



This section is an extract from the [Engineering Gateways Toolkit for Universities](#)

A Background Research and Institutional Context

STEP

Are the principles and aims of the Engineering Gateways framework understood?

RESOURCES

- [Information for universities](#) [1]
- [Guide to the Bachelors and MSc Degree in Professional Engineering](#) [2]

STEP

Is the department aware of the IEng and/or CEng requirement related to the programmes it intends to offer?

PROMPTS

- Are there IEng and/or CEng qualified staff who can help?
- Are there any Professional Engineering Institution (PEI) nominated liaison officers on staff or in the region who could help?

RESOURCES

- [Benefits of registration with the Engineering Council](#) [3]

STEP

Does the Engineering Gateways programme provide a strategic and operational fit with the university's aims and objectives?

PROMPTS

- Understand the benefits of the Engineering Gateways programme
- Map to university and departmental strategic aims and objectives
- [Check this list](#) of participating PEIs to confirm which disciplines can be supported

RESOURCES

- A summary of the [Engineering Gateways pathway and benefits](#) [2]
- [Interim Review](#) of the Engineering Gateways Development Fund Project (with feedback from all stakeholders) [4]
- [Northumbria University's Work-Based Learning Framework Section 1, Strategic Context](#) [5]

STEP

Does the university have the capability to deliver such a programme?

PROMPTS

- Does your university offer similar programmes that you can learn from?
- What might be the critical success factors? Consider some of those put forward in the report about [existing providers' views](#)
- Have you identified possible challenges? The report into [challenges perceived by new adopters](#) might be useful background

RESOURCES

- Section 1, Institutional Readiness, of the [WBL Maturity Toolkit](#) (especially 1-1, 1-2, 1-10) may be useful e.g. to determine how prepared your department is to offer a WBL degree and what strategies and plans might need to be put in place. This toolkit is diagnostic and does not provide answers; the criteria should be used selectively [6]
- [Northumbria University's Work-Based Learning Framework](#), Section 6, Management and Quality Assurance [5]
- [Kingston University's](#) comprehensive [MALA](#) (Masters Awards by Learning Agreement) framework [7]

B Setting up an Engineering Gateways Programme

STEP

Has the market been assessed?

PROMPTS

- Who is your target audience?
- Is this a student or employer-focused marketing campaign?
- Are you aiming for company cohorts?

RESOURCES

- The HEA CEBE Employer Engagement series [Work-based learning: Working the Curriculum: Approval, Delivery and Assessment](#) [8]
- The CFE 2008 [report](#) on demand for higher level skills from businesses [9]
- The HEA CEBE Employer Engagement series [Engaging Employers - Knowing your Market: Strategy, Communication and Relationships](#) [8]

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Northumbria University

STEP

Do you have employer interest?

PROMPTS

- Consider using existing employer contacts
- Have the right people in the company been targeted?
- Have the appropriate benefits been made clear?
- Have you jointly explored what's needed?
- Is the driving interest for engagement clear?
- Different employers will have different needs

RESOURCES

- Section 5, Partnership Engagement, of the [WBL Maturity Toolkit](#) may be useful, in particular 5-1, 5-2, 5-3 [6]

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STEP

The business case has been developed and approved.

PROMPTS

- Does your university have a template?
- Consider including: target student profile, benefits to the institution, cohort size, discipline area(s), other spin-off opportunities (e.g. KTP), sustainability, costing models, employer engagement

RESOURCES

- [Exemplar headings](#) provided by the [University of Hertfordshire](#) [10]
- [Employer engagement the costs of the development and delivery of work-based learning experiences](#). Report to HEFCE by the South West Higher Level Skills Pathfinder Project [11]
- [Work-based learning costing study](#) HEA [12]

STEP

Will academic staff support the programme?

PROMPTS

- Aim for buy-in at an early stage
- The Engineering Council's lead role lends status and credibility
- The broad range of support across PEIs can attract wide disciplinary interest
- The positive experience of others is a powerful tool

RESOURCES

- [Engineering Gateways case studies](#) [13]
- The [University of Derby's mini case study](#) of the early stages of development [14]
- [List of participating PEIs](#) [15]

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STEP

Programme specifications are completed and programme validation is achieved

PROMPTS

- Consider including employers in your validation meeting
- Bear in mind impact of different methods of delivery, WBL elements, flexibility about credits, timetabling, entry and exit paths

RESOURCES

- [Guide to the Bachelors and MSc Degree in Professional Engineering](#) [2]
- Section 3, [Programme Design](#), of the [WBL Maturity Toolkit](#) [6]

STEP

Do the programme and module learning outcomes map to UK-SPEC?

