

**National Certificate in Energy and Chemical Plant
(Process Operation) with optional strands in Steam
Generation; Turbine Operations; Waste Treatment;
Chemical Continuous Process; Chemical Batch Process;
Petrochemical Field Operations; Petrochemical Control
Room Operations; Petrochemical Production Storage
Level 3 or 4 depending on the strand**

COMPULSORY - The following standards are required				
Unit	Unit Title	Level	Credit	Tick
3046	Operate energy and chemical plant fire safety equipment	3	5	✓
3058	Perform gas tests for energy and chemical plant	4	5	✓
18426	Demonstrate knowledge of hazards associated with confined space	3	4	✓
21453	Demonstrate knowledge of control systems on energy and chemical plant	4	10	✓
21455	Purge a system on energy and chemical plant	4	4	✓
21457	Isolate and reinstate a section of energy or chemical plant	4	4	✓
21465	Operate pumps on energy and chemical plant	4	8	✓
TOTAL OF 40 COMPULSORY CREDITS REQUIRED			40	

OPTIONAL STRANDS

STEAM GENERATION – The following standards are required				
Unit	Unit Title	Level	Credit	Tick
3035	Operate fired pressure equipment (at or above 20 MW) on energy and chemical plant	4	10	
3037	Operate steam generation equipment (at or above 20 MW)	4	14	
3051	Operate heat exchange equipment on energy and chemical plant	4	6	
21456	Operate systems for boiler feedwater treatment	4	12	
21466	Operate compressors and fans on energy and chemical plant	4	8	

Prerequisite for Steam Generation Optional Strand:

- National Certificate in Energy and Chemical Plant (Boiler Operation) (Level 2) [Ref: 1342 **and** the National Certificate in Energy and Chemical Plant (Process Operation) (Level 2) with optional strands [Ref: 1343]

OR

- the National Certificate in Energy and Chemical Plant (Process Operation – Boiler Attendant) (Level 2) [Ref: 0775], **and** the National Certificate in Energy and Chemical Plant (Process Operation) (Level 2) with the optional strand in Steam Generation, [Ref: 0140]

TURBINE OPERATIONS – A minimum of 14 credits				
Unit	Unit Title	Level	Credit	Tick
3036	Operate unfired pressure equipment on energy and chemical plant	2	4	
3053	Operate a gas turbine on energy and chemical plant	3	3	
17607	Operate geothermal steamfield equipment and processes	2	9	
17609	Operate geothermal binary turbines in the energy and chemical industry	2	8	
21458	Operate a steam turbine	4	14	

WASTE TREATMENT – A minimum of 16 credits				
Unit	Unit Title	Level	Credit	Tick
17604	Operate primary treatment systems for effluent water from energy and chemical plant	4	8	
17608	Operate sludge treatment systems for effluent water from energy and chemical plant	4	8	
17610	Operate pre-treatment systems for effluent water from energy and chemical plant	4	8	
17611	Operate biological treatment systems for effluent water from energy and chemical plant	4	8	

CHEMICAL CONTINUOUS PROCESS – The following standards are required				
Unit	Unit Title	Level	Credit	Tick
3036	Operate unfired pressure equipment on energy and chemical plant	2	4	
3051	Operate heat exchange equipment on energy and chemical plant	4	6	
3064	Control a chemical reaction in energy and chemical plant	4	3	
19418	Demonstrate knowledge of basic chemistry used in petrochemical environments	2	4	

CHEMICAL BATCH PROCESS – The following standards are required				
Unit	Unit Title	Level	Credit	Tick
3064	Control a chemical reaction in energy and chemical plant	4	3	
9592	Evaluate performance of batch process and production equipment in a petrochemical environment	3	7	
9607	Prepare chemicals for batch production use in a petrochemical environment	3	3	
19418	Demonstrate knowledge of basic chemistry used in petrochemical environments	2	4	

PETROCHEMICAL FIELD OPERATIONS OPTIONAL STRAND

COMPULSORY - The following standards are required				
Unit	Unit Title	Level	Credit	Tick
3036	Operate unfired pressure equipment on energy and chemical plant	2	4	✓
3051	Operate heat exchange equipment on energy and chemical plant	4	6	✓
TOTAL OF 10 CREDITS REQUIRED FOR THIS STRAND			10	

ELECTIVE – A minimum of 5 credits				
Unit	Unit Title	Level	Credit	Tick
3064	Control a chemical reaction in energy and chemical plant	4	3	
16803	Coordinate workplace emergency response team activities in an emergency	5	6	
17279	Demonstrate knowledge of the coordinated incident management system (CIMS)	2	2	
19341	Demonstrate knowledge of Hazard and Operability (HAZOP) studies in the workplace	4	6	
21463	Operate and monitor a boiler up to 20 MW	2	6	

Field	Subfield	Domain
Engineering and Technology	Petrochemical Industry	Petrochemical Cathodic Protection
		Petrochemical Operations Communication and Responses
		Petrochemical Process and Product Management
		Petrochemical Product Transmission and Transfer

PETROCHEMICAL CONTROL ROOM OPERATIONS OPTIONAL STRAND

COMPULSORY – The following standards are required				
Unit	Unit Title	Level	Credit	Tick
9616	Control emergency and unplanned shut downs in a petrochemical environment	5	12	✓
18422	Utilise distributed control systems in a petrochemical environment	3	4	✓
18725	Monitor and analyse processes and respond to deviations in a petrochemical environment	5	12	✓
TOTAL OF 28 CREDITS REQUIRED FOR THIS STRAND			28	

