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Centre for Environmental Strategy Course Review: Overall summary

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CES Course Review: Overall summary

Introduction

The Centre for Environmental Strategy commissioned market reviews of all three types of courses it offers for postgraduates:

- Engineering Doctorates
- taught Masters courses, and
- continuing professional development courses (CPD).

The objectives for each review were similar, but we examined each type of course separately. Each part of the review is described in full elsewhere. This overall summary draws together the main findings across all three reviews.

Purpose and conduct of the market reviews

The Centre for Environmental Strategy commissioned the reviews of the market for its courses:

- to inform its strategic decisions about future provision
- to review its offerings with a view to raising the intake for these courses
- to better understand the position and potential of taught courses and research degrees within CES's portfolio, and
- to establish how much interest there is from UK employers in postgraduate courses on sustainable development, and whether this is expected to grow.

Because of constraints of time and funding, the review was for the most part restricted to information collected from the internet (see main reports). This restriction is positive in that it reflects how a prospective individual candidate for searching for such courses, or indeed industrial employers seeking to know what postgraduate training provision is available for their staff, may initially attempt to find out more about the CES courses and how they compare with competing courses available in related topic areas elsewhere in the UK.

In particular, the CES sought answers to three specific questions relating to its masters courses:

- a) What competing courses are on offer in the UK?
- b) What are CES's Courses' 'unique selling points'?
- c) Are there gaps in the market for CPD courses that Surrey could exploit?

This report summarises the findings of each review, draws a series of conclusions from the information collected about the market for courses, and makes recommendations about what the CES needs to do to promote its courses better. The report is divided into four sections:

1. General findings that relate to all CES courses
2. Findings relating to the EngD courses
3. Findings relating to Masters courses
4. Findings relating to CPD courses.

Each section has a series of conclusions and recommendations for the courses concerned at the end.

SECTION 1: General findings relating to all courses

Government policy

After a period of neglect, there has been a flurry of recent Government activity that may impact on postgraduate education (in sustainability).

- The Browne Review (2010) noted that it is possible that in future, if students are paying higher fees to enter undergraduate education, they will be less likely to participate in postgraduate study and so recommends that trends in postgraduate study should be monitored carefully.
- However the Review has concluded that there is no evidence that changes to the funding of student finance are needed to support student demand or access to postgraduate education.
- This analysis has been criticised as complacent by the National Union of Students whose own 2010 survey suggests that finance is already a significant barrier to postgraduate access.
- The Chancellor's Comprehensive Spending Review (2010) has indicated that the higher education sector will now be shaped by thousands of individual consumer choices and so there are expectations that the sector will change radically over the next 10 years, with unclear impacts on postgraduate education.
- Over the past decade, postgraduate education has grown sharply, mainly through expanded recruitment of overseas students – and there are concerns that this will lead to further erosion of the UK research base.
- Higher Education Institutions (HEIs) are expected to seek to recruit more postgraduate students since there is no cap to the fees they can charge at this level.

Growth in provision of postgraduate courses in the UK

During the lifetime of the Environmental Technology EngD, the provision of postgraduate courses in the UK has grown enormously.

- The Smith Review (2010), *One Step Beyond*, on making the most of postgraduate education, indicates that provision has grown by 38% over the past 12 years, with almost a quarter of students in UK HEIs taking a postgraduate qualification, bringing in an income of over £1.5 bn in 2008-9.
- Fees rose sharply by 48% (in nominal terms) between 2001-2 and 2007-8.
- The *One Step Beyond* Report concludes that the dedicated funding for wider skills training for research students, provided by UK Research Councils, has been extremely effective.
- However it also concludes that postgraduate students need appropriate support, information and advice to get the most from their experience but that this currently lags behind what is being offered to undergraduates
- The *One Step Beyond* report also recognises the growth over the past 20 years in the provision of professional doctorates and recommends that HEIs should work with Research Councils to develop more multi-disciplinary Centres for Doctoral Training: the RCUK has backed this recommendation.

Growth in Industrial Doctorate Centres and other forms of Professional Doctorates

The EPSRC's Engineering Doctorate Scheme was reviewed in 2007.

- The review panel recommended the extension of such provision, leading to the establishment of the current cohort of 19 Industrial Doctorate Centres, including the continuation (in an evolved form) of some former EngD Centres.
- As a result of this policy, the SEES now faces more direct competition for students, especially from those IDCs recruiting in the same industry sectors, see below.

- This competition is compounded by the growth in other forms of professional doctorates, especially those being offered in Million+ HEIs (post-1992).

Growth in private sector provision of postgraduate courses

Universities UK (UUK) has recently (2010) published a report illustrating how the private higher education sector is emerging as growing force in the UK as well as elsewhere.

