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# The state of global surveying education: final report.

HOOD, C. and LAING, R.

2019

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CHOBE
Council of Heads of the Built Environment

RICS

# The State of Global Surveying Education

FINAL REPORT

SCOTT SUTHERLAND
SCHOOL OF ARCHITECTURE
AND BUILT ENVIRONMENT

ROBERT GORDON UNIVERSITY ABERDEEN

NOVEMBER 2019

GEORGE BROWN COLLEGE
OBAFEMI AWOLOWO UNIVERSITY
THE FEDERAL UNIVERSITY OF TECHNOLOGY AKURE
WESTERN SYDNEY UNIVERSITY

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**Ms Caroline Hood**
**Professor Richard Laing**
**November 2019**

# EXECUTIVE SUMMARY

## Background to the research

This research was commissioned through a joint proposal issued by CHOBE and the RICS to provide an overview report on surveying education across the Globe. CHOBE note that since their initial 'State of the Nation' analysis of Built Environment in 2008, and subsequent iterations in 2010 and 2015, the national and international landscapes around higher education and built environment provision have changed significantly. In particular, the global reach of the RICS has expanded and developments around in-country provision and trans-national education (TNE) have gained scale and maturity. It was considered timely to produce a globally relevant review of the state of surveying education, extending to wider built environment domains that reflect the current position.

Working in collaboration with international partners from institutions in Sri Lanka, Canada, Australia and Nigeria, the purpose of this project is to build on previous research regarding education and pedagogy within the field of surveying. As the global education market diversifies, with an apparent move towards embracing work-based and postgraduate options as a central stream for entrants to the industry, the aim of the research is to explore, analyse and represent the current state and likely future directions for surveying education in selected global regions. The project aims to provide a current snapshot of global surveying education which can then direct future work towards focussed areas of study, engagement and application.

The work builds on significant previous research regarding education and pedagogy within surveying with the purpose of defining the overarching themes which have emerged, both globally and regionally, with regard to the scope and context of teaching surveying within higher education institutions. With diversification of the global education market, this report seeks to explore, analyse and represent the current state and likely future directions for surveying education in selected global regions.

## Aim and Objectives

The aim of this research was to explore, analyse and represent the current state and likely future directions for surveying education in selected global regions. In order to achieve this aim, the following objectives were established:

- **Objective 1** – To synthesise existing published sources on surveying education around the globe;
- **Objective 2** – To construct mini-case studies of surveying education provision from different global regions; and,
- **Objective 3** – To develop recommendations based on key research findings to direct future work towards focussed areas of study, engagement and application.

To meet the aim and objectives, a meta-analysis of selected published academic and professional sources on surveying education around the globe was conducted. The initial literature review also led to the development of mini-case studies of surveying education in four countries (Australia, Hong Kong, Nigeria and Sri Lanka) with the intention of demonstrating the nature of surveying education provision across differing global regions. Finally, informed by the literature review, the next stage of the project involved primary data collection in the form of: (i) online surveys; (ii) semi-structured interviews; and, (iii) workshops. These activities were designed to inform the development of conclusions about the current status of global surveying education and to develop appropriate recommendations.

## Key Conclusions and Recommendations

The research design enabled the first two objectives of the research to be addressed as follows:

(i) Synthesis of academic and professional publications from numerous global locations in Section 2 allowed for identification of themes in the literature of: (a) current surveying education provision by HEIs through traditional and alternative modes; (b) the importance of applied and 'soft' graduate skills; (c) the concept of the 'Career Academic'; (d) issues surrounding gender and improving the representation of women in the profession; and finally, (e) current and future challenges facing the surveying profession **(Objective 1)**; and,

(ii) The construction of mini-case studies in Section 3 providing a 'snapshot' of surveying education in Australia, Hong Kong, Nigeria and Sri Lanka. For each region, these mini case studies allowed for: (a) an overview of the historical development of surveying education; (b) courses leading to surveying education; (c) course accreditation processes; and, (d) routes to RICS membership **(Objective 2)**.

The research has established that a number of key themes that were considered by participants to be critical to the future of surveying education:

- Staff recruitment and retention;
- Diversification of skills (including curriculum design, graduate skills and the role of CPD);
- Interaction between academia, industry and professional bodies;
- Gender; and,
- Funding of departments & students

On this basis, the following recommendations for action are made **(Objective 3)**

- **That further work is undertaken into how best to recruit and retain academic talent within the profession [Recommendation 1].**

- **That further work is undertaken into how best to support diversification of the academic workforce, taking cognisance of both 'Career Academics' and professionals with strong industry experience [Recommendation 2].**

- **That that further work is undertaken into considering how HEIs, industry and professional bodies can work in partnership to provide practical and implementable measures to ensure that students, graduates and existing professionals are gaining the necessary skills to ensure the continued relevance of the surveying profession for the 21st century [Recommendation 3].**

- **That further work should be undertaken into the potential for transnational learning and knowledge transfer into the deployment of technology within teaching and industry across the global surveying profession [Recommendation 4].**

- **That further work ought to be undertaken into curriculum design for the 21st century and how the individual roles of HEIs, industry and professional bodies can effectively support education provision for the profession [Recommendation 5].**

- **That further work is undertaken into the role of the RICS in encouraging regulation and standardisation across emerging education markets [Recommendation 6].**

- **That further work is undertaken into identifying practical steps to enable the integration of surveying and allied subjects into STEM activities to enable greater engagement with diverse groups and stronger marketing of the profession [Recommendation 7].**
- **That further work should be undertaken into the identification of how women can be practically supported within the profession [Recommendation 8].**
- **That the RICS has closer involvement within the marketing and recruitment activities undertaken by HEIs to ensure that the profession is promoted to a wide, diverse and non-traditional student group [Recommendation 9].**
- **That further work is undertaken into the potential for greater inter-institutional collaboration in the field of surveying education provision [Recommendation 10].**

The research important in that it has highlighted practical steps which can be taken, in terms of both policy and practice, to strengthen and enhance surveying education globally. One important observation of the literature – both academic and professional – is that many issues which have been identified are not new, and were raised or highlighted previously. These include issues of technical transformation (especially digital), gender balance, routes to entry and the balance to be struck between academic and professional pursuit.

However, the pace of change within the industry, and within the surveying professions, is arguably higher than ever, with impacts on participation, specialisms, competencies and skills. It is therefore essential that the research findings not only take their place in debate, but that they in turn find a place within practical and professional change.

# 1. INTRODUCTION & CONTEXT FOR RESEARCH

Drawing on previously funded research[1], this project was commissioned as a result of a joint proposal issued by CHOBE and the RICS to provide an overview report on surveying education across the globe. Since CHOBE's initial 'State of the Nation' analysis of Built Environment in 2008, and subsequent iterations in 2010 and 2015, the national and international landscapes around higher education and built environment provision have changed significantly. In particular, the global reach of the RICS has expanded and developments around in-country provision and trans-national education (TNE) have gained scale and maturity. It was considered timely to produce a globally relevant review of the state of surveying education, extending to wider built environment domains that reflect the current position.

## 1.1 Previous Studies

In order to provide the requisite context for this report, it is important to acknowledge the contribution made to the field by previous research. In 2006, following the identification by the RICS Education Trust of factors that exerted a major influence on the provision of surveying education, Ellis and Wood reported on the implications that an ageing demographic profile of full-time staff in surveying education and growing research base outside of academia would have on the provision of surveying education. They concluded that there was no evidence to suggest that there was an imminent crisis due to the age profile of academics but that pay differentials and lack of status made recruitment of new academics difficult (Ellis and Wood 2007 p. 45).

The critical nature of staffing concerns within the sector was also emphasised within a survey undertaken on behalf of the UK Heads of Department group of CHOBE in 2007. The survey asked questions about a range of topics that could potentially influence the resourcing of departments and covered questions concerning students, curricula, research, accreditation and assessment (Ashworth 2008). The survey results indicated that recruitment and retention of appropriately experienced and knowledgeable staff were identified as being the most common and important issues reported by survey respondents (Ashworth 2008). Engagement with commerce and industry and the need to attract good students were also reported as being important factors for departments (Ashworth 2008).

Work undertaken by Roberts et al (2009) in 2008 to assess the current position and future prospects for built environment higher education in Scotland made a number of specific recommendations in relation to different stakeholders involved with built environment education in Scotland. These were in relation to: (i) RICS-related recommendations; (ii) Scottish Funding Council-related recommendations; (iii) Scottish Government-related recommendations; (iv) RICS partner university recommendations; and, (v) industry related recommendations (see generally Roberts et al (2009) Chapter 5). It is noted that in relation to the supply of built environment graduates, there is a need to maintain a balance between postgraduate and undergraduate degree programmes and also the need to continue promoting greater diversity of students entering the profession (Roberts et al 2009 p. 10). Increased collaboration with partner universities and industry groups is also recommended, both to enhance student experience but also to ensure degree programmes meet the needs of the sector (Roberts et al 2009 p. 10).

1 See generally: ASHWORTH, A., 2008. *Resourcing programmes in the built environment*. CHOBE; WILLIAMS, A., GALLOWAY, K., and MULLIN, P., 2010. *Built environment higher education: state of the nation*. Salford: University of Salford; ROBERTS et al, 2009. The future of built environment higher education in Scotland: final report. *RICS Scotland Research Project*. Edinburgh: RICS; ELLIS, R.C.R., and WOOD, G.D., 2006. The future of surveying education in universities. *RICS Research Paper Series*, 7(2) January.

Finally, work undertaken by Williams and Wheaton (2017) again highlighted the issues surrounding current levels of training and education associated with the wider Built Environment disciplines[2]. In common with other literature discussed above, the consequent need for change within the sector to meet the needs of industry was emphasised. In particular, three key themes were cited in being critical to overcoming challenges faced by the sector: (i) provision of a long-term road map for the Built Environment; (ii) developing a sustainable skills supply which is not impacted by economic variables; and (iii) implementing a common careers and education framework across all Built Environment disciplines (see Williams and Wheaton 2017 pp. 13-14).

## 1.2 Aim and Objectives

Working in collaboration with international partners from institutions in Sri Lanka, Canada, Australia and Nigeria, the aim of the research was to explore, analyse and represent the current state and likely future directions for surveying education in selected global regions. To achieve this aim, there were three defined objectives:

- To synthesise existing published sources on surveying education around the global **(Objective 1)**;
- To construct mini-case studies of surveying education provision from different global regions **(Objective 2)**; and,
- To develop recommendations based on key research findings to direct future work towards focussed areas of study, engagement and application. **(Objective 3)**.

In order to achieve the stated aims and objectives, a mixed method research design was adopted. This is discussed in further detail below.

## 1.3 Methodology

To meet the aim and objectives of the research outlined above, a mixed research design was adopted. The underlying rationale for selecting this approach was that it was felt the use of combined quantitative and qualitative approaches would provide a better understanding of the issue under investigation and provide a wide and balanced review of the state of global surveying education. The research has taken an inclusive approach to the surveying disciplines studied, in order to reflect the diversity of global surveying education.

Initially, a meta-analysis of selected published sources on surveying education around the global was conducted. This utilised a combination of academic, professional and industrial sources, to develop a high-level literature review **(Objective 1)**. This desk-based work aimed at synthesising:

- The global footprint of surveying practices and RICS' presence across global regions;
- Key themes in the sphere of global surveying education;
- University provision and educational supply chain in different parts of the global;
- Career paths for surveying graduates; and
- Future knowledge, skills and attributes requirements for surveying graduates.

The findings of the literature review are contained in Section 2 below. The initial literature

2 In this context, "Built Environment" was intended to encompass design, construction, operation and management and therefore incorporated the disciplines of real estate, property and construction industries as well as the Built Environment workplace more generally.

review also led to the development of mini-case studies of surveying education in four countries (Australia, Hong Kong, Nigeria and Sri Lanka), with the intention of demonstrating the nature of surveying education provision across differing global regions **(Objective 2)**.

Informed by the literature review, the next stage of the project involved primary data collection in the form of: (i) online surveys; (ii) semi-structured interviews; and (iii) workshops. The objective of this portion of the research was to inform the development of conclusions about the current status of global surveying education and to develop appropriate recommendations **(Objective 3)**.

Utilising the RICS database of Heads of Department and Course Leaders at institutions on an international level, the online survey was directed towards a wide selection of relevant individuals who were invited to participate in the research. The primary purpose of the survey was to collect information about the current state of surveying education through gathering both quantitative and qualitative data. The survey findings are reported in Section 4.1 below and a copy of the survey questions can be found in Appendix VII of the report.

The online survey work was further supplemented by the use of semi-structured interviews, with participants drawn from survey respondents who indicated they would be willing to assist with further research. Interviews were conducted with relevant individuals in Australia, Nigeria, Sri Lanka and the United Kingdom and sought to obtain more in-depth and detailed information than was possible within the context of the online surveys. Key themes complimented the survey and explored themes such as: (i) staff qualifications and policies around selection, recruitment and retention; (ii) the state of research and consultancy; (iii) graduate employability; (iv) resourcing; and (v) commentary on future strategies and development. The interview findings are reported in Section 4.3 below and a copy of the interview guide can be found in Appendix VII of the report.

Finally, workshops were conducted in two locations: (i) Edinburgh (consisting of participants representing a number of Scottish HEIs); and (ii) London (consisting of staff from HEIs located within the South, South East and South West of England). The workshops allowed for informal group discussion on emerging themes from the literature, the online surveys and interviews and, drawing on the experience of participants, for exploration of potential future directions for the profession at a UK and international level. A summary of the workshop findings can be found in Section 4.2 below.

Through the collation and analysis of each of these individual data sources, it was then possible to develop a number of recommendations which are included in the conclusion to this report **(Objective 3)**.

## 1.4 Structure of the Report

The subsequent sections of this report are designed to demonstrate how the project aim and objectives have been achieved and also to give context to the recommendations contained within the report's conclusions. The literature review (Section 2) presents a critical discussion of selected relevant literature on surveying education around the global, providing a context for the wider report. This is followed by an overview of the provision of surveying education in selection global regions (Section 3). This is then followed by presentation of the research data (Section 4). Finally, an assessment of the findings along with recommendations based on these findings are presented in conclusion to the report (Section 5).

# 2. CURRENT THEMES IN THE DELIVERY OF SURVEYING EDUCATION

## 2.1 Overview and Current Context

The objective of the literature review portion of the research was to synthesise existing materials and comprises a meta-analysis of selected published sources on surveying education. The analysis covered the following themes:

- Current themes in the delivery of surveying education;
- The role of education in equipping graduates with skills for professional life;
- The impact of gender (im)balance on the profession; and
- The role of education in meeting the current challenges facing the global survey profession.

Each of these themes is examined in further detail below and is done so in light of recent RICS recommendations that indicated the need for more. expansive and flexible education models, along with new educational opportunities to cater for new job roles (Cook and Chatterjee 2015). These recommendations are made with the purpose of ensuring that the profession is equipped to adapt to the changing market (Cook and Chatterjee 2015). In particular, the RICS has emphasised the need for the sector to move quickly to ensure that education and skills acquisition match the new job roles that are and will be created (Cook and Chatterjee 2015).

The following sections aim to provide further context to these aspirations but outlining the current modes of study open to students and exploring common themes emerging from the literature surrounding surveying education provision.

## 2.2 Traditional Routes

### 2.2.1 **Undergraduate**

Growth in undergraduate-level education of quantity surveyors can be traced to the late 1960s and early 1970s when the transition from Diplomas in Quantity Survey to Honours degrees occurred (see further Perera, Pearson and Ekundayo 2011).

Due to the highly applied nature of built environment courses, Iles, Gavin and Ryall (2018) observe that the subject field has tended to attract students who have not always made a comfortable transition into higher education. Faced with an increasing skills shortage for built environment professionals in Wales, the University of South Wales implemented an immersive approach to learning in its undergraduate courses in order to foster higher levels of student retention. In adopting this immersive approach to learning, the ambition was to enhance students' sense of belonging and to increase engagement, retention and levels of attainment (Iles, Gavin and Ryall 2018). The authors' note that the immersive style adopted was well suited to the vocational nature of the course and that an increase in retention of students in the subject area was report, along with "very high" levels of student engagement (Iles, Gavin and Ryall 2018).

### 2.2.2 **Postgraduate**

In addition to the undergraduate courses offered, a number of institutions now provide postgraduate level surveying education. Approaching the subject from an international perspective, numbers of international students and "added value" of the masters in gaining permanent residency status have been attributed to the growth of master's courses in Australia (Birch, Warren and Westcott 2005).

Individuals holding an undergraduate degree in a non-cognate subject may take an accredited Master's degree in surveying to become part of the surveying profession. It has been observed that the RICS' focus on raising standards within the surveying profession reduced the number of building and quantity surveying students (Birch, Warren and Westcott 2005).

It has been suggested that these non-cognate graduates offer the profession something valuable – maturity and wider life experience and higher levels of motivation (Birch, Warren and Westcott 2005). Therefore, the utility of such postgraduate courses, it has been suggested, is in offering the opportunity to deliver technical knowledge and skills, the development of business management skills and a higher quality of graduate than can be delivered through traditional undergraduate routes (Birch, Warren and Westcott 2005).

It should be noted, since 2005, that the market has matured considerably with regards to postgraduate professionally affiliated education, with postgraduate entry firmly established and heavily used in some RICS pathways.

## 2.3 Alternative Modes of Study

### 2.3.1 Part Time

In common with previous research (see further Cross 2016) Iles, Galvin and Ryall (2018) reported that satisfaction levels of part-time built environment students at the University of South Wales were lower than that of full-time students. This was attributed to three main causes: (i) poor timetable design for part-time students; (ii) restricted access to lecturing staff; and (iii) a lack of a "sense of belonging" for part-time students. However, existing research also identifies that graduates who entered the quantity surveying profession via part-time study, "tend to perceive themselves to be more competent in QS activities and tend to have a greater degree of confidence" (Lee, Perera and Hogg 2013 p. 172).

The differences in employment prospects for part-time and full-time students was also explored in an Australian context by Poon and Brownlow (2016). Graduates who studied part-time were observed to be more likely to secure employment after graduation; this is attributed to the increased likelihood of part-time students working full-time during their studies (Poon and Brownlow 2016 p.108). It was also noted that the type of university attended also impacted on employability, with those attending new universities more likely to gain full-time employment (Poon and Brownlow 2016 p. 109).

### 2.3.2 Distance Learning

In addition to more traditional on-campus routes to qualification, distance learning offers an attractive solution for some prospective students. Specifically, as an alternative mode of study, distance learning offers flexibility that may appeal to those already established within the workplace. It has been observed that distance education offers both challenges and benefits to academic institutions (Wu et al 2013). One such challenge of note is the potential for low participation rates within the more informal environment of the virtual classroom (Wu et al 2013).

### 2.3.3 Apprenticeships

Degree apprenticeships were introduced in 2015 with the aim of combining the best from higher and vocational education to meet key skills, enhance productivity, strengthen university and employer partnerships, and offer a new route into work (Universities UK 2019 p. 12). The schemes are funded by a UK wide "Apprenticeship Levy" which is a tax on employers to fund apprenticeship training and is paid by employers with an annual pay bill of more than £3 million at a rate of 0.5% of their total pay bill[3].

In a recent report, *Solving Future Skills Challenges* (Universities UK 2018) the impact of the fourth industrial revolution, the war for talent, the drivers of future economic growth and the

3 For further information on funding see – **https://www.gov.uk/government/publications/apprenticeship-levy-how-it-will-work/apprenticeship-levy-how-it-will-work#pay-apprenticeship-levy**

need to grow talent and provide opportunities in a post-Brexit UK were considered. It was concluded that in order to support the UK economy, the following are needed:

- universities and education providers to get closer to employers;
- learners who think more like employees and employees who think more like learners;
- a stronger focus on training and retraining those in work alongside training those for work;
- to dramatically increase productivity;
- more higher-level skills;
- more leaders and managers;
- to improve leadership and management;
- to increase opportunities – both ways in and ladders up; and
- to meet talent shortages in our public services and to continually develop skills to improve those services (Universities UK 2019 p. 13).

It is believed that degree apprenticeships can positively contribute to meeting all of these needs but that numbers and standards will need to increase (Universities UK 2019). As noted by Universities UK (2019 p. 19), research has uncovered a varied picture in relation to the success of degree apprenticeships in widening participation and attracting a diverse workforce, citing a recent report by the Office for Students (2019):

> ...in 2016–17, 87% of degree apprentices were white, while 7% were Asian and 2% were Black, although this lack of diversity was not limited to degree apprenticeships but reflected across all apprenticeship levels. Only 13% of young people in degree-level apprenticeships were from the most disadvantaged backgrounds, while 28% of young people in these qualifications were from the most advantaged areas. In comparative terms, however, the data tells a more positive story: 30% of degree apprentices came from areas under-represented in higher education in 2016–17, slightly higher than the 26% entering similar full-time higher education courses (Universities UK 2019 p. 19)

Furthermore, from an employer perspective, it is understood that many employers see degree apprenticeships as an opportunity to open up sectors and industries to women, members of the BAME community and older learners, thereby enhancing workplace diversity (Universities UK 2019 p. 20).

#### 2.3.3.1 Degree Apprenticeships – England

Degree apprenticeships combine working with studying part-time at a university. Apprentices are employed throughout the programme, and spend part of their time at university and the rest with their employer. The following apprenticeship standards are approved for delivery within the construction route[4]:

- Architect
- Architectural Assistant
- Building Control Surveyor
- Building Services Design Engineer
- Building Services Engineering Site Management
- Chartered Surveyor
- Chartered Town Planner
- Civil Engineer
- Civil Engineering Site Management
- Construction Quantity Surveyor
- Construction Site Management

4 As at September 2019

- Geospatial Mapping and Science Specialist
- Senior/Head of Facilities Management

For the purposes of this report, only the Chartered Surveyor Degree Apprenticeship will be considered further.

