Nuclear Training Portfolio
Specialist training for the nuclear sector
The UK nuclear industry is facing a major challenge to ensure that we have the skills, capability and capacity to deliver a diverse range of national programmes including the continued operation of our existing nuclear plants and associated fuel cycle facilities, the development of our nuclear submarine programme, the decommissioning of legacy facilities and associated radioactive waste management, plutonium disposition and nuclear new build.

Nuclear power is currently undergoing a renaissance across the world. Many new nuclear power plants are either under construction or at an advanced planning stage in Europe, the United States, the Middle East and Asia. Consequently, there is an unprecedented demand for nuclear specialists at all levels – process workers, craftsmen, technicians, engineers and scientists. In order to meet our national commitments and respond to the huge opportunities of the evolving international market, the UK will need to invest significantly in skills to make sure our young people become suitably qualified and experienced and are therefore well prepared to compete in the nuclear sector job market.

Gen2 is uniquely placed to respond to the nuclear skills challenge. We already provide a nuclear specific training and educational programmes ranging from entry-level acquaintance courses through to highly-specialised advanced courses at degree and postgraduate level. In addition, Gen2 has worked with many of the major nuclear operating companies to design bespoke training courses to meet the employers’ specific requirements.

All of Gen2’s nuclear courses are designed and delivered in accordance with the Systematic Approach to Training (SAT) – an international quality standard promoted by the World Association of Nuclear Operators (WANO) and the International Atomic Energy Agency (IAEA).

In addition, Gen2 appreciates the overriding importance of inculcating the appropriate knowledge, skills, professional standards and behavioural competences that ensure our learners have a deep understanding of nuclear and radiological safety, nuclear security, nuclear safeguards and environmental protection. Indeed, nuclear safety is the common thread which runs through all of our training – not surprising for a safety-critical and strictly regulated industry. This prospectus features Gen2’s extensive range of nuclear training programmes, set out under three headings; Advanced Learning for Nuclear presents our degree-level and postgraduate programmes; Learning Solutions for Nuclear presents our short, specialist courses and Apprenticeships for Nuclear describes our Level 2 – Level 6 apprenticeship programmes in nuclear engineering, nuclear science and radiological protection.

For outstanding training, choose an outstanding training provider.

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The Gen2 Solution
- Created by major nuclear, engineering and manufacturing employers
- Workforce of over 160 staff
- Eight Skills Centres throughout Cumbria – Energus, Lillyhall, Salterbeck, Carlisle, Rockcliffe, Warwick Mill and Ulverston
- Over 300 customers
- Delivering vocational training to over 1,250 apprentices throughout Cumbria
- 94% of all apprentices who achieve their qualifications progress into full-time employment
- Delivering further and higher education to 300 learners throughout Cumbria
- Degree programmes validated by partner universities
- ISO 90001, 14001 and 18001 accredited
- Commended by RoSPA for the Industry Sector Education and Training Award
- Training Quality Standard with excellence in Nuclear and Engineering
- Achieved Ofsted Grade ‘Outstanding’
- Named in The Times Top 100 Apprentice Employer
- Quality Assured Training Provider of the National Skills Academy for Nuclear (NSAN)
- Selected programmes approved by the Nuclear Institute

Customers

Gen2 are proud to deliver training and education services to over 250 customers which include major nuclear site licence companies and supply chain companies:

Sellafield Ltd
EDF
Cavendish Nuclear
LLW Repository Ltd
NDA
HORIZON NUCLEAR POWER
National Nuclear Laboratory
Rolls-Royce
HVEC
Morgan Sindall
ABB
Jacobs
mitie
Sel
Tata Steel
TATATEEL
ATKINS
BAE SYSTEMS
Redhall

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Gen2    Skills for Tomorrow Today
Nuclear Training
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“Gen2 uses its outstanding staff, resources, training facilities, equipment and strong financial management arrangements to provide a highly successful learning environment and outstanding value for money.”

Ofsted Inspection Report, April 2011
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“Programmes like those at Gen2 mean that Cumbria will be recognised for more than its culture and natural beauty but also as the world’s leader of Nuclear Engineering.”

Jamie Reed, MP for Copeland
Gen2 has been delivering higher education (HE) programmes for the nuclear sector since 2007.

Within Gen2, higher education is designed, delivered and assessed by the Department of Engineering and Energy Technologies (DEET) working closely with employers, professional bodies and our partner universities: the University of Central Lancashire, the University of Manchester and the University of Cumbria.

Our higher education portfolio includes Higher National Certificates (HNCs) in Engineering, Foundation Degrees, BEng(Hons) programmes (with pathways in nuclear engineering) and a Post Graduate Certificate in Nuclear Technology. All of our HE programmes are contextualised for the nuclear industry. Our lecturing staff combine extensive academic and industrial experience and are therefore well-placed to engage effectively with employers to develop bespoke programmes to meet specific industry requirements. Many of our programmes have been developed with employers to address acknowledged skills gaps in areas such as radiation protection, nuclear project management, safety case development, control and instrumentation engineering and many more.

In order to support delivery, Gen2 has made significant investments in infrastructure and training equipment. We operate well-equipped laboratories for training in radiation protection, mechanical engineering, electrical engineering and control engineering. In addition, we have developed a nuclear training facility to provide learners with experience of working in a radiation controlled environment, thus ensuring that nuclear safety culture is inculcated into the learning experience from the outset. More recently, we have installed a Pressurised Water Reactor Simulator in order to provide our learners with a comprehensive understanding of the design and operating principles of a modern nuclear power plant, similar to that proposed in the UK nuclear new build programme.

Gen2:
- Deliver training for over 300 higher education students per annum;
- Gain outstanding student success rates – well above the national average;
- Provide a full portfolio of Higher Education courses including Foundation Degrees and BEng (Hons), with progression routes from Level 4 to Level 7;
- Are a Quality Assured Provider for the National Skills Academy for Nuclear;
- Can develop bespoke higher education programmes to meet industry demands;
- Are partners with the University of Manchester, University of Central Lancashire and University of Cumbria.

Programme Overview
The Technical Specialist Trainee Scheme (TSTS) is currently sponsored by Sellafield Ltd, Morgan Sindall Amec, Axiom and NNL and is delivered by Gen2. The aim of the programme is to provide industry with highly skilled and qualified technicians and engineers with strong academic ability in science and engineering complimented by extensive on-plant experience.

Technical specialists are engaged in a variety of research and development projects aimed at improving plant operations. They develop innovative solutions to meet unique technical challenges in highly-regulated safety-critical industries – both nuclear and non-nuclear.

Who should apply?
School-leavers, 18 years and older and others looking for a career in engineering or technology within the sponsoring organisations and who wish to achieve university-level qualifications while in paid employment.

What will I study?
You will study a combination of core (mandatory) subjects and optional modules, dependent on your chosen learning pathway:

Core Subjects:
- Mathematics
- ITC
- Mechanical Science & Engineering
- Engineering Design, Drawing and CAD
- Electrical Science and Engineering
- Electronic Engineering
- Chemistry
- Process Dynamics
- Plant and Process Control Systems
- Instrumentation, Testing & Calibration
- Measurement and Control
- Thermo-Fluids and Heat Transfer
- Pneumatics and Hydraulics
- Control Systems Engineering
- Project Management

Optional Modules:
- Plant Commissioning
- Plant Decommissioning
- Nuclear Plant Principles
- Nuclear Materials
- Nuclear Reactor Technology
- Condition Monitoring and SQA
- Smart Instruments and Networks

In addition, you will undertake plant-based assignments and project work providing an opportunity to apply the knowledge gained in the classroom to real problems in the industry.

