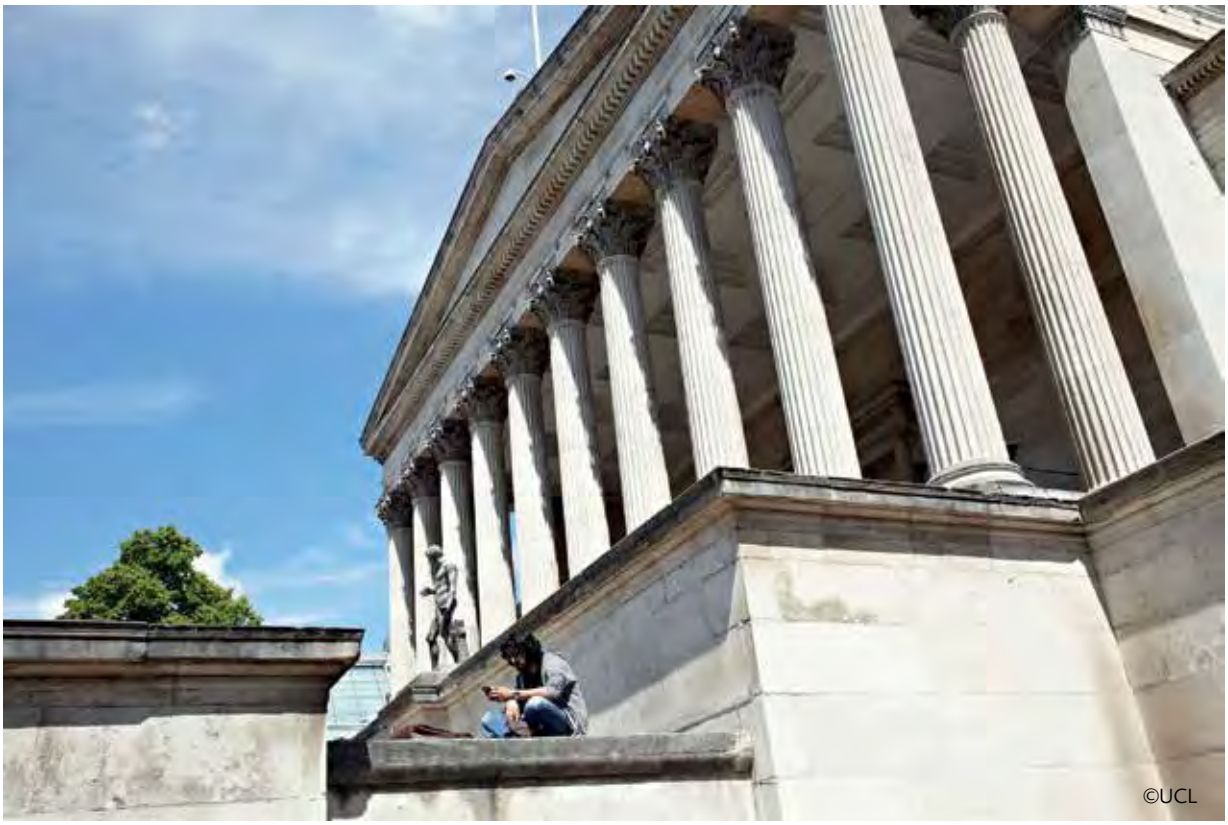
APM Academic

ACCREDITATION

CASE STUDY



UCL

THE BARTLETT

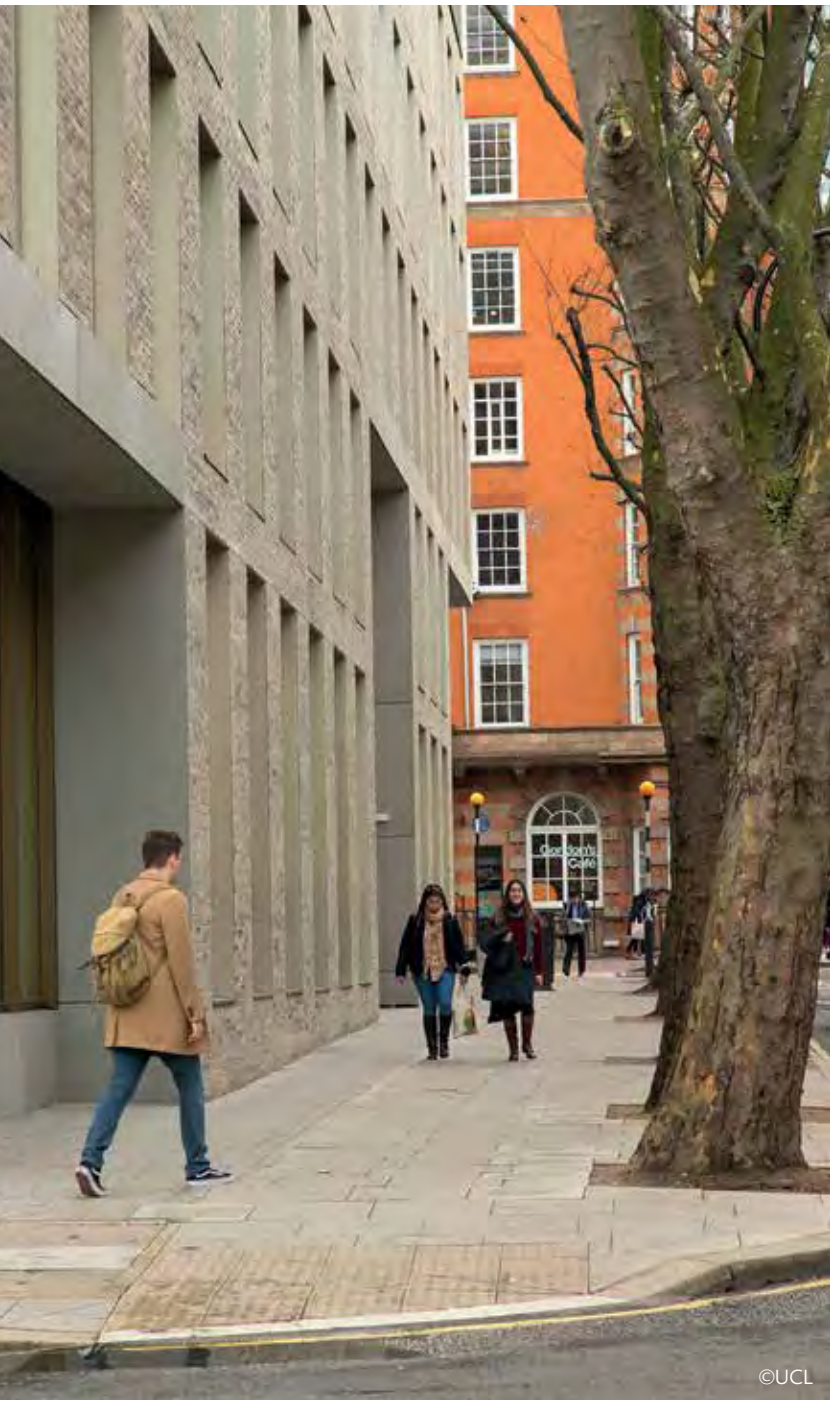
Introduction

As one of the oldest but most radical faculties of its kind, The Bartlett Faculty of the Built Environment has built a reputation for education and research that draws students and academics from across the world.

In 1841 this multi-disciplinary college became the global faculty of the built environment at University College London (UCL). Today, its departments are recognised as world leaders in their fields, which range from architecture and planning to energy and development.

The Bartlett School of Construction and Project Management was established in 2002 under the leadership of APM Hon Fellow, Professor Peter Morris, to bring together The Bartlett's established research into the managerial and economic aspects of construction. It was created as a centre of excellence of intellectual knowledge and criticism around projects and their management and economics, particularly in the built environment.

The School collaborates on both applied and fundamental research with businesses, government departments and agencies, non-governmental organisations and charities on transfer of knowledge, research projects, training courses and teaching collaborations.



Its vision is to be recognised globally as a centre of excellence in the management of projects and construction economics, delivering research-informed teaching on leading theories and practice.

In 2019 The Bartlett topped the QS World University Rankings by subject for architecture/built environment. It is also anticipated that its research will score even higher than its 2014 four-star, 'world leading' rating in the 2021 Research Excellence Framework.

Responding to a changing world

The Bartlett has a global reputation for developing and delivering new responses to pressing world issues, together with innovative approaches to the challenges facing the built environment.

With the increasing growth in and use of digital technology in the rapidly changing construction sector and after identifying a demand through industry engagement, the School of Construction and Project Management developed a course that would improve the management of the emerging discipline of digital engineering to create, capture and integrate digital technologies in projects. Digital engineering includes building information modelling, virtual reality, augmented reality, blockchain technology and big data analytics approaches that transform the way the construction sector operates.

The result was a new MSc in Digital Engineering Management (DEM). Believed to be the only one of its kind, it is designed to meet an industry need for greater understanding and analysis of how these pioneering digital technologies shape and are shaped by organisations, projects and supply chains in construction.

The course has gone through UCL's rigorous scrutiny and approval process and has been designed under the leadership of Dr Eleni Papadonikolaki and a number of academics, with input from industry collaborators.