PROMPTS

- Consider whether to include an introductory professional skills or professional development module

RESOURCES

- [Accreditation of HE programmes](#) [16]
- [UK Standard for Professional Engineering Competence](#) [17]
- This mapping is included in [Kingston University's Learning Agreement spreadsheet](#). [18]
- It is derived from the [University of Hertfordshire's sample Professional Development Audit](#) and sample [learning contract](#). [19] [20]

University of Greenwich

STEP

Is an employer engagement strategy in place?

PROMPTS

- Mechanisms are in place for regular dialogue between partners

RESOURCES

- [Process maps](#) for the Bachelors and MSc in Professional Engineering [21]
- [Strategies for effective employer engagement](#) [22]
- A Regional Examination of Current Practice: [Employer Engagement Strategies that Influence the Learning Experience for Students \(2011\)](#) [23]

STEP

Understanding stakeholder expectations

PROMPTS

- Have you checked the Protocol signed by the PEIs and the **Engineering Council** to understand any specific requirements?
- Have you signed the HEI/College-Engineering Council Protocol?
- What are the critical success factors from each employer's point of view?

RESOURCES

- [Engineering Council Protocol with PEIs](#) [24]
- A research report into employers' critical success factors [25]

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STEP

Aligning university and employer strategic objectives

PROMPTS

- Can your university support you in managing these relationships?
- Have you involved employers in all stages including programme design and delivery?
- Can the involvement of learners and past learners assist in the partnership dialogue?

RESOURCES

- [Section 5. Effective Partnerships](#) of the [WBL Maturity Toolkit](#) [6]

STEP

Is appropriate commitment from relevant employers secured?

PROMPTS

- Ensure employers understand their role and responsibilities
- Confirm that work at appropriate Masters or Bachelors level will be available
- Consider having a formal contract or agreement with an employer

RESOURCES

- [Engineering Council mentoring and assessment guidance](#) [2]

C

Marketing the Validated Programme

STEP

Marketing to employers

PROMPTS

- Are your approaches to marketing and communications properly coordinated?
- Ensure that appropriate time and resources are allocated for staff to support employer partnerships
- Marketing to employers may be as fruitful as to students!
- Consider developing materials aimed at employers

RESOURCES

- [A summary of the Engineering Gateways pathway and benefits](#) [2]
- [Section 5, Effective Partnerships](#) of the [WBL Maturity Toolkit](#) (5-5, 5-6) [6]

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STEP

Marketing to students

PROMPTS

- Consider developing a programme brochure and specific webpage; placing adverts in engineering journals; promoting via your industrial liaison boards
- Can your alumni networks help with promoting the programme?
- Rolling recruitment might be attractive

RESOURCES

- [Examples of university webpages](#) promoting the degrees [26]
- [Kingston University Prospectus](#) [27]
- [Section 6-1, Pre-entry](#) of the [WBL Maturity Toolkit](#) [6]

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Staffordshire University

STEP

Marketing via the PEI has been explored

PROMPTS

- Early contact with the relevant PEI is recommended
- Have you alerted the PEIs that you have degrees available?
- Local or regional PEI groups may be able to assist

RESOURCES

- [List of participating professional engineering institutions](#) [28]
- [Staff contacts](#) are available from the [Engineering Council](#) [29]

D Student Recruitment

STEP

Have the basic checks been completed?

PROMPTS

- Define entry requirements
- Before recruiting students based outside the UK, think carefully about whether you can support them
- Substantiate any claims for previous degrees
- Check that the potential student actually needs this degree as graduates from some time ago may not
- APEL is undertaken in line with university guidance

RESOURCES

- [Engineering Council Academic Courses Accreditation Database \(ACAD\)](#) [30]
- [Engineering Council](#) requirements for registration: CEng and IEng [31] [32]
- Individual may wish to double-check requirements with their chosen [Professional Engineering Institution](#) [33]

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STEP

Critical selection of students

PROMPTS

- Ensure that the student fully understands the commitment required for such a programme
- Ensure that a student handbook is available
- Are you able to support those returning to learning?
- International students will require additional support
- Student must be a PEI member

RESOURCES

- [Section 1-11 of the WBL Maturity Toolkit](#) may be useful [6]
- [Aston University's Student Handbook](#) and [Kingston University's paper](#) provide helpful advice [34] [35]

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Kingston University

E Professional Development

STEP

Are the university staff experienced training in this WBL approach?

PROMPTS

- Consider whether to provide training

RESOURCES

- [Section 1-6 and 1-7 of the WBL Maturity Toolkit](#) cover staffing and staff development [6]

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Northumbria University

STEP

Are appropriate mentors available to support your students?

