60 ECTS

12 months

Online

MBA FOR ENGINEERING AND CONSTRUCTION COMPANIES

& PROJECT MANAGEMENT

UCAM
UNIVERSIDAD
CATÓLICA DE MURCIA

Structuralia

SUMMARY

STRUCTURALIA

Structuralia is an online school specialized in graduate engineering, infrastructure, construction, energy, building, new technologies, and digital transformation programs and courses. We are dedicated to providing high-quality education for engineers, architects, and STEM (science, technology, engineering, and mathematics) professionals.

Since our creation in 2001, over 200,000 students from more than 90 countries have participated in our virtual classrooms as we disseminate knowledge and guide professionals toward success.

To this effect, we collaborate with leading international experts in each field, which enables our students to specialize under the guidance of active professionals. Our constant interaction with major companies in each sector, as their specialized training provider, enables us to tailor high-quality academic material to meet the current job requirements of our students.

Our master's programs are certified by our partner universities, such as the Universidad Católica San Antonio de Murcia, UDAVINCI, or Universidad Isabel I.

Every day we strive to provide the best training for engineers, architects, and STEM professionals with a clear goal: your professional success.

BRIEF SUMMARY

This master's degree is focused on how business and project management are applied to both the engineering and construction sectors, and their intrinsic managerial characteristics.

According to McKinsey's 2020 study, the infrastructure sector is the one with the largest contribution to world GDP. The need for new infrastructures; the adaptation of existing ones to new technologies and the needs of the population; and the rehabilitation and maintenance of existing stock, is constantly increasing. As a matter of fact, this sector, and its peculiarities, differentiates companies from other sectors, thus the demand for professionals with general management vision, business management knowledge and capabilities for infrastructure development is huge, and will continue to grow in the future.

GROUPS OF INTEREST

This program is intended for professionals with technical and business-related expertise who wish to expand their knowledge and skills in the business management of the construction and infrastructure development sector. Also, dealer enterprises, construction, maintenance and engineering firms and consultants.

CAREER OPPORTUNITIES

Management at engineering and construction companies; construction, engineering, infrastructure maintenance and consulting firms; public administration agencies directly related to the construction sector.

OBJECTIVES

Acquire a comprehensive understanding of business towards an exhaustive and comprehensive decision-making process, which may lead to the development of skills that enable the use of essential managerial abilities in a resolutive, and well-communicated manner.

PROGRAM

1: ADVANCED PROJECT MANAGEMENT

Unit 1: Scope and contract management

- Scope management I
- Scope management II
- Scope management III
- Contract management I
- Contract management II

Unit 2: Negotiation and cost control

- Negotiation I
- Negotiation 2
- Negotiation 3
- Cost control

Unit 3: Cost estimation and planning

- Cost estimation 1
- Cost estimation 2
- Planning 1
- Planning 2
- Planning 3

Unit 4: Risk management

- Global setting
- Risk management 1
- Risk management 2
- Risk management 3

2: PROJECT FINANCIAL MANAGEMENT

Unit 1. Financial projections and project finance

- Time value of money
- Investment appraisal methods
- Creation of financial projection
- Quality of financial projections and terminal value
- Project finance sources
- Cost of capital cost and level of project debt
- Evaluation of projects with uncertain results

Unit 2. Project finance

- Introduction to the project finance model
- Project risk analysis
- Project bankability
- Entities involved in the financing of a project
- Ratios and management of project financing

Unit 3. International projects

- Development of financing for international projects
- Country risk management
- Finance sources for international projects

Unit 4. Service projects

- Financial management of service projects
- Identification of costs in service projects
- Allocation of costs to services

- Establishment of the economic budget for the service
- Economic follow-up and closure of the service

3: BUSINESS FINANCIAL MANAGEMENT

Unit 1. The accounting logic and the balance sheet

- Accounting logic
- The balance sheet
- General journal and ledger book
- Generally accepted accounting principles
- The most common balance sheet accounting entries (I)
- The most common balance sheet accounting entries (II)

Unit 2. The profit and loss statement

- Income and expenses
- The profit and loss statement
- The most common accounting entries of income and expenses (I)
- The most common accounting entries of income and expenses (II)
- The cash flow statement

Unit 3. Financial statements analysis and financial strategy

- Analysis of the evolution of the balance sheet
- Strategy to ensure liquidity
- Strategy to ensure solvency
- Leverage and return on equity
- Analysis through financial ratios

Unit 4. Financial management and investment decisions

- The financial system
- Financial mathematics
- Investment decisions. NPV
- Investment decisions. IRR

4: CORPORATE SOCIAL RESPONSIBILITY

Unit 1: CSR as a new form of business management

- From Sustainability to CSR

- The key to CSR: Business ethics

- Institutional framework at the international level

- CSR in Spain

- Sustainable Development goals (SDGs) applied to the business sector.