- It notes that the CBI Higher Education Task Force has pointed to the government seeing teaching contracts with private sector providers as a way of reducing costs to the Treasury.
- The UUK Report documents a series of threats, risks and challenges to traditional providers from the growth in private sector, including at postgraduate level, see main text for details.
- Examples are given of the types of private sector provision at the postgraduate level already in place in the UK: none of those in the UUK Report are currently direct competitors to the SEES – but one of the providers cited, UWIC, is already validating a Professional Doctorate for the Centre for Alternative Technology in an industry sector (construction) from which the Environmental Technology EngD serially recruited.

Conclusions and recommendations for all courses

Changes in higher education over the next five years

CES asked us to investigate two strategic questions that relate to all its postgraduate courses, which relate to the nationwide changes affecting higher education and sustainable development as follows.

1. *How will changes in UK policy affect HE postgraduate courses in sustainable development? (e.g. student numbers, etc.)*

Although postgraduate education has grown sharply, mainly through expanded recruitment of overseas students, the 2010 Browne Review has noted that it is possible that, in future, if students are paying higher fees to enter postgraduate education, they will be less likely to participate because of debts incurred on undergraduate courses. However it seems the Review deemed this unlikely since it concluded that there is no evidence that changes to the funding of student finance are needed to support student demand or access to postgraduate education. The NUS has criticised this analysis as complacent since its own 2010 survey suggests that (personal) finance is already a significant barrier to postgraduate access.

How this debate relates to willingness of potential candidates to undertake an *industrially-sponsored*, work-based postgraduate course is not evident. Should the CES plan for a diminishing market due to higher undergraduate debt, especially since it recruits from within the UK and not overseas? Or does industrial-sponsorship make the course more immune than other forms of postgraduate education to levels of graduate debt - but more vulnerable to the peaks and troughs of the economy? This review cannot answer such questions. These issues require further examination, either through interrogation of prospective students or by tapping into the collective understanding of the alumni and their sponsors.

The 2010 One Step Beyond Review on making the most of postgraduate education recognised the growth over the past 20 years in the provision of professional doctorates and recommended that HEIs work with Research Councils to develop more multi-disciplinary Doctoral Training Centres. The RCUK has backed this recommendation.

The EPSRC's 2007 review of its Engineering Doctoral Programme recommended its extension. As a result, there are now 19 Industrial Doctorate Centres, some (such as SEES) continuations of previous EngDs. This increase in IDCs and the growth in other forms of professional doctorates, especially in Million+ HEIs, means the SEES now faces increased competition for students, particular where competitor courses recruit from the same industry sectors, see below.

A UUK 2010 report has illustrated the growth in private sector provision in HE, including postgraduate courses. None of the 'case study' examples given in the report map directly on SEES's industry sectors. But one of the providers cited (UWIC validating the Centre for Alternative Technology) is already offering a professional doctorate in one of the sectors (construction) from which the Environmental Technology EngD recruited extensively.

All of these developments mean that, over the next 5 to 10 years, the SEES should expect to see increased competition from both public and private sector provision. This increased competition is particularly important because the SEES currently lacks a unique selling point even in relation to its existing competitors, see below.

2. *How much interest is there from UK employers in courses on sustainable development, and is this expected to grow?*

Our review of the job advertisements in the environmental/sustainability sector set out to identify what skills and experience sets employers are explicitly looking for. We found that specialist knowledge in the field relevant to the job is a requirement of almost all recruiters. The other most commonly asked for skills are project management and communication skills, both written and verbal.

An interest in and knowledge of sustainability is also very commonly required for these jobs, although not all specifically ask for it. Leadership and team-working skills are also commonly asked for. In terms of experience, most recruiters ask for experience in the relevant field (although only one specifies exactly how many years of experience are required). None of the job advertisements we examined requires research skills.

We also carried out five telephone interviews with large employers of postgraduate students, all of whom employ people that have completed EngDs. To summarise, a majority of these employers say they are looking for skills relating to:

- Environmental legislation
- Ability to work as self-starters
- Ability to get on with others, and
- Communication skills.

As to the question of whether interest in courses on sustainable development is set to grow, there is almost no data available on long-term trends in recruitment from sustainability courses. However, in the short-term there is significant evidence that fewer employers will recruit staff with skills in sustainability because of the Comprehensive Spending Review. This means that many government agencies that have in the past recruited postgraduate students from such courses are very unlikely to recruit in the next two years – Natural England, for example, has announced that it has ceased all recruitment.

SECTION 2: Findings relating to the Engineering Doctorates

Employer demand

Examining current advertisements for jobs relating to environmental and sustainable engineering identified 18 jobs that graduating EngD students might apply for. Nearly all of the employers cited specialist knowledge relevant to the field of work in their advertisements. Most of them also asked for project management skills, and written and verbal communications skills.

