



Best practice for industrial placements in an accredited degree



Introduction

This guide is intended for university industrial placement coordinators. It provides guidance on best practice in industrial placements for degree programmes in the chemical sciences based on our reviews of applications for accreditation.

Additional guidance can be found in the UK Quality Code for Higher Education on the [Quality Assurance Agency for Higher Education \(QAA\) website](#).

Benefits of industrial placements

Industrial placements are a great way for universities and their students to have widespread and effective interactions with employers. Placements have many benefits for students, universities and the employers. These include:

- developing employment-related and employability skills;
- improving a university's employment outcomes;
- improving relevance of the 'employability' and other skills gained by HE students in relation to skills needs identified by the chemical industry;
- improving career awareness amongst students, particularly of career opportunities relating to chemical science, increasing the likelihood of students pursuing graduate careers relating to their degree subject;
- students returning to university with improved technical and transferable skills in their final year, increased commitment to successful completion of their academic studies and experience that adds context to their undergraduate course;
- better mutual understanding between industry and universities, which can support growth in research collaboration;
- helping students qualify for competency based professional recognition such as Registered Scientist (RSci) and Registered Science Technician (RSciTech).



Best practice guidance

Type of work

The accreditation of placement-bearing degree programmes allows flexibility in the type of placement deemed appropriate and the work involved. A wide range of chemistry-associated employers, from large companies to small and medium-sized enterprises (SMEs), will be able to provide suitable placements. There are no absolute requirements for an entirely laboratory-based research-focused project and it is the responsibility of the university chemistry department to assess the suitability of each placement. In our experience, suitable programme structures include:

- a single research project;
- a series of 2-3 smaller projects;
- a combination of a research-related or similar project and other work carried out by graduate chemists;
- a technical role which is at graduate level and has a clear job description;
- analytical work from which a project is derived.

The Royal Society of Chemistry's criteria for accreditation of degree courses that contain a placement are that they need to be carefully assessed on the basis of their content as well as the professional skills that a student will develop through the placement. A well organised placement will clearly define the objectives at the beginning. It will also detail the key skills that students will develop. The student should have a fixed line-manager for the duration of the placement and the department should provide clear guidance to this manager on how they should assess the student.

The department should decide the weighting of the project in the degree course and how students will feedback about their placement as well as how their performance should be reviewed by their placement supervisor. These details should be well defined from the start and be appropriate for the level of the placement.

Costs and employment status

Employers incur significant direct and indirect costs in hosting students on placements. However, most science and technology-based industries in the UK have an established culture of paying students on placement and other work experience, and this is certainly the expectation for most industrial placements in chemistry. A placement student is an employee with a contract and certain benefits and so remunerating the student is strongly recommended. Not doing so carries reputational risk for companies when it comes to future staff recruitment. Placements give employers a valuable chance to assess the competency of students. This may lead to full time employment opportunities for the student after their degree when companies are impressed by particular individuals.



Schedules and planning

Most university chemistry departments will have a designated industrial placement coordinator who will generally start their placement processes at the beginning of the academic year which precedes the placement year – i.e. September or October in the year prior to a July/August placement start. Some start even earlier. At this time, the coordinator will liaise with potential host companies to confirm likely opportunities, collate knowledge to pass on to students and approve placement opportunities. There is no fixed timetable which employers have to follow.

Many departments aim to have most placements offered and agreed by Easter, although many more are formalised during the summer term. The earlier that employers publicise upcoming vacancies the better. Employers that announce placement opportunities early allow placement coordinators plenty of time to consider and 'approve' their placements and promote them to their students. Some employers that announce their placement schemes early may subsequently make some adjustment to numbers or offers due to changing business requirements.

Particularly for smaller companies, planning this far in advance may simply be impossible. In reality, universities have to be flexible and will accommodate employers who offer their placement opportunities somewhat later. The university coordinator should endeavour to keep employers informed about likely student numbers throughout the process and similarly, employers should keep universities up-to-date on the number of placements available.