Unit 2: Stakeholders and CSR dimensions– Part 1

- Stakeholder analysis.

- CSR management areas and business benefits

- Transparency and Corporate governance

- CSR and people management

- Business and Human Rights

Unit 3: CSR dimensions – Part 2

- Supply chain

- Environment

- Sustainable finances

- Collaboration with comUnit.

- Responsible consumption

Unit 4: Communication management tools

- CSR management tools

- CSR main management tools

- CSR and risk management

- CSR Communication. Keys to a good strategy

- CSR Communication tools

5: AGILE MANAGEMENT APPROACH

Unit 1. Agile framework

- Myths and realities, why agile?

- Agile vs traditional

- Agile principles and values

- Prioritisation of requirements

- Scrum

Unit 2. Agile planning

- Other agile methodologies

- Vision of a project

- Agile estimation

- Road map

- Delivery plans

Unit 3. Agile iterations

- Iteration planning

- Executing and iteration

- Using Kanban in iteration

- Demo and retro meetings

- Work tracking

Unit 4. Agile management style and focus scaling

- Agile communication and management style

- Information radiators

- Agile leadership

- Agile method escalation

- Tools

6: ARTIFICIAL INTELLIGENCE

Unit 1. Introduction to Artificial Intelligence

- State of the art of artificial intelligence

- Philosophy of artificial intelligence

- Future of artificial intelligence

- Project development process with artificial intelligence

- Data, your greatest asset

Unit 2. Types of artificial intelligence

- Machine learning
- Deep learning
- Transformers
- Generation of synthetic data
- Hyperparameters in artificial intelligence models

Unit 3. Introduction to Machine Learning Algorithms

- Linear regression
- Non-linear regression and support vector machines (SVM)
- Decision trees, random forests
- Fuse logic and gradient down
- Recommendation systems

Unit 4. Artificial Intelligence Turnkey Project

- Preparation of the working environment: Anaconda, Visual Studio Code and Python
- Input dataset and data preprocessing
- TensorHub, TensorFlow and Keras
- Image processing
- Generation of artificial intelligence models

7: DIGITAL MARKETING

Unit 1. Introduction to digital marketing and the world of ecommerce

- Understanding digital marketing and e-commerce
- Digital market ecosystem - Roles and functions of the digital marketing officer
- Digital strategy
- E-commerce, m-commerce, and s-commerce
- Digital business and technological linkage

Unit 2. Inbound marketing vs outbound marketing

- Definition of inbound and outbound marketing

- Digital marketing - Customer acquisition and loyalty
- Content marketing
- Social media and community management
- Digital marketing plan

Unit 3. Advanced digital marketing

- SEO
- SEM
- Programmatic marketing and RTB
- Strategy and performance techniques
- Email marketing

Unit 4. Web analytics tools

- Understanding the customer - Customer experience, UX & UI
- Data science & big data
- Data visualization
- Google Analytics
- Digital metrics and digital marketing trends

8: PUBLIC-PRIVATE PARTNERSHIP

Unit 1. Public-private partnership (PPP) contracts: concepts, benefits and limitations

- Effects of infrastructure on economic development
- Different structures of infrastructure provision: public vs. private
- Models of public-private partnership structures
- Public-private partnership contracts in the world
- Identification of public-private partnership projects

Unit 2. Framework for the application of public-private partnership contracts

- Regulatory framework for public-private partnerships: common law vs civil law
- Fiscal analysis of public-private partnerships: capacity and impact on deficits
- Economic analysis of public-private partnerships
- Financial analysis of public-private partnerships

- Stakeholders

Unit 3. Assessment of public-private partnership projects

- Technical and financial feasibility of public-private partnership projects
- Social and environmental feasibility of public-private partnership projects
- Risk allocation in PPP contracts
- The concepts of value for money
- Definition of the project's bidding and advertising criteria

Unit 4. Management of the public-private partnership contract

- Bidding and awarding process for public-private partnership contracts
- Financing of public-private partnership projects
- Contract management in the construction and operation phase
- Renegotiation in infrastructure concession contracts
- Contract end and transfer of assets

MÓDULO IX: MANAGERIAL SKILLS

Unit 1. Leadership

- Leadership
- Leadership styles
- Situational leadership
- Motivation
- Personal improvement plan

Unit 2. Team management

- Team management
- Roles in the work team
- Virtual and/or transnational teams
- Change management
- Dysfunctional teams

Unit 3. Problem-solving techniques

- The nature of a problem

- Emotion management

- Creativity

- Team problem-solving techniques

- Decision-making in foster care

Unit 4. Communication, self-control and conflict management

- Communication

- Communication mistakes

- Self-control and conflict management

- Assertiveness

- Conflict management-negotiation

MASTER´S FINAL PROJECT

The program is subject to possible variations / updates of the contents to improve their quality