*BSc (Hons) Quantity Surveying (Chartered Surveyor Degree Apprenticeship)*
The format of the degree apprenticeship allows individuals to work and study for their degree at the same time. Tuition fees are met by the employer and/or government and the apprentice earns a salary at the same time. Apprentices also work towards their APC in preparation for the RICS Panel Exam following completion of their course.

**Figure 1: RICS APC Requirements** (University of Salford 2019)

The route to chartership is made up of 24 months whereby the apprentice collects evidence to support completion of all the appropriate professional competencies, the apprentice is mentored through this process by the RICS counsellor (allocated to them by their employer) who also signs off on the competencies.

During this period the apprentice must also accrue a minimum of 48 hours CPD/12 months. This section of the route to chartership must be completed at the same time as the degree element of the apprenticeship, thus apprentices are enrolled by the school onto the RICS APC when they have a minimum of 24 months of academic study remaining on their programme. Once the Apprentice has completed their degree they must be in a position to move onto the RICS Panel Exam [*note: this refers to the RICS structured training and final assessment interview*].– this requires the document demonstrating completion of all competencies plus a case study report to be sent to the RICS APC in advance of the panel exam (2-3 months in advance), the apprentice is then invited to sit the panel exam. The date by which they must complete the panel exam (EPA as referred to in the Apprenticeship docs) is detailed within the apprenticeship award.

Providers have 20% of Apprenticeship fee withheld until the Apprentice has satisfactorily completed the EPA, therefore if the panel exam isn't satisfactorily completed by the date specified within the Apprenticeship Award, the school has the option of requesting the 20% withheld fees from the employer.

The APC doesn't form part of the academic programme as only RICS can determine who joins them but the route to chartership runs concurrent with the degree element and link tutors will monitor APC progress as part of the quarterly review meetings.

In order to support students on the apprenticeship programme, the employer will need to have a structured APC training plan in place (we will need to see this upon application) and will need to provide an APC Counsellor (member of RICS) and Supervisor.

#### 2.3.3.2 Graduate Apprenticeships – Scotland

As in England, the Graduate Apprenticeship model in Scotland provides fully-funded structured training to degree level for employees. Developed by Skills Development Scotland in response to employer demands, the Graduate Apprenticeship in BSc (Hons) Construction and the Built Environment provides a variety of practical skills for managing construction projects. Currently, there are four learning providers offering the Construction and the Built Environment Graduate Apprenticeships in Scotland: (i) Edinburgh Napier University; (ii) Glasgow Caledonian University; (iii) Heriot-Watt University; and (iv) Robert Gordon University.

The cost of tuition fees is covered by Skills Development Scotland[5].

**Figure 2: Graduate Apprenticeship in BSc (Hons) Construction and the Built Environment – Robert Gordon University**

The four-year Graduate Apprenticeship in BSc (Hons) Construction and the Built Environment course is an industry-focused degree route, where students work full-time for a partner employer while studying towards a fully accredited degree. The apprenticeship combines workplace training with a programme of education designed to meet students' career ambitions. The core curriculum is focused on participation and proactivity to work-based learning developed through ongoing collaboration between RGU staff, workplace mentors, and line managers in the workplace.

This is a work-based learning course delivered via a combination of practical learning activities in the workplace complemented by learning delivered online through our virtual learning environment (VLE) and including one on campus session per module of study.

Per module, students can expect:
- Contact hours – 30 hours, 3 hours per week
- Independent Study – 30 hours, 3 hours per week
- Work Based Learning – 240 hours, 20 hours per week

Graduate Apprenticeships in BSc (Hons) Construction and the Built Environment offered by Heriot-Watt, Edinburgh Napier and Glasgow Caledonian University are accredited by the RICS, therefore enabling individuals to progress to RICS membership though one of the defined pathways.

## 2.4 Education and Graduate Skills

As noted by Perera et al, there has been numerous studies in recent years focussing upon quality in higher education institutions but there remain questions as to how effectively institutions are preparing students for life after university (2017b p. 93). Furthermore, the issue of employability is one that has gained significance for prospective students, particularly in England and Wales where tuition fees can reach up to £9,250 per year. Poon and Brownlow (2016) observe that applicants are more concerned about employability prospects given the contemplated financial commitment that a university education now represents.

The results of a survey reported in a paper by Hoxley indicated that both the mandatory and optional competencies of the APC could be better covered by building surveying courses (2012 p. 226). Further, Hoxley suggests that these shortcomings should be addressed by future reviews of building surveying courses (2012 p. 226).

In 2013, Perera examined the development needs of quantity surveyors through a detailed process of competency mapping (see also further Perera et al 2017a). It was concluded that, "The development needs of quantity surveyors are highly influenced by the needs of industry and profession" but also that they are, "shaped by the perception of academia" (Perera 2013 p. 158). It is observed that,

> The absence of a threshold benchmark that clearly defines graduate level of competence has led the industry to have unrealistic expectations; academia to aspire

5 See further – **https://www.skillsdevelopmentscotland.co.uk/what-we-do/apprenticeships/graduate-apprenticeships/**

> for unattainable levels of competence, producing a less than satisfied graduate (Perera 2013 p. 159).

However, Perera also reports that the majority of the expert forum involved with the study indicated that universities should avoid trying to provide training to produce a QS fit for industry and rather to focus on the provision of academic knowledge and a good foundation in quantity surveying (Perera 2013 p. 159). Unsurprisingly, early career graduates perceive themselves to be more competent in activities that are carried out more frequently (Lee, Perera and Hogg 2013 p. 172).

In more recent research undertaken by Perera et al (2017b), empirical evidence was provided of the competencies expected and attained by new graduates. They concluded that, "current industry competency needs are not being adequately met by graduate competencies falling short of industry expectations" (Perera et al 2017b p. 108). The authors suggest that their research findings highlight the need for greater levels of collaboration between university and industry in the development and delivery of construction programmes within higher education institutions (Perera et al 2017b p. 108).

As a connection to this, one might well consider the needs of Surveyors who have been working in industry for some time, and who might have entered the industry prior to the introduction of new technologies and processes. Whilst early discussion of building information modelling tended to concentrate on the technology and data characteristics of information-rich models, more recent debate has reflected a need to reassess how such technology holds the capacity to revolutionise the manner in which teams work, and across disciplines and organisations. Therefore, there would appear to be a space for higher and further education to fill a practical skills gap (much in the same way to requirements emerging from the development of CAD), but that there is a corresponding need to address skills gaps pertaining to collaboration, data handling, information sharing and the long term (higher level) uses of BIM. That is, skills pertaining to social and cultural shifts will be critical (Hayes and Zulu 2017).

However, existing research has also emphasised the differing levels of support that early career graduates received; specifically, private sector consultants tend to provide greater levels of support (Lee, Perera and Hogg 2013 p. 172).

Poon and Brownlow (2016) investigated the impacts of various factors on the employment outcomes for built environment graduates in Australia. Their research showed that the following had a statistically significant impact on employment outcomes for built environment graduates: (i) practical experience and possibility of work with final year employers after graduation; and, (ii) attendance type and employment mode in the final year of study (Poon and Brownlow 2016). It was also observed that graduates who had studies part-time and worked full-time in their final year were more likely to secure full-time employment after graduation (Poon and Brownlow 2016). They therefore concluded that practical experience was a key factor for graduates

Reflecting on findings of the Australian Learning and Teaching Council discipline-based initiative study investigating professional education in built environment and design, Davis and Savage note that there is concern around the ability of universities to meet the needs of graduates (2009 p. 6). The authors reflect that it was generally agreed that universities play an important role in the development of lifelong learning skills but that stakeholders have expectations as well as roles and responsibilities in the process of transitioning from education to work (Davis and Savage 2009 p. 6). They conclude that,

> There is a great deal to be gained by establishing and nurturing the conversations about transitions-to-work and to use the resultant agreements and tensions to shape the outcomes of courses and the ways in which the professions meet graduates on entry (Davis and Savage 2009 p. 6)

Furthermore, research conducted by Laing et al in 2011, highlights the "symbiotic relationships between industry, the professional bodies and higher education providers" (p. 59).

Finally, Kadiri and Ayodele, identify the need for the pursuit of continuing professional development programmes in order to bridge perceived knowledge gaps within the profession in Nigeria (2013 p.20). More generally, it has been acknowledged that the development of new graduates is "somewhat subject to opportunity and timing of projects" within the employment field of quantity surveying (Lee, Perera and Hogg 2013 p. 172).

### 2.4.1 Development of Soft Skills

The development of soft skills such as commercial awareness has also been explored through research. In 2014, Poon and Brownlow reviewed how real estate students perceive and define commercial awareness. Following on from descriptive analysis of questionnaires distributed to students and academic staff, the authors suggest that it is necessary for the curriculum to be revisited to ensure that learning outcomes specifically related to commercial awareness are clearly explained to students (Poon and Brownlow 2014 pp. 348-359).

The importance of soft skills was recently highlighted by the RICS within the context of emerging technologies. Depending on how technology is embraced and utilised, aspects of the profession that are at risk of automation may find that soft skills will take precedence over applied skills in certain areas (Thomson and Waller 2017 p. 18).

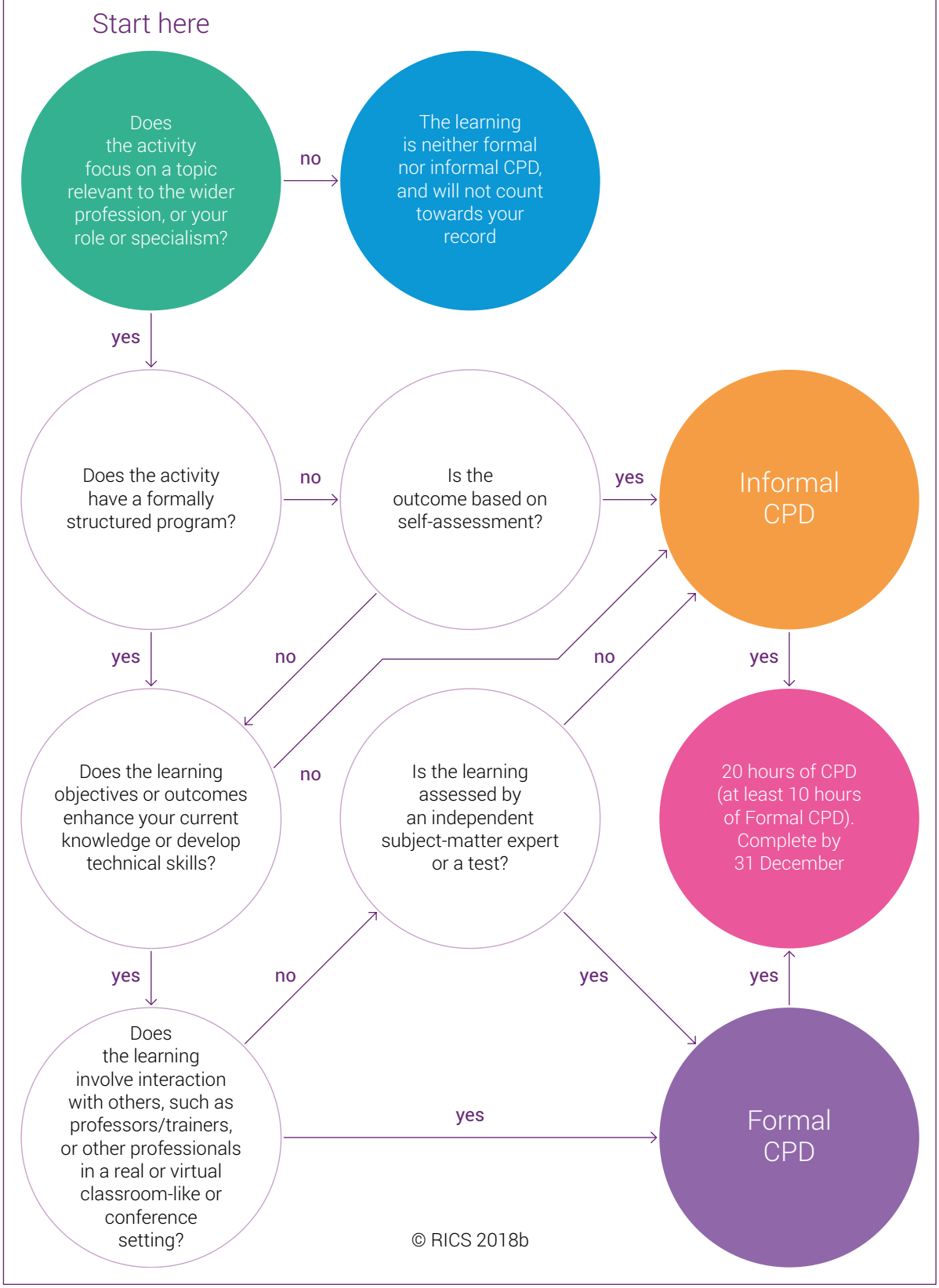
### 2.4.2 Continuing Professional Development (CPD)

Within the RICS membership context, CPD represents a "commitment by members to continually update their skills and knowledge in order to remain professionally competent" (RICS 2019b). All RICS professionals must undertake and record online a minimum of 20 hours of CPD activity each calendar year and of these 20, at least 10 must be formal CPD. All members are required to undertake learning in relation to the RICS' Global Professional and Ethical Standards at least once every three years (RICS 2019b), and this forms an important aspect of global surveying education.

The RICS defines formal and informal CPD as follows (2019b):

- Formal CPD can be any form of structured learning that has clear learning objectives and outcomes, such as a professional course, structured online training, technical authorship, learning that includes an assessment measure. This can include self-managed learning as long as it has a clear learning outcome which is clearly linked to the member's development needs; and
- Informal CPD is any self-managed learning that is relevant or related to your professional role. This could include activities such as private study, on-the-job training, attendance at informal seminars or events where the focus is on knowledge sharing.

Figure 3: **RICS CPD Decision Tree**



## 2.5 Concept of the Career Academic

Also emerging within the literature is the question over who exactly provides surveying education to students. Specifically, that the pedagogical approach has evolved over time to favour "Career Academics" over those with industry experience (see generally Tennant et al 2015; Pilcher et al 2017; and Forster et al 2017).

It is important to reflect at this point on the balance and mix that HEIs are required to strike between various activities, including teaching, research (fundamental and applied), consultancy and thought leadership. Within the large group of Universities providing education within the diverse fields of Surveying, there is a similarly diverse range of University areas of focus and emphasis. The term 'Career Academic', and its appearance within the Surveying literature, is interesting in itself, as the nature and content of wide Surveying education relies not only on imparting practical knowledge, but also in challenging received wisdom and embracing emerging techniques and trends. Nevertheless, there is a need to find connections between the wide ways in which Universities offer value – beyond training and economic gain (as discussed in Collini 2012) – and the fact that the training of Surveyors within a University environment has developed from a long history of apprenticeship and skills-based education.

It has been suggested that by creating a more diverse staff base within departments, a balance between Career Academics and those with professional industry experience, this could create a better environment for students and also provide students with necessary confidence that courses are being delivered by individuals with relevant experience (Pilcher et al 2017).

Therefore, there is a clear argument to be had that Universities need to find such a balance within the staff cohort and within the curriculum, to ensure that both professional and theoretically driven education is built from a strong foundation.

## 2.6 Gender

During 2018-2019, the RICS reports that of the 2,538 new candidate enrolments, 27% are female and that during Q1 of the same year, of the 626 new professionals awarded RICS designations, 25% are female (Marcuse and Tompkins 2018). Diversity, and in particular gender balance, within the profession is a common theme in the literature. Indeed, from the perspective of building surveying, it is observed that diversity within the profession, in particular in relation to gender, is a significant issue (Thomas 2015).

In their analysis of working practices in the UK and Australian construction sector, Dainty and Lingard (2006) identify how work practices and cultures disadvantage women's careers. Indeed, a recurrent theme in the literature is that of prevailing working patterns within the industry and how the issue of work/life balance negatively impacts on women within the profession (see e.g. Lingard and Lin 2004; Dainty and Lingard 2006; Rosa et al 2017; Bryce, Far and Gardner 2019).

Francis observes that the difficulties women experience within the construction sector can be strongly linked to a masculine attitude and culture within the workplace and also to discriminatory work practices (2017 p. 255). A key finding in Francis' research is that being mentored does not correlate with career advancement (2017 p. 268) and that focussing on networking and mentoring will only keep women from leaving the industry rather than assisting advancement (2017 pp. 270-271). This conflicts with other research findings that seek to promote the role of mentoring in women's career development within the construction sector as a means of encouraging a more diverse and representative workforce

(see generally. Sharapar and Tizard 2008; Warren and Antoniades 2016; Bryce, Far and Gardener 2019).

Rather, good experience in the early years of women's careers and remaining within the same company are beneficial to career advancement, along with further education (Francis 2017 p. 271). However, Francis cautions that construction sectors should be concerned about the findings that female managerial aspirations decrease in line with greater exposure to the industry, thereby reducing the supply of female leaders (2017 p. 271).

The lack of women in leadership roles within the sector in Australia is discussed by Warren and Antoniades, who recommend active government intervention to increase the representation of women in company boards, proportional representation within professional industry bodies and awareness training (2016 p. 41). However, Lingard and Lin observe that while affirmative action programmes to encourage more female representation in the workforce could work on a short-term basis, such policies should only be implemented in combination with attempts to education all employees on the benefits of a diverse workforce (2004 p. 418).

Poon and Brownlow (2016) investigated whether gender impacts upon real estate and built environment graduates' employment outcomes in Australia. They report that the dominant role for female real estate and built environment graduates is a secretarial of administrative role, compared to professional technical roles for male graduates (Poon and Brownlow 2016 p. 64). Male graduates were also reported to receive higher salaries and were more likely to be employed on a permanent contract (Poon and Brownlow 2016 p. 64).

## 2.7 Current and Future Challenges for the Profession

In a recent report produced for the RICS on the theme of emerging technologies and their impact on the surveying profession it was noted that,

> The impact of digital services on the surveying industry will be as significant and disruptive as it will be for any profession. The physical nature of buildings has insulated surveyors from previous revolutions, buying time to allow evolution (Thomson and Waller 2017 p.20)

The RICS suggest that an appropriate strategy for dealing with the changing business environment for surveyors is to: (i) retain top talent; (ii) improve diversity; and (iii) ensure the sector's needs are being met through education (2015 p. 8). Further, it has been indicated that the RICS will consider opening membership to professionals with roles in analysing and advising on built environment data, in order to bring those with digital skills within the profession (Cook and Chatterjee 2015 p. 59).

There is also the challenge of ensuring those already within the profession are capable of adapting to future changes. The RICS has emphasised the need to provide support for up-skilling and retraining professionals (Cook and Chatterjee 2015 p. 59) along with reinforcing the importance of continuing professional development to ensure skills remain relevant (Cook and Chatterjee 2015 p. 63).

# 3. SNAPSHOT OF SURVEYING EDUCATION[6]

## 3.1 Historical Development of the Surveying Profession – A Brief Overview

### 3.1.1 United Kingdom

In the United Kingdom, the regulation of both the provision of surveying education and wider regulation of the surveying profession is performed by the RICS. The history of the RICS can be traced back to 1868 and today the RICS accredits over 130,000 qualified and trainee professionals (RICS 2019c). The RICS' Royal Charter requires the promotion of the usefulness of the profession for the advantage of the UK public and in other parts of the global, making the RICS a global professional body and a cornerstone of professional regulation for surveyors on a domestic and international scale.

Within the RICS professional frameworks, what is perhaps most notable about urveying is that the profession has developed to embrace a wide and extremely diverse range of focal areas. This means that although there are ethical and professional considerations that are common to all Chartered Surveyors, the individuals might be trained, and working, across the whole of the building life cycle. As a consequence, education provided by Universities in the UK covers real estate, quantity surveying, building surveying, building control, infrastructure, taxation and planning, with staff drawn both from practice and from a rich research base.

Of note is recent years has been the introduction of routes to Chartered membership through research, and the development of Chartered routes which embrace long term work experience and senior managerial expertise.

Debate and commentary surrounding the future direction of Surveying in the UK (and internationally) has also begun to embrace discussion of the role which emerging technologies may play in the profession. Indeed, the RICS was among the first of the professional bodies in the UK to explore issues pertaining to BIM and digital data capture, and the value and knowledge of how to deal with data (from sensors, smart devices and digital twins) has highlighted ways in which the numerical and analytical expertise of Surveyors will require to develop.

### 3.1.2 Australia

RICS established its first office in Oceania in 2000, whilst having many accredited surveying courses in the region for two decades before. However, in the year 2008, the Australian Institute of Quantity Surveyors (AIQS) celebrated its 100 years' anniversary demonstrating the deep-routed history of quantity surveyors in the country. Meet up of seven quantity surveyors in Sydney in 1908 has been later developed to the prevailing well-established professional institute which is the sole authorised body of Quantity Surveyors in Australia. Similarly, the Australian Institute of Builders (AIB) responsible for other surveying professions including construction management and project management was founded in 1951. Moreover, the Australian Institute of Building Surveyors (AIBS) was founded in Victoria in 1962, while the history of Project Management Institute (PMI) run up to 1969. Finally, it is noted that Chartered Institute of Builders (CIOB) started its branch in Australia after 1973 while Australian Institute of Project Management (AIPM) was originally founded in 1976 from the original Project Management Forum. Information on the history of professional bodies in Australia reveals that the longest active institute is AIQS while several others have been founded in the mid-20th century followed by expansion of the construction industry. Due to this vast recognition of the surveying profession, RICS has also initiated its active participation in the region in order to escalate its global membership.