It was awarded APM accreditation at the beginning of 2020 and the first students are due to start the programme in September 2020. The course has attracted interest from professionals with 5 to 10 year's experience and recent graduates from around the globe. It will begin its first academic year with a small cohort, a balanced mix of full-time and part-time students who are encouraged to bring their experiences in the class.

"The built environment faces an unprecedented transition towards a digital economy. Our vision for the MSc in Digital Engineering Management is to educate and train the new generation of leaders in the built environment capable to harness digital technologies and lead transformations in businesses and projects," said Dr Papadonikolaki.

Innovative thinking

The MSc in Digital Engineering Management aims to equip students with the foundations of innovative digital technologies in the built environment at both a practical skills level and developing critical thinking to understand the managerial implications.

It focuses on learning through a mix of lectures, case teaching method, seminars, prototyping and collaborative project work. Modules are both scenario- and project-based, and organised around the three themes of: project, organisation and engineering.

The course can be studied full-time over one year or part-time over two to five years and comprises eight taught modules and an original piece of independent research leading to a dissertation.

Of the eight modules, four have been mapped directly to the *APM Body of Knowledge 7th edition* and all are aimed at providing the breadth and depth needed to manage any kind of project. This strategy ensures that the *APM Five Dimensions of Professionalism* and key APM competencies are addressed through the course.

Additionally, the course leader, Dr Papadonikolaki, obtained the APM Project Management Qualification (PMQ) to further strengthen alignment with the association's standards and values.

"We subscribe to the vision of the *APM Body of Knowledge 7th edition*, on including a breadth of areas in the project professionals as well as professing accountable leadership in project environments," she explained.

Course topics include:

- Organising for digitalisation
- Management of digital innovation
- Digital briefing and scope management
- Integrated and industrialised
- Big data and business analytics
- Engineering of the digital thread across lifecycle
- Agile and hybrid project management
- Management of major programmes with digital

Digital learning platforms are used throughout for learning and assessment. Assessment is through analytical essays, coursework (either individual or in groups), examination and the MSc dissertation.

Through the research track record and industry engagement of Dr Papadonikolaki and school academics, the programme will continuously align with industry needs and be proactive as well as reactive in bringing fresh ideas and change to the industry.

Students, too, will be encouraged to continue their development through a commitment to continuing professional development, such as through APM and PRINCE2 qualifications and following the APM Code of Professional Conduct.

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Personal story

Jacqui Glass
Principal investigator, Transforming Construction Network Plus
Professor in Construction Management, The Bartlett School of Construction and Project Management, UCL

As principal investigator for Transforming Construction Network Plus (N+), Professor Jacqui Glass believes the MSc in Digital Engineering Management has an important contribution to make in bringing about change in the construction industry.

And, she says, change it must.

"We can't keep approaching it the way we have. If we don't change, we will always have the same outcomes, we won't have the efficiencies, we won't have buildings of the highest quality and we won't have performance of the highest quality.

"If we look at the industry and the health of businesses within it compared to other industries, it is not good. We have a structure created in the post-World War Two years that has no sustainability and it will not survive unless things change.

"It's not the methods of construction, it's the methodologies – an understanding of the technologies and the concept of the 'digital twin' (pairing the actual construction with digital platforms driven by real time data) and joining the dots.

"We have to fundamentally review the whole delivery process, starting with the initial design stage and digital engineering.

"That is why I was excited when I saw the curriculum for this MSc programme. It's potentially catalytic. Just one individual can make a difference, someone within an organisation who can say 'we can do this'. It is what we need to make change happen."

** N+ is the government-backed body of experts drawn from a range of disciplines and academia with the challenge to unite and transform the industry by tackling the most pressing problems through an integrated approach. It has £1m to invest in new research over the next two years.*

Key staff

Dr Eleni Papadonikolaki
Eleni is a management consultant and lecturer (assistant professor) in Building Information Modelling (BIM) and Management at The Bartlett School of Construction and Project Management. She is a Fellow of the Higher Education Academy and a member of the Architects Registration Board (ARB) and MAPM. Prior to joining academia, Eleni worked as architect and design manager on projects in Europe and the Middle East.

Dr Carlos Galera Zarco
Carlos is a lecturer in Project Management and Business Analytics at UCL. His research interests revolve around data-driven value creation and its associated challenges. He is a fellow of the HEA and a visiting lecturer at Aston Business School. Before entering academia, he worked for a global engineering company in different infrastructure projects.

Dr Beth Morgan
Beth has extensive experience gained working across the construction sector in senior project and organisation roles and is currently engaged with a range of projects relating to the digital transformation of the products and production of the built environment.

