

1. Title	Shutdown operation for steam turbine and its auxiliaries	
2. Code	EMPEOM405A	
3. Range	Perform shutdown operation for steam turbine and its auxiliaries in general industrial plants, power plants or other places.	
4. Level	4	
5. Credits	6	
6. Competency	<p style="text-align: center;"><u>Performance Requirements</u></p> <p>6.1 Operating principles for shutdown of steam turbine and its auxiliaries</p> <ul style="list-style-type: none"> ◆ Understand the impact of violent decrease in temperature on the spare parts of steam turbine and its auxiliaries <ul style="list-style-type: none"> • Thermal stress and thermal fatigue • Differential expansion of rotor and gas cylinder • Hot deformation and turbine unit vibration ◆ Understand the acceptable rate of temperature drop for steam turbine ◆ Understand the conditions and steps for emergency shutdown and asking for shutdown instructions ◆ Understand the importance of scheduled repair of steam turbine and its auxiliaries <p>6.2 Methods and procedures for shutdown operation of steam turbine and its auxiliaries</p> <ul style="list-style-type: none"> ◆ Perform shutdown operation for steam turbine and its auxiliaries <ul style="list-style-type: none"> • Rated parameters shutdown • Slip parameters shutdown ◆ Make preparations for the shutdown ◆ Perform procedures to decrease turbine unit load ◆ Start up auxiliary oil pump ◆ Perform shutdown procedures ◆ Take the generator off the grid ◆ Start the steam turbine barring system ◆ Perform post-shutdown maintenance and repair ◆ Know the methods and procedures for monitoring emergency shutdown and asking for shutdown instructions <ul style="list-style-type: none"> • Conditions for emergency shutdown • asking for emergency shutdown instructions • steps for emergency shutdown operation 	

	<p>6.3 Professionalism in handling shutdown operation for steam turbine and its auxiliaries</p> <ul style="list-style-type: none"> ◆ Follow manufacturer’s instructions and procedures for shutdown operation to shut down the steam turbine and its auxiliaries ◆ Perform shutdown operation for steam turbine and its auxiliaries in compliance with the statutory code of safety and codes of practice ◆ Immediately correct and remedy abnormal operating parameters
7. Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> (i) Capable to clearly explain shutdown procedures for steam turbine and its auxiliaries; (ii) Capable to perform shutdown operation for steam turbine and its auxiliaries according to procedures; (iii) Capable to compile reports on shutdown of steam turbine and its auxiliaries; and (iv) Capable to clearly report the status of shutdown of steam turbine and its auxiliaries.
8. Remarks	<p>The credit value of this unit of competency is set on the presumption that the person already possesses the competency of EMPEOM308A “Normal running operations and adjustment of steam turbine”.</p>