6 Our thanks for Professor Srinath Perera (Director, Centre for Smart Modern Construction c4SMC Director of Academic Programs: Project Management Chair of Built Environment & Construction Management School of Computing Engineering & Mathematics) for information on Australia contained within this section.

### 3.1.3 Hong Kong

The Hong Kong Institute of Surveyors (HKIS) was formally established in 1984 and statutorily incorporated by the Hong Kong Institute of Surveyors Ordinance in 1990 and is the only surveying professional body incorporated by ordinance in Hong Kong (Hong Kong Institute of Surveyors 2019). In terms of the relationship between the HKIS and RICS in Hong Kong, in May 1991 HKIS entered into a Reciprocity Agreement with the RICS (Hong Kong Institute of Surveyors 2019). The HKIS is responsible for setting standards for professional services and performance, establishing codes of ethics, determining requirements for admission as professional surveyors and encouraging the uptake of continuing professional development.

More recently, HKIS and RICS have entered into a number of Mutual Recognition Agreements. For example, in March 2018, an Agreement[7] was signed that has enabled a streamlined application process for professional surveyor membership qualifications and that members of the General Practice Division of HKIS and profession members of RICS chartered through a valuation pathway will be recognised by both organisations (RICS 2018a). This was followed in late 2018 with a Mutual Recognition Agreement[8] between the HKIS and RICS in relation to the Land Surveying Division of HKIS. Finally, a similar Agreement[9] followed in early 2019 in relation to mutual recognition of membership for facilities management professionals of the two organisations (Chan 2019).

### 3.1.4 Sri Lanka

In Sri Lanka, Land Surveying, Valuation, Quantity Surveying and Facilities Management professions are not administered under a single professional body or legal framework.

Established in 1983 and incorporated by the Parliament Act No. 20 of 2007, the Institute of Quantity Surveyors of Sri Lanka (IQSSL) was founded with the objectives of:

- To protect and promote the interests, status, welfare, rights and privileges of the professionals and interests of the public in relation to the profession of Quantity Surveying;
- To advise and communicate with public authorities on matters relating to Quantity Surveying; and
- To undertake professional education and training of individuals intending to become Quantity Surveyors and to approve courses of studies and qualifying examinations for membership (IQSSL 2014).

The IQSL also currently holds membership of international professional bodies such as the Commonwealth Association of Surveying and Land Economy (CASLE), Pacific Association of Quantity Surveyors (PAQS) and International Cost Engineering Council (ICEC) and the local body of professionals, that is the Organisation of Professional Associations (OPA). The IQSSL also has a Reciprocity Agreement with the Australian Institute of Quantity Surveyors (AIQS) and New Zealand Institute of Quantity Surveyors (NZIQS) for the benefit of members of both professional bodies.

The Surveyors' Institute of Sri Lanka (SISL)[10] is the national professional body of the surveying profession in Sri Lanka and evolved into its current form from the Ceylon Licensed Surveyors Association established in 1926 (SISL 2019). Originally, it represented only the private practitioners in Surveying and did not represent the much larger number of Surveyors in the state sector. (SISL 2019). Eventually the Institute opened its membership to the large number of Practitioners in the state sector and also the academic field by 1974 thus became

7 https://www.hkis.org.hk/en/pdf/aboutus/rics-mmrm20180308.pdf
8 https://www.hkis.org.hk/en/pdf/aboutus/rics-mmrm20181129.pdf
9 https://www.hkis.org.hk/en/pdf/aboutus/pfm-mmrm201904.pdf
10 incorporated by the Parliament Act No. 22 of 1982 (Surveyors' Institute Sri Lanka (Incorporation) Act

representative of all those engaged in the land surveying profession (SISL 2019). The SISL is also a founder member of the Commonwealth Association of Surveying & Land Econom(CASLE), the Organisation of Professional Associations (OPA) and it is also a member of the International Federation of Surveyors (FIG). The Institute was incorporated by the Parliament Act No. 22 of 1982 (Surveyors' Institute Sri Lanka (Incorporation) Act).

Finally, it should also be noted that the Institute of Valuers Sri Lanka (IVSL) is the recognised professional body for valuation professionals in Sri Lanka[11] and the Institute of Facilities Managers Sri Lanka (IFMSL), established in 2013 is the sole representative body for facilities management practitioners and academics in Sri Lanka (IFMSL 2019).

### 3.1.5 Nigeria

In Nigeria, there are several distinct professional organisations regulating the surveying profession within the country. The Quantity Surveying profession is overseen by the Nigeria Institution of Quantity Surveyors (NIQS). Established in 1969, the NIQS seeks to align the practices of Quantity Surveying within Nigeria with the United Kingdom and other Commonwealth countries. The regulated and other Professions (Miscellaneous Provisions) Act 1978 recognised the Quantity Surveying profession as one of the scheduled professions in Nigeria. This was further supported through decree No.31 of 1986 which provides legal backing and recognition to the Quantity Surveying profession and established the Quantity Surveyors Registration Board of Nigeria (QSRBN) to regulate the profession. The NIQS has a number of key objectives, including the maintenance of the highest standards of professional conduct and promotion of the profession.

The NIQS also latterly formed the Women Association of Quantity Surveyors of Nigeria (WAQSN), which has a defined remit of: (i) encouraging the achievement of professional excellence of women in their chosen careers; (ii) increasing the number of female Quantity Surveyors in Nigeria; and (iii) to generate awareness of the profession amongst female students (NIQS 2017).

Estate Surveyors in Nigeria are regulated by the Nigerian Institute of Estate Surveyors and Valuers (NIESV). Also established in 1969, the NIESV was granted government recognition by the Estate Surveyors and Valuers (Registration Act) Degree o.24 of 1975. The Estate Surveyors and Valuers Registration Board of Nigeria (ESVARBON) regulates and controls the practice of Estate Surveying and Valuation within Nigeria with the key objectives of establishing a high and reputable standard of professional conduct and practice throughout Nigeria.

More general bodies representing the profession include the Nigerian Institution of Surveyors (NIS), and Surveyors Council of Nigeria (SURCON). NIS was established in 1934 as the Licensed Surveyors Association, acts as an umbrella professional organisation for all surveyors in Nigeria. Included within the NIS' aims and objectives is a commitment to promoting the mandatory continuing professional development and education of surveyors. With responsibility for the licensing and discipline of surveyors in Nigeria, SURCON was established in December 1989 via decree No.44 known as the Surveyors Registration of Nigeria Decree (now known as CAP 425 Laws of the Federation of Nigeria 1990). A key function of SURCON is to determine the requisite standard of knowledge and skill that should be attained by individuals seeking to become registered members of the surveying profession in Nigeria.

11 set up under Law No. 33 of 1975

## 3.2 Courses Leading to Surveying Related Qualifications

### 3.2.1 United Kingdom

There are currently 398 undergraduate and postgraduate RICS accredited courses that can lead to surveying related qualifications in the United Kingdom, covering land, property and construction disciplines. A comprehensive list is contained within Appendix VI of the report.

### 3.2.2 Australia

There are 18 courses (undergraduate and postgraduate) accredited by AIQS while 14 courses accredited by RICS in the similar category (Quantity Surveying and Construction). Out of this, 8 programmes have received AIB accreditation as well[12]. The majority of undergraduate degrees range from 3 to 4 years for full-time study while allowing 5 years or more for part-time study. However, the shortest course being offered can be completed within 2 years on full-time study. A limited number of undergraduate degrees in construction management are being offered as 100% online programmes. Some of such degree programs have multiple accreditations and are conducted in the online format (for example, Bachelor of Construction Management at University of South Australia and Bachelor of Applied Science in Construction Management at Curtin University).

Apart from degree level qualifications, other surveying related courses are conducted by Technical and Further Education (TAFE) institutions throughout the country, predominantly as vocational courses. For example, courses such as Diploma of Building and Construction (Management) at TAFE lead towards exemptions of some modules at undergraduate degrees.

### 3.2.3 Hong Kong

There are currently 14 HKIS accredited courses and 46 RICS accredited courses offered in Hong Kong to prospective surveyors. Details of each of the courses accredited can be found in Appendix III.

### 3.2.4 Sri Lanka

As stated above, in Sri Lanka, Land Surveying, Valuation, Quantity Surveying and Facilities Management professions are not administered under a single professional body or legal framework. However, all these professions have undergraduate and postgraduate degree programmes in both state and private sector universities, which are closely associated with the local professional bodies. Academically qualified surveyors then aim to achieve professional qualification (either Chartership or license) through Assessment of Professional Competencies (APCs) conducted by the appropriate professional body.

At present, three state sector universities and a number of private sector universities have RICS accredited degree programmes. The popularity of surveying courses in Sri Lanka has been driven by strong market demand and a number of public and private institutions now offer graduate degree programmes and diplomas in Quantity Surveying. For further information on institutions offering RICS accredited courses in Sri Lanka, please refer to Appendix V.

### 3.2.5 Nigeria

There are currently 24 institutions offering Quantity Surveying degrees in Nigeria. A list of institutions offering Quantity Surveying degrees in Nigeria is contained within Appendix IV.

12 For further information, please refer to Appendix II

## 3.3 Accreditation Process

It has been observed that the accreditation of programmes in property, surveying and construction within the United Kingdom is important, due to the desire of many students to become a member of a professional body (Ashworth 2008).

From a RICS perspective, the accreditation process allows the RICS to work with education providers globally. This supports the recognition of quality assured transnational education, and to recognise programmes relevant to a career in surveying, that will support routes to professional qualification (RICS 2019a). It is also recognised that surveying education programmes may be eligible for accreditation through other professional bodies (e.g. CIOB, RTPI), albeit depending on course content, direction and pathway.

### 3.3.1 **United Kingdom**

In the United Kingdom, the RICS-University partnership agreements are the primary mechanism to ensure the academic quality of accredited programmes. This process involved ensuring certain minimum standards ('thresholds') as set out in the relevant guidance and policy document[13]. Accreditation, using globally standard processes and procedures, is achieved through a visit to the education provider by an accreditation panel made up of RICS staff and RICS qualified professionals, who review the programme in detail.

### 3.3.2 **Australia**

Accreditation of the courses conducted in Australia is carried out by the different professional bodies such as AIQS, AIB, AIBS, PMI, CIOB and AIPM. These accreditations provide an external verification to the employers in recruiting graduates, as the accreditation process ensures the quality and standard requirements from professionals. The AIQS accreditation process covers construction economics, building/construction management and quantity surveying degrees in Australia as mentioned in [Annexure 1]. Goals of the accreditation process of AIQS is to strengthen and improve existing academic courses, provide guidelines for the development of current courses and accrediting new courses. Moreover, it provides a platform for two-way communication between industry and academia and finally provides incentives for innovation driven research and development.

Similarly, the AIB accreditation process ensures that new tertiary courses are recommended when need arises, courses are developed and assessed in collaboration with academic staff and encourages secondary school students to continue studies in tertiary building courses. This is an exceptional step taken by AIB to attract young generation towards surveying professions. AIBS accreditation certifies the professional to have education, experience as well as commitment in maintaining the status through Continuous Professional Development (CPD). The 3 levels of accreditations provided by AIBS are for building surveyor, building surveyor limited and assistant building surveyor. It is noted how this accreditation through CPD by AIBS is different to obtaining the membership in the institute.

AIPM adapts a different pathway in accreditation which is referred to as certification through national and international routes. This allows an individual to be officially recognised as a project management professional of AIPM. Moreover, there are many AIPM endorsed courses in Australia which are delivered by either universities or other institutes as mentioned in Appendix II. CIOB accreditation process involves quality assurance of the teaching and maintaining the standard of the educational program. Accreditation assists in developing valuable relationships with the industry and also allows the students to entertain exemptions from membership routes. Finally, the PMI accreditation allows a peer-review process in evaluating the courses delivered by educational institutes followed by onsite visits.

13 See generally – https://www.rics.org/globalassets/rics-website/media/upholding-professional-standards/standards-of-qualification/rics-global-accreditation-policy-and-processes.pdf

### 3.3.3 Hong Kong

Accreditation of surveying courses provided in Hong Kong is undertaken by the Chartered Institute of Building (CIOB), Pacific Association of Quantity Surveyors (PAQS), the HKIS and RICS. These organisations provide the necessary accreditation for General Practice Surveying, Quantity Surveying, Building Surveying, Planning and Development and Property and Facilities Management.

From an RICS perspective, as in the United Kingdom, the accreditation process is achieved through a visit to the education provider by an accreditation panel made up of RICS staff and RICS qualified professionals, who review the programme in detail.

### 3.3.4 Sri Lanka

The RICS has accredited a number of degree programmes in Sri Lanka, in accordance with their global accreditation programme and procedures. As in the United Kingdom, the accreditation process is achieved through the review of accreditation reports and a visit to the education provider by an accreditation panel made up of RICS staff and RICS qualified professionals, who review the programme in detail.

The IQSSL also accredits Quantity Surveying undergraduate degree programmes in Sri Lanka. Guidelines are designed to evaluate the standard of programmes producing Quantity Surveying graduates with academic qualifications to be recognised only for direct enrolment into Graduate Membership category of IQSSL (IQSSL 2016).

### 3.3.5 Nigeria

At present, there are currently no RICS accredited courses offered by higher education institutions in Nigeria.

## 3.4 Region Specific Matters – Australia

### 3.4.1 Key Terms and Definitions

There are many terms referred to identify surveying professionals, which also vary depending on the country. RICS classifies surveying professions under several categories, which has different usage in the Australian practice. A notable example of this is how quantity surveying is commonly referred to as construction management under many degree programs in leading universities. Table 1 represents the various surveying professions and their roles as per RICS.

Table 1: **Surveying roles identifies by RICS (excluding land surveying)**

| | | |
|---|---|---|
| **Construction and infrastructure** | Building Surveyors | Supervise buildings through inspection |
| | Project Management | Deliver projects on time and on budget |
| | Quantity Surveyors | Assess and manage financial impact and profitability |
| | Building Control Surveyors | Manage buildings to comply with laws |
| | Infrastructure Surveyors | Ensure proper conduct of infrastructure |
| **Property** | Property Surveyors | Value, sell, rent and manage properties |
| | Valuation Surveyors | Analyse and value building worth |
| | Management Consultancy Surveyors | Maximise business performance |
| | Facilities Management Surveyors | Manage facilities after construction |

The building surveying profession in Australia somewhat deviates from this definition where their work predominantly relates to building control. A Building Surveyor has the authority to assess building plans to ensure that they comply with the Building Code of Australia, the Australian Standards. The role of facilities manager is a fine example on how the building services are maintained to ensure smooth running of processes. Similarly, as per Annexure 1 on the surveying programs offered in Australia, the only degree program for facilities management is offered at the University of New South Wales. Likewise, the next section indicates how different professional bodies and universities involve in creating the above surveying professionals in Australia.

### 3.4.2 Skilled Migration Requirements

Immigration and education are the two methods of generating skills in a country. Therefore, apart from the above-mentioned educational institution-based training and development of surveying professionals in Australia, there are many surveying professionals who work in the Australian construction industry who has migrated from other countries to fulfil the market demand. Based on the latest skilled migration policies, a snapshot of the recognised skilled occupations related to surveying and the required level of education qualifications can be tabulated as in Table 2 below.

Table 2: **Skilled occupations for migration and required levels of education**

| Occupation | Alternative Title(s) | Assessing Authority | Educational Qualifications Required |
|---|---|---|---|
| Quantity Surveyor | Building Economist<br>Construction Economist | AIQS | Pathway 1: An accredited Bachelor's or Post-Graduate Degree from one of the Australian tertiary institutions, obtained within Australia.<br>Pathway 2: A Bachelor's or Post-Graduate Degree in quantity surveying or allied profession, obtained in Australia<br>Pathway 3: An approved qualification in the discipline of Quantity Surveying/ Construction Management & Economics, or a post-graduate qualification in Quantity Surveying/Construction Management & Economics, regardless of the undergraduate qualification held. An approved qualification is one that denotes comparability to a Bachelor's Degree obtained in Australia. |
| Land Economist | Property Economist | VETASSESS | Comparable to the educational level of an Australian Qualifications Framework (AQF) Bachelor degree or higher degree, in a field highly relevant |
| Valuer | – | | |
| Construction Project Manager | Building and Construction Manager | | |
| Construction Estimator | Building Estimator | VETASSESS | Comparable to the educational level of an AQF Diploma, in a field highly relevant |
| Building Inspector | Building Certifier<br>Building Surveyor | | |

Findings on surveying education in Australia reveals that it is a well-established profession (or collation of professions) covering major areas of specialisation introduced by the RICS. It is dispersed in vast areas from building surveying, quantity surveying, property surveying and also facilities management. There are many accredited degree courses delivering tertiary education along with other professional routes through vocational education. Magnitude of the built environment in the economy of Australia followed by the many professionals under surveying umbrella has resulted in this level of establishment of surveying education in the country.

# 4. RESULTS

## 4.1 Survey Findings

### 4.1.1 Quantitative Data

The survey received a total of 46 reportable responses from a wide range of academics from a number of different geographic locations. As can be seen from Table 3 below, just over half of the respondents were located in the United Kingdom, with a variety of other global regions represented, which was key to the aspirations of the research.

Table 3: **Location of Survey Respondents**

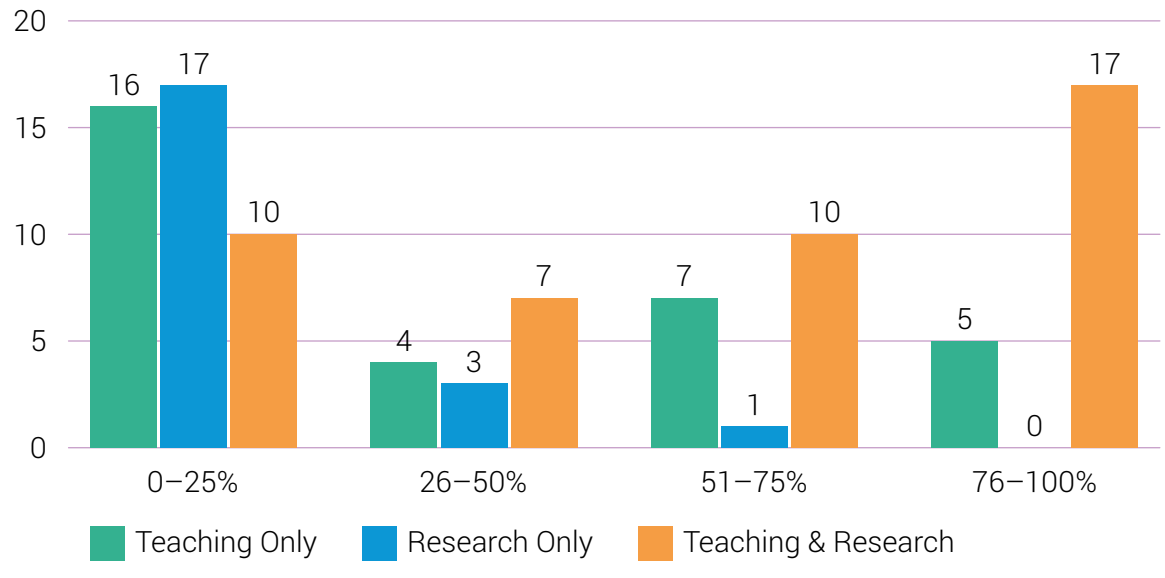
| Location by Country | Number of Responses |
|---|---|
| Australia | 5 (10.87%) |
| France | 1 (2.17%) |
| Malaysia | 1 (2.17%) |
| New Zealand | 2 (4.35%) |
| Nigeria | 8 (17.39%) |
| South Africa | 4 (8.70%) |
| United Kingdom | 24 (52.17%) |
| United States of America | 1 (2.17%) |

A number of quantitative questions were included in the survey and are presented below. The purpose of these questions was to assist in developing an overview of the status of surveying education across different global regions, with a mix of factual and perception-based responses elicited. The questions are presented thematically below for ease of reference.

