

**Table 1: Proportion of 18 years old in the UK and entering full-time higher education in England in 2019-2020, by characteristics**

Characteristic	Attribute	Proportion of 18-year-olds in UK population (%)	Proportion of 18-year-olds in English higher education sector (%)	Gap between population and higher education sector (pp)
<b>Ethnicity</b>	Asian	8.3	16.7	-8.5
	Black	3.6	7.1	-3.5
	Mixed	3.2	5.2	-2.0
	Other	1.1	2.1	-1.0
	White	83.9	68.9	15.0
<b>IMD</b>	Quintile 1	21.9	17.0	4.9
	Quintile 5	20.0	25.9	-6.0
<b>POLAR4</b>	Quintile 1	17.9	11.8	6.1
	Quintile 5	23.7	30.7	-7.1
<b>Sex</b>	Female	48.7	55.8	-7.1
	Male	51.3	44.2	7.1

Note: Because of rounding, the gaps shown in the table might not be the same as the difference between two proportions.

Source: OfS (2021c)

**Table 2: Continuation rates for entrants continuing into 2019-20, by characteristics**

Characteristic	Attribute	Full-time undergraduate continuation rate (%)	Full-time undergraduate continuation gap (pp)	Part-time undergraduate continuation rate (%)	Part-time undergraduate continuation gap (pp)
<b>Age</b>	Young *	92.4		72.8	
	Mature	84.4	8.0	66.2	6.6
<b>Disability</b>	No disability reported *	90.2		68.1	
	Disability reported	89.3	0.9	60.9	7.2
<b>Disability type</b>	No disability reported *	90.2		68.1	
	Cognitive or learning difficulties	91.5	-1.3	67.1	1.0
	Mental health condition	87.0	3.2	55.2	12.9
	Multiple or other impairments	89.4	0.8	57.8	10.3
	Sensory, medical or physical impairments	89.1	1.1	62.8	5.3
	Social or communication impairment	88.7	1.5	63.0	5.0
<b>Ethnicity</b>	White *	91.1		67.8	
	Asian	90.2	0.9	65.4	2.3
	Black	84.9	6.1	61.6	6.2
	Mixed	89.1	2.0	61.4	6.3
	Other	87.4	3.7	64.0	4.0
	<b>IMD</b>	Quintile 5 *	93.9		72.8
Quintile 1		85.9	8.0	63.8	9.0
<b>POLAR4</b>	Quintile 5 *	94.4		75.0	
	Quintile 1	89.6	4.7	67.9	7.1
<b>Sex</b>	Male *	88.7		68.0	
	Female	91.2	-2.5	66.3	1.8

Notes: Full-time continuation rates are for 2018-19 full-time or apprenticeship entrants continuing into their second year in 2019-20. Part-time continuation rates are for 2017-18 entrants continuing into 2019-20. Attributes with a \* indicate those against which other attributes are compared when deriving gaps. Because of rounding, the gaps shown in the table might not be the same as the difference between two rates.

Source: OfS (2021c)

**Table 3: Attainment rate for students obtaining a first or upper second class degree in 2019-2020, by characteristics**

Characteristic	Attribute	Full-time undergraduate attainment rate (%)	Full-time undergraduate attainment gap (pp)	Part-time undergraduate attainment rate (%)	Part-time undergraduate attainment gap (pp)
Age	Young *	85.2		44.6	
	Mature	75.6	9.6	64.7	-20.0
Disability	No disability reported *	83.6		59.6	
	Disability reported	82.3	1.3	55.5	4.1
Disability type	No disability reported *	83.6		59.6	
	Cognitive or learning difficulties	81.0	2.6	54.0	6.0
	Mental health condition	83.4	0.2	58.0	1.0
	Multiple or other impairments	83.4	0.2	54.0	6.0
	Sensory, medical or physical impairments	83.3	0.3	59.0	1.0
	Social or communication impairment	78.8	4.8	48.0	12.0
Ethnicity	White *	86.6		68.0	
	Asian	78.8	7.7	37.7	30.3
	Black	68.2	18.3	30.2	37.8
	Mixed	83.0	3.6	51.0	17.0
	Other	76.6	9.9	40.0	28.0
IMD	Quintile 5 *	89.4		68.0	
	Quintile 1	74.2	15.2	46.4	21.6
POLAR4	Quintile 5 *	88.7		50.8	
	Quintile 1	80.0	8.8	40.0	11.0
Sex	Male *	81.9		60.9	
	Female	84.4	-2.5	57.1	3.8

Note: Attainment rate reflects students obtaining a first or upper second-class degree in 2019-20. Attributes with a \* indicate the one against which other attributes are compared against when deriving gaps. Because of rounding, the gaps shown in the table might not be the same as the difference between two rates.