What qualifications will I obtain?
- Foundation Degree in Plant Engineering (Nuclear Technology)
- The awarding body is the University of Cumbria

Professional Accreditations
The programme is accredited by:
- The Institute of Measurement and Control
- The Institute of Plant Engineers
- The Society of Operations Engineers

and fulfils the criteria for registration as Engineering Technician (EngTech)
The Technical Specialist Training Scheme (TSTS) was designed to meet a specific need within Sellafield Ltd to develop advanced technicians with the science and engineering knowledge of a graduate complemented by the solid vocational training and operational experience of a higher apprentice. The TSTS programme has proved to be an important milestone in the design and delivery of bespoke advanced training for the nuclear sector, not just for Sellafield, but for the wider supply chain.

Ken McEwan, Head of Training, Sellafield Ltd

Prerequisites
A minimum of 120 UCAS points with A Levels in appropriate subjects + 5 GCSEs at grade A-C, including English, Maths, Physics, or Level 3 National Certificate (eg BTEC) in science or engineering.

Duration
16 weeks full time (September – December), plus 3 years part-time on a day-release basis for 30 weeks per year (January – December).

Location
This course is delivered by Gen2 in Energus, Lillyhall, Workington.

What next?
Students achieving the FD in Plant Engineering can progress to BEng(Hons) in Plant Engineering. This requires a further 2 years of part-time (day-release) study.

For further information on this course, please call our Recruitment Team on:

Workington 01900 701 300 / 07739 199 531
Carlisle 01228 599 890 / 07590 439 929
Furness 01229 483 760 / 07540 686 554
Email: info@gen2.ac.uk Web: www.gen2.ac.uk

Foundation Degree in Plant Engineering (Nuclear Technology)

Programme Overview
The Foundation Degree in Plant Engineering (Nuclear Technology) provides degree level training for individuals involved in the design, commissioning, operation and maintenance of new and existing nuclear processing plants. The course delivers a broad curriculum of electrical, electronic, mechanical and control engineering to reflect the full range of disciplines and competences required to operate a modern nuclear process plant. In addition, the course provides an appropriate level of knowledge of nuclear science, technology and radiation protection in order to reflect the unique safety-critical environment in which nuclear plants operate.

Who should apply?
The programme is designed for individuals already in employment within the nuclear process plant engineering sector who wish to develop their knowledge of, and level of qualification, in plant engineering. Applicants should be sponsored by their employer.

What will I study?
You will study a combination of core (mandatory) subjects and optional modules, dependent on your chosen learning pathway from the following:
- Mathematics for Plant Engineering
- Mechanical Science & Engineering
- Electrical/Electronic Science and Engineering
- Nuclearics
- Plant and Process Engineering Principles
- Instrumentation, Testing & Calibration
- Process Measurement and Computer Control
- Thermo-Fluids and Heat Transfer
- Mechanics, Materials and Stress Analysis
- Nuclear Principles for Plant Engineering
- Engineering Design
- Control Systems Engineering
- Condition Monitoring and SQA
- Nuclear Plant Commissioning
- Nuclear Plant Decommissioning/Decontamination
- Nuclear Materials
- Nuclear Reactor Technology
- Project Management

For further information on this course, please call our Recruitment Team on:

Workington 01900 701 300 / 07739 199 531
Carlisle 01228 599 890 / 07590 439 929
Furness 01229 483 760 / 07540 686 554
Email: info@gen2.ac.uk Web: www.gen2.ac.uk

In addition, you will undertake plant-based assignments and project work in each year of study providing an opportunity to apply the knowledge gained in the classroom to real problems in the nuclear industry.

What qualifications will I obtain?
The Foundation Degree in Plant Engineering (Nuclear Technology). The awarding body is the University of Cumbria.

The programme is accredited by:
- The Institute of Measurement and Control
- The Institute of Plant Engineers
- The Society of Operations Engineers

Prerequisites
A minimum of 120 UCAS points with A Levels in appropriate subjects + 5 GCSEs at grade A-C, including English, Maths, Physics, or Level 3 National Certificate (eg BTEC) in science or engineering.

Duration
3 years part-time on a day-release basis for 30 weeks per year (January – December).

Location
This course is delivered by Gen2 in Energus, Lillyhall, Workington.

What next?
Students achieving the FD in Plant Engineering can progress to BEng(Hons) in Plant Engineering. This requires a further 2 years of part-time (day-release) study.

For further information on this course, please call our Recruitment Team on:

Workington 01900 701 300 / 07739 199 531
Carlisle 01228 599 890 / 07590 439 929
Furness 01229 483 760 / 07540 686 554
Email: info@gen2.ac.uk Web: www.gen2.ac.uk

University of Cumbria
Foundation Degree in Plant Engineering (Eng. Systems)

Programme Overview
The Foundation Degree in Plant Engineering (Engineering Systems) provides degree level training for individuals involved in the design, commissioning, operation and maintenance of new and existing industrial plants. The course delivers a broad curriculum of electrical, electronic, mechanical and control engineering to reflect the full range of disciplines and competences required to operate a modern industrial plant.

Who should apply?
The programme is designed for individuals already in employment within the engineering sector who wish to develop their knowledge of, and level of qualification, in plant engineering. Applicants should be sponsored by their employer.

What will I study?
You will study a combination of core (mandatory) subjects and optional modules, dependent on your chosen learning pathway from the following:
- Mathematics for Plant Engineering
- Mechanical Science & Engineering
- Electrical/Electronic Science and Engineering
- Plant and Process Engineering Principles
- Instrumentation, Testing & Calibration
- Process Measurement and Computer Control
- Thermo-fluids and Heat Transfer
- Mechanics, Materials and Stress Analysis
- Engineering Design
- Pneumatics and Hydraulics
- Control Systems Engineering
- Condition Monitoring and SQA
- Computer Aided design (CAD)
- Smart Instruments and Networks
- Project Management

In addition, you will undertake plant-based assignments and project work in each year of study providing an opportunity to apply the knowledge gained in the classroom to real problems in the industry.

What qualifications will I obtain?
Foundation Degree in Plant Engineering (Engineering Systems). The awarding body is the University of Cumbria.

Prerequisites
A minimum of 120 UCAS points with A Levels in appropriate subjects + 5 GCSEs at grade A-C, including English, Maths, Physics or Maths, Physics or Science at A level, or Level 3 National Certificate (eg BTEC) in science or engineering.

Foundation Degree in Plant Engineering, or HND in Engineering (240 credits)

Duration
2 years part-time on a day-release basis for 30 weeks per year (January – December).

Location
This course is delivered by Gen2 in Energus, Lillyhall, Workington.

What next?
Students achieving the FD in Plant Engineering can progress to a BEng(Hons) in Plant Engineering. This requires a further 2 years of part-time (day-release) study.

For further information on this course, please call our Recruitment Team on:

Workington 01900 701300 / 07734 194 531
Carlisle 01228 594880 / 07590 439 929
Furness 01229 483760 / 07540 686 554

Email: info@gen2.ac.uk  Web: www.gen2.ac.uk

BEng(Hons) Degree in Plant Engineering (Nuclear Technology)

Programme Overview
The BEng(Hons) Degree in Plant Engineering (Nuclear Technology) provides a progression route for individuals who have completed the Foundation Degree in Plant Engineering (Nuclear Technology). The programme is intended for those involved in the design, commissioning, operation and maintenance of new and existing nuclear processing plants. The course delivers a broad curriculum of electrical, electronic, mechanical and control engineering to reflect the full range of disciplines and competences required to operate a modern industrial process plant. In addition, the course provides an appropriate level of knowledge of nuclear science, technology and radiation protection in order to reflect the unique safety-critical environment in which nuclear plants operate.