#### 4.1.1.1 Academic Activities

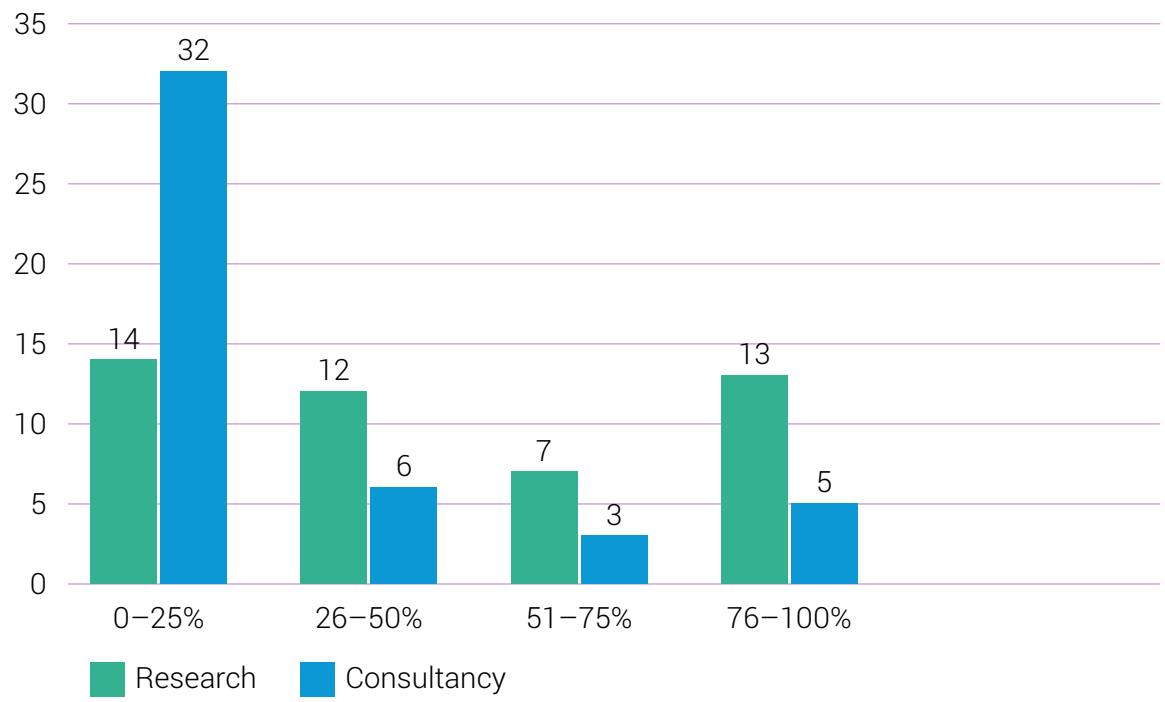
*(i) What proportion of your staff (%) teach and/or research within the discipline areas of surveying?*

Figure 4: **Balance between Research & Teaching Activities amongst Academic Staff**



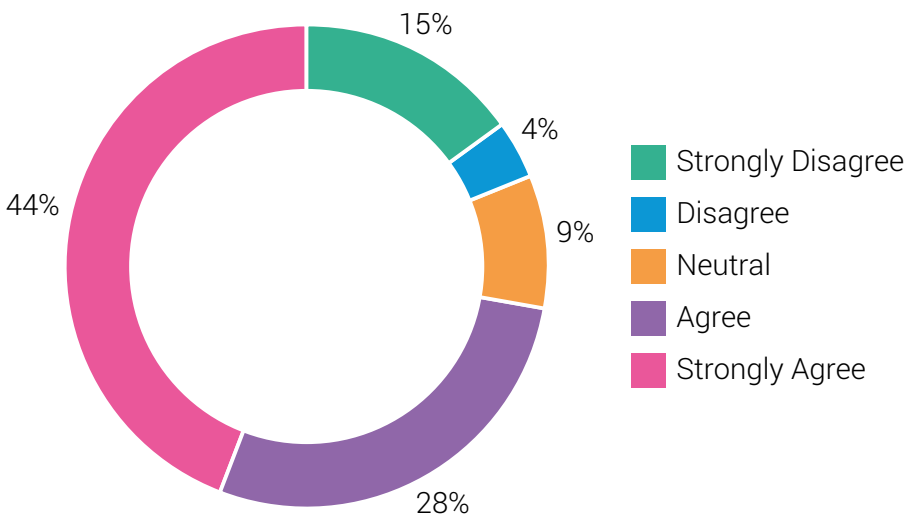
*(ii) What percentage of staff are actively engaged in: (i) ongoing research projects; and (ii) ongoing consultancy work?*

Figure 5: **Staff Engagement with Research and Consultancy**



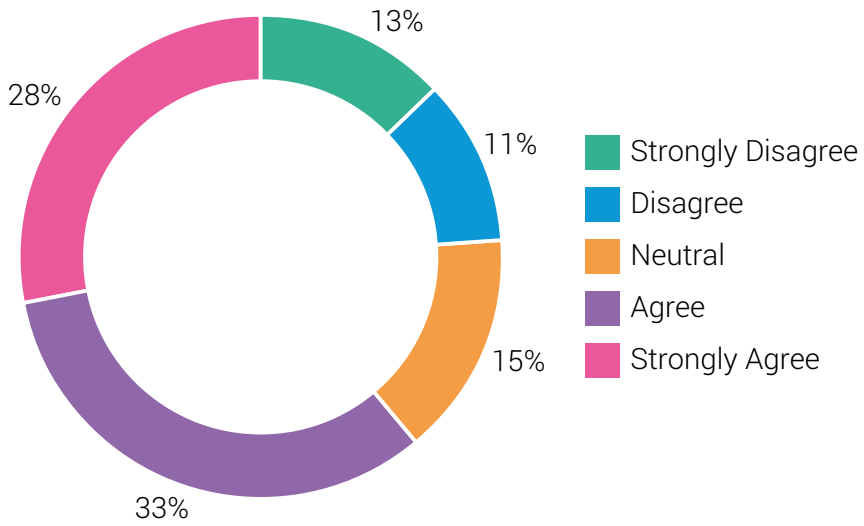

*(i) To what extent to do agree or disagree with this statement: "Research has an important role in my department"?*

Figure 6: **Perception of Role of Research**



*(ii) To what extent do you agree or disagree with the statement: "there is a strong relationship in my department between research and teaching"?*

Figure 7: **Perception of Relationship between Research and Teaching**




### 4.1.1.2 Students

*(iii) Please indicate the current number of graduates from your department each year (undergraduate only)*

Table 4: **Number of Graduates per year**

| Number of Students | Number of Responses |
|---|---|
| 0–25 | 4 |
| 26–50 | 6 |
| 51–75 | 8 |
| 76–100 | 8 |
| 100+ | 20 |

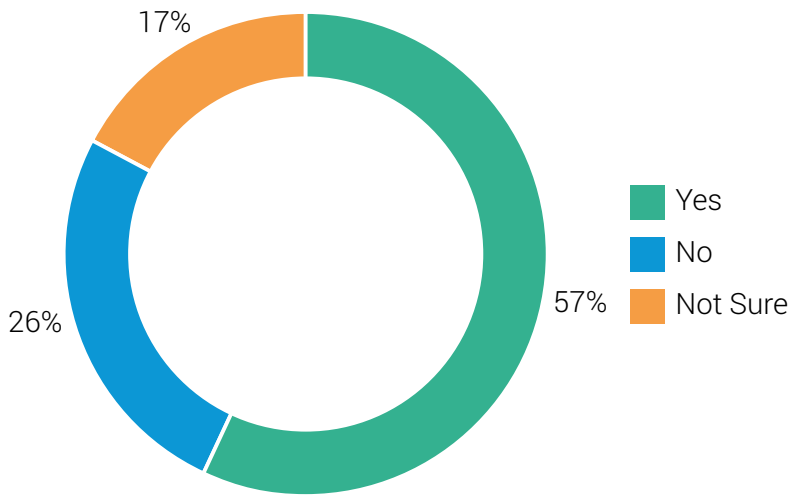
*(iv) Please indicate the current number of surveying or surveying affiliated postgraduates*

Table 5: **Current Number of Postgraduates**

| Number of Students | Number of Responses |
|---|---|
| 0–25 | 19 |
| 26–50 | 6 |
| 51–75 | 3 |
| 76–100 | 4 |
| 100+ | 14 |

*(v) Does your department take steps to collaborate with schools to encourage young women to enter into STEM professions?*

Figure 8: **Collaboration with Schools**




*(vi) On a scale of 1-5, with 1 being "unimportant" and 5 "vital", how important do you feel practical experience (during the course) is for new graduates?*

Table 6: **Importance of Practical Experience for New Graduates**

| | Accredited Part of the Course | | During Vacation Time | |
|---|---|---|---|---|
| **1** | 4 | (8.70%) | 2 | (4.35%) |
| **2** | 3 | (6.52%) | 1 | (2.17%) |
| **3** | 4 | (8.70%) | 15 | (32.61%) |
| **4** | 15 | (32.60%) | 10 | (21.74%) |
| **5** | 20 | (43.48%) | 18 | (39.13%) |

*(vii) Do you feel that the following are likely to become significant routes to surveying education in the next 5 years?*

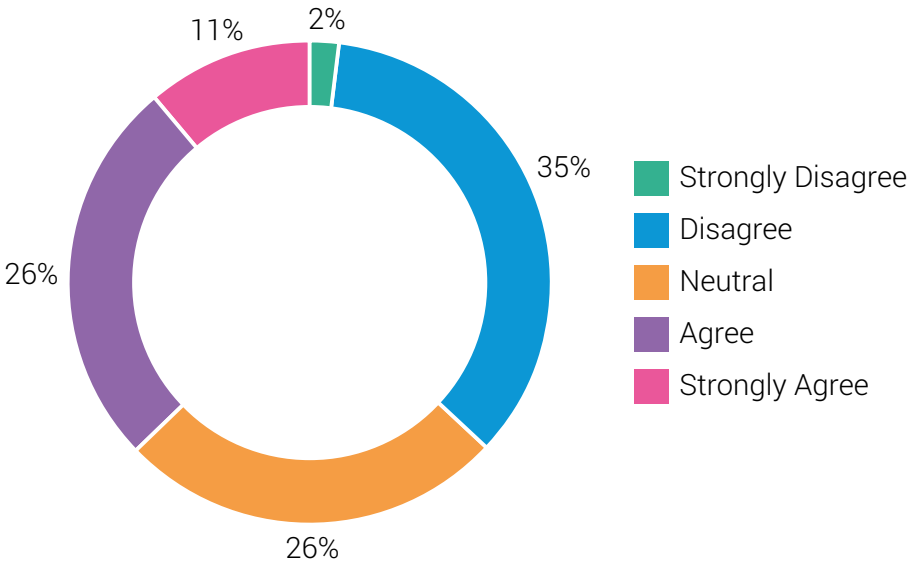
Table 7: **Future Routes to Surveying Education**

| | Graduate Apprenticeships | | CPD (Short Courses) | | CPD (Masters) | |
|---|---|---|---|---|---|---|
| **Yes** | 23 | (50%) | 25 | (54.35%) | 32 | (69.57%) |
| **No** | 13 | (28.6%) | 6 | (13.04%) | 6 | (13.04%) |
| **Not Sure** | 10 | (21.74%) | 15 | (32.61%) | 8 | (17.39%) |

### 4.1.1.3 The Future, Technology & Diversification

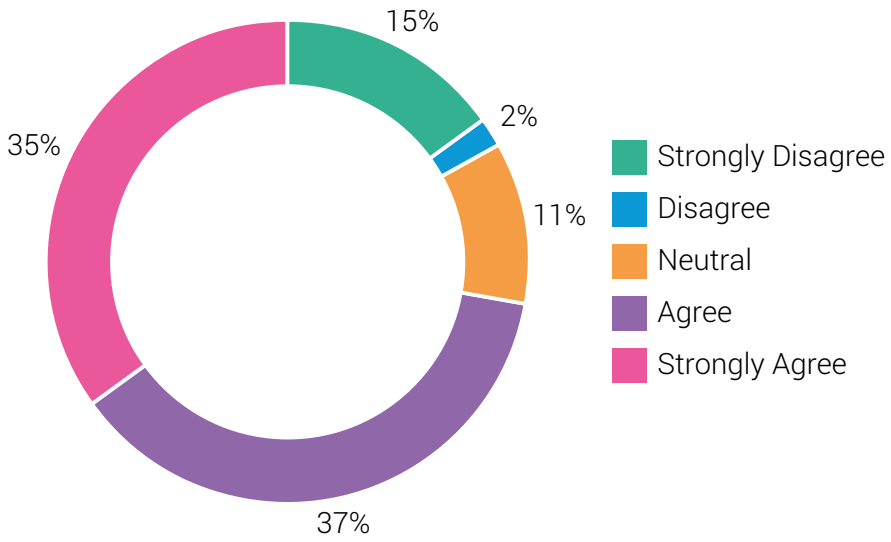
*(viii) To what extent do you agree or disagree with the statement: "provision has been made in my department for Continuing Professional Development for existing professionals to update their skills with respect to emerging technologies"?*

Figure 9: **CPD and Emerging Technologies**



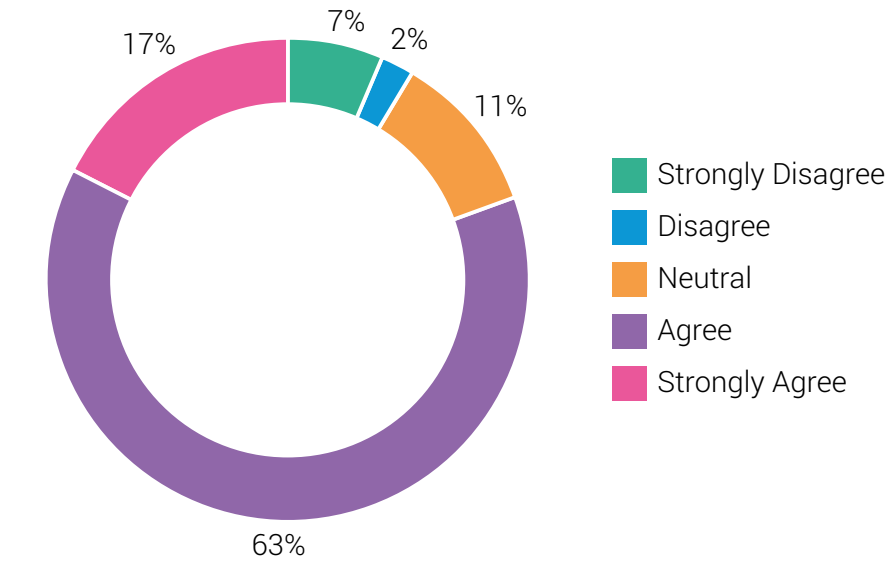
*(ix) To what extent do you agree or disagree with the statement: "there is an important role for diversification of skills within the profession"?*

Figure 10: **Role for Skills Diversification within the Profession**




*(x) To what extent would you agree or disagree with the following statement: "my department is taking a proactive approach to the integration of emerging technologies into its future strategies and development"?*

Figure 11: **Approach to Integration of Emerging Technologies**



### 4.1.2 Qualitative Data

The qualitative aspects of the survey work undertaken focused on eliciting responses to questions on the following themes:

- Resourcing of departments;
- Staff recruitment and retention;
- Desired changes to the field of surveying education; and
- Promotion of equality and diversity.

For the purposes of reporting the data, responses have been categorised according to the following broad geographic regions to enable region specific concerns to be represented:

(i) Europe and North America (France, United Kingdom, United States of America);

(ii) Africa (Nigeria and South Africa); and

(iii) Asia-Pacific (Australia, Malaysia and New Zealand).

#### 4.1.2.1 Changes to surveying education

Focusing on the current state of surveying education, respondents were asked to consider

*"What three key changes would you like to see in the field of surveying education?"*

(i) Europe and North America

Respondents from these regions identified three broad areas in which it was felt key changes are required. These are related to the roles of Higher Education Institutions (HEIs), the role of industry and the role of the RICS[14].

*Role of HEIs*

**Technology** – The role of HEIs in integrating digital technologies and data analytics in their courses along with the adoption and integration of new technologies were cited as areas in which change was needed. One respondent noted that their institution currently aspired to develop a Masters course in Digital Technology, however resource constraints presented challenges to achieving this goal.

**Curriculum design** – A number of comments related to access to built environment courses. For example, it was suggested that there needs to be better provision for individuals who are currently employed but who wish to undertake credit bearing courses that can aggregate to a qualification. Similarly, there was a call for more focussed apprenticeships and vocational courses to be based on employability outcomes. Finally, it was also suggested that there needs to be a capability developed to teach a wider syllabus and not be constrained by the APC requirements.

**Student funding** – from a United Kingdom perspective, it was suggested that both the current system of tuition fees and accompanying student loans ought to be reviewed. The authors note that this is not an issue confined to the built environment but is representative of the wider higher education sector.

*Role of Industry*

Academics identified a number of areas in which they would like to see change in respect of the education/industry interface. Overall, there was a belief that there needs to be more

14 It should be noted that the role of the RICS was raised only by respondents from the United Kingdom

integration and a "stronger academia-industry-professional body collaboration". It was suggested that there ought to be deeper engagement with industry to enhance learning and, in turn, greater support from employers/practice for the programmes from which they recruit.

On a similar theme, and one reiterated in responses to other questions in the survey, it was also felt that there ought to be a greater value placed on those with industry experience in academia and the contribution that such individuals can provide.

*Role of RICS*
On the theme of change, there were a number of comments made by survey respondents in ways that the RICS could potentially provide additional levels of support. These included suggestions for the RICS to move away from its traditional regulatory role into one of supporting academic institutions and assuming the role of a "learned body". There was also a role identified for the RICS in working with HEIs regarding the marketing of built environment courses to prospective students and a "significantly wider audience".

(ii) Africa
The main areas for change identified by respondents from this region related to adoption of technology, the role of research and pathways into the profession.

*Adoption of technology*
A significant number of survey respondents cited the need for BIM to become fully integrated into course provision. This included the need for enhanced IT skills to supplement the incorporation of BIM into education programmes.

*Research*
Survey respondents noted that quantity surveying education not only needs to be underpinned by research but that there is an appetite for the development of a distinct African body of knowledge in surveying. There was also interest expressed in seeing enhanced levels of research collaboration across institutions.

*Pathways into the profession*
Within the South African context, it was noted that recognition of alternative pathways into the profession was required, with less reliance on undergraduate qualification and an increase in postgraduate, online and blended learning programmes.

(iii) Asia-Pacific
In common with respondents across the spectrum, the role of technology was also emphasised along with clear suggestions for curriculum design as areas for change.

For example, one respondent commented on the need for "diversification to gain complementary skills in an increasingly defined workplace", while another cited the need to ensure there was "attention to emerging technologies, to maintain valued services to clients". Similarly, it was suggested that there is scope for development of "stronger presentation/ sales skills in our graduates, with attention in our courses to the 'marketing' aspect of our skills".

#### 4.1.2.2 Staff recruitment and retention

In order to obtain information on current issues around staffing in academic institutions, respondents were asked two questions on this theme:

***Please provide a high-level description of your department's policies in relation to the following: (i) staff selection; (ii) staff recruitment; and, (iii) staff retention***

*What are the three main challenges faced in relation to retention of staff?*

(i) Europe and North America

***Staff selection, recruitment and retention policies***

In general, the following key attributes in relation to staff selection were reported by survey respondents:

- PhD or equal professional experience;
- RICS/CIOB membership;
- Subject expertise, personal skills (communication skills in particular), teaching experience
- Research capabilities/outputs

It was acknowledged that sometimes the requirements can be challenging to meet, and that the combination of PhD, industry experience and chartership can be formidable prerequisites for a candidate.

Little reference was made by survey respondents to the recruitment process itself, therefore this is not reported in the results.

From the perspective of staff retention, it is a mixed picture that appears to be depending on the individual institution. Responses can be divided into institutions where "there is little done by way of incentives to retain staff" and those with "policies to encourage long lasting retention of talent". Policies such as assigning mentors to staff and institutions that aimed to "play to staff strengths" appeared to positive correlate with increased levels of staff retention.

***Challenges to staff retention***

A number of factors, particularly those relating to pay and conditions, were cited as impacting on staff retention within departments, perhaps best encapsulated by the following response: "Level of pay and options compared to the private sector. Quantity of work and overwork causing stress. Bureaucracy, lack of student engagement and motivation, administration and staff dictating how we lecture."

As noted in the comment above, in common with other regions, remuneration was cited as a key concern, with competition from both industry and from the United States and Europe as being significant for academics in the United Kingdom.

Achieving a balance between teaching/research and an appropriate work/life balance also featured in responses from a number of academics. In addition, more general institutional factors such as management style, departmental configuration and lack of promotion opportunities were all suggested as possible causes of staff loss to departments.

(ii) Africa

***Staff selection, recruitment and retention policies***

In general, the following key attributes in relation to staff selection were reported by survey respondents:

- Masters degree minimum with PhD preferred
- Registration with NIQS, QSRBN or equivalent
- Research capabilities

For staff who are appointed without a PhD, it was commonly reported that staff will be expected to obtain a PhD within a reasonable timescale. Short term appointments may also be used to enable individuals to start out in academic careers.

With respect to recruitment, positions are advertised in national newspapers, as well as the targeting of potential candidates.

Finally, in terms of staff retention, strategies such as ensuring opportunities for staff development, accommodating staff needs, providing institutional support and assurance of job security were all cited as examples of efforts to retain staff.

*Challenges to staff retention*
A number of factors were suggested by respondents to influence staff retention. In common with other regions, the more attractive salary offered by industry was cited as a reason for staff leaving academic posts. In addition to remuneration, working conditions, workload and lack of incentives were all noted as negatively impacting on staff retention.

(iii) Asia-Pacific
*Staff selection, recruitment and retention policies*
In general, the following key attributes in relation to staff selection were reported by survey respondents:

- PhD
- Research capabilities
- Relevant industry experience

In common with other regions, respondents reported that the "preference is for recruiting staff who have relevant industry experience and can teach and research. It is very difficult to find applicants who can demonstrate all three criteria".

Little reference was made by survey respondent to the recruitment process itself, therefore this is not reported in the results.

From the perspective of staff retention, few respondents provided specific details but it appears that it is also a key concern and this is explored further below.

*Challenges to staff retention*
The key challenge identified to staff retention centred around remuneration which was cited by many as a critical factor surrounding staff retention. For example, one respondent noted, "Poor pay compared to industry packages", while another respondent commented, "pay and conditions are challenges".

#### 4.1.2.3 Resourcing of departments
Linked to themes around staffing, data was also sought on financial and human resourcing levels within academic departments. Respondents were therefore asked to

***"Describe your opinion on current resourcing levels for your department (both financial and human resource)"***

(i) Europe and North America
There were varying responses to the resourcing of departments, demonstrating that there is no consistency across institutions and each will face its own challenges. It is perhaps notable that the only respondent to express that funding levels were more than adequate was an academic from a North American institution.