Many employers also asked for an interest in and knowledge of sustainability, and leadership and team-working skills are also common requirements. However, none of the job advertisements referred to research skills.

We also carried our interviews with five large firms known to recruit EngDs in the environmental and sustainability field. To summarise, a majority of these employers say they are looking for skills relating to:

- Environmental legislation
- Ability to work as self-starters
- Ability to get on with others, and
- Communication skills.

Competing doctoral courses

There are 14 competitor postgraduate courses by research with taught elements in the field of sustainability - relating to the construction, energy, environment, engineering, water and transport sectors - identified in this review. These are sectors from which the EngD in Environmental Technology recruited and so these courses can be expected to act as competitors for students with the SEES.

- 10 of these courses are IDCs, the other four Professional Doctorates - the latter primarily at Million+ HEIs.
- Between them, these courses are seeking to recruit 100+ students a year, with the SEES another 12
- Typical cohort size is 10-12 students (but Southampton's IDC recruits two or three times as many)
- All of the IDCs are four year courses (full time): the Professional Doctorates are 3 years (full time) and up to 8 years (part time).
- Professional Doctorates are aimed at those who are already 'professionals' or working in 'built environment/engineering professions': IDCs do not specify previous work experience but make providing this a defining feature of the course on offer - the extent of this varies considerably from 'some time ... where appropriate' to 70-80%.
- There are core shared skills that the IDCs suggest students will acquire on these courses.
- The most frequently cited set of these are, in rank order of mention: research methods, management, sustainability, technical skills and leadership – SEES cites all of these.
- A less frequently cited second set of skills is: transferable skills, organisation/time management, team work, communication, reporting/publishing, and environmental – SEES does not cite the first three of these.
- There is only one skill that their websites suggest is being taught on all 15 of the courses: research methods.
- Two skills are cited by only one IDC each: critical thinking and risk management (the latter by SEES).
- So the SEES shares many common ambitions with the other 14 courses about the skills it is seeking to impart.
- As a result, the SEES does not have a clear USP that provides it with differentiated market niche in relation to these competitor courses.
- From website-based information, the SEES appears as just one of a large number of postgraduate courses, operating in the area of sustainability and overlapping industry sectors, offering a similar set of skills via taught course elements and research training.

Institutional requirements for chartered status

Information has been assembled on the requirements for achieving chartered status from the Engineering Council and its Professional Engineering Institutions (PEIs: CIBSE, CIWEM, EI, IChemE, ICE, IET, IMechE and IStructE) along with the IEMA. This is presented below specifically as it relates to sustainability and to those taking EngDs.

- Examining the institutions' websites reveals that most provide little information about the specific skills that they are seeking from candidates for chartered status.

- Such skills are typically alluded to indirectly through the forms of undergraduate and postgraduate courses that are deemed to meet their professional development requirements.
- The experience sought by the Engineering Council and its PEIs takes the form of professional development that generally takes place in the working environment, building on knowledge and understanding acquired from education.
- It can, for instance, derive from work-based degree programmes.
- Only the IChemE explicitly acknowledges that one year of a completed EngD can contribute to the evidence of four years working in an environment where a prospective CEng candidate will have been using chemical engineering principles.
- The Engineering Council published its UK Standards for Professional Engineering Competence in 2003: this makes reference in section E3 to a competence “to undertake engineering activities in a way that contributes to sustainable development” and lists the skills – such as ‘understand and encourage stakeholder involvement’ and ‘carry out environmental impact assessments’ required for this.
- The Engineering Council has also issued Guidance on Sustainability for the Engineering Professions which makes explicit the role of professional engineers in sustainability and elaborates each of the six principles they should seek to practice: it does not directly specify the skills that they will need to do so.
- The IEMA does make direct reference to sustainable development in its statement of the skills required to become a Chartered Environmentalist – such as analysis and evaluation, leadership, sustainable management, and interpersonal skills.
- Completing SEES taught modules makes Research Engineers eligible for Associate membership of the IEMA: chartered status is dependent on an evidence based report of experience supplemented by professional review interview.
- None of the professional institutions map out the specific skills needed for chartered status to the level of detail, or in a form, that maps directly on to how skill acquisition is described on the websites for IDCs and professional doctorates.

Conclusions and recommendations for the EngDs

CES asked us to investigate three specific questions relating to SEES EngD course, as follows.