Who should apply?
The programme is designed for individuals already in employment within the industrial plant engineering sector who wish to develop their knowledge of, and level of qualification, in plant engineering. Applicants should be sponsored by their employer.

What will I study?
In Year 1, you will study a combination of core (mandatory) subjects and optional modules, dependent on your chosen learning pathway from the following:
- Plant Automation
- Structural Integrity and Materials Performance
- Nuclear Reactor Operations and Fuel Technology
- Plant Control Engineering
- Processing of Irradiated Materials
- Advanced Thermal-hydraulics
- Plant Design and Simulation

In year 2, you will undertake a project on an nuclear processing plant-based topic, leading to a dissertation and oral presentation.

What qualifications will I obtain?
BEng(Hons) Degree in Plant Engineering (Nuclear Technology)
The awarding body is the University of Cumbria.

Prerequisites
Foundation Degree in Plant Engineering, or HND in Engineering (240 credits)

Duration
2 years part-time on a day-release basis for 30 weeks per year (January – December).

Location
This course is delivered by Gen2 in Energus, Lillyhall, Workington.

What next?
Students achieving the BEng(Hons) in Plant Engineering can progress to various postgraduate programmes of study in engineering at PgCert, PgDip and Masters level.
BEng(Hons) Degree in Plant Engineering (Eng. Systems)

Programme Overview
The BEng(Hons) Degree in Plant Engineering (Engineering Systems) provides a progression route for individuals who have completed the Foundation Degree in Plant Engineering (Engineering Systems). The programme is intended for those who wish to develop their knowledge of, and level of qualification, in plant engineering. Applicants should be sponsored by their employer.

Who should apply?
The programme is designed for individuals already in employment within the industrial plant engineering sector who wish to develop their knowledge of, and level of qualification, in plant engineering. Applicants should be sponsored by their employer.

What will I study?
In Year 1, you will study a combination of core (mandatory) subjects and optional modules, dependent on your chosen learning pathway from the following:
- Nuclear Decommissioning and Waste Management
- Nuclear Safety Management
- The Nuclear Industry and the Nuclear Fuel Cycle
- Civil Nuclear Reactor Technology
- Nuclear Professionalism
- The Nuclear Industry and the Nuclear Fuel Cycle
- Civil Nuclear Reactor Technology
- Nuclear Professionalism

Prerequisites
Foundation Degree in Plant Engineering, or HND in Engineering (240 credits)

Duration
2 years part-time on a day-release basis for 30 weeks per year (January – December).

Location
This course is delivered by Gen2 in Energus, Lillyhall, Workington.

What next?
- Students achieving the BEng(Hons) in Plant Engineering can progress to various postgraduate programmes of study in engineering at PgCert, PgDip and Masters level.

For further information on this course, please call our Recruitment Team on:
Workington 01900 701300 / 07731 499531
Carlisle 01228 594890 / 07590 439929
Furness 01229 483760 / 07540 686554
Email: info@gen2.ac.uk Web: www.gen2.ac.uk

Postgraduate Certificate in Nuclear Technology

Programme Overview
The Postgraduate Certificate in Nuclear Technology is a programme of study offered by the University of Manchester (UoM). Delivery of the programme is by a partnership of UoM and Gen2. This qualification has been specially designed for engineering graduates with no prior nuclear engineering knowledge. The programme provides learners with an advanced level of knowledge and understanding of the UK nuclear industry, the underlying technology and its unique challenges, with particular emphasis on nuclear safety and environmental protection.

Who should apply?
Engineering and science graduates new to the nuclear industry or more experienced graduates who wish to enhance their nuclear knowledge and level of qualification.

What will I study?
You will study four modules as follows:
- The Nuclear Industry and the Nuclear Fuel Cycle
- Civil Nuclear Reactor Technology
- Nuclear Safety Management
- Nuclear Decommissioning and Waste Management

Prerequisites
An honours degree in engineering or science at class 2.ii or above.

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Email: info@gen2.ac.uk Web: www.gen2.ac.uk

Location
This course is delivered by Gen2 in Energus, Lillyhall, Workington.

What qualifications will I obtain?
- BEng(Hons) Degree in Plant Engineering (Engineering Systems)
- The awarding body is the University of Cumbria

Prerequisites
Foundation Degree in Plant Engineering, or HND in Engineering (240 credits)

Duration
2 years part-time on a day-release basis for 30 weeks per year (January – December).

Location
This course is delivered by Gen2 in Energus, Lillyhall, Workington.

What next?
- Students achieving the PgCert(Nuclear Technology) are eligible to transfer into the MSc programme in Nuclear Technology delivered by the Nuclear Technology Education Consortium (NTEC). Follow the link below for details: http://www.ntec.ac.uk/

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Carlisle 01228 594890 / 07590 439929
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Email: info@gen2.ac.uk Web: www.gen2.ac.uk
The nuclear sector in the UK is facing an unprecedented challenge to ensure that we have the skills, capability and capacity to deliver a diverse range of programmes including continued operation of existing nuclear plants and associated fuel cycle facilities, decommissioning of legacy facilities and associated radioactive waste management, plutonium disposition and nuclear new build.

Gen2 works with over 250 employers to deliver in excess of 10,000 delegate-days per year of short, specialist training courses, many of which are tackling areas of skills shortage for the nuclear sector. We are already engaged in training delivery for leading companies involved in nuclear new build programmes in the UK and overseas.

Our portfolio extends to broad range of levels and disciplines including awareness/entry level courses providing a broad overview of the nuclear industry and the underlying technology through to highly-specialised courses focusing on, for example, nuclear safety case development, nuclear licensing, reactor operations and nuclear fuel cycle technologies.

Our short courses are tailored to meet the needs of the employer, designed to national standards and are accredited by professional bodies. Our courses can be delivered at Gen2 training centres in Cumbria or at the employers’ site. Residential courses can also be delivered at the Summergrove Halls training and conference centre near Whitehaven.

### Course Aims
This course aims to provide delegates with a foundation level of understanding of the scientific and engineering principles underlying nuclear power generation and other nuclear industrial activities, the way in which the sector is organised and specific technological and environmental challenges facing the industry.

### Course Duration:
5 days.

### Course Target Group
The course is aimed at personnel new to the nuclear industry who require an awareness of industry framework and an appreciation of the underlying technology. No prior knowledge is assumed. The course is suitable for all levels, from apprentices through to graduates in a technical or non-technical role.

### Delivery of the Course
The taught part of the course is likely to be of 5 days duration (mainly classroom based), preceded by a pre-course directed learning phase and followed by post-course assignment-based study.

### Accreditation Body
This course is accredited by PAA/VQ-SET and recognised by NSAN.

### Course Content
The course is delivered in three modules:

**Module 1**
- Scientific fundamentals of nuclear energy
- Radiation hazards and radiation protection
- Nuclear safety

**Module 2**
- History of the development of the UK nuclear industry
- The current industry and the roles of key stakeholders
- Nuclear safety regulation

**Module 3**
- Nuclear power generation
- The nuclear fuel cycle
- Nuclear decommissioning
- Waste management and environmental issues.