However, a number of commonalities emerged in the responses focussed around the theme of staff/student ratios. Respondents identified a difficulty around the reliance on often a

small pool of staff to teach across the built environment (and often across a variety of specialisms). Respondents also noted that this had been exacerbated in recent years by large increases in student numbers, sometimes without the concurrent increase in staffing levels. However, many noted that the human resource situation was gradually improving.

(ii) Africa
Financial resourcing was a prevalent theme in many responses received from academics in this region. Financial resources were described by some respondents as being "very poor", "under pressure", and "grossly inadequate".

Within the South African context, it was noted that recent years have seen student protests in relation to tuition fees (#FeesMustFall). It was observed that a shift in emphasis towards more postgraduate students has assisted insulating the department from financial and resource constraints.

(iii) Asia-Pacific
In common with the results from Europe, there were varying responses to the question of resourcing. This extended from "adequate but on the lean side" to "both are very low". Perhaps more optimistically, some academics reported that their programme was "well resourced" and in another that "this is the first year we have had adequate staff".

#### 4.1.2.4 Promotion of equality and diversity

Respondents were asked to consider

***"What steps (if any) does the department take to promote equality and diversity within surveying education and the wider profession?".***

While a number of respondents indicated there were no or limited steps being taken by their department, several identified clear steps that were being taken to promote inclusion.

For example, the use of unconscious bias training for students along with training on diversity and inclusion for staff and students was highlighted as an action undertaken by departments. Seeking to engage with under-represented demographics during the recruitment process, mention was made of outreach events and positive engagement with careers events (particularly those targeted at female students) and collaboration with STEM organisations. A commitment to Athena SWAN[15] was also cited by a number of respondents from institutions based in the United Kingdom.

Several respondents referred to a broader institutional commitment to equality and diversity, including the statement that "Promotion of equality and diversity is within the department's DNA, we take every opportunity to demonstrate opportunity and exemplar approaches that we feel work". This idea of broader institutional support was also echoed in responses which mentioned the recruitment and development of female academics to act as role models to students.

15 Athena SWAN was established in 2005 to encourage and recognise commitment to advancing the careers of women in science, technology, engineering, maths and medicine (STEMM) employment in higher education and research

## 4.2 Workshop Results

In order to explore themes that emerged during the context of the survey research, during August 2019, a workshop was held in each of Edinburgh and London with academics from a variety of institutions participating. The broad themes around which discussion was structured during the context of the workshops are as follows:

**Edinburgh**
- Institutional factors;
- Diversification of skills/emerging technologies;
- Gender balance; and
- Higher education environment in Scotland

**London**
- Future of the profession;
- Graduate attributes and needs of the profession;
- Development of broader-based skills; and
- Diversity and gender

These thematic areas allowed for a wide-ranging and often frank discussion amongst the academic present and allowed for a deeper exploration of the subject matter than the survey permitted. Each of these areas will be explored below.

### 4.2.1 Institutional requirements

Participants in the Edinburgh workshop reflected on the relationship between the need for professional services and the supply of graduates to meet this demand. For example, in the United Kingdom there is a formalised institutional requirement for surveyors which provided a strong link between supply and demand. This was contrasted with the wider international situation, particularly in relation to emerging markets, where it was felt there may be a role for the RICS in encouraging regulation and standardisation across such markets.

In terms of course provision, the importance of accredited courses to both home and international students was also reflected upon in addition to the wider HE environment in Scotland. Participants discussed the broad structural issues facing universities in Scotland and concurred that, in light of ongoing financial constraints within the sector, the current model of education provision is potentially unsustainable. As a consequence, it was suggested that more inter-institutional collaboration will be a by-product as economies of scale are sought and achieved.

### 4.2.2 Diversity and gender

A key theme that was explored in the survey, workshops and interviews was that of diversity and gender. Workshop participants engaged with this broad theme and identified a number of specific areas including:

- Diversity and gender balance within the workforce;
- Marketing of the profession through the use of stereotypical images (men in hardhats was cited as an example);
- Exclusion of surveying/built environment from STEM activities

Workshop participants concluded that it is generally challenging to attract students to built environment courses and suggest there was scope for closer RICS involvement in marketing and recruitment activities in order to promote the profession to all potential students. It was also noted, that while universities are becoming better at addressing issues of gender and diversity within their courses, consideration ought to be given to widening access students and how they can be supported into the profession and for their lack of knowledge not to

become a cap on aspiration. It was also suggested that the wider push to attract students from a broader socio-economic background can lead to challenges for students who need to work to support themselves and their ability to do so with full-time study.

### 4.2.3 Diversification of skills and future of the profession

#### 4.2.3.1 Future of the profession

In common with previous research, the profile of the profession continues to remain a concern. The increasing average age of many academics in departments was highlighted as an area of concern and the risk of experience and knowledge leaving with staff as they retired. This issue is perhaps exacerbated by concerns raised by workshop participants around the disparity between competitive pay scales in academia and the private sector, making recruitment of those with industry experience more challenging.

Another aspect considered was the importance of engagement with industry to allow institutions to remain current and relevant. This extended to consideration of whether there ought to be a generic built environment qualification at undergraduate level (supplemented by postgraduate specialisation) and the role of existing staff in introducing new capabilities to the departments. The inherent value of practitioners in delivering content to students was also emphasised, particularly in the context of the "career academic".

Finally, participants also discussed the role of graduate apprenticeships in the evolving future of the profession. Participants in the London workshop noted the increase in overheads associated with these courses due to the level of student support required and the therefore "resource-heavy" nature of these courses. It was also observed that "buy-in" is required from other departments within institutions due to the nature of the course. This was cited as being particularly pertinent due to the election of employers to seek conversions from part-time study to Graduate Apprenticeships, as the employers already pay the associated levy. Finally, the need for institutions to ensure apprentices engage with the APC process was highlighted as a concern, given the financial penalty imposed on institutions who fail to do so.

#### 4.2.3.2 Development of skills

Also linked to the capability of departments, workshop participants highlighted the role of HE institutions in equipping students with a range of broader-based skills. In particular, reference was made to the need for final year students to engage with both practical surveying work but also research in their dissertation projects. It was emphasised that there ought to be capability within academic departments to ensure continual improvement in this sphere.

#### 4.2.3.3 Diversification

Workshop participants considered the theme of diversification with reference to emerging technologies and external factors that could potentially impact on the profession. It was suggested that automation represented a risk to certain sectors of the profession, e.g. automated validation methods.

Discussion around diversification also sought to consider the issue of specialisation and the need for specialisation to be contextualised, e.g. general learning within the built environment leading to more specialised roles. It was felt that the emerging roles for data analysts gives rise to questions around whether such individuals have the relevant knowledge base and that there was a clear role for collaboration as a mechanism for integrating specialists into the profession.

#### 4.2.3.4 Continuing professional development

Within this context, workshop participants also discussed the role of continuing professional development (CPD) in the context of diversification and the impact of emerging technologies.

It was suggested that an exercise of "horizon scanning" to identify different skill sets needed to be adopted and that there was a role for education providers to be market leaders in the provision of high-quality CPD and short courses as future sources of education for the surveying profession. It was noted that there was clear potential for industry to utilise education providers but that there were questions as to the viability of such courses, particularly given consideration as to who would pay for employee access to the resource. Finally, it was also commented on the need for better regulation of CPD courses to prevent dilution of standards.

#### 4.2.4 Graduate attributes and needs of the profession

Workshop participants also considered how universities equip students with the skills that employers consider to be desirable. It was commented that there is an inherent tension between academia and employers in this area. It was noted that an emphasis on skills is what industry currently seeks and that ideal candidates are perceived to be those with an upper second class (2:1) degree from an accredited course.

It was observed that while RICS membership amongst academic staff is not always felt to be valued by HE institutions, RICS accreditation is seen as an advantage more generally and is a key graduate attribute, acting as a "passport" to the future workforce. It was noted that in employing a graduate, industry is buying potential; not something that is "oven-ready".

Finally, it was also noted that there is a need to adapt curriculum content to ensure that environmental awareness is factored into teaching. It was observed that there may be potential for the RICS to ensure that this is covered in each institution's curriculum to an appropriate and required standard to meet the needs of the 21st century.

## 4.3 Interview findings

In order to further explore some of the emerging themes from the survey work, interviews with participants from the following countries were undertaken:

- Australia;
- Nigeria (2 institutions);
- Sri Lanka; and
- United States of America.

Participants were asked to comment on the following broad themes:

- Staff qualifications around selection, recruitment and retention;
- Staff research and consultancy;
- Employability and salaries;
- Resourcing;
- Challenges and opportunities surrounding alternative surveying education providers; and
- Examples of good practice and observations about future strategy and development.

The comments of interviewees were thematically linked to the survey responses, although allowed for a deeper understanding of some of the emerging issues. Due to the number of interviews conducted, it should be noted that these findings are not claimed to be definitively representative of a region but rather intended to provide a broad indication of key themes and issues.

### 4.3.1 Main challenges in 2019

The interviews all opened with a general question asking participants to identify any key challenges facing both the profession and providers of surveying education.

*Australia*

From a professional perspective, it was noted that a big challenge facing surveying in Australia is the loss of public confidence in the regulatory system. This is due to, in common with the UK, safety concerns around flammable cladding but also due to some major defects in apartment buildings in Sydney which has resulted in a negative impact on property values. It was noted that there is a need to bring back public confidence to a level where they believe that the building they buy is fit for purpose and will not decrease in value due to latent construction defects.

This decrease in public confidence has directly affected degree courses due to the high-profile nature of the issue. The interviewee noted that for the first time in 15 years a major in building surveying will be offered by their institution. As many of their students work for either private certifiers or for local government organisations, it was felt that there was a need to provide those students undertaking an undergraduate degree with some specific training for what they will encounter as graduate surveyors in terms of certifying, regulation and approving of buildings.

In common with other regions, the staffing of this course was cited as an area of concern as it is very difficult to get building surveying academics in Australia. This was attributed to the lack of research higher degrees being undertaken by individuals who tend to specialise in this area. There is difficulty in recruiting people who can teach the programme and who also meet the institutional requirements for academic qualifications. Furthermore, it is not easy to bring a building surveyor in from another country due to the principles being different from region to region.

*Nigeria*

Both interviewees from institutions in Nigeria identified student/staff ratios as being a key challenge for their institution in 2019 and highlighted the challenges this presented to staffing and facilities. Furthermore, it was also highlighted that the increasing student/staff ratios also had the potential to negatively impact on accreditation.

*Sri Lanka*

Retaining graduates within Sri Lanka was highlighted as a key concern, with attractive salary packages from international construction markets being cited as a key factor. Furthermore, the difference in the quality of graduates produced by private colleges and state universities was also highlighted as a potential threat to the profession in Sri Lanka, with the potential for the reputation of quantity surveyors being jeopardised in the international market.

In common with other regions, a major challenge facing academia was stated as being the lack of academic staff – especially senior staff members – on courses. This was a matter of concern for both state and private institutions in Sri Lanka.

*United States of America*

The main challenges facing the profession in 2019 centred around the workforce. Both a shortage in the workforce (including managerial) and retiring practitioners represent key challenges for the profession.

### 4.3.2 Staffing, research and consultancy

*Australia*
To teach on a specific program, staff are required to have at least one level up on the program, e.g. if teaching honours undergraduate, a Masters qualification is required. Exceptions to this rule may occur in the event of an individual possessing extensive industry experience.

It was noted that rapid growth in student numbers has created staffing pressures and recruitment of additional staff members has occurred. This boom in number is attributed to the knowledge that the course leads to a reasonably well-paid job.

Linked with the increase in student numbers, the interviewee was asked to comment on the current staff/student rations within the institution. It was observed that there is a commitment for staff/student ratios not to exceed 1:50 but there are a lot of staff members close to retirement, so further recruitment will be required to maintain staffing levels.

With reference to research in the department, it was confirmed that there is a general expectation that academics engage in both research and teaching and workloads are in the process of being reviewed to accommodate this requirement across different fields.

Finally, in terms of engagement with industry, it was noted that industry support is "critical" due to the applied nature of the discipline and because there is a focus on producing employable graduates. Engagement with employers and collaboration on placement-type student activities form a key aspect of the approach to engage with industry.

*Nigeria*
Each institution had a distinct approach to recruitment and the level of qualification required for applicants varied from BSc to MSc. With respect to staff/student ratios, these were confirmed to be in the region of 1:45 and 1:50.

Both interviewees reported a lack of connection between teaching and research in their respective institutions and also a lack of connection with industry.

*Sri Lanka*
The level of qualification for teaching staff is broadly dependent on the seniority of the position within the institution and typically ranges from BSc for temporary and/or probationary lecturers to BSc plus postgraduate qualification with a minimum of 2 years full time research component for those seeking senior lecturer appointments.

It was noted that there is a lack of staff in senior academic positions due to the attractive nature of equivalent positions in the international job market and opportunities in industry. The current staff/student ratio is cited as being 1:25, beyond the standard academic norm of 1:10.

It was reported that research is integrated into teaching where possible, although this is highly dependent on the area of research and its relevant to the modules taught. One institution reported that staff are typically granted 1 day per week for research and publication activities, although it was advised that this is not standard practice across the sector.

With respect to the connection of the institution with industry, this was described as being "very close and healthy: with collaboration on departmental activities including teaching, examination of placement students and inputs into curriculum revision. Furthermore, there is a strong connection between the department and regulatory and professional bodies.

*United States of America*
Due to the profession driven nature of the course, there are some academic (minimum MSc but normally PhD) required for academic staff. However, practical experienced within the last 5 years is also looked for but this can vary depending on the particular subject area. Within recruitment generally, the move into an academic role was described as being "terminal" with few individuals choosing to leave. An exception to this is perhaps younger academics who can be attracted to the higher salaries offered by private practice.

Staff to student ratios are in the region of 1:100 to 1:200 for lectures with entry level students but this decreased to 1:30 for higher level courses that also employ the use of Teaching Assistants to provide additional support.

It was felt that there is an emphasis on research for faculty, particularly for tenure-track staff, with targets for 25% of time to be spent on research. Student involvement with research also occurs.

### 4.3.3 Graduate employability and skills

*Australia*
Graduate employability was described as being "the best performance item of our graduates" by the interviewee. Graduate employability is high due to the location of the institution and access to a large job market and most find employment in the local area.

Students are encouraged by the institution to obtain work experience while they study so that by the time they are graduates they have appropriate work experience and are not new to the system – "the success of our program". Most of the students attending the institution are employed and pay to support themselves or rely on their parents; there is not a grant system in place for the majority of students. For this reason, in an area which is not the most affluent, students need to have jobs and the institution needs to make it possible for students to obtain employment.

In terms of diversification to ensure graduates have skills to meet the needs of industry, it was felt that ensuring these skills is difficult. External advisory groups and large employers advise the institution of what they need from graduates but this is not formally tracked.

*Nigeria*
Less data is available regarding the situation in Nigeria, with one interviewee describing a lack of employment opportunities and low pay. It was observed that some graduates find employment in the Middle East.

In terms of diversification of skills, it was commented that younger staff are more open to use of modern technology in their approach to teaching although this is constrained by access to such technology. However, it was also noted that efforts are made to equip staff and students for the "digital age".

*Sri Lanka*
In terms of graduate employment, high levels of employability were reported, although with the caveat that national and international economic conditions can produce a negative impact. It was felt that there are currently no major challenges with respect to graduate employment and that "our graduates are well-received by the industry in both local and international markets".

Local graduates from state universities mostly acquire the local chartered-graduate route

(due to being recognised locally and less expensive compared to RICS/AIQS chartership). Graduates in the international market acquire RICS and AIQS memberships through graduate and associate routes.

Looking towards diversification of skills, it was noted that the curriculum is revised every 5 years to ensure it remains fit for purpose. This is achieved through a process of working with staff, students, visiting lecturers, external examiners and others.

*United States of America*
It was reported that there are currently no challenges experienced by graduates from this particular institution in obtaining employment and that there is a high demand. Most will work within surrounding area in commercial construction industry roles with starting salaries averaging $70,000 USD.

It was observed that the university offers soft skill programmes in its curriculum, e.g. leadership, negotiation skills. However, it should be noted that these are electives rather than compulsory units.

In conclusion, it was stated that the emphasis is on students having received a broad education, with professional certification obtained as employers dictate.

### 4.3.4 Alternative education providers

*Australia*
There are private level providers who provide diploma level mostly and then seek pathways to degree-level education. There are also private providers who offer entirely online courses and it was noted that concern had previously been expressed about issues of quality of such courses, both of the work and of the qualifications of staff.

It was reflected that the potential that private level providers offer is to bring a more diverse range of students due to their ability to provide a service to individuals who did not achieve the necessary grades to be admitted to university.

*Nigeria*
Polytechnics provide an alternative route into the surveying profession, with direct entry to undergraduate courses from polytechnics possible, providing students have achieved the requisite grade level.

It was expressed that a good opportunity exists for online distance learning but that issues surrounding electricity supply and internet access remain challenges.

*Sri Lanka*
Alternative course provision comes from private colleges and universities, most of which have partnership agreements with foreign universities. It was observed that the low quality of graduates produced by some institutions has damaged the reputation of quantity surveyors recruited from Sri Lanka in the international market.

It was noted that there are no perceived opportunities associated with alternative providers as the state universities do not accept direct entry or credit transfers from such institutions.

*United States of America*
It was advised that there are institutions offering a blended approach whereby the majority of the programme is offered online and for two weeks every semester, students attend campus.

### 4.3.5 Good practice and the future for the profession

*Australia*
In respect of good practice, sustainability is integrated as a core theme in courses along with being one of the institution's preferred research themes. Due to the volume of waste generated by the construction industry it is felt important to look at all aspects of the process and how problems might be solved through technology, management or practical issues such as purchasing appropriate levels of materials and not making mistakes leading to rework. All of these concerns form part of the institution's sustainability drive for the industry, along with management of water resources which is a significant concern in Australia.

An accelerating trend towards use of IT/digital technologies was also identified, as was the need to train individuals who were not brought up with these technologies.

*Nigeria*
There was less detailed information made available on these themes by interview participants. However, reference was made to the role of sustainability within the education process. At present, sustainability is not a specific feature of courses although staff members are encouraged to include the subject. One institution indicated that a review of the curriculum was being undertaken and that the intention was to include wider sustainability themes.

*Sri Lanka*
It was observed that universities need to work with industry to equip students with necessary skills in respect of emerging technologies. However, it was noted that uptake of technology within the industry is slow in comparison to other regions.

It was also suggested that the role of the quantity surveyor will continue to evolve beyond the traditional confines of the role into something which is akin to commercial management.

Finally, on the theme of sustainability, it was noted that this is incorporated where possible and there is a specific module dedicated to the topic at undergraduate level.

*United States of America*
It was observed that it can feel as if academia is "chasing industry, as opposed to leading industry. It was reflected that this is perhaps due to the presence of innovation and research departments within the commercial sector which have evolved as industry has realised the utility of technology. Industry is willing to share this information but it is not a process which is being driven by academia.

In respect of emerging technologies, teaching now seeks to incorporate the use of laser scanners, virtual/augmented reality, drone technology and the use of robotics and automation for manual/hazardous processes (e.g. Boston robotics).

Finally, with respect to sustainability, it was observed that the standalone sustainability course has been dissolved in favour of the "normalisation of sustainability" as an integral element of all courses.

# 5. CONCLUSIONS AND RECOMMENDATIONS

## 5.1 Overview

The aim of this research was to explore, analyse and represent the current state and likely future directions for surveying education in selected global regions. In order to achieve this aim, the following objectives were established:

- **Objective 1** – To synthesise existing published sources on surveying education around the globe;
- **Objective 2** – To construct mini-case studies of surveying education provision from different global regions; and,
- **Objective 3** – To develop recommendations based on key research findings to direct future work towards focussed areas of study, engagement and application.

The research design outlined in Section 1.3 above, enabled the first two objectives of the research to be addressed as follows:

(iii) Synthesis of academic and professional publications from numerous global locations in Section 2 allowed for identification of themes in the literature of: (a) current surveying education provision by HEIs through traditional and alternative modes; (b) the importance of applied and 'soft' graduate skills; (c) the concept of the 'Career Academic'; (d) issues surrounding gender and improving the representation of women in the profession; and finally, (e) current and future challenges facing the surveying profession **(Objective 1)**; and,

(iv) The construction of mini-case studies in Section 3 providing a 'snapshot' of surveying education in Australia, Hong Kong, Nigeria and Sri Lanka. For each region, these mini case studies allowed for: (a) an overview of the historical development of surveying education; (b) courses leading to surveying education; (c) course accreditation processes; and, (d) routes to RICS membership **(Objective 2)**.

In setting out the results of the research, the previous section established that a number of key themes that were considered by participants to be critical to the future of surveying education:

- Staff recruitment and retention;
- Diversification of skills (including curriculum design, graduate skills and the role of CPD);
- Interaction between academia, industry and professional bodies;
- Gender; and,
- Funding of departments & students

The remainder of this section will fulfil the ambition of Objective 3 by drawing on key research findings to direct future work towards focussed areas of study, engagement and application through discussion of the insights drawn from the research and statement of corresponding recommendations.

## 5.2 Conclusions and Recommendations

### 5.2.1 Staff recruitment & retention

As demonstrated by the data above and in common with previous research undertaken (see further Section 1.1), issues surrounding staff recruitment remain a focal point in both the United Kingdom and the wider global context. In addition to these themes, this research also demonstrated recruitment difficulties around the subject of remuneration and the associated competition from industry for academic talent, along with concerns about the rise of the 'Career Academic' and the need for the creation of a diverse staff base. Therefore, we would **recommend that further work is undertaken into how best to recruit and retain academic talent within the profession [Recommendation 1]**.