PROMPTS

- Check the company will provide appropriate mentoring
- Mentors must be able to advise students about UK-SPEC competence requirements for IEng or CEng and support them in their professional development
- The relevant PEI may be able to assist with finding a mentor
- Appropriate work-based mentors may be from the same or another company

RESOURCES

- [Section 2-4 of the WBL Maturity Toolkit](#) covers training and support for external staff and employers [6]
- [Engineering Council mentoring and assessment guidance](#) [2]

F Legal and Ethical Considerations

STEP

Are the necessary agreements and contracts in place?

PROMPTS

- These may include having an agreement with each employer outlining both parties' expectations
- Are you and the student covered if the company fails?
- Is the programme content compatible with the university's expectations and codes?

RESOURCES

- Refer back to the [Engineering Council Protocol with the PEIs](#) [36]
- Refer back to the [Engineering Council Protocol with HEIs](#) that covers issues arising with the provision of workplace activity [37]

STEP

Data protection issues

PROMPTS

- Ensure that you have permission to share your students' data with employers and with PEIs so that progress can be tracked
- Is the in-company activity commercially sensitive?
- Might the confidential nature of the employees' work affect their ability to submit this for assessment?

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STEP

Have IPR matters been agreed and documented?

PROMPTS

- Seek advice about your university's requirements

G Delivery

STEP

Are the individual's learning and development plans in place?

PROMPTS

- Agree who will undertake the initial audit
- Appoint an academic supervisor and mentor
- Forward the completed plans to the relevant PEI for review

The alignment of the learning outcomes to the UK-SPEC requirements was recognised as fundamental to these programmes. [Report](#) on providers' critical success factors includes steps taken.

RESOURCES

- Learning Contract: [Brief Overview](#) [38]
- See the **University of Hertfordshire's** sample [Professional Development Audit](#) and sample [learning contract](#) [19] [20]
- Refer to [process map for the pathway](#) [21]

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STEP

Systems for ensuring on-going mentoring and other student support are in place

PROMPTS

- The mentoring aspect may require you to develop new systems and approaches
- Agree arrangements with the company, including reporting
- Can the student register on a PEI's professional development recording system?
- Ensure the student knows who they can turn to, for what
- Consider cohort identity and the establishment of networks

RESOURCES

- Engineering Gateways [guidance on mentoring and assessment](#) [39]
- You may find the [section about mentoring in this paper](#) by **Aston University** staff particularly helpful [40]
- [This paper](#) describes measures taken by **Kingston University** to enhance learner progress [35]

STEP

PEIs links

PROMPTS

- Their requirements are understood
- Refer back to initial contact with the PEI
- Make use of local/regional PEI representatives
- Keep in mind students' progression to professional registration

RESOURCES

- Examples of PEI guidance: [IMechE](#) and [IET](#) [41] [42]

STEP

Method of delivery in place

PROMPTS

- Existing learning pedagogy may require some refinement
- Consider individual needs
- Consider including an initial professional skills and/or research skills module

RESOURCES

- [This document](#) by **Aston University** staff explains how their programme was designed to meet learners' needs [40]
- [This document](#) describes how **Kingston University** struck the right balance between flexibility and deadlines to meet learner needs [35]

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STEP

Consider assessment responsibilities and arrangements

PROMPTS

- The university is responsible for assessing the individual's assignments leading to the award of the degree
- Consider whether you also require reports from the employer
- Seek External Examiners with relevant experience
- **Report** into providers' critical success factors

RESOURCES

- Engineering Gateways [guidance on mentoring and assessment](#) [39]
- **Kingston University** use an [MSc Supervision Record Form](#) [43]
- [Section 4-3 of the WBL Maturity Toolkit](#) may be useful [6]

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STEP

Is internal support and input agreed?

PROMPTS

- Is sufficient and flexible administrative support available?
- Do you need help with developing distance or e-learning approaches?
- Can the enterprise department help with employer links?

Kingston University

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H Where Next?

STEP

Where Next?

PROMPTS

- Track progression of Engineering Gateways alumni
- Programme review and evaluation

RESOURCES

- [Section 2-5 of the WBL Maturity Toolkit](#) covers evaluation and review of programme and pedagogic research [6]
- **Northumbria University's** [annual monitoring form](#) may be helpful in developing your own approach to this [44]

STEP

Sustainability?