### Location
This course is delivered by Gen2 in Energus, Lillyhall, Workington.

### For further information on this course, please call our Recruitment Team on:
- Workington 01900 701300 / 07739 149531
- Carlisle 01228 599890 / 07540 439429
- Furness 01229 483760 / 07540 686554

Email: info@gen2.ac.uk Web: www.gen2.ac.uk
Diploma in Nuclear Decommissioning- NVQ Level 2

Course Overview
This programme is designed to provide a qualification to support people who wish to gain employment or are currently employed in the area of nuclear technology decommissioning.

Course Duration
6 to 8 months (given reasonable access to the candidate and suitable work being available).

Course Target Group
The Level 2 Qualification is intended for those who undertake decontamination operations and dismantle plant and equipment or are involved in maintenance and monitoring activities.

The qualification covers a specialised function; it provides the learner with the ability and essential knowledge to specialise in the decommissioning of nuclear facilities. The qualification will enable staff to understand the specific skill requirements within this sector. Industry has suggested that there will be increasing demands for qualified personnel to work on nuclear plant.

Delivery of the Programme
The programme is substantially practical, assessment is in the workplace during normal working. If a training need is identified, the delivery can be discussed and agreed between the employer, candidate and assessor. (The cost of any such training may be additional to the agreed financial arrangements of the award).

Accreditation Body
City and Guilds

Assessment and Support
Candidates are required to undergo assessment against 16 units to gain the full award. 11 of these units are mandatory and selected as 5 from 17 optional units to make up a full complement. Candidates agree the dates for the assessments with the assessor. The assessor visits the workplace to observe candidates carrying out tasks and feeds back one to one.

The assessor also acts as a local tutor / mentor and is available to give assistance to the candidate whilst completing the award. The Gen2 Assessment Centre at B111 Sellafield is also available for help and support.

Expected Candidate Activities & Attendance (per month):
Assessment in the workplace – 2 to 3 sessions per month at 4hrs each 12 hours max.
Tutorial / review – B111 Sellafield Centre 1 hour
Additional training where need is identified – Est 2.5 hrs

Diploma in Nuclear Decommissioning- NVQ Level 3

Course Overview
This programme is designed to provide a qualification to support people who wish to gain employment or are currently employed in the area of nuclear technology decommissioning.

Course Duration
6 to 8 months (given reasonable access to the candidate and suitable work being available).

Course Target Group
This programme is designed to provide a qualification to support people who wish to gain employment or are currently employed in the area of nuclear technology decommissioning.

Delivery of the Programme
The programme is substantially practical, assessment is in the workplace during normal working. If a training need is identified, the delivery can be discussed and agreed between the employer, candidate and assessor. (The cost of any such training may be additional to the agreed financial arrangements of the award).

Accreditation Body
City and Guilds

Assessment and Support
Candidates are required to undergo assessment against 16 units to gain the full award. 11 of these units are mandatory and selected as 5 from 17 optional units to make up a full complement. Candidates agree the dates for the assessments with the assessor. The assessor visits the workplace to observe candidates carrying out tasks and feeds back one to one.

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Additional training where need is identified – Est 2.5 hrs

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Email: info@gen2.ac.uk Web: www.gen2.ac.uk
Course Aims
This course aims to provide delegates who are, or intend to become, radiation monitors with a good understanding of the properties of ionising radiations, radiation protection principles, the operating principles of radiation detectors and hands-on practical experience in the use of instruments used for radiation surveys and contamination monitoring.

The course will also benefit those who require a basic level of understanding of radiation protection principles and practices, including an overview of the relevant legislation.

Course Duration
The course is normally delivered over 3 weeks (15 days). The course is examined in a 3-hour written examination and oral assessment on dates set by the accrediting body. Other delivery schedules and locations may be available.

Course Target Group
This course is suitable for personnel undergoing training as Health Physics Monitors or personnel who require a basic level of understanding of radiation safety in the workplace.

Accreditation Body
City and Guilds

Location
This course is delivered by Gen2 in Energus at Lillyhall, Workington.

Course Content
The course covers all three modules of the RSP-1 qualification:

- Radiation Safety Theory
  - Properties of radiation
  - Biological effects of radiation
  - Radiation protection units
  - Radiation protection principles
  - Radiation protection in practice
  - Radiation detection and measurement
  - Laboratory-based Practical Assignments

- Nuclear Reactors Supplementary
  - Radiation sources in a nuclear reactor
  - Radiation protection practices in a nuclear reactor
  - Radiation surveys in a nuclear reactor
  - Radioactive waste and discharge management

Course Overview
The Triple Bar is three short courses which have been designed with industry involvement to prepare individuals requiring unescorted access to nuclear sites. All of the courses within the Triple Bar suite have been developed to Nuclear Industry Standards and can be recorded on the Nuclear Skills Passport. The training is focused at a fundamental level to introduce the requirements for compliance, nuclear awareness and industry behaviours for working in the nuclear industry. Sites may test your knowledge upon arrival onsite depending on the length of time from your completion of these courses to ensure knowledge retention.

Course Duration: 1 day.

Accreditation Body
The National Skills Academy, Nuclear.

Location
This course is delivered by Gen2 in Energus, Lillyhall, Workington.

Course Structure
This three elements of this course are:

- Basic Nuclear Industry Behaviours
  - Understand the importance of event and near-miss reporting and the application of learning from experience.
  - Understand the importance of safe behaviours and safety culture.
  - Understand Human Performance tools and techniques for the prevention of error.
  - Understand what workplace observation is and why it is carried out.

- Basic Nuclear Industry Context
  - Know about radiation and contamination for safe working in the nuclear industry.
  - Know about the history of nuclear, the lesson learned for future safe operation and how nuclear energy is produced and used.
  - Know about the importance of nuclear safety culture and the need for compliance within the industry.

- Basic Common Induction Standard
  - An awareness of the legislation that applies to licensed nuclear sites in the UK.
  - An awareness that for safe working in close proximity to radiological hazards, special conditions exist.
  - An awareness of the security requirements and behavioural expectations that exist for working on a licensed nuclear site in the UK.

For further information on this course, please call our Recruitment Team on:

- Workington: 01900 701300 / 07734 149 531
- Carlisle: 01228 599890 / 07590 439 329
- Furness: 01229 483760 / 07540 686 554

Email: info@gen2.ac.uk  Web: www.gen2.ac.uk
**Course Aims**
This course aims to provide engineers, scientists and others with a good understanding of the key elements of a modern nuclear safety case, experience in the application of hazard and risk analysis techniques and an appreciation of the regulatory requirements, standards and criteria against which a nuclear safety case is assessed.

**Course Duration:** 5 days.

**Course Target Group**
The course is aimed at personnel involved, or intending to become involved, in the writing, review or assessment of nuclear safety cases. The course is suitable for graduate engineers and scientists with some basic understanding of probability theory.

No prior knowledge of nuclear engineering or radiation science is required as these topics will be addressed on course to the level required for safety case development.

**Accreditation Body**
This course is accredited by Gen2 and recognised by NSAN.

**Assessment**
The course is not formally assessed. However, an essential feature of the course is the development, by delegates, of parts of a nuclear safety case for a model (hypothetical) nuclear facility. Delegates should therefore be prepared to engage in individual study and syndicate work to gain maximum benefit from the course.