We also **recommend that further work is undertaken into how best to support diversification of the academic workforce, taking cognisance of both 'Career Academics' and professionals with strong industry experience [Recommendation 2]**.

### 5.2.2 Diversification of skills

The collected data also supported themes identified in existing literature surrounding the subjects of graduate skills (see Section 2.4.) and the need for upskilling of the wider profession to meet future needs (Section 2.7.). Therefore, we would **recommend that further work is undertaken into considering how HEIs, industry and professional bodies can work in partnership to provide practical and implementable measures to ensure that students, graduates and existing professionals are gaining the necessary skills to ensure the continued relevance of the surveying profession for the 21st century [Recommendation 3]**.

Furthermore, given the potential for knowledge transfer surrounding the experiences of individual nations in equipping their respective surveying professionals with the necessary digital skills, we also **recommend that further work should be undertaken into the potential for transnational learning and knowledge transfer into the deployment of technology within teaching and industry across the global surveying profession [Recommendation 4]**.

### 5.2.3 Interaction between academia, industry and professional bodies

An area that cut across a variety of the emerging themes from the research was the need for greater interaction, collaboration and integration between academic, industry and the professional bodies. The evidence suggests that these relationships ought to be mutually beneficial, for example engagement with industry to enhance learning provided by HEIs and greater support from employers for the programmes from which they recruit. This also links with commentary around the theme of curriculum design that was identified as a key area for change by the research data, along with themes surrounding graduate 'soft skills', CPD and the evolving nature of education provision in the sector through apprenticeships and non-traditional access points into the profession.

Overall, the research findings indicate that there exists potential for greater collaboration and partnership working between: (i) professional bodies as regulators of the profession; (ii) academia as education providers and their role in equipping graduates with relevant skills; and, (ii) industry as both consumers of graduates and leaders in innovation and technology. Therefore, we **recommend that further work ought to be undertaken into curriculum design for the 21st century and how the individual roles of HEIs, industry and professional bodies can effectively support education provision for the profession [Recommendation 5]**.

Finally, we also **recommend that further work is undertaken into the role of the RICS in encouraging regulation and standardisation across emerging education markets [Recommendation 6]**.

### 5.2.4 Gender and equality

In common with previous research undertaken by Roberts et al in 2010 and also as explored further in the literature (Section 2.6.), issues surrounding gender and diversity continue to remain key. The research data demonstrates that while some institutions are engaging with STEM activities (see Fig 8 above), there remains scope for improvement to ensure that a lack of knowledge does not become a 'cap on aspiration' for some students.

Therefore, we would **recommend that further work is undertaken into identifying practical steps to enable the integration of surveying and allied subjects into STEM activities to enable greater engagement with diverse groups and stronger marketing of the profession [Recommendation 7]**.

Given the commitment of the RICS and others to ensure continued diversity within the profession, we also **recommend that further work should be undertaken into the identification of how women can be practically supported within the profession [Recommendation 8]**.

Finally, we also **recommend that the RICS has closer involvement within the marketing and recruitment activities undertaken by HEIs to ensure that the profession is promoted to a wide, diverse and non-traditional student group [Recommendation 9]**.

### 5.2.5 Funding of HEIs and students

Finally, an important theme that emerged from the research data was that of financial resourcing within the higher education sector. In common with themes discussed in 5.2.1 above, a combination of increasing student numbers and reliance on a small pool of staff created difficulties for many institutions. We would therefore **recommend that further work is undertaken into the potential for greater inter-institutional collaboration in the field of surveying education provision [Recommendation 10]**.

# Appendix I

## Countries with RICS Accredited Courses

| | | |
|---|---|---|
| Australia | Ireland | South Africa |
| Austria | Italy | Spain |
| Belgium | Jamaica | Sri Lanka |
| Brazil | Malaysia | Sweden |
| Canada | Netherlands | Switzerland |
| China | New Zealand | Thailand |
| Cyprus | Oman | Trinidad & Tobago |
| Czech Republic | Poland | Turkey |
| France | Portugal | United Arab Emirates |
| Germany | Republic of Korea | United Kingdom |
| Greece | Romania | United States |
| Hong Kong | Russian Federation | |
| India | Singapore | |

# Appendix II

## List of Accredited Surveying Related Courses in Australia (noted by Institute and affiliation)

| State | Tertiary Education Institute | Course | Accreditation Institute | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | AIQS | AIBS L1 | AIBS L2 | AIBS L3 | RICS BS | RICS CRE | RICS PM | RICS QS&C | RICS Res | AIB | PMI | CIOB | AIPM |
| NSW | University of Sydney | Bachelor of Engineering (Honours) | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ● | ○ | ○ |
| | | Bachelor of Project Management | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ● | ○ | ○ |
| | | Bachelor of Project Management (Honours) | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ● | ○ | ○ |
| | University of New South Wales | Bachelor of Construction Management and Property | ● | ○ | ○ | ○ | ○ | ○ | ○ | ● | ○ | ○ | ○ | ○ | ○ |
| | | Bachelor of Construction Management | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ● | ○ | ○ | ○ |
| | University of Newcastle | Bachelor of Construction Management (Building) (Honours) | ● | ● | ○ | ○ | ○ | ○ | ○ | ● | ○ | ● | ○ | ● | ○ |
| | University of Technology Sydney | Bachelor of Construction Project Management | ● | ○ | ○ | ○ | ○ | ○ | ● | ● | ○ | ● | ● | ○ | ● |
| | | Bachelor – Property Economics | ○ | ○ | ○ | ○ | ○ | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| | Western Sydney University | Bachelor of Construction Management | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ● | ○ | ○ | ○ |
| | | Graduate Diploma in Building Surveying | ○ | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| | OTEN Sydney | Diploma in Building Surveying | ○ | ○ | ○ | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| QLD | Bond University | Bachelor of Construction Management and Quantity Surveying | ● | ○ | ○ | ○ | ○ | ○ | ○ | ● | ○ | ○ | ○ | ● | ○ |
| | | Graduate Diploma in Building Surveying | ○ | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| | | Graduate Certificate in Building Surveying | ○ | ○ | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| | | Bachelor – Property | ○ | ○ | ○ | ○ | ○ | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| | | Graduate Diploma in Project Management | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ● |
| | | Graduate Certificate in Project Management | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ● |
| | University of Queensland | Bachelor – Business Management (Real Estate and Development) | ○ | ○ | ○ | ○ | ○ | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| | Queensland University of Technology | Bachelor of Urban Development (Honours) (Quantity Surveying and Cost Engineering) | ● | ○ | ○ | ○ | ○ | ○ | ○ | ● | ○ | ○ | ○ | ○ | ○ |
| | | Bachelor of Urban Development (Honours) (Construction Management) | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ● | ○ | ○ | ○ |
| | Central Queensland University | Bachelor of Building Surveying and Certification (Honours) | ○ | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

| State | Tertiary Education Institute | Course | Accreditation Institute | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | AIQS | AIBS L1 | AIBS L2 | AIBS L3 | RICS BS | RICS CRE | RICS PM | RICS QS&C | RICS Res | AIB | PMI | CIOB | AIPM |
| QLD | Central Queensland University | Bachelor of Building Surveying and Inspection | ○ | ○ | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| | | Bachelor of Construction Management | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ● | ○ | ○ | ○ |
| | | Associate Degree of Building Surveying | ○ | ○ | ○ | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| | Griffith University | Bachelor of Construction Management (Hons) | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ●[2] | ○ | ○ | ○ |
| SA | University of South Australia | Bachelor of Construction Management and Economics (Honours) | ● | ●[1] | ○ | ○ | ●[1] | ○ | ○ | ● | ○ | ● | ○ | ○ | ○ |
| | | Graduate Diploma in Built Environment (Building Surveying) | ○ | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| | | Bachelor of Built Environment | ○ | ○ | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| | | Associate Degree of Building Surveying | ○ | ○ | ○ | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| | | Bachelor – Business (Property) | ○ | ○ | ○ | ○ | ○ | ● | ○ | ○ | ● | ○ | ○ | ○ | ○ |
| WA | Curtin University of Technology | Bachelor of Applied Science (Construction Management) | ● | ○ | ○ | ○ | ○ | ○ | ○ | ● | ○ | ● | ○ | ○ | ○ |
| | | Bachelor – Commerce (Property and Finance) | ○ | ○ | ○ | ○ | ○ | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| | | Bachelor – Commerce (Property and Marketing) | ○ | ○ | ○ | ○ | ○ | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| | | Bachelor – Commerce (Property Development and Valuation) | ○ | ○ | ○ | ○ | ○ | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| | | Bachelor - Commerce (Property Valuation) | ○ | ○ | ○ | ○ | ○ | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| ACT | University of Canberra | Bachelor of Building and Construction Management | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ● | ○ | ○ | ○ |
| VIC | Deakin University | Bachelor of Design (Architecture) / Bachelor of Construction Management (Honours) | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| | | Bachelor of Construction Management (Honours) | ● | ○ | ○ | ○ | ● | ○ | ○ | ● | ○ | ● | ○ | ● | ○ |
| | | Bachelor – Property and Real Estate | ○ | ○ | ○ | ○ | ○ | ● | ○ | ○ | ● | ○ | ○ | ○ | ○ |
| | | Bachelor – Property and Real Estate / Bachelor of Commerce | ○ | ○ | ○ | ○ | ○ | ● | ○ | ○ | ● | ○ | ○ | ○ | ○ |
| | | Bachelor – Property and Real Estate / Bachelor of Laws | ○ | ○ | ○ | ○ | ○ | ● | ○ | ○ | ● | ○ | ○ | ○ | ○ |
| | University of Melbourne | Bachelor of Environment | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ● | ○ | ○ | ○ |

| State | Tertiary Education Institute | Course | Accreditation Institute | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | AIQS | AIBS L1 | AIBS L2 | AIBS L3 | RICS BS | RICS CRE | RICS PM | RICS QS&C | RICS Res | AIB | PMI | CIOB | AIPM |
| VIC | Royal Melbourne Institute of Technology – RMIT | Bachelor of Applied Science in Construction Management (Honours) | ● | ○ | ○ | ○ | ○ | ○ | ○ | ● | ○ | ● | ○ | ● | ○ |
| | | Bachelor of Applied Science (Project Management) (Honours) | ○ | ○ | ○ | ○ | ○ | ○ | ● | ○ | ○ | ○ | ● | ○ | ● |
| | | Bachelor of Applied Science – Property and Valuation | ○ | ○ | ○ | ○ | ○ | ● | ○ | ○ | ● | ○ | ○ | ○ | ○ |
| | Holmesglen Institute | Bachelor of Construction Management and Economics | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ● | ○ | ○ | ○ |
| | | Bachelor of Building Surveying | ○ | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| | | Graduate Diploma of Building Surveying | ○ | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| | Swinburne University of Technology | Certificate IV in Project Management Practise | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ● |
| | | Diploma of Project Management | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ● |
| | Victoria University | Graduate Certificate in Project Management | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ● |
| TAS | TasTAFE | Advanced Diploma in Building Surveying | ○ | ○ | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| | | Diploma in Building Surveying | ○ | ○ | ○ | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| All | CPD Training | Diploma in Building Surveying | ○ | ○ | ○ | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| | | **Postgraduate Course** | | | | | | | | | | | | | |
| NSW | Western Sydney University | Master of Building Surveying | ○ | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| | University of Technology, Sydney | Master of Business Administration with a Project Management Major | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ● | ○ | ○ |
| | | Master of Project Management | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ● | ○ | ○ | ● | ○ | ● |
| | | Master of Property Development | ○ | ○ | ○ | ○ | ○ | ○ | ● | ○ | ○ | ○ | ○ | ○ | ○ |
| | University of Sydney | Master of Project Management | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ● | ○ | ○ |
| | | Master of Project Leadership | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ● | ○ | ○ |
| | University of New South Wales | Master of Property and Development | ○ | ○ | ○ | ○ | ○ | ○ | ● | ○ | ● | ● | ○ | ○ | ○ |
| | | Master of Construction Project Management | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ● | ○ | ○ | ○ |
| QLD | Bond University | Master of Construction Practice (Professional) | ● | ○ | ○ | ○ | ○ | ○ | ○ | ● | ○ | ○ | ○ | ● | ○ |

| State | Tertiary Education Institute | Postgraduate Course | Accreditation Institute | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | AIQS | AIBS L1 | AIBS L2 | AIBS L3 | RICS BS | RICS CRE | RICS PM | RICS QS&C | RICS Res | AIB | PMI | CIOB | AIPM |
| QLD | Bond University | Master of Construction Practice (Professional) | ● | ○ | ○ | ○ | ○ | ○ | ○ | ● | ○ | ○ | ○ | ● | ○ |
| | | Master of Building Surveying | ○ | ● | ○ | ○ | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| | | Master of Project Management | ○ | ○ | ○ | ○ | ○ | ○ | ● | ○ | ○ | ○ | ● | ○ | ● |
| | | Master of Project Management (Professional) | ○ | ○ | ○ | ○ | ○ | ○ | ● | ○ | ○ | ○ | ● | ○ | ● |
| | | Master of Valuation and Property Development | ○ | ○ | ○ | ○ | ○ | ● | ○ | ○ | ● | ○ | ○ | ○ | ○ |
| | | Master of Valuation and Property Development (Professional) | ○ | ○ | ○ | ○ | ○ | ● | ○ | ○ | ● | ○ | ○ | ○ | ○ |
| | University of Queensland | Master of Property Studies | ○ | ○ | ○ | ○ | ○ | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| | Queensland University of Technology | Master of Project Management | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ● | ○ | ● |
| | | Master of Project Management (Property Studies) | ○ | ○ | ○ | ○ | ○ | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| SA | University of South Australia | Master of Project Management | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ● |
| WA | Curtin University | Master of Science (Project Management) | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ● | ○ | ○ |
| VIC | Deakin University | Master of Construction Management | ● | ○ | ○ | ○ | ○ | ○ | ○ | ● | ○ | ● | ○ | ○ | ○ |
| | | Master of Construction Management (Professional) | ● | ○ | ○ | ○ | ○ | ○ | ○ | ● | ○ | ○ | ○ | ○ | ○ |
| | Royal Melbourne Institute of Technology | Master of Project Management | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ● | ○ | ● |
| | The University of Melbourne | Master of Construction Management | ● | ○ | ○ | ○ | ○ | ○ | ○ | ● | ○ | ○ | ○ | ○ | ○ |
| | | Master of Property | ○ | ○ | ○ | ○ | ○ | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| | | Master of Construction | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ● | ○ | ○ | ○ |
| | Victoria University | Master of Project Management | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ● |

**Key**

AIQS & RICS accredited courses

AIQS, RICS & AIB accredited courses

1 – With Building Surveying Option
2 – Provisional Accreditation

**Abbreviations**

AIQS – Australian Institute of Quantity Surveyors
AIBS – Australian Institute of Building Surveyors
RICS – Royal Institution of Chartered Surveyors
AIB – Australian Institute of Building
PMI – Project Management Institute
CIOB – Chartered Institute of Building
AIPM – Australian Institute of Project Management
L1, L2, L3 – Level 1, Level 2, Level 3 in Building Surveying
BS – Building Surveying
CRE – Commercial Real Estate
PM – Project Management
QS&C – Quantity Surveying & Construction
Res – Residential

**Sources**

AIQS Accredited Course Guide 2018
AIBS Academic Course Listing (January 2018)
RICS Accredited Degrees (Online)
AIB Higher Education Accredited Courses (February 2019)
PMI Directory of Accredited Programs (Online)
CIOB Overseas Accredited Institutions (December 2018)
AIPM Endorsed courses (Online)

# Appendix III

## List of Accredited Surveying Related Courses in Hong Kong
### A: Local Academic Qualifications for Student or Probationer Membership of HKIS

See further – **https://www.hkis.org.hk/en/pdf/degree/laq_sp-hkis201909.pdf**
Qualifications being of sufficient academic standard for entry to the Assessment of Professional Competence under Bye-laws 2.3.5(a)(i)

| University / Institution | Course | Mode | Intake year | Division | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | BS | GP | LS | PD | PFM | QS |
| Department of Architecture and Civil Engineering<br>The City University of Hong Kong | BSc in Surveying[1] | Full Time, Part Time | 2017 – 2021 | ● | ○ | ○ | ○ | ○ | ● |
| Department of Building and Real Estate<br>The Hong Kong Polytechnic University | BSc (Hons) in Surveying | Full Time | 2017 – 2021 | ● | ● | ○ | ● | ● | ● |
| | BSc (Hons) in Property Management | Full Time | 2017 – 2021 | ○ | ● | ○ | ○ | ● | ○ |
| School of Professional Education and Executive Development (SPEED)<br>The Hong Kong Polytechnic University | BSc (Hons) in Surveying | Full Time, Part Time | 2017 – 2021 | ● | ● | ○ | ● | ● | ● |
| Department of Land Surveying and GeoInformatics<br>The Hong Kong Polytechnic University | BSc (Hons) in Land Surveying and Geoinformatics | Full Time | 2018 – 2019 | ○ | ○ | ● | ○ | ○ | ○ |
| | MSc in Geomatics with specialism in Geographic Information Systems | Full Time, Part Time | 2017 – 2021 | ○ | ○ | ● | ○ | ○ | ○ |
| | MSc in Geomatics with specialism in Surveying | Full Time, Part Time | 2017 – 2021 | ○ | ○ | ● | ○ | ○ | ○ |
| Department of Real Estate and Construction<br>The University of Hong Kong | BSc (Hons) in Surveying | Full Time | 2017 – 2021 | ● | ● | ○ | ● | ● | ● |
| | MSc in Construction Project Management (majoring in Quantity Surveying) | Part Time, Full Time | 2017 – 2021 | ○ | ○ | ○ | ○ | ○ | ● |
| | MSc in Real Estate (majoring in Urban Development) | Part Time, Full Time | 2016 – 2020 | ○ | ● | ○ | ● | ○ | ○ |
| | MSc in Real Estate (without major) (majoring in Real Estate Investment and Finance) | Part Time, Full Time | 2018 – 2021 | ○ | ● | ○ | ● | ○ | ○ |
| Department of Urban Planning and Design<br>The University of Hong Kong | Bachelor of Arts (Hons) in Urban Studies | Full Time | 2017 – 2021 | ○ | ○ | ○ | ● | ○ | ○ |
| School for Higher and Professional Education of Vocational Training Council (SHAPE)<br>(The programme is run by RMIT, Australia as an off-shore programme in Hong Kong in collaboration with SHAPE with degree awarded by RMIT) | Bachelor of Applied Science (Construction Management) (Honours)[2] | Part Time | 2016 – 2020 | ○ | ○ | ○ | ○ | ○ | ● |
| | Bachelor of Applied Science (Construction Management) (Honours)[2] | Full Time | 2019 – 2023 | ○ | ○ | ○ | ○ | ○ | ● |

| University / Institution | Course | Mode | Intake year | Division | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | BS | GP | LS | PD | PFM | QS |
| Technological and Higher Education Institute of Hong Kong (THEi), VTC | BSc (Hons) in Surveying[3] | Full Time | 2016 – 2019 | ● | ● | ○ | ● | ● | ● |

**Notes**

1 – Graduates who are going to apply for entry to the APC scheme of BSD and QSD have to complete respectively the following specified Elective Units:

BSD
(i) CA4623 Maintenance Technology and Management
(ii) CA4229 Land Use Planning and Applied Valuation

QSD
(i) CA4229 Land Use Planning and Applied Valuation

2 – Students admitted to the programme shall attain not lower than 6.0 IELTS or Level 4 of English modules of the Hong Kong Vocational English Programme (for HKIVE sub-degree graduates) or equivalent University's English Language Enhancement modules (for HK Polytechnic University and City University sub degree graduates).

3 – The abovementioned programme is provisionally approved by the HKIS as a cognate degree programme for admission to the Assessment of Professional Competence ("APC") Scheme under the Building Surveying Division ("BSD"), the General Practice Division ("GPD"), the Property and Facility Management Division ("PFMD"), the Planning and Development Division ("PDD") and the Quantity Surveying Division ("QSD") for a maximum period of FOUR years from 2016 to 2019 intakes. Such approval for all these four intakes will become invalid if the awarding organization cannot fulfil the conditions required by the HKIS.

The provisional accreditation shall apply to the Year 1 students admitted to the Programme from 2016 to 2019 intakes. It shall not cover the direct intake of Year 3 students with advanced standing. The provisional accreditation shall be subject to full accreditation in 2020 or earlier if the conditions required by the HKIS are complied with within the first four years of the provisional accreditation.

