



**OFFSHORE WIND  
RESEARCH, DEVELOPMENT AND  
PLANNING**

**(Click on a university / college provider to access websites)**

## Offshore wind: Research, development and planning matrix

Broad Tasks	Broad Skill Set	Qualifications	Experience	Providers	Course Title
Site Identification and Feasibility	Offshore surveying, measuring aerodynamic and marine conditions, climatic and meteorological assessment	Degree/post graduate level specialists into a variety of disciplines	Practical experience and/or research record of working in the coastal/near-shore and offshore zone	Dundee College	HNC Petroleum Engineering
	Geological and topographic assessment of seabed			Abertay University	BSc (Hons) Engineering Systems* MSc/PGDip Adaptive Systems Engineering
				Dundee University	Geography (Science) Geography and Environmental Science Geography and Planning MSc in Renewable Energy and Environmental Modelling MSc in Earthquake and Offshore Geotechnical Engineering - TPG
	Short, medium and long term marine biological, environmental and ecological impact assessment and monitoring	Degree/post graduate level marine biology	Practical experience and/or research record of understanding environmental impact in the coastal/near-shore zone	Abertay University	<u>BSc (Hons) Environment and Sustainability*</u> <u>and Renewable Energy*</u> <u>MSc/PGDip Energy &amp; Environmental Management</u>
				Dundee University	Environmental Science Renewable Energy Zoology
	Feasibility research into most appropriate power generation device	Degree/post graduate level aeronautical eng, marine engineering, offshore engineering		Abertay University	<u>BSc (Hons) Environment and Sustainability*</u> <u>and Renewable Energy*</u> <u>MSc/PGDip Energy &amp; Environmental Management</u> <u>MSc/PGDip Systems</u> BSc (Hons) Engineering Systems* MSc/PGDip Adaptive Systems Engineering MPhil in Electrical Power and Energy Systems
					Doctoral Research in Electronic

				Dundee University	Engineering and Physics Doctoral Research in Mechanical Engineering Electronic and Electrical Engineering Mechanical Engineering
	Visual impact modelling	Graphic/photographic interpretation and design CAD, GPS Laser Surveying	General experience in transforming plans images	Dundee College  Abertay University  Dundee University	HNC/D Engineering Systems HNC Computer Aided Draughting & Design  BSc (Hons) Engineering Systems*  Geography and Planning Graphic Design
	Engineering surveys for off and onshore installations and grid connections	Degree level engineering  CAD	Experience of working in high energy marine environments and with large energy projects	Dundee College  Angus College  Abertay University  Dundee University	HNC/D Engineering Systems HNC Computer Aided Draughting & Design  1. NVQ L3 Design & Draughting 2. Design & Draughting Apprenticeship 3. 2D & 3D CAD Training  MPhil in Electrical Power and Energy Systems BSc (Hons) Engineering Systems*  Electronic and Electrical Engineering
	Site access, transportation and installation requirements	Civil engineering or construction	Experience of working in high energy marine environments and with large energy projects	Dundee College  Abertay University  Dundee University	HNC/D Construction Management HNC/D Civil Engineering  DipHE Civil Engineering Studies BSc (Hons) in Civil Engineering BSc (Hons) Environment and Technology* BSc (Hons) Environment and Sustainability*  Civil Engineering
	Financial feasibility Business planning	Accountancy, financial management	Experience of large energy projects, especially developing	Dundee College	HNC/D Construction Management HNC/D Civil Engineering

			and applying research models.	Perth College Abertay University Dundee University	BA Business <a href="#">BA (Hons) Accounting with Finance</a> <a href="#">MSc/PGDip Management Accounting</a> <a href="#">MSc/PGDip Oil and Gas Accounting</a> Accountancy Business Economics with Marketing with a language
Project Planning	Knowledge and understanding of regulatory and legal context	Legal, planning	Offshore oil and gas, tidal, LA and government planning	Dundee College Abertay University Dundee University	HND Building Surveying HNC/D Architectural Technology <a href="#">LLB (Hons) Bachelor of Laws</a> <a href="#">BA (Hons) European Business Law</a> English Law LLM by Research in International Water Law LLM in Energy Law and Policy LLM in Environmental Law LLM in Environmental Law and Policy LLM in International and European Law LLM in International Business Law and Transactions LLM in International Commercial Law LLM in International Law Scots Law
	Interpretation of local and national policies	Legal, planning		Dundee College Abertay University Dundee University	HND Building Surveying HNC/D Architectural Technology <a href="#">LLB (Hons) Bachelor of Laws</a> <a href="#">BA (Hons) European Business Law</a> English Law LLM by Research in International Water Law LLM in Energy Law and Policy LLM in Environmental Law LLM in Environmental Law and Policy LLM in International and European Law LLM in International Business Law and Transactions LLM in International Commercial Law LLM in International Law Scots Law

