

National Grid introduces foundation degrees

National Grid launched a three-year foundation degree programme in 2005, which it developed in conjunction with Aston University. In light of the current skills shortage in engineering in the UK, the company's aim is to maintain its technical capacity by nurturing its own highly-skilled engineers.

National Grid is an international electricity and gas company, and one of the largest investor-owned energy companies in the world. It has approximately 10,000 UK employees.

Setting the foundations

National Grid introduced a Foundation Degree in Power System Management (part of its Foundation Engineer scheme) in 2005 in conjunction with Aston University. The course is designed to provide skilled engineers to fill several technical positions in specialist areas.

Foundation degrees were set up by the Higher Education Funding Council for England with the Department for Education and Skills in 2001/02, as a new higher education qualification. Foundation degrees are designed by both employers and universities to combine academic study with workplace learning. Their aim is to give people the intermediate technical and professional skills that are in demand from employers, and to provide more flexible and accessible ways of studying. In the 2006/07 academic year, over 60,000 students were estimated to have registered, or to be registered, on a foundation degree programme.

Identifying a gap in skill levels

The aim of the foundation engineer scheme run by National Grid is to train new recruits to become engineers. 'We realised that there was a skills gap between candidates at apprenticeship level and our graduate technical professionals,' explains Will Large, National Grid's Schemes Manager. 'There is quite a jump from the hands-on role of a craft apprentice to graduates who are looking to progress quickly to managerial positions. Once the need for more engineers was identified, we looked around for a qualification to be part of our foundation engineer programme that would be effective in developing the skills we require and decided that foundation degrees were the best fit.'

Developing a foundation degree

'We first came up with the proposal to introduce a foundation degree in 2004, but it took a

considerable amount of time and investment to design the programme,' says Large. 'Our technical development specialists were heavily involved in specifying what the programme needed to include and worked closely with Aston University to develop the course.'

Managing the programme

Roles and responsibilities

National Grid's Training Delivery Team (TDT) has overall responsibility for the foundation engineer programme, which incorporates the foundation degree. This includes overseeing changes to scheme design and arranging off-the-job training. As scheme manager, Large is accountable for ensuring the programme meets the company's requirements.

The foundation degree is run alongside National Grid's advanced apprenticeship schemes and graduate development programme. The company also offers industrial placements to undergraduates and runs an emerging leaders programme for identified talent.

Role of technical managers

The TDT team has established strong links with managers working in technical departments. 'Their input on course content is key in ensuring that the qualification we've designed is relevant

National Grid's foundation degree

National Grid's foundation degree in power system management is designed to deliver a number of competencies:

- knowledge to do the job
- safety know-how
- analytical thinking
- using judgement
- initiative
- commercial awareness
- concern for quality
- self-management
- flexibility
- teamworking
- creating a good atmosphere at work
- developing others.

to the job,' explains Large. The operational business areas also have a major role in providing the infrastructure and on-the-job training to complement and consolidate formal learning.

Responsibility for recruitment

The HR resourcing team also plays an essential part. It designs and manages the attraction and recruitment process to ensure candidates with the right experience and behaviours hear about and apply to the scheme. This includes building links with local Connexions offices and schools centrally and through employees. (Connexions is a UK government service that offers advice on education, careers, housing, money, health and relationships to 13- to 19-year-olds.)

Supporting learners

New recruits undertaking the foundation degree are supported by the relevant base location manager. They are also assigned a mentor to offer them additional support while they are completing the on-the-job element of the programme (see the box opposite).

Delivering training

National Grid's training specialists take responsibility for delivering the programme and manage foundation engineers during their time completing their studies at the company's training centre.

Aston University delivers the 120 days of the foundation degree (60 in year one and 60 in year two, split into ten-day modules) at National Grid's Training Centre in Eakring, Nottinghamshire. It also provides support for the projects and assignments between the foundation degree modules. At present, all the foundation engineers are employed by National Grid.