**Abbreviations**

BS – Building Surveying
GP – General Practice
LS – Land Surveying
PD – Planning and Development
PFM – Property and Facility Management
QS – Quantity Surveying

## B: List of RICS Accredited Courses

| University / Institution | Course | Mode |
|---|---|---|
| Birmingham City University | BSc Hons Building Surveying | Part Time |
| | BSc Hons Construction Management | Full Time |
| | BSc Hons Quantity Surveying | Part Time |
| | BSc Hons Real Estate | Part Time |
| | MSc Building Surveying | Part Time |
| | MSc Construction Project Management | Part Time |
| | MSc Quantity Surveying | Part Time |
| University of Central Lancashire | BSc Hons Building Surveying | Part Time |
| | BSc Hons Construction Project Management | Part Time |
| | BSc Hons – Facilities Management | Part Time |
| | BSc Hons Quantity Surveying | Part Time |

| University / Institution | Course | Mode |
|---|---|---|
| University of Hong Kong | Bachelor of Arts Conservation | Full Time |
| | BSc Hons Surveying | Part Time |
| | Bachelor of Arts Urban Studies | Full Time |
| | MSc Construction Project Management | Full Time, Part Time |
| | Master of Science Integrated Project Delivery | Part Time |
| | Master of Science – Interdisciplinary Design and Management | Part Time |
| | MSc Real Estate | Full Time, Part Time |
| University of Wolverhampton | BSc Hons Construction Management | Part Time |
| | BSc Hons – Quantity Surveying | Part Time |
| RIMT University | Bachelor of Applied Science – Construction Management | Part Time |
| | Bachelor of Applied Science with Hons – Construction Management | Part Time |
| The Hong Kong Polytechnic University | BSc Hons – Environment and Sustainable Development | Full Time |
| | BSc Hons – Land Surveying and Geo-Informatics | Full Time |
| | BSc Hons – Property Management | Full Time, Sandwich |
| | BSc Hons Surveying | Full Time, Part Time, Sandwich |
| | MSc Construction and Real Estate | Part Time, Full Time |
| | MSc Construction Law and Dispute Resolution | Part Time, Full Time |
| | MSc Facility Management | Full Time, Part Time |
| | MSc Geomatics | Full Time, Part Time |
| | MSc High Performance Buildings | Full Time, Part Time |
| | MSc International Real Estate | Part Time |
| | MSc Project Management | Full Time, Part Time |
| | MSc Sustainable Urban Development | Full Time, Part Time |
| Hong Kong University of Science and Technology | BSc – Environmental Management and Technology | Full Time |
| | MSc Environmental Science and Management | Full Time, Part Time |
| City University Hong Kong | BSc Hons Surveying | Full Time |
| | MSc Construction Management | Full Time, Part Time |

| University / Institution | Course | Mode |
|---|---|---|
| City University Hong Kong | Master Urban Design and Regional Planning | Full Time, Part Time |
| The Chinese University of Hong Kong | BSSc Urban Studies | Full Time |
| | MSc Geoinformation | Full Time Part Time |
| | MSc Management of Real Estate and Hospitality Assets | Full Time |
| University of Greenwich | MSc Construction Project Management | Distance Learning |
| | MSc Facilities Management | Distance Learning |
| | MSc Real Estate | Distance Learning |
| Heriot-Watt University | MSc Real Estate Management and Development | Distance Learning |
| University College of Estate Management | BSc Building Surveying | Part Time |
| | BSc Construction Management | Part Time |
| | BSc Quantity Surveying | Part Time |
| | BSc Real Estate Management | Part Time |
| | MBA Construction and Real Estate | Part Time |
| | MSc Building Surveying | Part Time |
| | MSc Quantity Surveying | Part Time |
| | MSc Real Estate | Part Time |

# Appendix IV

| List of Institutions offering Quantity Surveying Degrees in Nigeria | | |
|---|---|---|
| Federal University of Technology | Federal University of Technology Akure | Bauchi State University |
| Imo State University | Federal University of Technology Minna | Baze University |
| University of Lagos | Nnamdi Azikiwe University | Caleb University |
| University of Benin | Obafemi Awolowo University | Oduduwa University |
| Ahmadu Bello University | Rivers State University of Science and Technology | Federal University |
| Bells University of Technology | University of Jos; University of Ilorin | Gregory University |
| Bayero University | University of Uyo; Kaduna State University | |
| Enugu State University of Science and technology | Joseph Ayo Babalola University | |

# Appendix V

## List of RICS Accredited Courses in Sri Lanka

| University / Institution | Course | Mode |
|---|---|---|
| University of Sri Jayewardenepura | BSc (Special) Degree Estate Management and Valuation | Full Time |
| University of Moratuwa | BSc Hons Facilities Management | Full Time |
| | BSc Hons Quantity Surveying | Full Time |
| University of Wolverhampton | BSc Hons Quantity Surveying | Full Time |
| | MSc Construction Project Management | Full Time |
| Birmingham City University | BSc Hons Quantity Surveying | Full Time |
| | MSc Construction Project Management | Full Time |
| University of Salford | BSc Hons Quantity Surveying | Full Time, Sandwich |
| | MSc Project Management in Construction | Flexible Learning |
| Sabaragamuwa University of Sri Lanka | Bachelor of Science – Surveying Sciences (Honours) | Full Time |

# Appendix VI

## List of RICS Accredited Courses in United Kingdom

| University / Institution | Course | Mode |
|---|---|---|
| University of Aberdeen | MA Hons – Accountancy and Real Estate | Full Time |
| | MA Hons – Economics and Real Estate | Full Time |
| | MA Hons – Finance and Real Estate | Full Time |
| | MA Hons – Management and Real Estate | Full Time |
| | MA Hons – Real Estate | Full Time |
| | MSc Finance and Real Estate | Full Time |
| | Master – Land Economy (Rural Surveying/Rural Property Management) | Full Time |
| | PgDip – Land Economy (Rural Surveying/Rural Property Management) | Full Time |
| | MSc Real Estate | Full Time |
| Nottingham Trent University | BSc Hons – Architectural Technology | Fulltime, Sandwich |
| | BSc Hons – Building Surveying | Degree Apprenticeship, Full Time, Sandwich, Part Time |
| | BSc Hons – Property Development and Planning | Full Time, Sandwich |
| | BSc Hons – Property Finance and Investment | Sandwich, Full Time |
| | BSc Hons – Quantity Surveying and Commercial Management | Degree Apprenticeship, Full Time, Sandwich, Part Time |
| | BSc Hons – Real Estate | Full Time, Part Time, Sandwich |
| | MSc Building Surveying | Full Time, Part Time |
| | MSc Construction Management | Full Time, Part Time, Distance Learning |
| | MSc Construction Project Management | Distance Learning |
| | MSc Corporate Real Estate | Full Time, Part Time |
| | MSc International Real Estate Investment and Finance | Full Time, Part Time |
| | MSc Project Management (Construction) | Part Time, Full Time |
| | MSc Property Development and Planning | Full Time, Part Time |
| | MSc Quantity Surveying | Full Time, Part Time |
| | MSc Real Estate | Full Time, Part Time |
| | MSc Residential Property | Full Time, Part Time |
| Liverpool John Moores University | BSc Hons – Building Services Engineering Project Management | Full Time, Part-Time, Sandwich |

| University / Institution | Course | Mode |
|---|---|---|
| Liverpool John Moores University | BSc Hons – Building Surveying | Degree Apprenticeship, Full Time, Part Time, Sandwich |
| | BSc Hons – Construction Management | Full Time, Part Time, Sandwich, Degree Apprenticeship |
| | BSc Hons – Facilities Management | Full Time, Sandwich, Part Time, Degree Apprenticeship |
| | BSc Hons – Quantity Surveying | Degree Apprenticeship, Part Time, Sandwich, Full Time |
| | BSc Hons – Real Estate | Degree Apprenticeship, Full Time, Sandwich, Part Time |
| | MSc – Applied Facilities Management | Flexible Learning, Part Time |
| | MSc Commercial Building Surveying | Full Time, Part Time |
| | MSc Construction Project Management | Full Time, Part Time |
| | MSc Integrated Building Information Management | Full Time, Part Time |
| | MSc Project Management | Full Time, Part Time |
| | MSc Quantity Surveying and Commercial Management | Full Time, Part Time |
| | MSc Real Estate | Full Time, Part Time |
| University of Wolverhampton | BSc Hons – Building Surveying | Degree Apprenticeship, Full Time, Part Time, Sandwich |
| | BSc Hons – Construction Management | Degree Apprenticeship, Full Time, Part Time, Sandwich |
| | BSc Hons – Property Management and Real Estate | Degree Apprenticeship, Full Time, Sandwich, Part Time |
| | BSc Hons – Quantity Surveying | Degree Apprenticeship, Full Time, Part Time, Sandwich |
| | MSc Construction Law and Dispute Resolution | Full Time, Part Time |
| | MSc Construction Project Management | Full Time, Part Time |
| Ulster University | BSc Hons – Building Surveying | Full Time, Sandwich, Part Time |
| | MSci – Planning, Regeneration and Development | Full Time, Sandwich, Part Time |
| | BSc Hons – Quantity Surveying and Commercial Management | Part Time, Full Time, Sandwich |
| | BSc Hons – Real Estate | Full Time, Sandwich, Part Time |
| | MSc Construction Business and Leadership | Full Time, Part Time |
| University of West London | BSc Hons – Building Surveying | Full Time, Part Time |
| Kingston University | BSc Hons – Building Surveying | Full Time, Sandwich, Part Time |
| | BSc Hons – Historic Building Conservation | Full Time, Part Time |
| | BSc Hons – Quantity Surveying Consultancy | Full Time, Part Time, Sandwich |

| University / Institution | Course | Mode |
|---|---|---|
| Kingston University | BSc Hons – Real Estate Management | Degree Apprenticeship |
| | BSc Hons – Real Estate Management and Business Experience | Sandwich, Full Time |
| | MA Art Market & Appraisal (Professional Practice) | Full Time |
| | MSc Building Surveying | Full Time, Part Time |
| | MSc Historic Building Conservation | Full Time, Part Time |
| | MSc Quantity Surveying | Full Time, Part Time |
| | MSc Real Estate | Part Time, Full Time |
| Birmingham City University | BSc Hons – Building Surveying | Degree Apprenticeship, Sandwich, Full Time, Part Time |
| | BSc Hons – Construction Management | Full Time, Part Time, Sandwich |
| | BSc Hons – Quantity Surveying | Degree Apprenticeship, Full Time, Part Time, Sandwich |
| | BSc Hons – Real Estate | Degree Apprenticeship, Full Time, Part Time, Sandwich |
| | MSc Building Surveying with Facilities Management | Full Time, Part Time |
| | MSc Construction Project Management | Full Time, Part Time |
| | MSc Quantity Surveying | Full Time, Part Time |
| | MSc Real Estate Management | Full Time, Part Time |
| | PgDip – Real Estate Management | Full Time, Part Time |
| Leeds Beckett University | BSc Hons – Building Surveying | Full Time, Part Time, Sandwich |
| | BSc Hons – Quantity Surveying | Degree Apprenticeship, Full Time, Part Time, Sandwich |
| | BSc Hons – Real Estate and Property Management | Full Time, Part Time, Sandwich |
| | MSc Building Surveying | Distance Learning |
| | MSc Quantity Surveying Commercial Management | Distance Learning |
| Coventry University | BSc Hons – Building Surveying | Full Time, Part Time, Sandwich |
| | BSc Hons – Quantity Surveying and Commercial Management | Full Time, Sandwich, Part Time |
| | MSc Construction Project and Cost Management | Part Time, Full Time |
| University of Salford | BSc Hons – Building Surveying | Full Time, Sandwich, Part Time |
| | BSc Hons – Construction Project Management | Full Time, Sandwich, Part Time |
| | BSc Hons – Property Development | Full Time, Sandwich |

| University / Institution | Course | Mode |
|---|---|---|
| University of Salford | BSc Hons – Quantity Surveying | Part Time, Full Time, Sandwich |
| | LLM Construction Law and Practice | Distance Learning |
| | MSc Construction Law and Practice | Distance Learning |
| | MSc Construction Management | Part Time, Full Time, Distance Learning |
| | MSc Project Management in Construction | Part Time, Distance Learning, Full Time |
| | MSc Quantity Surveying | Part Time, Full Time, Distance Learning |
| | MSc Quantity Surveying (Mechanical and Electrical) | Distance Learning |
| | MSc Real Estate and Property Management | Distance Learning, Full Time |
| University of Westminster | BSc Hons – Building Surveying | Degree Apprenticeship, Part Time, Full Time, Sandwich |
| | BSc Hons – Property and Planning | Part Time, Full Time |
| | BSc Hons – Quantity Surveying and Commercial Management | Degree Apprenticeship, Sandwich, Part Time, Full Time |
| | BSc Hons – Real Estate | Degree Apprenticeship, Full Time, Part Time |
| | MSc Building Information Management | Part Time, Full Time |
| | MSc Construction Commercial Management | Part Time, Full Time |
| | MSc Construction Project Management | Part Time, Full Time |
| | MSc Facilities and Property Management | Part Time, Full Time |
| | MSc Property Finance | Full Time, Part Time |
| | MSc Real Estate Development | Full Time, Part Time |
| Napier University | BSc Hons – Building Surveying | Full Time, Part Time |
| | BSc Hons – Construction and the Built Environment | Degree Apprenticeship |
| | BSc Hons – Quantity Surveying | Part Time, Full Time, Sandwich |
| | BSc Hons – Real Estate Surveying | Full Time, Part Time |
| | MSc Construction Project Management | Full Time, Part Time, Distance Learning |
| | MSc Facilities Management | Distance Learning |
| | MSc Real Estate Management and Investment | Full Time, Part Time, Distance Learning |
| Northumbria University | BSc Hons – Building Surveying | Degree Apprenticeship, Part Time, Sandwich, Full Time |
| | BSc Hons – Quantity Surveying | Degree Apprenticeship, Part Time, Sandwich, Full Time |

| University / Institution | Course | Mode |
|---|---|---|
| Northumbria University | BSc Hons – Real Estate | Degree Apprenticeship, Full Time, Part Time, Sandwich |
| | MSc Construction Project Management with Building Information Modelling | Full Time, Part Time, Distance Learning |
| | MSc Real Estate | Full Time, Part Time |
| | MSc Real Estate (International) | Full Time |
| | MSc Surveying (Building Surveying) | Distance Learning |
| | MSc Surveying (Quantity Surveying) | Distance Learning |
| | MSc Surveying (Real Estate) | Distance Learning |
| University of Central Lancashire | BSc Hons – Building Surveying | Degree Apprenticeship, Full Time, Part Time, Sandwich |
| | BSc Hons – Construction Project Management | Degree Apprenticeship, Full Time, Part Time, Sandwich |
| | BSc Hons – Facilities Management | Sandwich, Part Time, Full Time |
| | BSc Hons – Quantity Surveying | Degree Apprenticeship, Full Time, Part Time, Sandwich |
| | MSc Building Conservation and Adaption | Part Time, Full Time |
| | MSc Construction Law and Dispute Resolution | Distance Learning |
| Anglia Ruskin University | BSc Hons – Building Surveying | Degree Apprenticeship, Full Time, Sandwich, Part Time |
| | BSc Hons – Quantity Surveying | Degree Apprenticeship, Full Time, Part Time, Sandwich |
| | MSc Construction Management | Full Time, Part Time |
| | MSc Construction Project Management | Full Time, Part Time |
| Glasgow Caledonian University | BSc Hons – Building Surveying | Sandwich, Part Time, Full Time |
| | BSc Hons – Construction and Built Environment | Degree Apprenticeship |
| | BSc Hons – Construction Management | Full Time, Sandwich, Flexible Learning |
| | BSC Hons –Environmental Management | Sandwich, Full Time |
| | BSc Hons – Quantity Surveying | Degree Apprenticeship, Sandwich, Full Time, Part Time |
| | BSc Hons – Real Estate | Sandwich, Full Time, Part Time |
| | MSc Construction Economics | Full Time, Part Time, Distance Learning |
| | MSc Construction Management | Full Time, Part Time, Distance Learning |
| | MSc International Project Management | Full Time, Part Time, Distance Learning |
| | MSc Quantity Surveying | Full Time, Part Time, Distance Learning |

| University / Institution | Course | Mode |
|---|---|---|
| Glasgow Caledonian University | MSc Real Estate Management | Full Time, Part Time |
| University of Brighton | BSc Hons – Building Surveying | Full Time, Part Time, Sandwich |
| | BSc Hons – Project Management for Construction | Full Time, Part Time, Sandwich |
| | MSc Construction Management | Full Time, Part Time |
| | MSc Environmental Assessment and Management | Part Time, Full Time |
| | MSc Facilities Management | Part Time, Full Time |
| | MSc Project Management for Construction | Full Time, Part Time |
| | MSc Town Planning | Full Time, Part Time |
| University of Reading | BSc Hons – Building Surveying | Full Time |
| | BSc Hons – Construction Management | Full Time, Sandwich, Flexible Learning |
| | BSc Hons – Construction Management and Surveying | Full Time |
| | BSc Hons – Investment and Finance in Property | Full Time |
| | BSc Hons – Quantity Surveying | Part Time, Sandwich, Full Time |
| | BSc Hons – Real Estate | Full Time |
| | MSc Conservation of the Historic Environment | Part Time |
| | MSc Construction Cost Management | Full Time, Part Time |
| | MSc Construction Management | Flexible Learning, Full Time |
| | MSc Project Management | Flexible Learning, Full Time |
| | MSc Real Estate | Full Time, Flexible Learning |
| | MSc Real Estate Finance | Full Time |
| | MSc Real Estate Investment and Finance | Flexible Learning |
| | MSc Rural Land and Business Management (Surveying) | Full Time |
| | MSc Spatial Planning and Development | Full Time, Part Time |
| | MSc Urban Planning and Development | Full Time |
| | PgDip Urban Planning and Development | Full Time |
| University College of Estate Management | BSc Hons – Building Surveying | Degree Apprenticeship, Distance Learning |
| | BSc Hons – Construction Management | Degree Apprenticeship, Distance Learning |

| University / Institution | Course | Mode |
|---|---|---|
| University College of Estate Management | BSc Hons – Quantity Surveying | Degree Apprenticeship, Distance Learning |
| | BSc Hons – Real Estate Management | Degree Apprenticeship, Distance Learning |
| | MSc Building Surveying | Distance Learning |
| | MBA Construction and Real Estate | Distance Learning |
| | MSc Construction Management | Distance Learning |
| | MSc Quantity Surveying | Distance Learning |
| | MSc Real Estate | Distance Learning |
| University of Portsmouth | BSc Hons – Building Surveying | Degree Apprenticeship, Full Time, Sandwich |
| | BSc Hons – Property Development | Full Time, Sandwich |
| | BSc Hons – Quantity Surveying | Degree Apprenticeship, Full time, Sandwich |
| | BSc Hons – Real Estate | Degree Apprenticeship |
| | MSc Coastal and Marine Resource Management | Full Time, Part Time |
| | MSc Historic Building Conservation | Full Time, Part Time |
| | MSc Quantity Surveying | Full Time, Part Time |
| | MSc Real Estate Management | Full Time, Part Time |
| Sheffield Hallam University | BSc Hons – Building Surveying | Degree Apprenticeship, Part Time, Sandwich, Full Time |
| | BSc Hons – Construction and Commercial Management | Part Time |
| | BSc Hons – Construction Project Management | Full Time, Part Time, Sandwich |
| | BA Hons – Facilities Management | Sandwich, Part Time, Full Time |
| | BSc Hons – Quantity Surveying | Degree Apprenticeship, Part Time, Sandwich, Full Time |
| | BSc Hons – Quantity Surveying and Commercial Management | Part Time |
| | BSc Hons – Real Estate | Full Time, Sandwich, Part Time |
| | BSc Hons – Residential Development and Construction | Part Time |
| | MSc Building Surveying | Full Time, Part Time |
| | MSc Construction Project Management | Part Time, Full Time |
| | MSc Environmental Management | Full Time, Part Time |
| | Executive MBA – Facilities Management | Part Time |

| University / Institution | Course | Mode |
|---|---|---|
| Sheffield Hallam University | MSc Project Management | Full Time, Part Time |
| | MSc Quantity Surveying | Full Time, Part Time |
| | MSc Real Estate | Full Time, Part Time |
| | MSc Urban Planning | Full Time, Part Time |
| | MSc Urban Regeneration | Full Time, Part Time |
| University of the West of England | BSc Hons – Building Surveying | Degree Apprenticeship, Full Time, Sandwich, Part Time |
| | BA Hons – Property Development and Planning | Full Time, Sandwich |
| | BSc Hons – Quantity Surveying and Commercial Management | Part Time |
| | BSc Hons – Real Estate | Degree Apprenticeship, Full Time, Sandwich |
| | MSc Building Information Management (BIM) in Design, Construction and Operations | Full Time, Part Time |
| | Graduate Diploma – Building Surveying | Full Time, Part Time |
| | MSc Building Surveying | Full Time, Part Time |
| | MSc Construction Project Management | Full Time, Part Time |
| | Graduate Diploma – Quantity Surveying | Full Time, Part Time |
| | MSc Quantity Surveying | Full Time, Part Time |
| | MSc Real Estate Finance and Investment | Full Time, Part Time, Distance Learning |
| | MSc Real Estate Management | Distance Learning, Full Time, Part Time |
| London South Bank University | BSc Hons – Building Surveying | Degree Apprenticeship, Full Time, Sandwich, Part Time |
| | BSc Hons – Quantity Surveying | Degree Apprenticeship, Full Time, Sandwich, Part Time |
| | MSc Building Surveying | Part Time, Full Time |
| | PgDip Building Surveying | Full Time, Part Time |
| | MSc Construction Project Management | Full Time, Part Time |
| | MA Housing Studies | Part Time |
| | MSc International Real Estate | Part Time, Full Time |
| | MSc Planning Buildings for Health | Part Time, Full Time |
| | MSc Property Development and Planning | Full Time, Part Time |
| | PgDip Property Development and Planning | Full Time, Part Time |