	Raising finance	Accountancy, financial management	Experience of large energy projects	<p>Abertay University</p> <p>Dundee University</p>	<p><a href="#">BA (Hons) European Economy &amp; Management</a></p> <p><a href="#">BA (Hons) European Business Law</a></p> <p><a href="#">BA (Hons) Finance &amp; Business</a></p> <p><a href="#">MSc/PGDip Finance</a></p> <p><a href="#">MSc/PGDip Oil and Gas Finance</a></p> <p>Accountancy</p>
	Permits and consents	Planners, Legal	Experience of near/offshore projects, oil and gas sector	<p>Abertay University</p> <p>Dundee University</p>	<p><a href="#">LLB (Hons) Bachelor of Laws</a></p> <p><a href="#">BA (Hons) European Business Law</a></p> <p>English Law</p> <p>LLM by Research in International Water Law</p> <p>LLM in Energy Law and Policy</p> <p>LLM in Environmental Law</p> <p>LLM in Environmental Law and Policy</p> <p>LLM in International and European Law</p> <p>LLM in International Business Law and Transactions</p> <p>LLM in International Commercial Law</p> <p>LLM in International Law</p> <p>Scots Law</p>
Communications	Consultation with stakeholders	Marketing, promotion, public relations legal	Experience of communications and public relations in environmentally sensitive areas	<p>Abertay University</p> <p>Dundee University</p>	<p><a href="#">BA (Hons) Marketing &amp; Business</a></p> <p>Business Economics with Marketing</p> <p>Business Economics with Marketing and Geography</p> <p>Business Economics with Marketing and Mathematics</p> <p>Business Economics with Marketing and a language</p> <p>International Business with Marketing</p> <p>International Business, Marketing and Human Resource Management</p> <p>MSc in International Business and Marketing</p> <p>MSc in Spatial Planning with Community Engagement</p>
	Consultation with communities				

Project Development	Working to time and financial deadlines and limits	Degree/post graduate level engineering	Design and delivery of offshore oil and gas or power projects	Dundee College  Angus College  Abertay University  Dundee University	HNC/D Engineering Systems HNC/D Construction Management  Cert in Project Controls  <a href="#">DipHE Civil Engineering Studies</a> <a href="#">BSc (Hons) in Civil Engineering</a>  Civil Engineering Electronic and Electrical Engineering Mechanical Engineering
	Development and interpretation of engineering drawings	Marine engineering, technical services MA  CAD	Design of offshore oil and gas or power projects	Dundee College  Angus College  Perth College  Abertay University  Dundee University	HNC/D Engineering Systems HNC Computer Aided Draughting & Design  1. NVQ L3 Design & Draughting (Electrical & Instrumentation, Piping or Structural) 2. Design & Draughting Apprenticeship (E & I, Piping or Structural)  HNC / HND Engineering Systems  <a href="#">DipHE Civil Engineering Studies</a> <a href="#">BSc (Hons) in Civil Engineering</a>  Civil Engineering Electronic and Electrical Engineering Mechanical Engineering
	Procurement and subcontracting	Degree/post graduate level marine and civil engineering;  Legal and accountancy	Experience offshore oil and gas and power projects	Dundee College  Angus College  Perth College	HNC/D Civil Engineering HNC Quantity Surveying  1. Cert in Project Controls 2. APM Intro Cert in Project Management 3. APM/PMI based Learning & Development Programmes 4. Business Process Design & Development  HNC / HND Engineering Systems