HE funding rules require a placement to be full-time for at least 30 weeks (roughly equivalent to the length of the university teaching year); in reality many are 36 weeks and some as long as 44 weeks. The length of placement is decided by the employer but departments should build a relationship with the employers to be able to ensure that the length of the placement is suitable for both the company and the student.

Approving industrial placements

University placement coordinators need to approve the placement vacancies that their students undertake to ensure that the type of work and environment are suitable. Departments should ensure that the placement encompasses the right type of work, working environment and placement supervision. Placement coordinators should have a relationship with companies such that they actively help companies to facilitate this approval, particularly for small and medium sized enterprises. This has benefits to the employer because the coordinators will then promote approved vacancies and support their students in applying to the most relevant vacancies.

Finding vacancies

There are quite a few different ways that students can find placements. Some common methods are:

- University placement coordinators liaise with potential hosts and pass knowledge of placements directly onto students;
- Vacancies advertised with clear job descriptions on a company's own website;
- Vacancies advertised with clear job descriptions on a university's website;
- The RSC's free placement vacancy service on its ChemistryWorldJobs website;
- A number of other websites and employment agencies where placement vacancies can be listed;
- Students find placements themselves; this could be through existing relationships and contacts, or through contacting companies they identify themselves, and the university may train students how to do this.

Applications and recruitment

The university may provide some selection and training of students to ensure that those students applying for placements have the right competencies. Students will often discuss with the coordinator which vacancies they should apply for and applications may be supported by the student's placement coordinator. Careers advice, CV writing course and other support should ideally be available to the students.

The application process can start any time after placements are announced. Students will be company employees and should expect many conventional recruitment practices to apply. There should be an 'open' recruitment process with rigorous selection procedures that use appropriate competency-based application criteria. The student will benefit from going through a formal application process.

The partnership between employer, university and student

Placements are successful when chemistry departments and placement companies have successful partnerships. This is likely to develop if all three parties understand expectations, their respective responsibilities and build a trusting relationship. Regular and appropriate communication between the department and company with a freedom to ask questions is key to achieving this. Normally there will be one or more visits by the university academic tutor to the employer during the placement. There are also certain materials that may be needed to ensure a successful placement:

- The student should know what is expected of him/her during the placement. This could be covered in a handbook or checklist for example in includes:
 - understanding specific objectives;
 - understanding the roles of their supervisor and/or line manager, and whom to ask for advice if they are not available;
 - understanding work and activity boundaries and responsibilities with the supervisor;
 - understanding how performance will be assessed;
 - being clear on issues such as working hours and any expectation of working overtime;

- familiarisation with Good Laboratory Practice (GLP) and Control of Substance Hazardous to Health (COSHS) regulations and other standard operating procedures where appropriate;
- being open and frank about mistakes.
- An agreed statement of expectations provided to the employer which lays out the responsibilities and expectations of all three parties including health and safety and the student's safe working practice.
- A standard employment contract from the employer, specifying the terms and conditions of employment and other benefits, potentially including a right to some induction and relevant training. This will also be the opportunity to outline procedures in the case of violation of company rules.
- A Non-Disclosure Agreement (NDA) or similar contractual agreement covering the non-disclosure of information the company wishes to protect such as intellectual property (IP).

Management, supervision and training

A successful placement experience, for both employer and student, requires good quality supervision and support from the employer. As for any employee, the company will need to assign a supervisor or line manager who directs and takes responsibility for the work of the student on placement and also their safety and wellbeing. Supervision and support of a student on placement gives staff opportunities to line manage and develop professionally and should not be a burden if approached in the right way.

University support during the placement

Universities maintain certain responsibilities during a placement. They should assign an 'academic tutor' to the student who will be responsible for providing some pastoral care for the student while on placement. Universities should communicate with employers so that they understand the role of the academic tutor. Understanding this and the extent of communication expected tends to reassure employers that this aspect of a placement is not arduous for the company.