- a) *Are there specific bodies or learned societies the University should persuade to accredit the EngD (e.g. IEMA, who already accredits the taught programme; Institute of Biology)?*

The IChemE already acknowledges that one year of a completed EngD can be counted towards the four years work experience it requires for CEng status, given appropriate course content. Apart from the IEMA, it is not apparent to prospective SEES students (from either the SEES’s own website or from the websites of the Engineering Council and other PEIs) that the EngD contributes to them attaining chartered status. It would be very desirable to establish the EngD as a contribution to achieving chartered status for relevant engineering professions. Further negotiations with the Engineering Council and its relevant PEIs are required on this issue, leading to more explicit information on the SEES website.

- b) *What competing courses are on offer in the UK?*

The review has identified 14 other IDCs and Professional Doctorate courses, serving the construction, energy, engineering, environment, water and transport sectors, that appear to compete directly with the SEES for recruitment of students. The recommendation of the Open Step Beyond Review, and the RCUK’s endorsement of this, means that the number of competitor courses funded by research councils is likely to grow. Over the next 5-10 years, the UUK’s report suggests that there is also likely to significant growth in private sector provision of postgraduate education (with taught elements), possibly in-house within large corporate organisations or with specific occupational regulatory associations.

c) *What are the EngD's 'unique selling points'?*

At present, the SEES's sole USP would appear to be that it offers a module in risk assessment. Instead the SEES shares with the other IDCs and professional doctorates a broad set of first and second order skill sets. This means that the SEES does not have a differentiated niche position in the market place. Developing such a niche position would itself be a USP that enabled the SEES to distinguish itself from the shared offer (overlapping skill sets) of its 14 direct competitor courses.

d) *Are there gaps in the market for postgraduate courses that Surrey could exploit?*

There are no obvious gaps in the market that can be discerned from examining the requirements for chartered status of relevant professional institutions.

Nor are there obvious gaps emerging from our interviews with employers or university careers advisors.

SECTION 3: Findings relating to Masters courses

Competing courses

When its three masters courses – in Environment Strategy, Corporate Environmental Management, and Sustainable Development – were last subjected to periodic review in 2008, CES stated that the MSc in Environmental Strategy, for instance, was “unique and therefore subject to little competition in the Southeast”. No systematic attempt was made to identify the nature of this competition.

In this review a systematic approach was adopted to identifying competing courses. Information has been assembled, from ‘comprehensive’ internet searches (see main report) about competing courses in one particular region of the UK – the East of England – chosen because it has similarities to Surrey's region. The East of England has a similar relation to London (which is the main but highly differentiated source of competition for masters courses in the UK), it is reasonably self-contained like the South East, and it has similarly dispersed locations for its institutions of higher education (HEIs).

There are 235 HEIs in the UK from which potential students can choose courses to attend. Seven of these are in the East of England. Five of these offer courses that compete with those at CES (see main report, Table 1). If the East of England were representative of the UK as a whole, then it might be reasonable to expect somewhere in the region of 150+ universities and colleges offering masters course in direct or overlapping competition with CES at the national scale. Clearly not all of these would be equally attractive to UK students located in Southern England, especially those tied to places of work and so registered part-time. But this proviso is likely to be less relevant to overseas students, who have been the major growth area in taught postgraduate courses over the last 10 years, (see Part 1 of the Review on the SEES).

Taught postgraduate courses in the region – offering coverage of sustainability, energy and environment – were identified using Find A Masters.com. This website bills itself as “a one-stop shop for students looking for a postgraduate Masters course/qualification within the UK” and as offering a “comprehensive database of MSc, MAs, etc. in the UK and Europe”. This web site is the first result in a Google search for masters courses in the UK and can be assumed to be the starting place that novice, prospective candidates use to begin their own internet searching for courses. Using ‘sustainability’, ‘environment’ and ‘energy’ as undelimited key identifiers jointly selected 3,860 postgraduate courses in the UK as whole: 3217 on ‘environment’ courses, 429 on ‘energy’ and 414 on ‘sustainability’. As these totals reveal, it is evident that the CES masters courses now have to compete in a very crowded market place.

When restricted just to the East of England, internet searches identified 16 taught postgraduate courses with offers covering sustainability, energy and the environment. These courses all compete (directly or indirectly), or overlap (strongly or weakly), with the courses offered by CES (see main report, Table 2). Almost all use vocabulary in their course

descriptions that maps on to the modules run by the CES on its own taught postgraduate courses.

The review revealed that the CES Environmental Strategy masters course does not occupy a strongly differentiated market niche signalled by the possession of a clear and unique selling point. And, since the other two courses share core and elective modules with the Environmental Strategy MSc, it is unlikely that they do either. Instead, all three share points of similarity with almost all of the other taught postgraduate courses identified.