PROMPTS

- Develop further employer links
- Plan for future cohorts
- Build on successes and don't be afraid to publicise them!
- Make use of Engineering Gateways alumni

RESOURCES

- [New masters course engineers a bright future for first graduate](#) [45]
- [Gateway to success for first chartered engineer](#) [46]

Resource Links

- [1] <http://www.engc.org.uk/engineering-gateways/Information-For/universities.aspx>
- [2] <http://www.engc.org.uk/engineering-gateways/publications.aspx>
- [3] <http://www.engc.org.uk/benefits.aspx>
- [4] <http://www.engc.org.uk/education--skills/engineering-gateways>
- [5] <https://www.northumbria.ac.uk/static/worddocuments/ardocs/436647.doc>
- [6] <http://wbltoolkit.pbworks.com>
- [7] <http://gatewaystoolkit.engc.org.uk/resources/kingstonmala.pdf>
- [8] https://www.heacademy.ac.uk/sites/default/files/employer_engagement_1_cebe.pdf
- [9] <http://gatewaystoolkit.engc.org.uk/resources/knownunknowns.pdf>
- [10] <http://gatewaystoolkit.engc.org.uk/resources/hertsbuscaseheadings.pdf>
- [11] http://www.hefce.ac.uk/media/hefce/content/pubs/2010/rd2210/rd22_10.pdf
- [12] www.heacademy.ac.uk/sites/default/files/costing_work_based_learning.pdf
- [13] <http://www.engc.org.uk/engineering-gateways/case-studies>
- [14] <http://gatewaystoolkit.engc.org.uk/resources/derbycs.pdf>
- [15] <http://www.engc.org.uk/engineering-gateways/engineering-institutions.aspx>
- [16] <http://www.engc.org.uk/ecukdocuments/internet/document%20library/AHEP%20Brochure.pdf>

- [17] <http://www.engc.org.uk/professional-qualifications/standards/uk-spec>
- [18] <http://gatewaystoolkit.engc.org.uk/resources/kingstonexamplela.xlsx>
- [19] http://gatewaystoolkit.engc.org.uk/resources/hertsexample_pda.pdf
- [20] <http://gatewaystoolkit.engc.org.uk/resources/hertsexamplewbl.pdf>
- [21] <http://www.engc.org.uk/engineering-gateways/learning-framework/process-map>
- [22] <http://gatewaystoolkit.engc.org.uk/resources/empengage.pdf>
- [23] <http://gatewaystoolkit.engc.org.uk/resources/regempengage.pdf>
- [24] <http://www.engc.org.uk/engineering-gateways/learning-framework/registration-protocol>
- [25] <http://gatewaystoolkit.engc.org.uk/resources/employerresearch.pdf>
- [26] <http://www.engc.org.uk/engineering-gateways/universities>
- [27] <http://gatewaystoolkit.engc.org.uk/resources/kingstonprospectus.pdf>
- [28] <http://www.engc.org.uk/engineering-gateways/engineering-institutions.aspx>
- [29] <http://www.engc.org.uk/contact-us>
- [30] <http://www.engc.org.uk/education--skills/accreditation/accredited-course-search>
- [31] <http://www.engc.org.uk/ceng>
- [32] <http://www.engc.org.uk/ieng>
- [33] <http://www.engc.org.uk/about-us/our-partners/professional-engineering-institutions>
- [34] <http://gatewaystoolkit.engc.org.uk/resources/astonstudenthandbook.docx>
- [35] <http://gatewaystoolkit.engc.org.uk/resources/kingstonheastem2012.pdf>
- [36] <http://www.engc.org.uk/media/49369/registration%20protocol%20for%20peis.pdf>
- [37] <http://www.engc.org.uk/media/49342/protocol%20for%20participating%20heis%20and%20fe%20colleges.pdf>
- [38] <http://www.engc.org.uk/engineering-gateways/learning-framework/learning-contract>
- [39] <http://www.engc.org.uk/media/48077/120404mentoringassessmentguidancerevised.pdf>
- [40] <http://gatewaystoolkit.engc.org.uk/resources/astonee2010.pdf>
- [41] <http://gatewaystoolkit.engc.org.uk/resources/imecheinformation.pdf>
- [42] <http://gatewaystoolkit.engc.org.uk/resources/ietguidance.pdf>
- [43] <http://gatewaystoolkit.engc.org.uk/resources/kingstonsupervisionrecord.doc>
- [44] <http://gatewaystoolkit.engc.org.uk/resources/northumbriaapm.doc>
- [45] <http://www.engc.org.uk/news-list/new-masters-course-engineers-a-bright-future-for-first-graduate>

This toolkit has been developed to support universities wishing to offer Engineering Gateways degrees. Funding was provided for this work by the National HE STEM Programme. The toolkit was developed through a practice transfer partnership led by the Engineering Council. Five of the universities delivering Engineering Gateways degrees (Aston, Kingston, Hertfordshire, Northumbria and Staffordshire) contributed materials and experience, and acted as mentors to five further universities who wished to offer Engineering Gateways degrees (Coventry, Derby, Greenwich, Leeds Metropolitan and the University of the West of England). The Centre for Engineering and Design Education (CEDE) at Loughborough University assisted in developing the toolkit.

