



## Outline of the CEEDA study

The decade leading up to 2020 was a transformative period for engineering education. As described in the 2018 MIT-commissioned report on the global state of the art in engineering education<sup>1</sup>, a new generation of globally-recognised engineering programmes emerged that took an experiential and collaborative approach to learning. While some established online platforms for learning core engineering science principles, the learning approach was underpinned by synchronous, face-to-face interaction and collaboration, often through immersing students in authentic engineering problems.

The COVID-19 pandemic prompted an immediate pivot to online learning for universities worldwide – including those delivering, or aspiring to deliver, such innovative programmes. They were forced to confront the question: how is it possible to deliver student-centred, collaborative learning experiences remotely? Hand-in-hand with this question is the wider issue of the long-term impact of COVID-19 and the resulting period of ‘emergency teaching’ on the future trajectory of the engineering education sector and the innovative emergent practices of cutting-edge engineering programmes.

As universities look to formulate a longer-term educational vision beyond emergency teaching, the CEEDA study (Collaborative Engineering Education in the Digital Age) was launched. Drawing on interviews with members of the global engineering education community, it addresses two questions:

- 1. What were the experiences of the engineering education community during emergency teaching?**
- 2. How will this systemic shock impact the direction of travel for the sector beyond emergency teaching?**

The study was designed around two outputs, both of which are open source. The **first** is a report, which explores feedback from across the global engineering education community on the experience of emergency teaching and how it might impact the trajectory of the sector in the future. The **second** is a series of in-depth case studies which explore the institutional response to emergency teaching at six<sup>2</sup> of the universities identified in the 2018 MIT report as ‘emerging leaders’ in engineering education. Each case study describes one ‘best practice’ example of collaborative and active engineering learning that was delivered partially or fully online at the university during emergency teaching. These case studies are available at the project website<sup>3</sup>.

The study is supported and co-funded by a consortium of engineering schools and universities<sup>4</sup>. The study is led and undertaken by Dr Ruth Graham, a higher education consultant and author of the 2018 report on the global state of the art in engineering education<sup>1</sup>. Further information on the study is available from the CEEDA website at <https://ceeda.org>.

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<sup>1</sup> Graham, R. (2018). The global state of the art in engineering education. *MIT Report, Massachusetts, USA*

<sup>2</sup> The six institutions are: SUTD, Singapore; Aalborg, Denmark; MIT, US; PUC, Chile; UCL, UK; and Iron Range Engineering, US

<sup>3</sup> Collaborative Engineering Education in the Digital AGE (CEEDA) website: [www.ceeda.org](http://www.ceeda.org)

<sup>4</sup> The 11 study co-funders are: Aalborg University, Denmark; Swiss Federal Institute of Technology Lausanne (EPFL), Switzerland; Massachusetts Institute of Technology (MIT), US; Norwegian University of Science and Technology (NTNU), Norway; Olin College of Engineering, US; Pontifical Catholic University of Chile (PUC), Chile; Royal Academy of Engineering, UK; Singapore University of Technology and Design (SUTD) Singapore; Tecnológico de Monterrey (Tec de Monterrey), Mexico; University College London (UCL), UK; and 4TU Centre for Engineering Education, The Netherlands