## Offshore wind: Manufacturing

Broad Tasks	Broad Skill Set	Qualifications	Experience	Providers	Course Title
Turbine Manufacturing	Mechanical, electrical engineering, control and instrumentation, general engineering, condition monitoring	Engineering Production MA Engineering Installation and Commissioning MA Technical Services MA Electrical and Electronic Servicing MA Engineering HNC, HND	Engineering production/assembly; skilled and some semi-skilled  Apprentices  Product-specific	Dundee College  Angus College  Perth College  Dundee University	Pre-Apprenticeship Fabrication & Welding Pre-Apprenticeship Engineering Technologies NQ/NC Engineering with SfW Energy NQ/NC Engineering Systems HNC/D Engineering Systems  1. Mechanical Manufacture Engineering Apprentice 2. Engineering Maintenance Apprentice 3. NC Engineering Maintenance 4. NC Engineering Manufacture 5. HNC Mechanical 6. HNC Engineering Systems 7. HNC Electrical 8. HNC Engineering Practice: Manufacture 9. N/SVQ L2 Performing Manufacturing Operations  • HNC/ D Eng. Systems • BSc Aeronautical Engineering  Applied Computing Applied Physics Doctoral Research in Electronic Engineering and Physics Electronic and Electrical Engineering Mechanical Engineering
Tower Manufacture	Fabrication, welding, plating	Coded welding non-destructive test certification	Skilled crafts in heavy fabrication e.g. oil platform construction, ship building	Dundee College	NQ/NC Fabrication and Welding Stage 1/2 Fabrication and Welding Stage ¾
Monopile Manufacture		Fabrication and Welding MA Welding (Plate) SVQ Welding (Pipework) SVQ	Apprentices  Product-specific	Angus College	1. Fabrication & Welding Engineering Apprenticeship 2. N/SVQ L3 Welding Plate 3. N/SVQ L3 Welding Pipe 4. NC Fabrication & Welding 5. HNC Engineering Practice: Welding 6. HNC Engineering Practice: Maintenance 7. Coded Welding Certification (BS, EN,

				Perth College	<p>ASME)</p> <p>8. Non Destructive Testing: Training &amp; Certification</p> <p>9. Materials Testing Training</p> <p>10. Zurich Insurance Welding Services, Welding Procedures &amp; consultancy</p> <ul style="list-style-type: none"> <li>• NC Engineering Practices</li> <li>• PEO (VQ)</li> </ul>
Blade Manufacture	<p>Mould and pattern making</p> <p>Chemical and product control</p> <p>General engineering</p>	Engineering Production MA	<p>Engineering production/assembly; skilled and some semi-skilled</p> <p>Apprentices</p> <p>Product-specific</p>	<p>Dundee College</p> <p>Angus College</p> <p>Dundee University</p>	<p>NQ/NC Engineering with SfW Energy</p> <p>NQ/NC Engineering Systems</p> <p>HNC/D Engineering Systems</p> <ol style="list-style-type: none"> <li>1. N/SVQ L1 &amp; 2 Performing Manufacturing Operations</li> <li>2. N/SVQ L1 &amp; 2 Performing Engineering Operations</li> <li>3. Mechanical Manufacture Engineering Apprentice</li> </ol> <p>Doctoral Research in Electronic Engineering and Physics</p> <p>MSc in Electronic Circuit Design and Manufacture</p> <p>PGDip in Electronic Circuit Design and Manufacture</p> <p>Doctoral Research in Mechanical Engineering</p> <p>Master Research in Mechanical Engineering</p> <p>MSc in Concrete Engineering and Environmental Management – TPG</p> <p>MSc in Structural Engineering</p>
Production Management	Control of whole manufacturing process; finance, HR, H&S, environmental regulations quality control procurement, sales, transport etc	Engineering degree level, MIMechE or equivalent	Manufacturing management experience, possibly aeronautical	<p>Dundee College</p> <p>Angus College</p> <p>Perth College</p>	<p>HNC/D Engineering Systems</p> <ol style="list-style-type: none"> <li>1. Six Sigma</li> <li>2. Quality Management</li> <li>3. H &amp; S Training/Cert</li> <li>4. IOSH</li> <li>5. NVQ L4 Engineering Management</li> <li>6. Leadership &amp; Management training (ILM)</li> <li>7. Degree in Management</li> </ol> <ul style="list-style-type: none"> <li>• BSc Aeronautical Engineering</li> </ul>