As gleaned solely from their on-line course descriptions, five courses – just in the East of England alone – stand out as having most in common with the CES masters courses. These courses are:

- Cambridge University's MSc in Engineering for Sustainable Development,
- Cranfield University's MSc in Environmental Management for Business,
- the University of East Anglia's MSc in Environmental Sciences,
- the University of Hertfordshire's MSc in Environmental Management, and
- the University of Hertfordshire's MSc in Water and Environmental Management.

All of these courses appear, from their on-line course descriptions, to teach topics covered by at least 4 (of the 11) modules taught on the CES MSc in Environmental Strategy.

But this overlap is much more widely spread than just these five courses. As the review indicates, this can be seen in the widespread teaching of topic areas aligned with CES masters modules. This is most obvious in relation to teaching on aspects of Environmental (Auditing and) Management. Three quarters of the course descriptions make some reference to teaching in this area and more than half of them also appear to refer to Environmental Auditing and Management Systems as well (although they do not all use this particular vocabulary). This overlap is also evident in teaching around four other topic areas as well:

- environmental law,
- environmental science and society,
- sustainable development, and
- environmental economics.

More than a third of the other courses identified –in the East of England alone – are described as teaching these topic areas.

The CES MSc in Environmental Strategy does have characteristics that make it different. It is the only one of these taught postgraduate courses examined to signpost the possibility of some form of work placement, although other courses do draw attention to their close links to industry. But the CES masters courses are not alone in signalling themselves as having accreditation routes to the Institute of Environmental Management and Assessment. The University of Hertfordshire's MSc in Environmental Management for Business shares this distinction. And other taught postgraduate courses, at Cranfield and Hertfordshire, also draw attention to their accreditation by the CIWEM, one of the Engineering Council's PEIs.

The CES masters courses also share characteristics with other taught postgraduate courses on offer closer to home, elsewhere in the Faculty of Engineering and Physics at the University of Surrey. As well as sharing modules with the MScs in Process and Environmental Systems Engineering and in Transport Planning and Practice, as described in the 2008 Period Review, there are also overlaps suggested by their course descriptions with the recently established MScs in Renewable Energy Systems Engineering and Water and Environmental Engineering.

All of these indicators point in the same direction. The CES masters courses are not unique. Instead they are seeking to operate in a very crowded market place and face stiff competition.

Professional institution requirements for Masters courses

As for the EngD, information was assembled from the websites of professional institutions, including the Engineering Council, its Professional Engineering Institutions (PEIs: IMechE, ICE, IStructE, CIBSE, IBiol, CIWEM, IChemE, Energy Institute, IET) and the IEMA, seeking to record how their requirements for professional membership relate to the CES Masters courses. As the review indicates, identifying which masters courses in the UK help fulfil these requirements is far from easy.

As a result, there exists a clearly perceived need to explain to prospective candidates how they can acquire the status of Chartered Engineer as evidenced by the Get Chartered.org website. This offers, as its name suggests, advice on how to become a Chartered Engineer (see main report). The advice it gives is clearer than that offered by either the Engineering Council or its constituent PEIs. Between them, they do not employ a uniform approach to spelling out the relationship between taught postgraduate courses and entry into their forms of membership.

The Engineering Council refers to Professional Engineering MScs, meaning those recognised by its PEIs. It states that, while such MScs are gained through undertaking courses in HEIs, they are treated as part of a would-be chartered engineer's 'professional development' along with work-based experience. Most PEIs make explicit reference to candidates needing to have an MSc or masters level education to become Chartered Engineers.

The IMechE goes further, stating that to become chartered, candidates must have a Masters level education but that this can be achieved either by undertaking an accredited MSc programme or by further learning that demonstrates additional knowledge and understanding. In this sense, possessing an MSc may be the PEI's (and the Engineering Council's) preferred route to achieving the status of Chartered Engineer but it is not the only one. A work-based route is also possible.

Accredited (science-based) masters level courses have to meet the FLTM requirements (Further Learning to Masters Requirement). Further Learning is included in UK-SPEC (see previous SEES Review) as a way for whose initial academic qualifications do not meet in full the exemplifying requirements for Chartered Engineer (CEng) or Incorporated Engineer (IEng) to demonstrate the required knowledge and understanding.

Some PEIs such as CIBSE list specific MScs as suitable further learning to meet the academic requirements for CEng registration but those at Surrey University are not listed amongst these. Others such as the IET do list some at Surrey University but the CES masters courses are not amongst these. Other PEIs, such as the ICE and the Energy Institute, simply refer to accredited MScs as being those listed by the Engineering Council. The IEMA, which confers the title of Chartered Environmentalist, signals that MSc courses may be awarded units that can be used, along with work experience, to achieve this status. The IEMA's (2010) Full and Chartered Environmentalist (MIEMA and CEnv) Membership Pack lists in detail the IEMA's membership criteria and the key competencies required for chartered membership. However, it does not identify any of the masters course whose units offer routes into becoming a Chartered Environmentalist (such as the CES masters courses).