**Course Content**
The course covers the following elements:
- Regulatory expectations and guidance on the development of nuclear safety cases.
- Safety principles, standards and criteria applicable to nuclear activities.
- Guidance on the purpose, scope and content of nuclear safety cases.
- Managing the production, assessment and approval processes for nuclear safety cases.
- Hazard identification and analysis techniques.
- Fault sequence analysis.
- Deterministic analysis of design basis fault sequences.
- Radiological impact analysis for routine operations and fault sequences.
- Fault and Event Tree Analysis
- The role of Probabilistic Safety Analysis (PSA) in nuclear safety cases.
- Application of the ALARP principle.
- Maintenance and review of the nuclear safety case.
- The impact of a facility nuclear safety case on the wider safety management arrangements.

**Delivery of the Course**
The course is delivered by Gen2 on a full-time basis over 4 consecutive days from Energus, Lillyhall, Workington, CA14 4JW.

This is a non-residential course and delegates will be required to arrange their own accommodation if required.

The Energus Building has facilities for coffee, tea, lunches and light refreshments.

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**Aims**
To provide delegates with an understanding of the nuclear fuel cycle, with particular emphasis on technological, safety, environmental and economic issues.

**Duration:** 5 days

**Target Group**
Personnel involved in activities related to nuclear power or the nuclear fuel cycle.

**Entry Qualifications**
The content and level is aimed at science and engineering graduates.

**Accrediting Body:** N/A

**Content**
The course covers the following topics:
- Overview of the Nuclear Fuel Cycle
- Uranium Production - Supply, Demand and Prices
- Uranium Mining and Milling
- Uranium Purification and Conversion
- Uranium Enrichment
- Uranium Manufacturing
- Uranium Refucing and Conversion
- Uranium Enrichment
- Fuel Manufacturing
- Spent Fuel Management and Transport
- Nuclear Fuel Reprocessing
- Recycling
- Nuclear Fuel Economics
- Other Fuel Cycles (Thorium)

**Assessment**
The course is assessed by mean of a short-answer test on completion of the taught element.

**Delivery**
The course is delivered from the Gen2 training centre in the Energus Building, Lillyhall, near Workington, Cumbria CA14 4JW or from the employer’s site.

For further information on this course, please call our Recruitment Team on:
- Workington 01900 701300 / 07734 199 531
- Carlisle 01228 598890 / 07590 439 929
- Furness 01229 483760 / 07540 686 554

Email: info@gen2.ac.uk  Web: www.gen2.ac.uk
**Aims**
To provide personnel appointed as Radiation Protection Supervisors with an understanding of radiation protection principles, practices and legal requirements in order that they can fulfil their supervisory duties safely and effectively in a controlled radiation area.

**Duration:** 2 days

**Target Group**
Personnel about to be appointed as Radiation Protection Supervisors in accordance with the Ionising Radiations Regulations 1999.

**Entry Qualifications**
None

**Accrediting Body:** N/A

**Content**
The course content follows the Core of Competence for Radiation Protection Supervisors as set out HSE Information Ionising Radiation Protection Series No 6, and includes the following topics:
- Basic Atomic and Nuclear Science
- Radioactivity and Properties of Radiation
- Radiation Quantities and Units
- Health Effects of Ionising Radiation
- Radiation Detection, Measurement and Monitoring
- Legal Requirements for Radiation Protection
- Radiation Protection Practices – External Radiation Hazards
- Radiation Protection Practices – Internal Radiation Hazards
- Duties of the Radiation Protection Supervisor
- Local Rule

**Assessment**
The course is assessed by means of a short-answer test on completion of the taught element.

**Delivery**
The course is delivered from the Gen2 training centre in the Energus Building, Lillyhall, near Workington, Cumbria CA14 4JW.

As the course involves laboratory-based exercises using radioactive material, this course cannot be delivered at the employer’s site unless suitable facilities are available.

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**Radiation Protection for Safety Advisers**

**Aims**
To provide personnel appointed as Health and Safety Advisers with a basic understanding of radiation protection principles, practices and legal requirements in order that they can fulfil their advisory role in an effective manner in radiation facilities.

**Duration:** 8 days

**Target Group**
Personnel appointed as Health and Safety Advisers covering facilities in which there exists a hazard from ionising radiation.

**Entry Qualifications:** None

**Accrediting Body:** N/A

**Content**
This course assumes delegates have no prior knowledge of radiation science or radiation protection. The course content includes the following:
- Mathematics – Logarithms, Exponentials
- Basic Statistics – Mean, Mode, Median, Standard Deviation.
- The Normal Distribution and its Properties
- Basic Atomic and Nuclear Science
- Radioactivity and Properties of Radiation
- Radiation Quantities and Units
- Health Effects of Ionising Radiation
- Radiation Detection, Measurement and Monitoring
- Measuring activity and counting statistics.
- Legal Requirements for Radiation Protection
- Radiation Protection Practices – External Radiation Hazards
- Radiation Protection Practices – Internal Radiation Hazards
- Duties of the Radiation Protection Supervisor
- Local Rule

**Assessment**
The course is assessed by means of a short-answer test on completion of the taught element.

**Delivery**
The course is delivered from the Gen2 training centre in the Energus Building, Lillyhall, near Workington, Cumbria CA14 4JW.

As the course involves laboratory-based exercises using radioactive material, this course cannot be delivered at the employer’s site unless suitable facilities are available.

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For further information on this course, please call our Recruitment Team on:
- **Workington** 01900 701300 / 07739 199 531
- **Carlisle** 01228 599890 / 07590 439 924
- **Furness** 01229 483760 / 07540 686 554

Email: info@gen2.ac.uk  Web: www.gen2.ac.uk
Aims
To provide generic nuclear fundamentals training to personnel appointed as nuclear reactor plant engineers, control room operators, field operators or other roles that require an understanding of the design and operation of a modern Pressurised Water Reactor or Boiling Water Reactor.

Duration: 12 weeks full time

Target Group
Personnel appointed to technical posts in a nuclear power plant with responsibility for the safe operation, maintenance and management of the plant.

Entry Qualifications
The content and level is aimed at science and engineering graduates.

Accrediting Body: N/A

Content
The course content is aligned to the specification set out in US NRC NUREG ES 205-401 and relevant parts of 10CFR 55.41(b) for PWR or BWR operators. The course is delivered in three modules:

**PWR or BWR Systems and Components:**
- Valves
- Sensors and Detectors
- Controllers and Positioners
- Pumps
- Motor Generators
- Heat Exchangers and Condensers
- Demineralisers and Ion Exchangers
- Breakers, Relays and Disconnects

**Reactor Theory:**
- Fission and the Neutron Chain Reaction
- Neutron Life Cycle
- Reactor Kinetics
- Reactivity and Reactivity Coefficients
- Reactivity Control
- Fission Product Poisons
- Through-life Reactivity, Fuel Depletion and Burnable Poisons
- Operational Reactor Physics
- Start-up, Approach to Critical, Sub-Power and Power Operations
- Reactor Shutdown and Decay Heat

**Reactor Thermal Hydraulics:**
- Thermodynamic Units and Properties
- Basic Energy Concepts (Enthalpy, Entropy)
- Properties of Steam
- Thermodynamic Processes and Cycles
- Fluid Properties
- Heat Transfer Processes
- Heat Exchangers
- Thermal Hydraulics of PWR or BWR
- Core Thermal Limits
- Brittle Fracture and Pressure Vessel Stress

Assessment
Assessment will be in accordance with the Generic Fundamentals Examination (GFE) used as part of the formal assessment of trainee PWR/BWR operators by the US Nuclear Regulator Commission. The GFE consists of 50 multiple-choice test items that examine applicant knowledge in the three modules of Reactor Theory, Reactor Thermodynamics and BWR Systems and Components. A pass mark will be agreed with the client.

