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ECS developed for ITDE 201

PREAMBLE:
The field of Robotics and Controls is dedicated to designing and implementing systems that enhance efficiency, safety, and precision across a wide range of applications, from industrial automation to critical healthcare devices. As these systems increasingly interact with humans and impact essential societal functions, the need for a robust ethical framework becomes paramount. A clear code of ethics ensures that engineers prioritize public welfare, maintain professional integrity, and navigate the complex challenges of this rapidly evolving discipline responsibly. This code serves as a guiding document to uphold trust, accountability, and excellence in all endeavors within Robotics and Controls engineering.

EXPLANATION OF HOW THIS CODE WAS WRITTEN:
This code was developed by referencing existing professional ethical guidelines, including the National Society of Professional Engineers (NSPE) Code of Ethics, the American Society of Mechanical Engineers (ASME), and the Institute of Electrical and Electronics Engineers (IEEE) Code of Ethics. These codes provide foundational principles that were adapted to reflect the unique nature of Robotics and Controls engineering.

CANONS AND REFLECTIONS:

1. Robotics and Controls Engineers shall hold paramount the safety, health, and welfare of the public.
   Reflections - Robotics and Controls engineers often work in industrial applications, and in doing so are creating systems to work alongside humans, and the results of a malfunction could be catastrophic. This canon emphasizes that public safety shall always be prioritized over efficiency or cost reduction. Robotics and Controls engineers must ensure machines are operating in a safe manner around humans.
2. Robotics and Controls Engineers shall issue public statements only in an objective and truthful manner.
   Reflections - Robotics is a growing field with questions constantly being raised on safe practices, reliability, and new developments. Robotics and Controls engineers shall issue statements only with proper research, knowledge, and relevance. Transparency is crucial for any communications, along with potential downsides and dangers to new methodologies.
3. Robotics and Controls Engineers shall perform services only in the areas of their competence.
   Reflections - Robotics and Controls engineering spans a vast range of specialties, from artificial intelligence to biomechanical systems. Engineers in this field must recognize and respect the boundaries of their expertise, seeking further education or consulting specialists when necessary. This ensures that projects are approached with adequate knowledge and skill, reducing the risk of errors that could jeopardize safety or functionality. Competence also involves staying updated with advances in technology

and ethical standards, as a lack of proficiency can lead to unintended harm or diminished trust in the profession.

4. Robotics and Controls Engineers shall act for each employer or client as faithful agents or trustees.
   Reflections - The Robotics and Controls industry is still emerging, making trust between clients, employers, and the public critical to its success. Engineers must prioritize honesty, integrity, and quality in their work to uphold this trust. By acting as dependable agents, they strengthen the field's credibility and lay a reliable foundation for future innovations. This trustworthiness is not only vital for current projects but also reinforces the profession's reputation, encouraging wider acceptance and investment in the field.
5. Robotics and Controls engineers shall ensure reliability in accountability measures.
   Reflections - As automation grows in scale and applicability, there is an increasingly prevalent need for redundant safety measures. As automation becomes more commonplace, the public will trust it more, and will act with less caution around potentially dangerous machinery, requiring more robust safety measures and control systems.
6. Robotics and Controls Engineers shall uphold and enhance the honor, integrity, and dignity of the growing profession.
   Reflections - As pioneers of a new space, the public perception of the discipline is very malleable, bringing all the more importance to the upholding ethical standard to protect the public. When one bridge collapses, it is a tragedy, but people don’t lose faith in every bridge ever built; if one robot kills someone, then the entire industry is brought to a standstill. Without trust, there is no future for this industry, the American nuclear engineering sector can demonstrate that much; while this field is still growing and defining its role, it is incredibly important that the public perception be upheld.