AUTHOR PROFILE

DIRECTOR:

CARLOS MARTÍNEZ GARCÍA-LOYGORRI

Civil engineer (roads, canals, and ports) by the Polytechnic University of Madrid; MBA by IESE Business School; Master's degree in infrastructures and public service management; Martinez Garcia-Loygorri has ample experience in business and people management and specializes in investment analysis and implementation; business management and structured financing; project and corporate finances; investment management above 350 M€, and in structured debt above 420 M€. Carlos is also an experienced concessions and Structure financing director in the infrastructure, public services, and renewable energy sectors.

AUTHORS:

Yolanda García Rubio

Industrial and mechanical engineer by the University of Oviedo; AACE International - Certified Estimating Professional (CEP); Industrial Organization School (EOI) – Business and Industrial and Technological management. President of the Spanish Contract Management Association (AEGescon). Contracts Estimates Manager, Tecnicas Reunidas (United techniques), Madrid, Spain (at present); 20 years of experience in engineering, Contract Management and Estimations in the Oil & Gas, Energy and Pharmaceutical sectors.

Jorge Serrano Paradinas

Civil engineer (roads, canals, and ports) by the Polytechnic University of Madrid. Serrano has worked in different companies in the construction sector such as Aldesa, Corviam and Arthur Andersen, and audited the main firms in the construction sector.

César Bartolomé

Civil engineer (roads, canals, and ports) by the Polytechnic University of Madrid and MSc in Structural Engineering by Heriot-Watt university of Edinburgh. Bartolomé is currently in charge of business and innovation development at IECA.

Sonia Gómez Borges

Business management degree (UAM); Master's degree in Marketing (ESIC); Master's degree in Online Marketing and Digital Strategy (EAE). CSR expert (UNED).

Marketing and Communication professional with more than 18 years of experience from the private (industry and renewable energies) and tertiary sectors (NGO and foundations).

Sonia currently works as a CSR, Communication and Marketing project consultant; She is also a partner manager at the firm Huella Responsible (Responsible footprint), specialized in business CSR services, environment, and quality.

Miguel Ángel Vera Mellado

Miguel Ángel is a Computer Science engineer, ACP, PMP, MBA and ITIL expert and specialized in project management. Vera Mellado has 10 years of experience in capacity building in companies such as Ibertech TIC Services, Desfufor or ADR Formación; He is responsible for the coordination of this master's degree.

Layla Scheli

Information Systems Engineer and with a bachelor's degree in Educational Technology at the National Technological University of Argentina. She holds a master's degree in Big Data and BI from the European Business School of Barcelona, where she obtained the Cum Laude award for Academic Excellence.

At the same time, Layla holds the International Certification in Big Data from MIT (Massachusetts Institute of Technology), in addition to obtaining the Postgraduate Specialization in Information Technology and Systems Management by the Liberty Foundation (Fundación Libertad) in Argentina.

Layla Scheli is also a professor of data-related subjects at the Inter-American Open University, and mentors Data Science courses in the City of Buenos Aires (BA Emprende Initiative), and at renowned Academic Centers (CoderHouse, Acámica, among others).

She also has several international certifications by CertiProf - USA such as DevOps Essentials Professional Certificate (DEPC) and Big Data Professional Certificate (BDPC).

Finally, she has a diploma in Azure Fundamentals from the ConoSur.Tech Common Unit and is currently pursuing a master's degree in Data Exploitation and Knowledge Management from the Austral University.

Alejandra Medina Mateos

Sandra Medina is an Agronomist by the Polytechnic University of Madrid (UPM); Psychologist by the Distance Education University (UNED) and; Coach by the HUNE institute. Sandra holds a master's degree in children and adolescent expert by the Official School of Psychology (COP), a master's degree in Digital Marketing for Entrepreneurs by TK and; a Certificate of Pedagogical Aptitude (CAP). She is also a Yoga Teacher by the EIY and Expert in Vipassana meditation by FPVE.

Sandra started her professional career as an engineer in the main technology multinationals in the world: Accenture, CAP Gemini / Ernst & Young and Vodafone, in the area of Information Systems Technology. For 15 years, she worked and trained in the fields of project management and training to support different businesses, such as banking, department stores, transportation and telephony.

Subsequently, she founded Vital Desarrollo Humano, a project for the promotion of well-being, health and performance through coaching. She also collaborated with Madrid's Provincial Government (CAM) in the area of Psychological Disability at the CADP Reina Sofía. She currently works as an expert psychologist in relationship breakdowns and toxic relationships, combining it with treatment for children, adolescents, and adults at BrainChild-In. She also collaborates with Clave DH in the field of Business Coaching and training at the UAM.