Delivery
The course is delivered from the Gen2 training centre in the Energus Building, Lillyhall, near Workington, Cumbria CA14 4JW.
Gen2 will deliver this course in partnership with Tecnatom SA of Spain.

For further information on this course, please call our Recruitment Team on:
- Workington: 01900 701 300 / 07739 198 531
- Carlisle: 01228 599 890 / 07590 439 929
- Furness: 01229 483 760 / 07540 686 554

Email: info@gen2.ac.uk  Web: www.gen2.ac.uk
Nuclear Licensing and Permitting

**Aims**
To provide personnel appointed to technical posts in nuclear power generation with a basic understanding of the nuclear regulatory framework with specific emphasis on nuclear safety, security, safeguards, environmental protection and liabilities funding.

**Duration:** 5 days

**Target Group**
Personnel appointed to technical posts in a nuclear power plant.

**Entry Qualifications:** None

**Accrediting Body:** N/A

**Content**
The course covers the following topics:
- International Nuclear Law
- UK Nuclear Law
- Regulatory Approaches
- Role of the Office for Nuclear Regulation
- Roles and Responsibilities of Licensees
- Nuclear Safety Standards, Guidance and Principles
- Regulatory requirements for:
  - Siting
  - Design Process
  - Construction
  - Commissioning
  - Operations
  - Decommissioning
  - Waste Management
  - Emergency Planning
- Decommissioning Liability Funding
- Regulation of Nuclear Security
- Radioactive Transport Regulations
- Nuclear Environmental Law
- Role of the Environmental Agencies
- Permitting for Radioactive Waste Disposal and Discharges
- Nuclear Safeguards

**Assessment**
The course is assessed by means of a short-answer test on completion of the taught element.

**Delivery**
The course is delivered from the Gen2 training centre in the Energus Building, Lillyhall, near Workington, Cumbria CA14 4JW or from the employer’s site.

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Reactor Thermal-Hydraulics

**Aims**
To provide delegates with an introduction to the thermal hydraulics of Pressurised Water Reactors.

**Duration:** 2 days

**Target Group**
Personnel involved in the design, assessment or operation of Pressurised Water Reactors.

**Entry Qualifications**
This course is designed for science or engineering graduates.

**Accrediting Body:** N/A

**Content**
The course covers the following topics:
- PWR Core Design
- Heat Transfer Basics (Conduction, Convection, Radiation)
- Neutron flux profiles and power density
- Fuel Radial Temperature Profiles
- Core Axial Temperature Profiles
- Thermal Limits
- Departure from Nucleate Boiling
- Deriving maximum power from a core of specified geometry and materials.

**Assessment**
The course is assessed by means of a short-answer test on completion of the taught element.

**Delivery**
The course is delivered from the Gen2 training centre in the Energus Building, Lillyhall, near Workington, Cumbria CA14 4JW or from the employer’s site.

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For further information on this course, please call our Recruitment Team on:
- Workington: 01900 701 300 / 07734 149 531
- Carlisle: 01228 599 890 / 07590 439 929
- Furness: 01229 483 760 / 07540 686 554

Email: info@gen2.ac.uk  Web: www.gen2.ac.uk
Gen2 is able to offer engineering apprenticeships at all levels including Intermediate (Level 2), Advanced (Level 3), Higher (Level 5) and Degree (Level 6). We also offer a range of access course to assist learners in achieving the necessary entry qualifications.

Apprenticeships are at the very core of Gen2. We are the first work based training provider in the North West to have achieved an Ofsted Grade 1 ‘outstanding provider’. Since 2000, we have trained more than 2,000 apprentices for over 250 organisations from our six skills centres throughout Cumbria.

Our ethos is to help your company stay one step ahead. In a tough climate where there are key skill shortages and companies facing serious demographic issues, Gen2 produce a steady flow of craftspeople and talented graduates in sought after disciplines.

We will work closely with you to deliver flexible apprenticeship schemes that meet your specific needs. Gen2 apprenticeships are also available to existing employees, regardless of age.

**Gen 2:**
- Are an Ofsted Grade 1 training provider.
- Currently have over 1,000 apprentices in learning.
- Provide a wide range of engineering, manufacturing and business support apprenticeships.
- Provide a choice of apprenticeship in house and on-site training models.
- Ensure student success rates are typically 20% above the national average.
- Can demonstrate that 94% of apprentices who complete their apprenticeship move immediately into employment.
- Provide full progression routes from Apprenticeships into Higher Education.

**Prerequisites**

- Minimum age is 18 years, to comply with Classified Workers requirements.
- Preferred results: a minimum of four GCSE grades A-C (including English, Maths and Science).
- Successfully pass the Gen2 aptitude testing and a satisfactory reference.

**Duration:** 24 months.

**Location**

West Cumbria.

**What qualifications will I obtain?**

- RSP Stage 1
- Level 2 NVQ Diploma in Radiological Protection
- Award in Nuclear Industry Awareness
- IOSH Working Safely

**The role of a Health Physics Monitor Apprentice:**

The principle function of a Health Physics Monitor is to provide a radiological safety and monitoring service to customers in order to meet business needs to defined standards.

The role is to monitor radiation dose rates, personnel, surface and airborne contamination, recording the levels detected and responding accordingly. Health Physics Monitors may also be part of the emergency response arrangements.

**Duties and aspects of the role will also include:**
- Undertake clearance monitoring
- Function test radiation protection instrumentation
- Record radiation protection monitoring and survey results
- Working at heights via the use of ladders and scaffolding
- Working in confined spaces
- Use of Personal Protective Equipment (PPE)
- Use of Respiratory Protective Equipment such as respirators and breathing apparatus
- Obtaining information (readings), analysing the information and determining actions
- Understand the relevant health and safety legislation with reference to the tasks, the plant and the actions required to control hazards
- To understand and have relevant background knowledge in science: the principles involved in the operation, maintenance of the processes and equipment used

**Where will my training be delivered?**

The first year will be spent training in the Energus facility at Lillyhall with one day per week studying a Technical Certificate.

After this, you will join your employer and undertake work experience to gain relevant skills and experience. During this time you will continue to work towards a Technical Certificate as well as returning for specialist training and projects at the Gen2 Energus facility.

For further information on this course, please call our Recruitment Team on:

**Workington**
01900 701300 / 07739 199531

**Carlisle**
01228 599890 / 07590 439929

**Furness**
01229 483760 / 07540 686554

Email: info@gen2.ac.uk Web: www.gen2.ac.uk

Gen2 are committed to equality and the safeguarding of learners.

Health Physics Monitor Intermediate Apprenticeship
What will I study as a Nuclear Operator Apprentice with Gen2?
- Safe use of equipment and tools
- Safe working practices
- Accurate measurements and readings
- Basic maintenance skills
- Oxy fuel cutting methods
- Plasma cutting
- Health & safety
- Glove box training

The role of a Nuclear Operator Apprentice:
The work carried out by a Nuclear Operator can vary greatly and this programme will prepare learners to engage in both nuclear decommissioning activities and process operations. Nuclear decommissioning involves the safe shutting down and dismantling of nuclear power plants that have reached the end of their energy producing life, ensuring that there is no danger from radioactive materials and no chance of accident to people visiting the site. Process operations entails the operation of large and often complex machinery and equipment, making sure they run safely and efficiently. These skills are transferable to other fields such as environmental restoration or general engineering activities that are carried out within many businesses in the chemical, polymer and petrochemical industries. Year one will be spent giving you a wide range of engineering and nuclear related skills in preparation for assessment on your NVQ Level 2 in the workplace including basic hand skills, maintenance skills, process measurement and control.

