Concentration Specific Outcomes and Competencies:

1. A graduate will possess a level of understanding, skill, and attitude relating to the technology and operation of technical electro-mechanical power and control systems. This includes concepts related to prime movers, energy conversion and power transmission systems, applied process control engineering, and automation.

   1.1 Understand the process used by modern day prime movers to supply usable power as an output.

   1.2 Understand and identify the primary components utilized in power transmission.

   1.3 Understand and identify the primary components utilized in modern day control systems.

   1.4 Understand how power systems and applied control systems are interfaced to automate a process.

2. A graduate will understand aspects of power and energy generation related to electro-mechanical systems, including energy sources, power transference, system maintenance, and automated control. This competence includes an understanding of the relationship and interdependence of the components.

   2.1 Understand the importance of insuring that all codes and safety protocols related to electro-mechanical equipment are in-place and utilized correctly.

   2.2 Understand the essential nature of equipment maintenance and documentation.

   2.3 Understand the common inputs and outputs of modern equipment controls.

   2.4 Understand the differences between open and closed loop control systems and relate the advantages / disadvantages of both.

3. A graduate will understand technical electro-mechanical power conversion systems as related to contemporary production, distribution, construction, transportation, environmental control, and military systems.

   3.1 Understand the theory and concepts used in the transmission of electrical, mechanical, hydraulic, and pneumatic power systems utilized on manual and automate equipment.
3.2 Understand and have skill in the application and use of components and devices used in the transmission of electrical, mechanical, hydraulic, and pneumatic power systems utilized on manual and automate equipment.

3.3 Understand contemporary strategies used to improve and maintain efficient and effective power conversion systems.

4. A graduate understand technical electro-mechanical control systems as related to contemporary production, distribution, construction, transportation, environmental control, military systems, and others.

4.1 Understand the systematic process used to develop computer logic needed to automate equipment-operating specifications.

4.2 Understand and have skill in the application and use of closed-loop feedback control systems and components utilized in modern equipment.

4.3 Understand contemporary strategies used to improve and maintain efficient and effective process control automation systems.