Source: OfS (2021c)

**Table 4 List of Interviewees**

Interviewees	Information of Interviewees
Programme Leader	In the post as Lecturer for 12 years. As a Programme Leader for 8 years
Online Course Director	Work in the university in the online learning department for 6 years
Professional body representative 1	Regional Chair of 3 years for a professional body focusing on highways. Have been a member for 15 years
Professional body representative 2	Vice Regional Chair and then Chair for civil engineering professional body in a total of 2 years. Have been a member for 10 years
Professional body representative 3	National committee member of 5 years for a professional body focusing on highways. Have been a member for 20 years
Employer 1	Civil engineer for an SME civil engineering company and in the role for 20 years

Employer 2	Associate Director for a regional civil engineering company for 3 years
Employer 3	Currently Regional Manager for water company and have been working on the company for 20 years
Employer 4	Currently Technical Director for international construction and civil engineering company. In the current post for 3 years and has worked in the sector for 25 years.
Employer 5	Director for national site surveying company for 10 years and has been in the company for 20 years
Student 1	Mature, international, part-time student, at the final year of the study. Have relevant work experience
Student 2	Mature, international part-time student, at the final year of the study. Have relevant work experience
Student 3	UK, part-time students, at the first year of study. Progress to study for master's degree immediately after completing the first degree. Have relevant work experience
Student 4	International full-time students, in the first year of the study. Do not have relevant work experience
Student 5	International full-time students, in the first year of the study. Have relevant work experience
Student 6	UK, full-time students, in the first year of the study. Have relevant work experience
Student 7	UK, part-time students, in the second year of the study. Have relevant work experience

**Table 5 Summary of Research Findings**

<b>5.1</b>	<b>Business drive for the re-development of civil engineering and construction management course</b>
	<ul style="list-style-type: none"> <li>Market intelligence shows demands for online postgraduate courses delivered in flexible learning form, i.e. from individual modules to full Master's Degree course</li> </ul>
<b>5.2</b>	<b>Benefits of online courses which offer flexibility to address skill shortage</b>
	<ul style="list-style-type: none"> <li>Flexibility</li> </ul>

	<ul style="list-style-type: none"> <li>• Unique features of the course <ul style="list-style-type: none"> <li>- Online delivery of a course with practical nature</li> <li>- Combination of civil engineering and construction management</li> </ul> </li> </ul>
<b>5.3</b>	<b>Structure of the re-developed postgraduate Civil Engineering and Construction Management programme</b>
	<ul style="list-style-type: none"> <li>• Use a hybrid or blended learning model to ensure the sufficiency in delivering practical elements of the course</li> <li>• If the course must be delivered completely online, it must enhance the online delivery mechanism of the practical content via the digital environment, e.g., virtual reality</li> <li>• Content of online courses was written up prior to delivery</li> <li>• Scaffolding of MSc courses, i.e., offer credit-bearing module and stand-alone awards for Postgraduate Certificate, Postgraduate Diploma, and full Master's course</li> </ul>
<b>5.4</b>	<b>Subject areas that should be included in the curriculum to address skill shortage</b>
	<ul style="list-style-type: none"> <li>• Carbon footprint and Carbon accountancy</li> <li>• Business and management-related subject areas</li> <li>• Deliver Geotechnics through online delivery mechanisms</li> <li>• Standalone CPDs <ul style="list-style-type: none"> <li>○ Flood Risk Engineering Management</li> <li>○ Transport Infrastructure Engineering &amp; Sustainable Design</li> <li>○ Geomatic Monitoring &amp; Asset Engineering</li> <li>○ Advanced Geotechnical Engineering</li> </ul> </li> </ul>
<b>5.5</b>	<b>Lessons learnt on re-developing an existing course from on-campus to online course delivery</b>
	<ul style="list-style-type: none"> <li>• Consider the comparable student experience for online and on-campus students and assurance of academic rigour for online delivery</li> <li>• Measures are taken to ensure assessment for online students, in particular, how to ensure the students conduct closed-book examinations on their own without any aids</li> </ul>