In short, it is difficult for prospective students to evaluate, from the information provided on their websites by the relevant professional institutions, whether the CES taught postgraduate courses contribute to gaining the status of Chartered Engineer.

Employers' expectations of Masters courses

Telephone interviews were undertaken with nine employers focused on their expectations about future recruitment of people with masters qualifications in sustainable development/environmental technology. The employers interviewed were selected from those who have a known interest in this area because they have previously sponsored EngD students.

All of these employers (except one) are large firms (see main report), with either a major presence globally or specifically in UK. They each have large workforces including professionals providing services typically related to the construction and operation of the built environment or natural resources. All need to be able to recruit engineers skilled in energy, environment and sustainability issues.

At each employer, senior staff – typically Recruitment or Human Resources Managers – were asked three questions:

- a) Do you recruit people with Masters Degrees in sustainable development/ environmental technology?
- b) What skills would you anticipate those finishing masters in environmental technology would have?
- c) How do you expect your requirements will change over the next five years? (Are you likely to employ more or less people with these skills?)

All nine employers reported that they do recruit people with masters in environmental technology. But they are divided about what will happen to their recruitment of them in future. Five employers expect to recruit more of them. Of the other four employers, one is equivocal, one says it depends what happens to the economy, another is uncertain (because of its sources of funding) and the last gave a very detailed answer, itemising their expected growth in recruitment of postgraduates in general and in sustainability in particular over the next 2 to 5 years, as related to the strength of economic recovery.

The nine major employers interviewed anticipate that postgraduates will have acquired a diverse and wide-ranging set of skills (see main report, Table 5). But they are divided about the types of skills they expect those emerging from taught masters course to have gained or developed. Between them, they identified three types of skills:

- personal skills,
- general skills, applicable in any sector, and
- discipline skills, those specific to the application of sustainable development and environmental technologies particularly to the natural and built environments.

One employer only expressed interest in students on taught postgraduate courses emerging with developed personal skills. Conversely, two other employers only expressed interest in postgraduates emerging with discipline skills. Two others made no mention of discipline skills, concentrating on general skills applicable to any sector.

These varied and divergent responses suggest that there is no single, simple set of skills that employers are looking for in those emerging from taught postgraduate courses. Instead there are three separate types of skills – personal, general and discipline based – that they want those they recruit to display. Some employers emphasise one type, others another. Some specify a mixture of personal and general skills. Significantly, however, for the CES, those looking for the specific discipline skills – which are a major emphasis in what CES offers on its masters course – are in a minority. Just two of the nine employers interviewed here specified particular discipline skills as part of their recruitment requirements.

Conclusions and recommendations relating to Masters courses

The CES requested that the market review of its masters courses address a specific set of questions:

- a) What competing courses are on offer in the UK?
- b) What are the Masters Courses' 'unique selling points'?
- c) Are there gaps in the market for postgraduate courses that Surrey could exploit?

The conclusions drawn here from the review are offered against each of these specific questions set by the CES.

What competitor courses are on offer in the UK?

The CES taught postgraduate courses are far from unique or without significant competition. In the UK as a whole, there are over 3,000 masters courses with the words 'environment', 'sustainability' or 'energy' in their titles. In the East of England alone, there are 16 postgraduate courses whose course descriptions suggest that their offers at least overlap, if not compete directly, with the offers of the CES masters courses. If this region were representative of the UK as whole, then CES might expect to discover several hundred competitor postgraduate courses located in England, Wales, Scotland and Northern Island.

To stand out in this crowd for prospective students, the CES masters courses would need four critical success factors:

- a strongly differentiated market niche,
- signalled by clear and unique selling points,
- offered through a highly accessible web site, and
- containing competition-beating information.

This analysis suggests that CES needs to return to the web pages that it uses to support its three taught postgraduate courses, by providing information to prospective students, to ensure that they meet each of these critical success factors. Our experience of using these pages for this review, and comparing them with the web pages supporting other competitor courses, suggests that they do not.

What are the Masters Courses' 'unique selling points'?

The CES masters courses are not unique. In fact they face stiff competition. They do not, as the 2008 Period Review assumed, occupy a distinct market niche or have a unique selling point in relation to taught postgraduate courses in other HEIs in the UK. Instead the opposite is true. They need to be recognized as operating in market place packed with stalls selling similar wares. And here standing out from the crowd to attract the attention of novice, prospective students depends on the distinctiveness and clarity of the offer being made by these courses. As above, this emphasizes the need for the CES masters courses to have highly accessible web sites that contain competition-beating information.