Funding the programme

The company invests a significant amount of time and money in foundation engineers training. For example, it spends around £5,750 on external training courses for each candidate. 'Of course, we also have the learners' salaries to take into account as they are not fully productive while they are training,' says Large. 'However, in terms of the classroom-based element of the foundation degree, Aston University gets government funding as the course is open to the public.'

Recruiting engineers

National Grid currently offers between ten and 12 places on its foundation degree programme every year. 'We make a decision on the number

Assigning learners a mentor at National Grid

National Grid assigns recruits undertaking its foundation degree mentors to provide them with additional support while carrying out on-the-job training activities.

Mentors are expected to:

- participate in scheme mentor training and meet the learner during the induction programme
- ensure learners understand site emergency procedures
- ensure learners, along with the on-the-job training facilitator, understand and comply with National Grid safety rules and procedures
- arrange regular meetings with learners (at least weekly recommended during on-the-job periods)
- conduct an on-site induction
- design and deliver on-the-job training activities to complement the formal programme
- compile on-the-job training reports
- participate in meetings with other mentors every six months
- communicate the company's safety initiatives
- promote near-miss reporting
- provide progress updates to the base location manager.

All mentors attend an initial mentoring skills, inclusion and diversity training session to ensure a standard approach is taken to mentoring.

of recruits we'll take on each year by planning about five years ahead,' explains Sarah Upton, Resourcing Manager. 'We do this by working with the business to look at anticipated retirement and predicted workload.'

Attracting candidates

The company aims to recruit and retain the best candidates by ensuring that it offers an attractive employee proposition as a global organisation. 'We offer a competitive salary and generous benefits package,' says Upton. 'The opportunity to earn while learning and develop in a growing organisation is a big sell.' In addition, the benefits package offered for employees on the programme includes 25 days' holiday entitlement, eligibility for the company pension scheme and sharesave options. All travel costs associated with learning activities are reimbursed and full-board accommodation is provided. Staff on the scheme also receive a mobile phone and a company contract car (which is retained if required for an employee's role after the course has ended).

Once they have completed the foundation engineer programme, employees receive further training. 'We recognise the importance of our engineers acquiring new skills and promote continuous learning,' says Large.

National Grid's salary bands for foundation degree engineers*

Year**	Salary***
1	£16,100 (without level 4 qualification) £19,300 (with level 4 qualification)
2	£19,300 (without level 4 qualification) £20,500 (with level 4 qualification)
3	£21,800 (without level 4 qualification) £23,100 (with level 4 qualification)

*This framework is currently being reviewed and salaries are likely to be increased from July 2008

**There is a minimum nine-month period on each salary step before progression to the next step

*** A London weighting allowance is also paid to those that qualify in line with National Grid procedures

Inviting applications

The company runs national recruitment campaigns using Internet search engines, such as Google, to attract candidates for its foundation engineer programme. It provides profiles of current employees on its corporate website to give an insight into what work and projects candidates may get involved in at the end of the programme. It targets regional areas through Connexions offices and the local press. The company is also developing stronger links with local schools and colleges.

Selecting candidates

Minimum educational levels

The minimum educational standard required to be accepted on the programme is two A-Levels – one of which must be in maths, physics, electronics or statistics at grade A to D. National Grid also takes on candidates with a BTEC, HNC or ONC at merit or above in electrical, mechanical or electronic engineering. 'But such is the reputation of the course, we also receive applications from people educated to degree level,' says Upton.

National Grid understands the importance of creating a thorough and fair recruitment process to ensure that it employs the right people. 'The standards required by the course are high because the modules are at degree level,' explains Upton. 'So, as part of the recruitment process, we use a variety of tests to make sure that candidates have the academic ability and the potential, and are ready to take up the challenge.'

Running an assessment centre

Candidates who make it past the first round of screening attend a competency-based assessment

centre managed by recruitment specialists. This is designed to assess the behavioural and technical capabilities of each applicant and give an indication of their behaviours and learning style. It includes behavioural and technical interviews, ability tests and team exercises, during which candidates are closely observed by recruitment managers. If working at heights is a requirement of the role, applicants complete a climb to make sure they are comfortable doing so and can follow safety instructions. 'At the assessment centre stage, we have a better than one in three success rate as we only invite strong candidates who make it through the first round of assessments,' says Upton.