## Offshore wind: Marine installation

Broad Tasks	Broad Skill Set	Qualifications	Experience	Providers	Course Title
Project Management	Implementation and delivery of offshore energy project	Degree and professional qualifications	Considerable experience in offshore oil and gas, marine operations and power projects	Dundee College	HNC Petroleum Engineering HNC/D Engineering Systems
				Angus College	<ol style="list-style-type: none"> <li>1. Cert in Project Controls</li> <li>2. APM Intro Cert in Project Management</li> <li>3. Project Management Professional (Leading to the APMP Qualification)</li> <li>4. APMP Qualification</li> <li>5. APM/PMI based Learning &amp; Development Programmes</li> <li>6. Business Process Design &amp; Development</li> </ol>
				Dundee University	Executive MBA International Energy Industry Management MSc in Energy Studies
	Range of project management skills and knowledge of marine and power sector	Construction engineering, oil and gas engineering, marine operations		Dundee College	HNC/D Construction Management HNC/D Civil Engineering
	Management of subcontractors and finance			Dundee College	HNC/D Engineering Systems HNC/D Construction Management HNC/D Civil Engineering
				Dundee University	Accountancy
Transport and Installation of Turbine	Overland low loaders	LGV Class One	Experienced operators		
	Crane operators	CPCS as relevant	Experienced operator, especially in maritime situations	Angus College	<ol style="list-style-type: none"> <li>1. Banksman/Slinger</li> <li>2. Rigging &amp; Lifting</li> <li>3. Manual Handling</li> <li>4. Confined Space</li> <li>5. Rope Access</li> </ol>
	Sea transport – supply boat skills	Relevant maritime tickets  Supply Boat MA	Maritime esp. aquaculture and oil and gas supply		
	Positioning, mooring and tethering	Degree level marine engineering	Marine operations, aquaculture		
	Connecting devices, installation of generator	Degree level marine and electrical	Marine operations, power generation	Dundee University	Electronic and Electrical Engineering Mechanical Engineering

		engineering			
	Connecting to transformer	Degree level electrical engineering HV System operations	Power engineering	Perth College  Dundee University	Foundation degree year Power Engineering  Electronic and Electrical Engineering Mechanical Engineering
	Sub-sea cable laying	Relevant maritime tickets	Cable laying operations and boat handling		
Grid Connection	Surveying	Degree level surveying	Civil engineering projects	Dundee College  Dundee University	HNC/D Civil Engineering  Geography Geography (Science) Geography and Environmental Science Geography and Planning
	Overland cable laying	Degree level civil engineering Cable jointing	Experienced operators	Dundee University	Civil Engineering
	Excavation	CPCS as required	Experienced operators		
	Electrical/power installation and connections	Degree level electrical engineering HV system operations Electricity and Distribution MA	Experienced power engineers and technicians	Dundee College  Angus College  Perth College	HNC/D Engineering Systems  HNC Electrical Engineering  Foundation degree year Power Engineering
Tie Ins, Testing and commissioning	Electrical and commissioning marine/electrical/mechanical engineering  Telecoms/control systems	Degree level engineering Installation and HV systems HV systems operations (C&G)	Experience in power distribution/generation and marine operations	Dundee College  Dundee University	HNC/D Engineering Systems  Electronic and Electrical Engineering Mechanical Engineering
		Installation and commissioning MA  Electricity and Distribution MA  Technical Services MA		Dundee University	Mechanical Engineering Electronic and Electrical Engineering

## Offshore wind: Operation and Maintenance

Broad Tasks	Broad Skill Set	Qualifications	Experience	Providers	Course Title
Operation and Maintenance of Marine Devices	Understanding wind power generation devices	Degree or HND level electrical/ mechanical engineering	Experience of maintaining turbines or similar equipment	Dundee College  Angus College  Perth College  Abertay University  Dundee University	HNC/D Engineering Systems with Professional Development Award in Renewable Energy Systems  Skills for Work Energy  HNC / D Engineering Systems  BSc (Hons) Engineering Systems* MSc/PGDip Adaptive Systems Engineering MPhil ins Power and Energy Systems  Electronic and Electrical Engineering Mechanical Engineering
	Offshore operations and maintenance	Relevant maritime tickets Marine operations	Aquaculture, maritime		
	Maintenance of devices	Degree/post graduate electrical/mechanical engineering	Hydraulics and turbines	Dundee College  Angus College  Perth College  Abertay University  Dundee University	HNC/D Engineering Systems  1. NC Engineering Maintenance 2. HNC Engineering Practice: Maintenance 3. Hydraulics training  BSc Aeronautical Engineering  BSc (Hons) Engineering Systems* MSc/PGDip Adaptive Systems Engineering MPhil ins Power and Energy Systems  Electronic and Electrical Engineering Mechanical Engineering
	Safe Operations – Access/Egress/Rescue	Relevant maritime tickets Marine operations	Aquaculture, offshore, boats generally, towage		
	Environmental monitoring	Degree/post graduate level marine ecology specialists of various disciplines	Marine ecology	Perth College  Abertay University	HNC Applied Sciences  BSc (Hons) Engineering Systems* MSc/PGDip Adaptive Systems

					Engineering MPhil ins Power and Energy Systems
	Revenue control	Accountancy	Experience of renewable energy power schemes	Dundee University	Accountancy