Export Control Compliance

Senior Projects (ASEN 4018 & 4028)

The US Government has established export controls for technology in the following categories that are common Aerospace Engineering topics. Underlined items are typical in AES Senior Projects:

State Department: International Traffic in Arms Regulations (ITAR) US Munitions List (USML):
Category IV: Launch Vehicles, Guided Missiles, Ballistic Missiles, <u>Rockets</u>, Torpedoes, Bombs, and Mines
Category V: Explosives and <u>Energetic Materials, Propellants</u>, Incendiary Agents, and Their Constituents
Category VIII: Aircraft and Associated Equipment
Category XII: Fire Control, Range Finder, Optical, Guidance, and Control Equipment
Category XV: <u>Spacecraft Systems and Associated Equipment</u>
Category XX: <u>Submersible Vessels, Oceanographic, and Associated Equipment</u>

Department of Commerce: Export Administration Regulations (EAR) Commerce Control List (CCL):
Category 3: <u>Electronics Design, Development</u>, and Production
Category 4: <u>Computers</u>
Category 5: <u>Part 1: Telecommunications</u>, Part 2: Information Security
Category 6: <u>Sensors and Lasers</u>
Category 7: <u>Navigation and Avionics</u>
Category 8: <u>Marine</u>
Category 9: <u>Propulsion Systems, Space Vehicles, and Related Equipment</u>

Given the wide range of technologies covered by export controls, and the significant overlap with typical AES Senior Projects topics, together with the educational mission of the Senior Projects course, the AES department has adopted the following guidelines for course activities and sponsor interaction that fall into any of the above categories. These guidelines are designed to ensure that all course activities fall within the "fundamental research and education exclusions" defined in U.S. EAR and ITAR regulations, and do not expose CU faculty, staff, or students to export controlled or other licensable activities prohibited by these regulations.

AES Senior Project Guidelines:
1) There are no restrictions on the nationality of students, faculty, or staff involved in senior projects.
2) All class information products, including designs, documentation, presentations, user's manuals, and reports must be freely publishable, of a type to be ordinarily shared broadly with the scientific community. In particular, there can be no restrictions on this information for intellectual property, proprietary, or competition-sensitive reasons.

3) All class tangible products, including hardware and software, must be developed using only publicly available best practices, engineering principles, and design techniques. Software must not include encryption. Hardware must not include any ITAR/EAR or export-controlled components.
4) Design assistance or other technical services provided by the sponsor (e.g. during design development or design reviews) must not include any export-controlled expertise or information. Sponsor assistance is limited to general math, science, and engineering principles commonly taught in schools, colleges, and universities or that is available in the public domain.
5) Class deliverables must not be tied to a specific sponsor mission or discharge a specific mission task. Requirements for the design must be generic, and not tied to proprietary sponsor specifications. Once the class starts to function as a sponsor sub-contractor or sub-awardee, the Research and Education Exclusions become difficult to satisfy.
6) The projects may engage in class-devised missions, including creating and launching/flying prototypes. However, neither sponsors, class instructors, nor class staff may provide any information or services (such as how to conduct or support a launch) that is not in the public domain. Mission development must be documented by suitable public source citations.
7) Course activities cannot be carried out in collaboration with a foreign university, since only basic and applied research conducted in the U.S. qualifies as Fundamental Research under the Research Exclusion.

The above guidelines apply only to senior projects. Graduate projects may negotiate different ITAR constraints.