



**National Certificate in Electricity Supply (Thermal Operator) with strands in Thermal Operations, Combined Cycle Operations, and Geothermal Operations**

level of qualification: 4  
 credit total: 103 - 134

**Purpose and content of the National Certificate**

**Purpose:**

This National Certificate caters for trainees within this industry whose primary role is carrying out Thermal Operations on an electricity supply system. The skills covered include, amongst others; operating compressed air systems; operating cooling water systems; and operating turbine control fluid systems.

**Content:**

**Compulsory unit standards**

**core skills**

		level	credit
12387	Operate electrical switchgear	3	3
12390	Demonstrate knowledge of electricity supply systems	3	5

**power system maintenance**

14700	Apply and remove safety measures in an electricity supply environment	3	3
-------	---	---	---

**power system management**

19481	Demonstrate knowledge of electricity supply protection equipment	4	5
-------	--	---	---

**thermal operations and control**

17399	Operate compressed air systems in a thermal electricity generation power station	4	4
17400	Operate cooling water systems in a thermal electricity generation power station	4	3
17405	Operate fixed fire protection and detection systems in a thermal electricity generation station	4	6
17406	Operate auxiliary steam systems in a thermal electricity generation power station	4	2
17407	Operate station drains in a thermal electricity generation power station	4	3
17410	Operate condensers and condensate systems in a thermal electricity generation power station	4	4
17412	Operate turbine oil systems in a thermal electricity generation power station	4	5
17415	Operate turbine control fluid systems in a thermal electricity generation power station	4	5



		level	credit
22876	Operate and monitor a generator and associated systems in a thermal power station	4	8

**Thermal Operations Strand**

**Compulsory**

**thermal operations and control**

17398	Operate gas plant in a thermal electricity generation power station	4	6
17409	Operate and monitor turbine steam systems in a thermal electricity generation power station	4	12
17411	Operate feed heating systems in a thermal electricity generation power station	4	5
17417	Operate boiler feed pump in a thermal electricity generation power station	4	4
17419	Operate boiler air and flue gas systems in a thermal electricity generation power station	4	4
17420	Operate boiler steam and water circuit in a thermal electricity generation power station	4	5
17421	Operate boiler fuel gas and ignition gas systems in a thermal electricity generation power station	4	4
22877	Demonstrate knowledge of steam generation water treatment in a thermal power station	4	6

**Elective**

A minimum of 12 credits

**power system management**

23409	Utilise a Distributed Control System (DCS) in the operation of an electricity generation power station	5	6
-------	--	---	---

**thermal operations and control**

17401	Operate air conditioning in a thermal power station	4	3
17402	Operate auxiliary boiler in a thermal electricity generation power station	4	6
17403	Operate nitrogen and carbon dioxide systems in a thermal electricity generation power station	3	2
17404	Operate fuel oil systems in a thermal electricity generation power station	4	3
17408	Operate water treatment systems in a thermal power station	4	8
17414	Operate and monitor steam and water cycle chemistry in a thermal electricity generation station	4	4



		level	credit
17416	Operate boiler feed pump turbine in a thermal electricity generation power station	4	5
17418	Operate boiler fuel oil systems in a thermal electricity generation power station	4	3
17422	Operate soot blowing system in a thermal electricity generation power station	3	2
17423	Operate coal firing in a thermal electricity generation power station	4	6
17424	Operate boiler electrostatic precipitators in a thermal electricity generation power station	4	2
17425	Operate boiler circulating pumps in a thermal electricity generation power station	4	2
20187	Operate ferrous sulphate systems in a thermal electricity generation power station	4	3
20188	Carry out borax nitrate dosing and rinsing in a thermal electricity generation power station	4	3
22878	Operate and monitor a hydrogen cooled generator and systems in a thermal power station	4	6

### **Combined Cycle Operations Strand**

#### **Compulsory**

##### **power system management**

23409	Utilise a Distributed Control System (DCS) in the operation of an electricity generation power station	5	6
-------	--	---	---

##### **thermal operations and control**

17398	Operate gas plant in a thermal electricity generation power station	4	6
17409	Operate and monitor turbine steam systems in a thermal electricity generation power station	4	12
17414	Operate and monitor steam and water cycle chemistry in a thermal electricity generation station	4	4
17417	Operate boiler feed pump in a thermal electricity generation power station	4	4
22875	Operate a gas turbine and associated systems for electricity generation in a thermal power station	4	16
22877	Demonstrate knowledge of steam generation water treatment in a thermal power station	4	6
22879	Operate heat recovery steam generator (HRSG) in a thermal power station	4	12



<b>Elective</b>		level	credit
A minimum of 12 credits			
<b>thermal operations and control</b>			
17401	Operate air conditioning in a thermal power station	4	3
17402	Operate auxiliary boiler in a thermal electricity generation power station	4	6
17403	Operate nitrogen and carbon dioxide systems in a thermal electricity generation power station	3	2
17404	Operate fuel oil systems in a thermal electricity generation power station	4	3
17408	Operate water treatment systems in a thermal power station	4	8
17411	Operate feed heating systems in a thermal electricity generation power station	4	5
17416	Operate boiler feed pump turbine in a thermal electricity generation power station	4	5
22878	Operate and monitor a hydrogen cooled generator and systems in a thermal power station	4	6
<b>Geothermal Operations Strand</b>			
<b>Compulsory</b>			
<b>power system management</b>			
23409	Utilise a Distributed Control System (DCS) in the operation of an electricity generation power station	5	6
<b>thermal operations and control</b>			
17409	Operate and monitor turbine steam systems in a thermal electricity generation power station	4	12
<b>operation of energy and chemical plant</b>			
17607	Operate geothermal steamfield equipment and processes	2	9
17609	Operate geothermal binary turbines in the energy and chemical industry	2	8
<b>Elective</b>			
A minimum of 12 credits			
<b>power system maintenance</b>			
10405	Service geothermal energy production and transportation plant	4	10
10406	Repair and overhaul geothermal energy production and transportation plant	5	15



		level	credit
<b>thermal operations and control</b>			
17401	Operate air conditioning in a thermal power station	4	3
17403	Operate nitrogen and carbon dioxide systems in a thermal electricity generation power station	3	2
17434	Operate circulated cooling water systems from a thermal electricity generation control room	4	8
22878	Operate and monitor a hydrogen cooled generator and systems in a thermal power station	4	6
<b>engineering core skills</b>			
2395	Select, use and care for, engineering hand tools	2	4
2396	Select, use and maintain portable hand held engineering power tools	2	4