We would normally expect the academic tutor to:

- provide a clear point of contact in the case that something goes wrong;
- have oversight of general progress and wellbeing;
- conduct aspects of the assessment required for the placement (including one or two visits to the employer).

A typical academic tutor's visit to the company might include:

- a short presentation by the student to the academic tutor and the supervisor;
- a private meeting between the academic tutor and the student;
- a private meeting between the academic tutor and the supervisor;
- discussion of health and safety issues;
- a short tour of the working environment.

Based on the visit, the academic tutor will complete an assessment form. Providing this to the employer ahead of the visit will help them to understand the nature and level of the tutor's potential interest and the information they will seek.

Students' distance learning

Some academic work may need to be undertaken by the placement student through distance learning during the placement year. Neither students nor universities should expect the employer to provide time off to accomplish academic assignments, although some may choose to do so. Departments should acknowledge this when deciding number of assignments which have to be delivered. The content and amount of additional work required of the student should be manageable outside of their working hours. At the end of their placements, students would normally be required to produce a report.

Employer reporting requirements

The employer will need to report on the student's progress and their placement experience. The supervisor may be responsible for providing an assessment of the student at the end of the placement. This should be a fair representation of the student's performance while on placement and would normally count towards the assessment for placements. The university will need to provide the line-manager with an assessment form which they can use for the assessment procedure. It is good practice for departments to provide employers with the assessment forms from the outset and also provide some guidance on good assessment. This should not be a big burden on employers and a typical assessment form is included on the following page for reference.

Intellectual property

Chemistry departments should be sensitive to employers' needs in relation to intellectual property (IP). Universities should aim to accommodate the employer's needs and extend considerable flexibility in the university's assessment processes to accommodate and protect companies' IP interests. However, all requirements to do this will need to be agreed in advance.

If required, the student and academic tutor must sign a non-disclosure (NDA) or similar IP protection agreement at the outset of the placement. It is also critical that attention to IP is highlighted in the initial training for the student.

Disabled students

Universities and other education providers have to follow the Disability Discrimination Act of 1994 to ensure that disabled students have access to placement opportunities. Good practice guidance on work placements for disabled students for FE and HE institutions is available at <http://www.lifelonglearning.co.uk/placements/>

Example industrial placement content and assessment form

The content of industrial placements must be well defined from the start. The employer should outline what skills the student will develop through the placement. There are three main areas that should be covered in a placement; soft skills, practical skills and non-lab based skills.

These skills and objectives should be communicated clearly in writing before the placement starts. They can however be changed during the placement if necessary, subject to approval from the employer, department and placement student. The same document may also be used at the end of the placement to assess a student's performance.

Each university is responsible for deciding on and implementing their own process. The following form is an example of how the content of placements can be outlined by employers before the start of the placement. This form also includes a section for reviewing the student at the end of the placement by a qualitative review. Industrial placement supervisors often prefer to qualitatively review a student's performance rather than quantitatively grade them. We have provided specific examples for each skill area however please note this is only intended as a guide; the skills developed in each of the three areas will vary from placement to placement.

Skill group <i>(Every placement should develop skills in these three skill sets)</i>	Objectives/goals <i>(The employer should detail what skills the student will develop during the placement in this section)</i>	Evidence of competency during placement <i>(To be completed at the end of the placement by the student's supervisor)</i>
Professional skills	eg Develop good communication skills by giving clear oral presentations etc.	eg Presented the results of their research to colleagues internally at the end of the placement etc.
Practical skills	eg Develop the ability to write up experiments to an industry standard including a full COSHH assessment etc.	eg Completed a number of detailed write-ups of scientific experiments etc.
Non-lab based skills	eg Develop knowledge of the chemical sciences outside of their defined projects etc.	eg Went out of their way to ask colleagues about their areas of work and learn what they do etc.

An alternative example feedback form for industrial placement supervisors can be seen on Learn Chemistry at <http://www.rsc.org/Learn-Chemistry>