| University / Institution | Course | Mode |
|---|---|---|
| London South Bank University | MSc Quantity Surveying | Part Time, Full Time |
| | PgDip Quantity Surveying | Full Time, Part Time |
| | MSc Real Estate | Full Time, Part Time |
| | PgDip Real Estate | Full Time, Part Time |
| | Graduate Diploma – Surveying (Building Surveying) | Part Time |
| Plymouth University | BSc Hons – Building Surveying and the Environment | Degree Apprenticeship, Full Time, Sandwich, Part Time |
| | BSc Hons – Quantity Surveying | Full Time, Part Time |
| | MSc Hydrography | Part Time, Full Time |
| Oxford Brookes University | BA Hons – City and Regional Planning/Diploma in Planning | Full Time |
| | BSc Hons – Construction Project Management | Full Time, Part Time, Sandwich |
| | BA Hons – Planning and Property Development | Full Time |
| | BSc Hons – Quantity Surveying and Commercial Management | Sandwich |
| | BSc Hons – Real Estate | Full Time, Part Time, Degree Apprenticeship |
| | BA Hons – Urban Design, Development and Planning | Part Time, Full Time |
| | MSc Building Information Modelling and Management | Full Time, Distance Learning |
| | MSc Construction Project Management | Full Time, Distance Learning |
| | MSc Environmental Assessment and Management | Full Time, Part Time |
| | MSc Historic Conservation | Full Time, Part Time |
| | MSc Project Management in the Built Environment | Distance Learning, Full Time |
| | MSc Quantity Surveying and Commercial Management | Full Time, Distance Learning |
| | MSc Real Estate | Full Time |
| | MSc Real Estate Investment Finance | Distance Learning |
| | MSc Spatial Planning | Full Time, Part Time |
| | MA Urban Design | Full Time, Part Time |
| | MSc Urban Planning: Developing and Transnational Regions | Part Time, Full Time |
| The University of Nottingham | MEng – Civil Engineering | Full Time |
| | MSc Engineering Surveying | Full Time |

| University / Institution | Course | Mode |
|---|---|---|
| Loughborough University | BSc Hons – Commercial Management and Quantity Surveying | Sandwich |
| | MSc Construction Management | Full Time, Part Time |
| | MSc Construction Project Management | Full Time, Part Time |
| Heriot-Watt University | BSc Hons – Construction and the Built Environment | Degree Apprenticeship |
| | BSc Hons – Construction Project Management | Full Time, Distance Learning |
| | BSc Hons – Quantity Surveying | Full Time, Distance Learning |
| | BSc Hons – Urban Planning and Property Development | Full Time |
| | MSc Architectural Project Management | Distance Learning |
| | MSc Building Conservation (Technology and Management) | Distance Learning |
| | MSc Commercial Management and Quantity Surveying | Distance Learning, Part Time, Full Time |
| | MSc Construction Project Management | Distance Learning, Full Time, Part Time |
| | MSc Facilities Management | Distance Learning |
| | MSc Real Estate and Planning | Full Time, Part Time |
| | MSc Real Estate Investment and Finance | Distance Learning, Part Time, Full Time |
| | MSc Real Estate Management and Development | Full Time, Part Time, Distance Learning |
| | MSc Sustainable Urban Management | Full Time, Part Time |
| Aston University | BSc Hons – Construction Project Management | Full Time, Sandwich |
| | BSc Hons – Quantity Surveying | Full Time, Sandwich |
| University of South Wales | BSc Hons – Construction Project Management | Full Time, Part Time, Sandwich |
| | BSc Hons – Quantity Surveying and Commercial Management | Part Time, Sandwich, Full Time |
| | MSc Building Information Modelling and Sustainability | Full Time, Part Time |
| | MSc Construction Project Management | Full Time, Part Time |
| | MSc Dispute Resolution | Part Time |
| | MSc Wildlife and Conservation Management | Full Time, Part Time |
| Queens University Belfast | BSc Hons – Environmental Management | Full Time |
| | BSc Hons – Environmental Management with Professional Studies | Sandwich |
| | MPlan – European Planning | Full Time |

| University / Institution | Course | Mode |
|---|---|---|
| Queens University Belfast | BSc Hons – Planning, Environment and Development | Full Time |
| | MSc City Planning and Design | Full Time |
| | MSc Construction and Project Management | Full Time, Part Time |
| | MSc Planning and Development | Full Time |
| | MSc Planning and Regeneration | Full Time |
| Newcastle University | BSc Hons – Geographic Information Science | Full Time |
| | BEng Hons – Geospatial Surveying and Mapping | Full Time |
| | BSc Hons – Surveying and Mapping Science | Full Time |
| | MSc Environmental Engineering | Full Time, Part Time |
| | MSc Flood Risk Management | Full Time, Part Time |
| | MSc Hydrogeology and Water Management | Full Time, Part Time |
| | MSc Hydroinformatics | Full Time, Part Time |
| | MSc Hydrology and Climate Change | Full Time, Part Time |
| | MPlan – Master of Planning | Full Time |
| | MSc Urban Planning | Full Time, Part Time |
| University of Cambridge | BA Hons Tripos – Land Economy | Full Time |
| | MPhil Environmental Policy | Full Time |
| | Master of Studies – Interdisciplinary Design for the Built Environment | Part Time |
| | MPhil –Planning, Growth and Regeneration | Full Time |
| | Master of Studies – Real Estate | Part Time |
| | MPhil Real Estate Finance | Full Time |
| Cardiff University | BSc Hons – Marine Geography | Full Time, Sandwich |
| | BSc Hons – Urban Planning and Development | Full Time, Sandwich |
| | MSc International Planning and Development (specialism in Housing) | Full Time |
| | MSc International Planning and Development (specialism in Real Estate) | Full Time |
| | MSc International Planning and Development (specialism in Urban Design – International) | Full Time |
| | MSc Spatial Planning and Development | Full Time, Part Time |

| University / Institution | Course | Mode |
|---|---|---|
| Cardiff University | MSc Sustainability, Planning and Environmental Policy | Full Time, Part Time |
| | MSc Urban and Regional Development | Part Time, Full Time |
| | MA Urban Design | Full Time |
| University of Manchester | MPlan – Master of Planning | Full Time |
| | BSc Hons – Planning and Real Estate | Full Time, Part Time |
| | Masters – Planning and Real Estate | Full Time |
| | MSc Construction Project Management | Full Time |
| | MSc Environmental Impact Assessment and Management | Full Time, Part Time |
| | MSc Planning | Full Time, Part Time |
| | MSc Real Estate | Distance Learning |
| | MSc Real Estate Asset Management | Full Time, Part Time |
| | MSc Real Estate Development | Full Time, Part Time |
| | MSc Urban Regeneration and Development | Full Time, Part Time |
| University College London | BSc Hons – Planning and Real Estate | Full Time, Part Time |
| | BSc Hons – Project Management for Construction | Full Time, Sandwich |
| | BSc Hons – Urban Planning Design and Management | Full Time |
| | MSc Built Environment: Sustainable Heritage | Full Time, Part Time |
| | MPlan – City Planning | Full Time |
| | MSc Construction Economics and Management | Flexible Learning, Part Time, Full Time |
| | MSc Geospatial Sciences | Full Time, Part Time |
| | MSc Housing and City Planning | Full Time, Flexible Learning |
| | MSc Infrastructure Investment and Finance | Part Time, Full Time, Flexible Learning |
| | MSc International Planning | Full Time, Flexible Learning, Part Time |
| | MSc International Real Estate and Planning | Full Time, Part Time, Flexible Learning |
| | MSc – Mega Infrastructure Planning Appraisal and Delivery | Full Time, Flexible Learning, Part Time |
| | MSc Project and Enterprise Management | Full Time, Part Time |
| | MSc Spatial Planning | Full Time, Flexible Learning, Part Time |

| University / Institution | Course | Mode |
|---|---|---|
| University College London | MSc Sustainable Urbanism | Full Time, Flexible Learning, Part Time |
| | MSc Urban Design and City Planning | Full Time |
| | MSc Urban Regeneration | Full Time, Part Time, Flexible Learning |
| University of Greenwich | BSc Hons – Quantity Surveying | Part Time, Sandwich, Full Time |
| | MSc Construction Management and Economics | Full Time, Part Time |
| | MSc Construction Project Management | Distance Learning, Full Time, Part Time |
| | MSc Facilities Management | Full Time, Part Time, Distance Learning |
| | MSc Real Estate | Distance Learning |
| | MSc Real Estate Development and Investment | Full Time, Part Time |
| Harper Adams University | BSc Hons – Real Estate | Sandwich |
| | BSc Hons – Rural Enterprise and Land Management | Degree Apprenticeship, Sandwich |
| | BSc Hons – Rural Property Management | Sandwich |
| | Master of Professional Studies – Rural Estate and Land Management | Part Time, Full Time |
| | MSc Rural Estate and Land Management | Part Time, Full Time |
| Royal Agricultural University | BSc Hons – Real Estate | Part Time, Full Time |
| | BSc Hons – Rural Land Management | Full Time |
| | MSc Real Estate | Part Time, Full Time |
| | MSc Rural Estate Management | Part Time, Full Time |
| SRUC | BA Hons – Rural Business Management | Full Time |
| Robert Gordon University | BSc Hons – Surveying | Full Time, Sandwich |
| | MSc Commercial Practice for the Energy Sectors | Distance Learning |
| | LLM Construction Law and Adjudication | Distance Learning |
| | MSc Construction Law and Adjudication | Distance Learning, Part Time |
| | LLM Construction Law and Arbitration | Part Time, Distance Learning |
| | MSc Construction Law and Arbitration | Part Time, Distance Learning |
| | LLM Construction Law Arbitration and Adjudication | Distance Learning, Part Time |
| | MSc Construction Law Arbitration and Adjudication | Part Time, Distance Learning |

| University / Institution | Course | Mode |
|---|---|---|
| Robert Gordon University | MSc Construction Project Management | Full Time, Part Time, Distance Learning |
| University of Edinburgh | MSc Architectural Project Management | Distance Learning |
| | MSc Geographical Information Science | Full Time, Part Time |
| | MSc by Research – Geographical Information Science | Full Time, Part Time |
| University of Glasgow | MSc City Planning and Real Estate Development | Full Time, Part Time, Flexible Learning |
| | MSc Geoinformation Technology and Cartography | Full Time, Part Time |
| | MSc Geomatics and Management | Full Time |
| | MSc Geospatial and Mapping Sciences | Full Time |
| | MSc International Real Estate and Management | Full Time, Part Time |
| | MSc Land and Hydrographic Surveying | Full Time |
| | MSc Real Estate | Full Time, Part Time, Flexible Learning |
| University of Bath | MSc Conservation of Historic Buildings | Full Time, Part Time |
| University of Leicester | MSc Environmental Informatics | Full Time, Part Time |
| | MSc Geographical Information Science | Full Time, Part Time |
| | MSc Geographical Information Science (with Industry) | Sandwich |
| | MSc Sustainable Management of Natural Resources | Full Time, Part Time |
| Cranfield University | MSc Geographical Information Management | Full Time, Part Time |
| University of Sheffield | MSc Real Estate | Full Time |
| | MSc Real Estate Planning and Development | Full Time |
| | MPlan Urban Studies and Planning | Full Time |
| City, University of London | MSc Real Estate | Full Time |
| | MSc Real Estate Investment | Full Time |
| London School of Economics and Political Science | MSc Real Estate Economics and Finance | Full Time, Part Time |
| | MSc Regional and Urban Planning Studies | Full Time, Part Time |
| University of Exeter | MSc Surveying and Land / Environment Management | Full Time, Part Time |
| University of Oxford | Sustainable Urban Development | Part Time |

# Appendix VII – Survey and Semi-Structured Interview Formats

## A: **Survey Questions – State of Global Surveying Education**

The purpose of the research project is to build on previous research regarding education and pedagogy within surveying. As the global education market diversifies, with an apparent move towards embracing work-based and postgraduate options as a central stream for entrants to the industry, we aim to explore, analyse and represent the current state and likely future directions for surveying education in selected global regions. The project is jointly funded by CHOBE and the RICS.

The project is being led by a team of researchers at Robert Gordon University in partnership with a wider project team from: University of Moratuwa (Sri Lanka); George Brown College (Canada); University of Western Sydney (Australia); Obafemi Awolowo University, Ile-Ife (Nigeria); and, Federal University of Technology, Akure (Nigeria).

In order evaluate the current state and likely future directions for surveying education in selected global regions, you have been invited to participate in our research using a questionnaire format. The responses provided will be reviewed and analysed and will contribute to research currently being undertaken into the state of global surveying education.

You will be asked a series of questions covering a variety of themes within the context of surveying education and current practices.

Professor Richard Laing (Professor of Built Environment Visualisation) and Caroline Hood (Research Assistant) both of the Scott Sutherland School of Architecture and Built Environment at Robert Gordon University, will be responsible for the data collected in this study. The information will be used in a way that will not allow you to be identified individually in any reports or publications. Researchers undertaking research within or outside the EU, and where personal data will be stored within the EU, are required to comply with the requirements of the GDPR from 25th May 2018.

To ensure that personal data is obtained, held, used and stored in accordance with GDPR, RGU has adopted a robust Information Governance Policy. Further information on RGU's data safeguarding policies can be found here – https://www3.rgu.ac.uk/about/planning-and-policy/informationgovernance/data-protection

Data gathered as part of this research will be stored securely in an electronic format and accessed only by the study team. Research data is archived and held indefinitely. By consenting to your participation in this study, you are consenting to your data being used in the way described in this Project Information Sheet. As far as possible your contribution will be kept confidential. Taking part in the research is voluntary. You may choose not to take part or subsequently cease participation at any time without giving reason and with no adverse consequences.

If you have any further questions or concerns about this study, please contact:
Professor Richard Laing
The Scott Sutherland School of Architecture and Built Environment Robert Gordon University
r.laing@rgu.ac.uk

The RGU Data Protection Officer can be contacted as follows:
Data Protection Officer Robert Gordon University
dp@rgu.ac.uk

*Required

1. Email address*

Consent

2. I confirm that I have read and understood the above Project Information for the study and can contact the responsible researcher to ask any questions that I may have*
   Check all that apply.
   - [ ] Yes
   - [ ] No

3. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving reason*
   Check all that apply.
   - [ ] Yes
   - [ ] No

4. I understand that personal information collected about me, that can identify me, will not be shared beyond the study team*
   Check all that apply.
   - [ ] Yes
   - [ ] No

5. I agree to take part in the above study*
   Check all that apply.
   - [ ] Yes
   - [ ] No

6. I agree to the use of anonymised quotes in published research*
   Check all that apply.
   - [ ] Yes
   - [ ] No

Questionnaire

7. Please state the geographical location of your institution, e.g. Canada, Nigeria, United Kingdom

8. Please indicate the global surveying disciplines taught within your department (tick as many as appropriate)
   Check all that apply.
   - [ ] Building Surveying
   - [ ] Quantity Surveying
   - [ ] Estates and General Practice Surveying
   - [ ] Land Surveying
   - [ ] Planning & Development
   - [ ] Construction Project Management

9. Please indicate the number of academic (including research) staff currently employed within your department*
   Mark only one oval.
   - [ ] 0–10
   - [ ] 11–20
   - [ ] 31–40
   - [ ] 41–50
   - [ ] 50+

10. What proportion of your staff (%) teach and/or research within the discipline areas of surveying?
Check all that apply.

| | 0–25% | 26%–50% | 51%–75% | 76%–100% |
|---|---|---|---|---|
| Teaching only | ☐ | ☐ | ☐ | ☐ |
| Research only | ☐ | ☐ | ☐ | ☐ |
| Teaching and research | ☐ | ☐ | ☐ | ☐ |

11. Please indicate the average number of graduates from your department each year (undergraduate only)*
Mark only one oval.
- ☐ 0–25
- ☐ 26–50
- ☐ 51–75
- ☐ 76–100
- ☐ 100+

12. Please indicate the current number of surveying or surveying affiliated postgraduates (including PhD students) located within your department*
Mark only one oval.
- ☐ 0–25
- ☐ 26–50
- ☐ 51–75
- ☐ 76–100
- ☐ 100+

13. Please provide a high-level description of your department's policies in relation to the following: (i) staff selection; (ii) staff recruitment; and, (iii) staff retention*

_____

_____

_____

14. What are the 3 main challenges faced in relation to retention of staff?*

_____

_____

_____

15. What percentage of staff are actively engaged in: (i) ongoing research projects; and, (ii) ongoing consultancy work?*
Mark only one oval per row.

| | 0–25% | 26%–50% | 51%–75% | 76%–100% |
|---|---|---|---|---|
| Ongoing research projects | ☐ | ☐ | ☐ | ☐ |
| Ongoing consultancy work | ☐ | ☐ | ☐ | ☐ |

16. To what extent do you agree or disagree with this statement: "Research has an important role in my department"?*
Mark only one oval.
- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly Agree

17. To what extent do you agree or disagree with this statement: “There a strong relationship in my department between research and teaching”?*
    Mark only one oval.
    - [ ] Strongly disagree
    - [ ] Disagree
    - [ ] Neutral
    - [ ] Agree
    - [ ] Strongly Agree

18. Describe your opinion on current resourcing levels for your department (both financial and human resource)*

19. Do you feel that the following are likely to become significant routes to surveying education in the next 5 years? *
    Mark only one oval per row.

| | Yes | No | Not Sure |
|---|---|---|---|
| Graduate apprenticeships | ☐ | ☐ | ☐ |
| Continuing Professional | ☐ | ☐ | ☐ |
| Development (Masters) Continuing Professional | ☐ | ☐ | ☐ |
| Development (short courses) | ☐ | ☐ | ☐ |

20. To what extent do you agree or disagree with the statement: “Provision has been made in my department for Continuing Professional Development for existing professionals to update their skills with respect to emerging technologies”?*
    Mark only one oval.
    - [ ] Strongly disagree
    - [ ] Disagree
    - [ ] Neutral
    - [ ] Agree
    - [ ] Strongly Agree

21. What 3 key changes would you like to see in the field of surveying education? *

22. On a scale of 1-5, with 1 being “unimportant” and 5 “vital”, how important do you feel practical experience (during the course) is for new graduates *
    Mark only one oval per row.

| | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| As an accredited part of the course | ☐ | ☐ | ☐ | ☐ | ☐ |
| During vacation time | ☐ | ☐ | ☐ | ☐ | ☐ |

23. To what extent do you agree or disagree with the statement: “There is an important role for diversification of skills within the profession”.*
    Mark only one oval.
    - [ ] Strongly disagree
    - [ ] Disagree
    - [ ] Neutral
    - [ ] Agree
    - [ ] Strongly Agree

24. Does your department take steps to collaborate with schools to encourage young women to enter into STEM professions?*
    Mark only one oval.
    - [ ] **Yes**
    - [ ] **No**
    - [ ] **Not sure**

25. What steps (if any) does the department take to promote equality and diversity within surveying education and the wider profession *

26. To what extent would you agree or disagree with the following statement: “My department is taking a proactive approach to the integration of emerging technologies into its future strategies and development”?*
    Mark only one oval.
    - [ ] Strongly disagree
    - [ ] Disagree
    - [ ] Neutral
    - [ ] Agree
    - [ ] Strongly Agree

27. Please provide contact details (name and email) should you be willing to participate in further research relating to the study

    A copy of your responses will be emailed to the address you provided

## B: **Semi-Structured Interview Guide**

*Opening question*

- From your perspective as a course leader/head of school, what are the main challenges facing the surveying profession in 2019?
  - Depending on the answer, this could be followed up with questions relating to staffing/resource levels/readiness of graduates/financial concerns/role of RICS/CHOBE or other issues raised by the interviewee

*Staff qualifications and policies around selection, recruitment and retention*

- What are the minimum qualifications expected of the staff who teach on surveying courses?
- What does the staff recruitment process involve?
- (if applicable) how long is the probationary period?
- Do you have any retention policies for staff?
- Are your staff salary levels regulated through national pay spines, or locally, or are the determined by supply and demand? (Lecture (contract/temporary), Senior Lecturer (contract/permanent), Course Leader, Professor etc.)

*State of research and consultancy*

- Please describe the interrelationship between research and teaching within your department
- How much staff time is allocated to research activities/are there any dedicated staff for research?
- Are there any bidding targets assigned to staff/staff/number of bids submitted per annum?
- Can you provide a broad number/value of research projects undertaken over the past 5 years?
- How would you characterise the relationship of your department with industry and key stakeholders?

*Employability levels and salaries*

- Can you describe any challenges faced by graduates from your department in securing employment?
- How can universities ensure that graduates are equipped to deal with the changing needs of clients? [thinking about diversification of skills – perhaps a better way to word the question?]
- What are the typical destinations of graduates from your department?
- Do your graduate s

*Resourcing*

- Can you please describe the main changes and challenges which have faced resourcing in your department in the past 5 years? For example, student fees, government support, and so on.
- Does your department have a 'normal' staff: student ratio?
- Does that ratio vary between courses?

*Alternative providers: challenges and opportunities*

- Who are the alternative surveying education providers within your region/country?
- Are there any challenges/opportunities associated with these alternative service providers?
- Do your department's courses articulate/connect with other higher or lower awards (e.g. advanced entry, and so on)?
- Thinking about the different routes to chartership (higher education – undergraduate/postgraduate; apprenticeships; industry experience), how would you describe attempts by the surveying profession of ensuring diversity and equality of opportunity? [this question would need to be adapted for countries without RICS accredited courses?]
  - If not discussed – follow up question on role of apprenticeships and alternative routes to the profession

*Examples of good practice and observations about future strategy and development.*

- Thinking about the changing role of surveyors as technology becomes more prevalent and traditional surveying tasks are at risk of automation, what role can you foresee universities having in the future up-skilling and retraining of those already in the profession
- How do you foresee emerging technologies impacting upon both your department and the wider profession in the next 5 years?
- Can you describe how sustainability and sustainable practices feature within your courses?

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