But more is required than just upgrading the quality and presentation on show on the web pages for these three masters courses. CES also needs to revisit the offer for each of its three taught postgraduate courses in the light of the analysis of its competitor courses provided by this review. In particular, it needs to address what it is that could make its courses distinct. It seems unlikely that the key differentiators here will be the discipline-based topics that form the focus of its (core and elective) modules. It shares teaching in these topic areas with too many of its competitors. Instead its differentiation could lie in the skills set that it explicitly offers to those who enrol on these courses, see below.

Are there gaps in the market for postgraduate courses that Surrey could exploit?

Since the 'environment', 'energy' and 'sustainability' market places for postgraduate course are so crowded, it will be difficult for CES to identify new, unoccupied positions in them solely in terms of the discipline-based skills it is offering. Instead CES could differentiate itself by:

- making explicit the three types of skills sought by employers in those graduating from masters courses: 'personal', 'general' and 'discipline' skills
- indicating to prospective students how they will acquire and/or develop each type of skill whilst on the masters courses, and
- signal its 'placement' offer – which is one of the courses' only unique selling points at present – as a means of both demonstrating these skills to a would-be employer and exercising them in practice whilst still on the course.

SECTION 4: Findings relating to CPD courses

CPD: Professional institutions' requirements

All of the professional institutions examined require their members to undertake CPD activities, see Table 1 below. However, what CPD means and what forms it can take are not universally agreed. There is agreement that CPD is some form of professional development undertaken after achieving professional qualification. A composite list of CPD activities, recognised by the professional institutions examined, includes:

- in-house courses
- external courses
- work-based learning, e.g. codes observed, conflicts resolved
- distance learning programmes
- self-directed private study
- preparation and delivery of lectures and presentations
- preparation of refereed papers
- attendance at lectures, seminars or conferences
- coaching, tutoring, monitoring, teaching
- secondment and special projects
- relevant voluntary work
- reading books, journals and technical material
- researching websites and blogs
- sharing knowledge
- carrying out site visits and study tours
- visiting trade shows and exhibitions
- carrying out voluntary activities, and
- teaching others.

Some professional institutions discriminate between formal (structured) and informal (unstructured) CPD: some do not. Where they do use these labels, they do not necessarily agree about which activities belong in each category.

The suppliers of CPD, recognized by professional institutions include:

- the professional institutions themselves or their CPD provider
- their own regional organisations
- other Learning Channels (such as the NBS: National Building Specification)
- universities and colleges
- other professional bodies

- research bodies (such as BRE, previously the Building Research Establishment)
- training companies, and
- others

where this last category even encompasses training material provided by private companies (often about their own products)¹. All professional institutions expect their members to keep a record of their CPD activities (sometimes on line). They also typically leave members to self-certify what they have done, unless some form of third party assessment is made at the time of CPD provision.

We have identified a trend towards aggregation in the provision of CPD (along with other services) in this review. Such aggregation is taking two forms:

- a) strategic alliances between professional institutions themselves, and
- b) strategic alliances between professional institutions and (very large) private companies.

One example of a), a Memorandum of Understanding (MoU) signed by the ICE, IMechE and IET, is given in the main text. These three PEIs have put together a joint Calendar of Events throughout Europe that their all of their members can attend. Similarly, one example of b), a MoU between BAE Systems and six engineering institutions, is given in the text. Through BAE Systems' Skills 2020 programme, this will call upon the professional institutions to provide ongoing advice and mentoring for those applying for CEng status.

Behind these aggregation strategies – and made more accessible by the MoUs – lie the CPD offerings of individual PEIs. These can be highly elaborate and of long standing, as in the case of CIBSE (the Chartered Institute of Building Services Engineers). This has long had a centralized provider of CPD, its Mid Career College, which delivers courses regionally. (These courses include 'energy efficiency and sustainability', areas addressed by the CPD courses offered by CES.) In addition, regional CIBSE organizations arrange regular Technical Meetings – though these are not billed as CPD events. Such meetings, which can touch upon topics taught on the CES CPD courses, are run at four locations in the South East – but not in Guildford.

Competing CPD courses

Three key identifiers – 'energy', 'environment' and 'sustainability' – were used in internet searches to identify CPD courses from other providers that are in (direct or indirect) competition with the CPD courses offered by CES. Ten providers (universities and professional institutions) were identified as offering 31 courses that appeared to compete with those at CES, see Table 2. This list should be seen as indicative, not comprehensive. The length of the courses on offer ranges from 1 day (6 to 8 hours) to 5 days (like those offered by CES). Long (4 or 5 day) courses are the most common: there are 14 of these. There are only half as many medium-length (2 to 3) day courses and about the same number of short courses (1day). The price of courses varies considerably and is only weakly related to their length. Prices range from £125 for a short course to £1,380 for long ones. CES courses, priced at £795 for 5 days, look relatively inexpensive (but it is not possible to tell from the CES web site whether this price includes accommodation or VAT).