Prerequisites
GCSE Grades A-C in Mathematics, English and Science. Successfully pass the Gen2 aptitude testing and a satisfactory reference. Minimum age for this programme is 17 at the start of the programme.

Duration: 24 months.

Location
West Cumbria.

What qualifications will I obtain?
Level 2 Diploma in Process Operations or Technical Certificate – BTEC Level 2 Extended Certificate in Engineering or BTEC Level 2 Diploma in Engineering Functional skills / personal learning and thinking skills / employee rights and responsibilities

This is carried out on site placement and the modules will be agreed locally by each plant where the apprentice is assigned to. Some examples of Sellafield Ltd “on plant” training that apprentices will carry out in process or decommissioning include:
- Health & Safety courses
- Building induction course
- Glove box training
- Monitored or classified medicals
- Crane driving
- Fork lift truck driving
- Red and green waste route course
- Basic monitoring techniques

The Nuclear Operator Apprenticeship scheme is divided into two types of career paths dependent upon employer requirements:

1. Nuclear Plant Operators:
These people are trained to operate and maintain chemical and process plants that make a variety of products. Operators will monitor levels of flow, chemicals, temperature, waste products and radiation. They may take samples of products at different stages of the processes in their building and send them to another part of site for analysis for the business, customers, UK and international agencies. Some Plant Operators will be trained in plant control rooms which are automated processes to allow chemicals and products to be moved around the building or site in a controlled manner. Other plants will manufacture products e.g. nuclear fuel pellets or put waste products into containers for UK and overseas customers.

2. Decommissioning Operator:
These operators will be trained to clean out and decommission old buildings and any redundant equipment as required to ensure that vessels and pipe work have no liquids inside them, monitored for contamination prior to them being cut up and size reduced before “bagging” them for disposal. These operators will be trained to use a variety of cutting techniques, basic monitoring and collecting waste.

Where will my training be delivered?
This apprenticeship is only available in West Cumbria. The first year will be spent training in our Energus facility at Lillyhall. The second year will be in the workplace with four days per week on site and day release for further education with Gen2. In year one, learners are employed by Gen2 but in year two learners will be employed by a company operating at a nuclear facility, potentially Sellafield.
Process Intermediate Apprenticeship

Prerequisites
GCSE Grades A-C in Mathematics, English and Science although employer requirements may vary. Successfully pass the Gen2 aptitude testing and a satisfactory reference.

Duration: 12 - 18 months.

Location
West Cumbria, Carlisle and Furness.

What qualifications will I obtain?
NVQ Level 2 in Process Industries and Operations Technical Certificate - Level 2 Diploma in Process Technology Functional skills / personal learning and thinking skills / employee rights and responsibilities

The role of a Process Apprentice:
As a Process Operator you will typically work in a manufacturing company that makes use of large and often complex pieces of machinery and equipment. It will be your duty to keep it operating safely and efficiently. You will also need to take samples of materials for analysis. Since many manufacturing plants run day and night, you may be required to work shifts. You will also be required to maintain a safe work area to ensure the effective running of plant and equipment.

Where will my training be delivered?
You will be employed by your employer from day one, undertaking your training in the workplace. You will be granted day release in order to study for a Technical Certificate at one of our Skills Centres for at least one day per week.

Scientific Advanced Apprenticeship

Prerequisites
GCSE Grades A-C in Mathematics, English and ICT although employer requirements may vary and they may also look for an AS/A Level qualification in a STEM subject. Please note that Sellafield Ltd also require an A-Level in Chemistry. Successfully pass the Gen2 aptitude testing and a satisfactory reference. Applicants must be 18 at the start of the programme.

Duration: 36 months.

Location
West Cumbria, Carlisle and Furness

What will I study as a Scientific Apprentice with Gen2?
Calibrations
Sampling and titrations
Conduct investigations and tests
Assess data and write reports
Dealing with technical data
Develop presentation techniques

The role of a Scientific Apprentice:
Scientific Technicians perform a wide variety of roles in the nuclear, chemical and manufacturing industries, as well as in academic and research establishments throughout Cumbria. Scientific Technicians are needed to test and calibrate equipment as well as undertake investigations and analyse samples. They are likely to work with hazardous substances, so it will be necessary for you to have a strong understanding of health and safety procedures and safe working practices.

During the apprenticeship:
You will be aware of health and safety regulations
You will be improving your working relations everyday as you are likely to be working in teams
You will manage information and use computers
You are likely to work with hazardous substances
You could help to manage the equipment kept in the stores
You will manage data and produce reports
You will create presentations on work you have completed.

Where will my training be delivered?
You will attend one of the Gen2 Skills Centres for your initial induction and then you will be placed with your employer.
Aims
To develop highly-skilled engineers and technicians for the nuclear industry with advanced academic abilities in science and engineering complemented by extensive nuclear plant experience.

Duration: 5 years

Target Group
School leavers and others wishing to take up employment as advanced technicians within the nuclear sector and who wish to achieve degree level qualifications while in paid employment.

Entry Qualifications
Individual employers will set the selection criteria for their degree apprentices. Typically candidates will have achieved grade C or above in at least five GCSE’s including English, Maths and a Science subject. Candidates will also be expected to hold A-levels, typically with a minimum of 240 UCAS points or equivalent Level 3 qualifications in a relevant subject area. Other relevant prior experience may also be considered as an alternative.

Programme Content
The on-the-job elements of the programme will develop practical skills, knowledge and experience through participation in a variety of projects based on improving plant operations. In addition, the programme will inculcate essential nuclear safety and security behavioural attributes for working in this highly-regulated safety-critical industry.

The academic element the programme includes a BEng(Hons) in Plant Engineering (Nuclear) made up of core and optional modules:

Core Subjects:
- Mathematics
- ITC
- Mechanical Science and Engineering
- Engineering Design, Drawing and CAD
- Electrical Science and Engineering
- Electronic Engineering
- Chemistry
- Process Dynamics
- Plant and Process Control Systems
- Instrumentation, Testing and Calibration
- Measurement and Control
- Thermo-Fluids and Heat Transfer

Optional Subjects:
- Plant Commissioning
- Nuclear Decommissioning
- Nuclear Plant Principles
- Nuclear Materials
- Nuclear Reactor Technology
- Condition monitoring and SQA
- Smart Instruments and Networks

In addition, the programme includes plant-based assignments and project work providing an opportunity to apply the knowledge gained in the classroom to real problems in a nuclear facility.

Assessment
The BEng(Hons) in Plant Engineering is assessed by written examinations, coursework and a major industrial project in the final year.

The Degree Apprenticeship (Nuclear) includes, in addition to the academic assessment, continuous assessment of on-the-job personal development and an end-point synoptic assessment based on a portfolio of evidence.

Qualifications Achieved
BEng(Hons) in Plant Engineering (Nuclear Technology) awarded by the University of Cumbria. Learners achieving the Degree Apprenticeship (Nuclear) will be eligible to register as Incorporated Engineers (IEng) in accordance with Engineering Council regulations.

