

# UNIVERSITY LEVEL BIM EDUCATION

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**A**ccelerating global challenges and opportunities, the Architecture, Engineering, and Construction (AEC) industry faces ever more challenges to become more efficient and integrated. At the forefront of the response to such challenges, is the increasing use of Building Information Management & Modelling (BIM). Construction projects are increasingly becoming more complex, often engaging new business processes and technological solutions in line with projects' requirements. Moreover, it is advocated that the AEC sector in particular, is likely to require a myriad of increasingly advanced technologies in order to cope with future AEC projects. Furthermore, global competition and the transdisciplinary nature of evolving AEC activities makes it progressively important to educate new AEC professionals with appropriate skill sets. These skills include the ability and capability of using new methods of construction in order to deliver novel design solutions and construction processes. Furthermore, The UK Government has mandated level 2 BIM for its construction projects by 2016. To address this need, the industry requires broadly educated professionals who can lead these digital developments and face the challenges of the future. The Government in collaboration with the industry has already committed to the Level 2 BIM programme by 2016 and invested £220M in the development of a High Performance Computing programme, and over £650M in the delivery of transformational high speed Broadband across the UK which has been delivered by 2015. These have resulted in significant construction cost savings of £840M in 2013/4 (Cabinet Office).

Despite the recent innovations in BIM and Lean construction and its burgeoning implementation in the field of practice, the academic sector as a whole has not yet fully acknowledged the importance of investing in BIM education, nor embraced it as an enabler. In addition, the need for investing in BIM education has been intensified by the UK's recent impetus in adopting BIM across centrally procured public construction projects, as well as forthcoming milestones, which makes the UK be considered as one of the leading nations in the exploitation of BIM. This provides an opportunity for UK universities to align their pedagogical strategies with the government's.

BIM is a new field in the construction educational sector. It plays a significant role on the AEC industry workflow, as well as bringing significant challenges to both industry and educational sector. Within the university level education, these challenges

are particularly poignant as the aim is not merely to train learners to use the software, but rather to research and explore the concepts and the possibilities. BIM at higher education level provides a postgraduate route for current graduates from a variety of disciplines due to its versatility (such as Architecture, Construction Management, Mechanical/Electrical Engineering, Civil, Surveying, and Project Management). At this level, BIM courses responds to the need for skilled and experienced BIM professionals, not only in the use of the technology, but in its implementation, from design, to procurement, to financial management and throughout the conception, construction and the life of a building. By eliminating many of the obstacles in the way of traditional engineering education, BIM at university level is to help change the perceptions of engineering and technology and encourage more women into leadership roles within the AEC Industry (due to its nature), for which the UK has a pressing need for more talent.

MSc BIM at University of Portsmouth has been planned to respond to an urgent need for AEC industry specialists, seeking to develop skills in the theory and practice of BIM. This course proposes a new curriculum, designed to address this shortcoming. The goal of this course is not merely software training but rather, exploring the concepts, acquiring appropriate expertise, preparing commercial BIM strategists, and developing BIM adoption methodologies. The course aims to allow for students to develop skills, knowledge and understanding in the area of BIM, including both the theoretical and practical implications of such a method of working, and to facilitate the development of research skills to enable further individual specific research enquiry. Moreover, Distance Learning (DL) BIM at University of Portsmouth is particularly suited to those in relevant employment who have the knowledge and capability to manage change within their organisation, but lack the technical BIM expertise, both in the UK and overseas.