Dr Abel Maciel
Abel is a senior project architect and senior research associate at UCL. He brings extensive experience in working in various multi-national and prestigious projects in architecture and research on a wide range of design typologies and scales, working with some of the world's leading design practices.

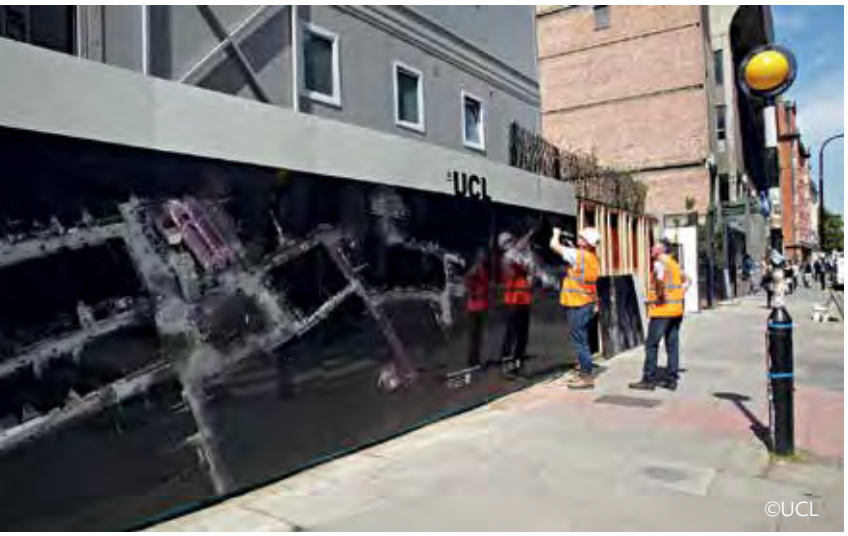
> "We are very happy that the MSc in Digital Engineering Management has achieved APM academic accreditation. APM is an important body to benchmark our curriculum as well as support our students and future alumni in their careers in projects."

Dr Eleni Papadonikolaki

Association for Project Management and The Bartlett

As a faculty of UCL, The Bartlett is a corporate affiliate of APM. The School of Construction and Project Management has long-established links with the association, particularly through Professor Peter Morris, who is currently Emeritus Professor of Construction and Project Management, and APM President Sue Kershaw who is an honorary professor at the School. The DEM MSc course leader, Dr Eleni Papadonikolaki, is a member of APM (MAPM).

Relevant modules on the course have been mapped to the *APM Body of Knowledge 7th edition*. Students will be introduced to APM at the start of their studies, when a senior member of the association has been invited to talk to them. The course handbook refers to the association and they are encouraged to consider APM qualifications and membership as part of their wider development. Also, students are encouraged to take advantage of the school's situation in London to attend APM events to expand their professional networks and stay up to date with contemporary issues in their field.



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Personal story

Neil Thompson
Director, Digital Construction
Infrastructure Construction
SNC-Lavalin

"Our engineering professions are in need of updating their management techniques. Despite the leaps forward in the products and outcomes of engineering, running engineering projects is considered a dark art and traditionally difficult to engage with.

The Digital Engineering Management MSc at The Bartlett School of Construction and Project Management is a new and exciting course that will push the profession forward. It provides aspiring change-makers in the engineering profession with a platform to unleash their creativity and enable an agile environment for developing and delivering projects.

I am personally excited to be involved with the programme and wished it was available to me when I was searching for an MSc course. I believe this course will generate the next generation of strong thinkers and challengers of the status quo in our industry. From pushing environmental policy forward through to sustainable product design, the alumni of this course will be pushing the boundaries of the built environment.

Association for Project Management

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FIVEDimensions
of Professionalism

APM Corporate Accreditation

APM Corporate Accreditation will help you stand out as an exemplar in the development of project management professionals. It provides assurances to your customers and suppliers and allows you to attract and retain the best project management talent in the country.

APM Corporate Accreditation recognises the commitment of organisations and professional development services to the defined APM FIVE Dimensions of Professionalism, each of which is supported by an APM standard:

Breadth

The *APM Body of Knowledge* defines the knowledge needed to manage any kind of project. It underpins many project management standards and methods including the National Occupational Standard in Project Management.

Depth

The *APM Competence Framework* provides a guide to project management competences. It is part of your professional toolkit; mapping levels of knowledge and experience to help you progress your skills and abilities.

Achievement

APM qualifications take your career in new and exciting directions. They are recognised across the profession and aligned with IPMA's 4 level Certification Program.

Commitment

Continuing Professional Development helps develop your project management practice. A targeted development plan will enhance your project management career.

Accountability

The APM Code of Professional Conduct outlines the ethical practice expected of a professional. Becoming an APM member shows your commitment to the Code and sets you apart from others.

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