Course Syllabus — Job-Specific Training II (AES-3092) Barakah Nuclear Power Plant Department Familiarization

Credit Hours	3 credit hours
Prerequisites	Completion of HDNT coursework (first and second year of Study Plan) and any additional requirements determined by the industrial sponsor, training provider, and ADPoly.
QFE Level:	4
Course Description:	This course introduces students to the different departments at the Barakah Nuclear Power Plant to which they will potentially be assigned and is in the form of workplace shadowing.
Instructors:	To be determined by Nawah.
Schedule and Duration:	This course is provided by the Nawah Energy Company and the schedule will be determined by Nawah before the start of training. ~~In compliance with *Ministerial Decree No. (237) for the Year 2020 Regarding Application of Distance Learning in Higher Education Institutions Until the End of the Academic Year 2019-2020* which took effect on the day of its issuance 7 April 2020, courses conducted by ADPoly will be done via Distance Learning.~~

Course Objectives

The objective of this course is to introduce the student to the different departments at the Barakah Nuclear Power Plant to which they will potentially be assigned. Additional details regarding the scope and contents of the training program are included in Nawah's training document "Operations, Chemistry & Radiation Protection Department Familiarization."

Training Resources

- Each department must assign sufficient qualified staff to demonstrate work done by the technologists in that department using Distance Learning.

Course Learning Outcomes (CLOs):

Upon successful completion of the course a student should be able to:

CLO1: Explain the organizational structure of each department.

CLO2: Explain the major tasks performed by each department.

CLO3: Explain the roles and responsibilities of each department.

Course Topics:

CT1: Mechanical engineering team general tasks, maintenance and machinery management

CT2: Electrical engineering team general tasks, maintenance and equipment management

CT3: Instrumentation and control general tasks, basic maintenance and equipment management

CT4: System engineering team general tasks

CT5: Program engineering team general tasks

CT6: Safety and engineering support team general tasks

Student Outcomes:

The Higher Diploma in Nuclear Technology program student outcomes are taken from the ABET (Accreditation Board for Engineering and Technology, Inc.) 2019 Student Outcome 2 for associate degree programs and Student Outcomes 1, 3, 4, and 5 for baccalaureate degree programs. These are the following learned capabilities:

SO1. An ability to apply knowledge, techniques, skills and modern tools of mathematics, science, engineering, and technology to solve broadly-defined engineering problems appropriate to the discipline;

SO2. An ability to design solutions for well-defined technical problems and assist with the engineering design of systems, components, or processes appropriate to the discipline;

SO3. An ability to apply written, oral, and graphical communication in broadly-defined technical and non-technical environments; and an ability to identify and use appropriate technical literature;

SO4. An ability to conduct standard tests, measurements, and experiments and to analyze and interpret the results to improve processes; and

SO5. An ability to function effectively as a member as well as a leader on technical teams.

Table 1: Relation Course Topics (CTs) to Course Learning Outcomes (CLOs)

	CT1	CT2	CT3	CT4	CT5	CT6
CLO1	H	H	H	H	H	H
CLO2	H	H	H	H	H	H
CLO3	H	H	H	H	H	H

H: High, M: Moderate, L: Low

Table 2: Relation Course Learning Outcomes (CLOs) to Students Outcomes (SOs):

	SO1	SO2	SO3	SO4	SO5
CLO1	L		L		H
CLO2	L		L		H
CLO3	L		L		H

H: High, M: Moderate, L: Low

Assessments: To be determined

Grading policy: The nuclear industrial standard for passing an assessment is 80%. The course is reported to ADPoly as a Pass (P) or Not Pass (NP) grade which does not impact the student's cumulative grade point average (cGPA).

Training Requirements ~~(*As student trainees are not allowed to access the Barakah Nuclear Power Plant through the remainder of the academic year 2019-2020, these requirements are not a concern.*)~~

- Trainees shall, in all circumstances, refrain from any behavior that could have an adverse effect on plant operation during this Orientation phase. Trainees shall always be escorted by their instructors/assigned staff during Department familiarization.
- Trainees must always wear personal protective clothing and/or have personal protective equipment during Department familiarization while remaining in compliance with safety rules.
- Trainees shall comply with the radiation safety rules and shall be in accordance with the procedures established for access to radiation controlled areas.

Training Time Table

Week	Topic	Content
1-2	Operations Familiarization refresher and plant walk-down	Reactor Coolant System
		Main Power, Auxiliary Power and Switchyard
		Main Steam System
		Condensate System
		Main Feed-water System
		Circulating Water System
		Essential Service Water and Component Cooling Water Systems
2	Chemistry	Power Plant Chemistry overview
		Escorted walk-down of the Chlorination Plant
		Visit to the Demineralized Water Plant
		Introduction to the Secondary Lab and in-line analyzers
		Feedback and Q&A session
2-3	Radiation Protection	Radiation Protection Overview
		Radiation Monitoring System (RMS)
		Gaseous/Liquid Waste
		Radioactive Sources used in BNPP
		Dosimetry - Radiation Instruments
		Personal Protective Equipment in Radiological Controlled Area (RCA)
		Walk-down of Fuel Handling Area, Radioactive Laundry System, and Access Control Area to RCA