ELECTIVE – A minimum of 5 credits				
Unit	Unit Title	Level	Credit	Tick
3064	Control a chemical reaction in energy and chemical plant	4	3	
16803	Coordinate workplace emergency response team activities in an emergency	5	6	
17279	Demonstrate knowledge of the coordinated incident management system (CIMS)	2	2	
19341	Demonstrate knowledge of Hazard and Operability (HAZOP) studies in the workplace	4	6	
21463	Operate and monitor a boiler up to 20 MW	2	6	

Field	Subfield	Domain
Engineering and Technology	Petrochemical Industry	Petrochemical Cathodic Protection
		Petrochemical Operations Communication and Responses
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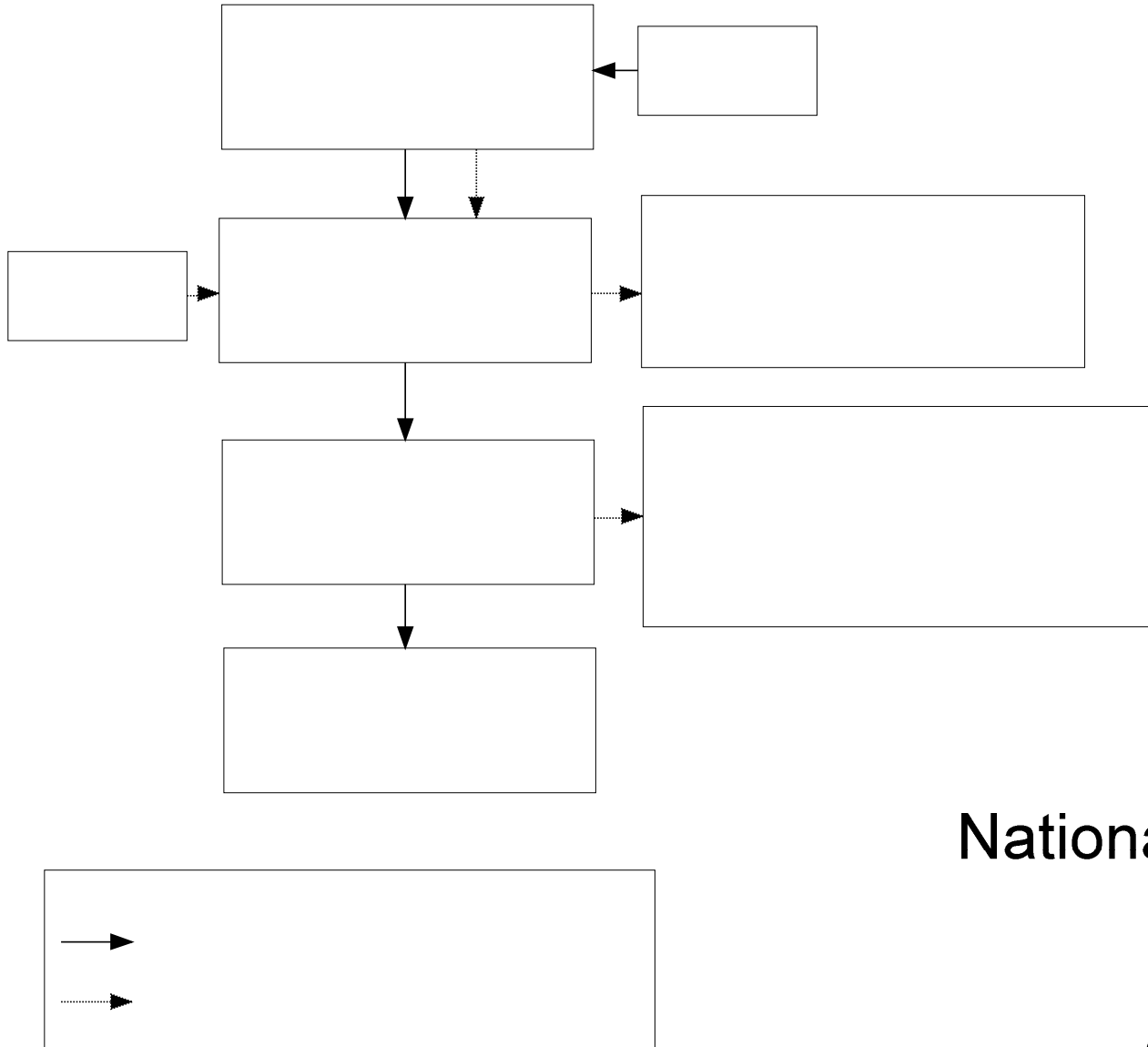
PETROCHEMICAL PRODUCTION STORAGE OPTIONAL STRAND

COMPULSORY – The following standards are required				
Unit	Unit Title	Level	Credit	Tick
3048	Operate product storage equipment for energy and chemical plant	4	4	✓
9583	Manage product storage and transfer facilities in a petrochemical environment	4	6	✓
TOTAL OF 10 CREDITS REQUIRED FOR THIS STRAND			10	

ELECTIVE - A minimum of 5 credits				
Unit	Unit Title	Level	Credit	Tick
3064	Control a chemical reaction in energy and chemical plant	4	3	
16803	Coordinate workplace emergency response team activities in an emergency	5	6	
17279	Demonstrate knowledge of the coordinated incident management system (CIMS)	2	2	
19341	Demonstrate knowledge of Hazard and Operability (HAZOP) studies in the workplace	4	6	
21463	Operate and monitor a boiler up to 20 MW	2	6	

Field	Subfield	Domain
Engineering and Technology	Petrochemical Industry	Petrochemical Cathodic Protection
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Pathways Diagram – Energy and Chemical Plant



National Certificate
 in Chemical Process Operation
 (Boiler and Pressure Vessel Operation)
 (Level 2)

National Certificate
 in Chemical Process Operation
 (Process Control)
 (Level 2)