Julio Alvarez Cerberó

Julio Alvaréz graduated in Psychology from the Autonomous University of Madrid in 1976, where he would later obtain a PhD in Health Psychology.

Since that date, he has continued his professional career in various fields of psychology and consulting: postgraduate trainer, university professor, senior official in Madrid Provincial Government, and consultant for some of the major enterprises in Spain, such as Repsol, Dragados, OHL, Bombardier, Placo, AENA, Carrefour, etc. Julio is also a lecturer and collaborator in various free-form training programs for managers at the Autonomous University of Madrid.

Between 1995 and 2016, he worked at CLAVE DESARROLLO HUMANO, a consulting firm of which he is a founding partner and where he held the position of General Director, being responsible for the areas of business development and business planning.

From 2008 to 2012, Julio was in charge of the expansion of CLAVE in Latin America and Europe by founding the company EnClave Personal Consulting in Chile, which specializes in exporting human talent and developing different projects in Brazil, Chile, Colombia, and Germany.

Finally, Julio has been a professor of Structuralia since 2005.

Bárbara Manrique de Lara

Barbara Manrique is an expert in the fields of Communication, Institutional Relations, Reputation, CSR, Brands, and events, and currently serves as an advisor for relevant organizations in these areas. Until recently, she was Director of Communication, Institutional Relations, CSR, and Brands of the newspaper EL PAÍS, and Grupo PRISA, where she was a member of the Executive Committee for the last eleven years.

Manrique holds a bachelor's degree in Hispanic Philology from the UAM, with a specialization in editing from ICADE, and also in communication, marketing for media companies, content, and cultural institutions from the ESIC and IESE business schools. She has 20 years of experience working in team management, creation, and management of global institutional projects in corporate image and reputation, cultural transformation, sustainability, events, internal and external communication.

Additionally, she has significant experience in institutional activities in national and international boards, committees, and associations, and has participated and collaborated in various forums and universities

as a guest speaker on corporate communication and sustainability. She is fluent in English and Portuguese and has been recognized as one of the TOP 100 leading women in Communication on two occasions.

Collaborator in compliance legal aspects:

Jorge Manrique de Lara is a practicing lawyer and forensic economist specialized in compliance. He is the academic director of the Master's program "Compliance Officer" at the EADE - University Studies. He is also the commercial Director of INCOMPLIANCE, a knowledge transfer unit of the Institute of Criminology of the University of Malaga.

Manrique is also a member of the Registries of the General Council of Economists, which gathers experts in Regulatory Compliance and Forensic Economics, and possesses extensive experience in business process reengineering in multinational companies as a manager at Accenture. Additionally, he is a partner at SCOM and member of the distribution working group. Agricultural Engineer specialized in agri-food industries.

METHODOLOGY

At Structuralia, we apply a modern methodology adapted to the process of change we live in today. Our educational environment is based on an online learning system, that is, learning by observing, reflecting, and practicing with an organized and carefully programmed study pace, which comes along with the constant support from our team. Our learning solution is designed to facilitate learning at the student's own pace, with a uniform structure that includes continuous evaluations and practical exercises to reinforce knowledge.

Our program's calendar consists of 9 monthly modules, which are divided into 4 weekly teaching units. In addition, there are 3 months for the Master's Final Project (MFP). This structure may be adjusted depending on the innate complexities of the program.

Each of these units contain introductory videos on concepts, syllabus prepared by our experts (which can be viewed online or downloaded in PDF), and self-assessments. Some units may even have practical exercises or examples, if required by the expert. At the end of each module, there will be a compulsory exam in order to complete the module.

The Director will ask all students to complete a Master's project, in which they will apply everything they have learnt in the previous modules, to practical cases. Students will have 3 months to complete and submit the project, during which they will receive the support from the program's team.

Finally, you will receive the status reports from our team through regular follow-ups throughout the program.

EVALUATION

The assessment will be ongoing throughout the training program and will take into account not only the acquisition of knowledge, but also the development of skills and attitudes.

At the end of each monthly module, the student must answer a test-type exam on the online training platform, in addition to pose a variety of practical cases along the topics and optional unit test so as to achieve the maximum consolidation of technical concepts.

To obtain the degree it will be necessary to pass the assessable modules of the program.

DEGREE

Students who have visualized all the lessons, successfully passed the self-assessments and exams, and submitted the master's final project, will receive Structuralia's certificate and the title of Master of Professional Development by the Universidad Católica San Antonio de Murcia (UCAM), in digital format.

Likewise, the student can request a certificate of completion of his/her master's degree, or a certificate of completion from Structuralia.

The student may also request a the Hague Apostille on his/her certificate of completion from the university an additional fee.