Delivering training

National Grid's foundation engineer programme is run out of the company's training facility, which provides training rooms, workshops and a full-scale training substation. There are around 17 dedicated training professionals who work at the centre on a full-time basis.

Course schedule

The foundation degree in power system management is part of a three-year programme of study. During the first year, learners spend the majority of their time off-the-job. The aim is that they have a good basic knowledge of safety, maths and electronics as a foundation for the following years' study, combined with a good knowledge of National Grid equipment and processes. In the second year, the programme is mainly project-focused, with learners undertaking real-life work assignments alongside formal training. During the third year, they continue to train on the job while finishing their studies.

'The on-the-job elements are designed to complement and consolidate the formal training learners receive,' explains Large. 'It plays a major part in the scheme and helps ensure they can apply their learning in a working environment.'

The formal training learners receive includes a NEBOSH (the National Examination Board in Occupational Safety and Health) General Certificate in Occupational Health and Safety, which is the most widely held health and safety qualification in the UK. It also includes 'Authorised Person Status' to allow learners to carry out routine and emergency switching on of the high voltage system under the instruction of a control person.

Monitoring trainees' progress

The programme of study sets out specific parameters of where learners should be with their study and what they should have accomplished within certain time periods. They have reviews with the programme manager every six months to assess their progress. Learners have an incentive to achieve the targets set for them as their salary is linked to milestones in performance.

National Grid gives its foundation engineers responsibility for managing their own learning. 'At first, we treated those on the foundation engineer programme in a similar way to our apprentices,' explains Large. 'However, we realised that the learner has to be the main driver of the programme. At this level, we shouldn't have to dedicate excessive amounts of time to monitoring their progress and encouraging them through the training. Giving them greater autonomy has proved very successful and almost all of the students pass the programme without problems.'

Assessing training effectiveness

Large undertakes an assessment of the training every six months and makes improvements if necessary. 'This means that the programme has been tweaked and improved as we have taken on feedback from both learners and their managers in the technical business areas,' he explains.

Benefits

The foundation engineer programme at National Grid was set up to support new recruits working in specialist engineering roles. 'We are pleased with what we have achieved through the foundation degree and other elements of the programme,' says Large. 'The engineers are well-qualified and are equipped with the right skills to help them be successful in their jobs. By offering the engineers great benefits and prospects, we also have an excellent retention rate.'

'We have a blended approach to recruitment whereby we grow our own talent through

Promoting engineering to children

National Grid recognises the need to promote engineering as an attractive career to school-age children. 'We feel it's essential to encourage more children to take a maths or science route through education with a view to taking an engineering-based degree,' explains Sarah Upton, National Grid's Resourcing Manager. 'There is currently a fairly low percentage of students choosing to study maths and science beyond GCSE level, so we need to ensure that we make engineering as accessible as possible and remove any misconceptions about what engineering jobs involve. Of course, if they take A-levels in these subject areas, young people then become very attractive to the financial services market. Because we don't want to be left with a shortage of applicants, we need to have sparked their interest in engineering from an early age.'

One way the company promotes engineering to young people is through supporting 'Imagineering', a project aimed at eight- to 16-year-olds. This is run by an education charity, The Imagineering Foundation, which organises hands-on activities and gives children the opportunity to meet real engineers to find out more about their jobs.

programmes such as the foundation engineer scheme to complement our experienced hires,' continues Large. 'We are encouraging a greater take up of science, technology, engineering and maths in schools and thinking more globally in terms of our candidate pool. By introducing foundation engineer programmes, we have been able to nurture our own set of highly skilled engineers to maintain our technical capacity over the coming years.'

Plans for the future

Following the success of the foundation engineer programme in power system management, National Grid is currently developing a programme for office-based engineers, which is scheduled to commence in November 2008.