As Table 3 shows, 10 of the CPD courses identified in the internet searches do not, from their course descriptions, appear to teach topics covered by the CES CPD courses. However, 21 of the courses do. The overlaps are not large, typically covering just one of the modules offered by CES. Even the two courses with the largest overlap – Cranfield University's Environmental Valuation and its Principles of Sustainability – only teach topics aligned with two of the CES modules.

However, some CES modules are covered by a significant minority of the CPD courses examined. Environmental Management and Auditing is taught on six of these courses, Integrated Assessment and Environmental Law on four of them, and Sustainable Development on three. Only two CES modules are not covered by any of the other courses examined: Environment & Development and Transition to a Low Carbon Economy (but see proviso in main text about the second of these).

The overlaps shown in Table 3 differ slightly from those shown for taught postgraduate courses in the previous part of the review. This suggests that, unlike CES, other HEIs do not necessarily offer all the modules on their taught postgraduate courses as stand-alone CPD courses as well.

Employers' approaches to CPD

The nine employers interviewed about their recruitment from taught postgraduate courses were also asked five questions about CPD:

- a) Do your staff do CPD courses in Environmental Technology?
- b) If so, are these in-house, at a university, or another body?
- c) Do you allow or invite external people to attend?
- d) Do you offer CPD certificates?
- e) Do you charge (and, if so, how much)?

Not all of them answered all of these questions.

All but one said that their staff undertake CPD, most commonly as provided by professional institutions and universities: in-house CPD was only mentioned half as frequently. Few employers invite outsiders to their in-house CPD except clients they are seeking to educate. Few issue CPD certificates and none of them said that they charge for CPD.

Conclusions and recommendations relating to Masters courses

The CES requested that the market review of its masters courses address a specific set of questions:

- a) What competing courses are on offer in the UK?
- b) What are the CPD Courses' 'unique selling points'?
- c) Are there gaps in the market for CPD courses that Surrey could exploit?

The conclusions drawn here from the review are offered against each of these specific questions set by the CES.

What competitor courses are on offer in the UK?

The CES CPD courses are not unique and they face significant competition. But, as CPD courses, the CES modules do appear to face less competition than when they are offered as part of a taught postgraduate course. Nevertheless, they do have to compete with CPD courses offered by other HEIs and directly by PEIs. They face most competition on Environmental Management & Auditing. But they face no competition from CPD courses focused on 'energy', ' and 'sustainability' topics at least (see main text), on Environment & Development and Transition to a Low Carbon Economy.

The 5 day CPD courses provided by CES also look to be competitive by price. They appear to be only about half the cost of their most expensive competitors here (but this is difficult to gauge since the CES web site doesn't make clear whether the price cited includes accommodation or attracts VAT).

What are the CPD Courses' 'unique selling points'?

The CES CPD courses are not unique. Instead they are seeking to operate in a fairly crowded market place and face significant competition from both other HEIs and from PEIs. Like the Masters courses from which their content is drawn, the CES CPD courses need four critical success factors:

- a strongly differentiated market niche
- signalled by clear and unique selling points
- offered through a highly accessible web site, and
- containing competition-beating information

This analysis suggests that CES needs to return to the web pages that it uses to support its CPD courses, by providing information to those interested in undertaking CPD, to ensure that they meet each of these critical success factors. Our experience of using these pages for this review, and comparing them with the web pages supporting other competitor CPD courses, suggests that they do not.

Are there gaps in the market for CPD courses that Surrey could exploit?

Even though the 'environment', 'energy' and 'sustainability' market places for CPD courses are not as crowded as those for taught postgraduate ones, it will be still be difficult for CES to identify new, unoccupied gaps in terms of content that it can fill. Instead CES could differentiate itself:

- *by strategic alliance*: given the trend towards aggregations of CPD provision between HEIs and large companies, CES should explore whether it is able to enter into MoUs for post-qualification training with any of the major companies with whom it already has relationships through its EngD and taught postgraduate courses
- *by price*: at present, the CPD courses offered by CES look relatively inexpensive (though this may simply be an artefact of the lack of information provided in the CPD web page) – CES needs to revisit its pricing policy
- *by length* of course offered: most providers only offer a particular course at one length, CES could explore whether each of its modules could be unpackaged and offered on courses of varying length (especially since the price of courses is only weakly related to their length).

Footnotes

- i RIBA, Welcome to the RIBA online CPD,
<http://www.ribaonlinecpd.com/default.asp>