvals; Quality management for design; Comparison of value engineering and value management; Value management in the strategic context; Decision modelling in building design; Designing for production and the principles of constructability
10. Environmental Management

Environmental legislation; Environmental implications of the Constitution; Impact of construction on the environment; Environment and health and safety; Environmental impact assessments (EIAs); Project environmental plans; Environmental management systems (EMSs); Role of the environment in total quality management and project performance; Influence of procurement and procurement systems; Role of clients, designers and project managers, and construction related interventions.

11. Facilities Management Contracts and Procurement

Role of FM professional; Service level agreements; Appointments; FM Procurement; FM Subcontracting; Performance evaluation and monitoring.

12. Facilities Operations Management

Planning of facilities and their layout; Establishing and auditing of user space needs and cost plan; Interior design issues including ergonomics, aesthetics, user concerns, health concerns, individual user needs and associated costs; Fire safety and security management plans.

13. Health and Safety Management (A)

Occupational Health and Safety Act and Regulations; Compensation for Occupational Injuries and Diseases Act; Occupational Health and Safety implications of the Constitution, Labour Relations Act, and Basic Conditions of Employment Act; Upstream/Downstream sequence; Health and safety culture; Influence of management; Exposure including risk; Incidents and accidents; Health and safety programme; Health and safety Education and training; Worker participation; Occupational health and hygiene including medical surveillance, and construction ergonomics.

14. Health and Safety Management (B)

Measurement and statistics; Economics of health and safety; Role of health and safety in total quality management (TQM) and project performance; Influence of procurement and procurement systems; Role of clients, designers and project managers; Project health and safety plans; Role of unions; Role of the media.

15. Human Resources Management

Understanding organisations, organisational culture; Leadership; Leadership in project management; Project team building; Motivation; The individual and the organisation; Human and organisational competencies; Acquiring, sustaining and re-shaping human capital; Organisational change; Negotiation strategies and behavioural analysis; Interpersonal communication; Health and safety issues.

16. International Construction

Organisation of the global construction industry; The European construction market; Western Europe and Eastern Europe; Asia Pacific as a region: the ASEAN countries, Indo-China, Japan and the People’s Republic of China; Construction in Africa and other developing countries; International trade in construction services and materials; Future trends in world markets; International construction project management; a comparison of best practice; International contract forms and contract administration.
17. Management Information System for Construction and IT Applications

Email, worldwide web, word processing, spreadsheets, database management systems, new technologies; Concepts of information; Information management within the construction industry; Information technology: hardware, software, and communications equipment; Development of a management information system for an organisation; Implementing new systems within construction organisations

18. Management Science and Project Control

Techniques of data collection and analysis; Applications of operational research: linear programming and critical path analysis; Cost control in construction; Construction planning and scheduling; Computerised project management information systems, resource scheduling, heuristic scheduling rules, selective reporting, work breakdown structure; Network based costing

19. Property Development Planning

Fundamental concepts and techniques involved in property development, planning and appraisal; Overview of the complex process of real estate development: phases of land assembly, project feasibility, construction and project management, marketing and property management, and disposal or redevelopment; Social, economic, physical, legal and planning environments that affect the development decision and process; Integrated individual project (for assessment)

20. Property Valuation

Concepts and theory of value, and determinants of value; Role of valuers and appraisers; Use of rates and factors in valuation; Discounted cash flow and internal rate of return; Residual land value techniques; Highest and best use analysis; Attributes of property that influence value; Market research and analysis; Nature, process and methods of valuation, Motivated valuation report; Integrated individual project (for assessment)

21. Project Strategy and PMBOK

Characteristics of construction projects; Role of the client; Conflicting project objectives; Risk management in construction; Theory of construction project management; Formulation of project strategy; Building procurement methods; Project organisation structure; PMBOK

22. Property Investment and Portfolio Analysis

Property as an equity investment, risks inherent in property investment; Basic financial concepts such as the term structure of interest rates; Financial and operating leverage, capital structure; Methods of financing property development; Cash flow analysis and risk management; Portfolio approach in relation to risk diversification and asset allocation; Relevance of CAPM and the APT asset pricing models, and market efficiency for property investment; Role of real estate in a mixed asset portfolio, mean-variance optimisation techniques, unique aspects of property as an investment; Optimisation and correlation analysis, investment financing and performance measurement

23. Property Legal and Institutional Framework

Fundamental legal concepts and legislation relating to real property; Legal aspects relating to the ownership and transfer of estates and interests in land; Legislation
related to the sale and purchase, lease, conveyancing; Title registration under the Act; Planning and Development Law, law relating to investments in real estate; stamp duties, property tax, income tax, estate duty; Institutional framework for real estate finance and investment: mortgage financing, securitisation, financial liberalization

24. Research Methodology

Nature of research and project studies for technological and management problems; Organisation: working independently and as part of research team, working with a supervisor, structuring activities and time during a research programme; Reference and information filing; Use of computer spreadsheets for compiling, analysing and presenting data; Analysing problems and identifying research topics; Qualitative research methods, participant observation, unstructured interviewing, documents; use of case studies in research, use of questionnaires in research; Quantitative research methods, statistics and confidence intervals; computer based analysis; Report writing and presentation skills

25. Risk Management

Historical development; Introduction to integrated risk management; Concept of risk; Fundamental principles; Function in an organisation; Risk management and project management; Risk management process; Legal liabilities; Risk financing; Risk retention; Captive insurance; Pre-loss financing through insurance; Statistical analysis in risk management and composite strategies

26. Strategic Asset and Facilities Management

Synergistic linkage between corporate businesses and effective management of real asset resources; Importance of a proactive alignment of property and facilities strategies with the larger corporate goals and objectives of the firm; Advanced property and facilities management tools; Diagnostic framework for enabling competitive advantage; Strategic planning models and development of property and facilities strategies; User requirements evaluation and space management; Life cycle costing and budgeting; Property and facilities standard and performance benchmarking; Computer-aided property and facilities management systems

27. Technology Management

Integrating technology and strategy; Technology and the project manager; Distinctive technological concepts and capabilities; Licensing and marketing technology; Technological evolution; Technology in an industry context; Technology in a company context; Strategic action; Technology sourcing; Corporate innovation; New product development; Building competencies and capabilities through new product development; Innovation challenges in established companies

28. Total Quality Management

Concepts of quality; TQM and its history; Culture and quality; Customer focus; Integration; All-embracing nature of TQM; Cost influences of quality; Universal standards, eg. ISO series and certification; Change management; Methods and implementation of TQM; Current research on TQM in industry and construction
29. Treatise

The treatise is a major individual research project which must be completed and submitted by the first week in January after the second year of the course. Guidance will be given on choosing a research topic, research techniques and the style and presentation of the finished document. In many cases, the topic is orientated towards a major problem or opportunity within a candidate’s organisation.

Candidates will have their own carefully selected research supervisor whose role is to help them plan and successfully execute this key part of the programme.

End.