Delivery
On-the-job elements are delivered at the employer’s site. Academic elements are delivered on a part-time day-release basis by Gen2 from the Energus Building, Lillyhall, near Workington, Cumbria CA14 4JW.

For further information on this course, please call our Recruitment Team on:
- Workington: 01900 701300 / 07734 199 531
- Carlisle: 01228 599880 / 07590 439 929
- Furness: 01229 483760 / 07540 686 554

Email: info@gen2.ac.uk  Web: www.gen2.ac.uk

Degree Apprenticeship for Nuclear

Other Courses Available at Gen2

Electrical Engineering courses available:

<table>
<thead>
<tr>
<th>Course</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inspection, Testing &amp; Certification of Electrical Installations - City &amp; Guilds 2395</td>
<td>4 days plus a half day assessment</td>
</tr>
<tr>
<td>Electrical Safety</td>
<td>1 day</td>
</tr>
<tr>
<td>Electrical Upskilling</td>
<td>5-10 days depending on experience</td>
</tr>
<tr>
<td>Further Instrumentation &amp; Control</td>
<td>5 days</td>
</tr>
</tbody>
</table>

Mechanical Engineering courses include:

<table>
<thead>
<tr>
<th>Course</th>
<th>Duration</th>
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</thead>
<tbody>
<tr>
<td>Pneumatics</td>
<td>3 days</td>
</tr>
<tr>
<td>Hydraulics</td>
<td>3 days</td>
</tr>
<tr>
<td>Process Control</td>
<td>5 days</td>
</tr>
<tr>
<td>Process Plant Pumping &amp; Piping Systems</td>
<td>5 days</td>
</tr>
<tr>
<td>Technology of Fluid in Pipelines</td>
<td>5 days</td>
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NVQs include:

<table>
<thead>
<tr>
<th>Course</th>
<th>Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Improvement Techniques</td>
<td>2 &amp; 3</td>
</tr>
<tr>
<td>Performing Manufacturing Operations</td>
<td>2</td>
</tr>
<tr>
<td>Performing Engineering Operations</td>
<td>2</td>
</tr>
<tr>
<td>Mechanical Manufacturing Engineering</td>
<td>2 &amp; 3</td>
</tr>
<tr>
<td>Warehousing</td>
<td>2 &amp; 3</td>
</tr>
<tr>
<td>Chemical Operations</td>
<td>2</td>
</tr>
<tr>
<td>Engineering Maintenance</td>
<td>2 &amp; 3</td>
</tr>
<tr>
<td>Installation &amp; Commissioning</td>
<td>2 &amp; 3</td>
</tr>
<tr>
<td>Engineering Technical Support</td>
<td>2 &amp; 3</td>
</tr>
<tr>
<td>Fabrication &amp; Welding</td>
<td>2 &amp; 3</td>
</tr>
<tr>
<td>Engineering Leadership</td>
<td>4</td>
</tr>
<tr>
<td>Materials Processing &amp; Finishing</td>
<td>2 &amp; 3</td>
</tr>
<tr>
<td>Electrical &amp; Electronic Engineering</td>
<td>2 &amp; 3</td>
</tr>
<tr>
<td>Business Administration</td>
<td>2 &amp; 4</td>
</tr>
<tr>
<td>Customer Services</td>
<td>2 &amp; 4</td>
</tr>
<tr>
<td>Team Leading</td>
<td>2</td>
</tr>
<tr>
<td>Management</td>
<td>3 &amp; 5</td>
</tr>
<tr>
<td>Nuclear Decommissioning Technology</td>
<td>2 &amp; 3</td>
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</table>

General Engineering courses include:

<table>
<thead>
<tr>
<th>Course</th>
<th>Duration</th>
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<tbody>
<tr>
<td>Ladder Safety</td>
<td>Half day</td>
</tr>
<tr>
<td>Singing</td>
<td>1 day</td>
</tr>
<tr>
<td>Safety Harness Training</td>
<td>Half day</td>
</tr>
</tbody>
</table>

Health & Safety courses include:

<table>
<thead>
<tr>
<th>Course</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fire Safety</td>
<td>Half day</td>
</tr>
<tr>
<td>Risk Assessment</td>
<td>1 day</td>
</tr>
<tr>
<td>CDM Regulations</td>
<td>1 day</td>
</tr>
<tr>
<td>Emergency First Aid</td>
<td>1 day</td>
</tr>
<tr>
<td>CIEH level 2 in principles of COSHH</td>
<td>Half day</td>
</tr>
<tr>
<td>CIEH level 2 in the principles of Manual Handling</td>
<td>Half day</td>
</tr>
<tr>
<td>Safety Work in Confined Spaces</td>
<td>1 day</td>
</tr>
<tr>
<td>Gas Bottle Safety</td>
<td>Half day</td>
</tr>
</tbody>
</table>

Apprenticeships include:

<table>
<thead>
<tr>
<th>Course</th>
<th>Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechanical</td>
<td></td>
</tr>
<tr>
<td>Electrical &amp; Instrumentation</td>
<td></td>
</tr>
<tr>
<td>Welding, Fabrication &amp; Plating</td>
<td></td>
</tr>
<tr>
<td>Process Control</td>
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<tr>
<td>Control Systems</td>
<td></td>
</tr>
<tr>
<td>Scientific</td>
<td></td>
</tr>
<tr>
<td>Mechanical Design</td>
<td></td>
</tr>
<tr>
<td>Electrical Design</td>
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<tr>
<td>Customer Service</td>
<td></td>
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<tr>
<td>Business Administration</td>
<td></td>
</tr>
<tr>
<td>Business Improvement Techniques</td>
<td></td>
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<tr>
<td>Nuclear Operator</td>
<td></td>
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<tr>
<td>Health Physics Monitor</td>
<td></td>
</tr>
<tr>
<td>Project Management</td>
<td></td>
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<tr>
<td>ICT</td>
<td></td>
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<tr>
<td>HR</td>
<td></td>
</tr>
<tr>
<td>Electrotechnical</td>
<td></td>
</tr>
</tbody>
</table>

For further information on this course, please call our Recruitment Team on:
- Workington: 01900 701300 / 07734 199 531
- Carlisle: 01228 599880 / 07590 439 929
- Furness: 01229 483760 / 07540 686 554

Email: info@gen2.ac.uk  Web: www.gen2.ac.uk

Please Note: New courses are constantly being added, if you do not see the course you require, please contact Gen2 as the organisation may already have the course available, or may be able to provide it upon request.
Gen2 locations

Gen2 Lillyhall Skills Centre
Unit 1, Joseph Noble Road
Lillyhall Industrial Estate
Workington
Cumbria CA14 4JX.
01900 701 300

Gen2 Energus Training Facility
Energus, Blackwood Road
Lillyhall, Workington
Cumbria CA14 4JW.
01900 605 665

Gen2 Carlisle Skills Centre
Kingmoor Park, Unit F2
Kingmoor South
Carlisle
Cumbria CA6 4RD.
01228 599 890

Gen2 Carlisle Education Centre
Westmoor, Rockcliffe
Carlisle
Cumbria CA6 4BH.
01228 599 890

Gen2 Sellafield Skills Centre
Building B111, Sellafield
Cumbria CA20 1PG.
T: 01946 786 616

Gen2 Furness Skills Centre
Lightburn Trading Estate
Ulverston
Cumbria LA12 7NE.
01229 483 760

Gen2 Warwick Mill
Warwick Mill, Warwick Bridge
Carlisle, Cumbria CA4 8RR
01228 564 478

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