

Systems Engineering Research Center (SERC) Capstone Marketplace Objectives August 2019



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- For 2019-2020, the System Engineering Research Center is increasing its engagement with university undergraduates in engineering programs across the U.S. SERC's objective is to reinforce system engineering "thinking" in students doing Capstone senior design projects, by presenting challenging problems which need system approaches for good solutions.
- SERC's Capstone Marketplace connects student teams to real government "customers" with real problems.
- Interactions between student teams and government customers model best industry practices for conducting technical development efforts.
- Basic "system" approaches to problem solving will be emphasized, but elaborate system engineering processes and overheads are not used.
- Involvement with SERC Capstone Marketplace projects provides students exposure to DOD and other government technology development activities
- **The most promising Capstone projects will be offered transition opportunities with dedicated research funds from government program offices.**

What SERC Looks for in Capstone Teams

- **Multidisciplinary Team effort**—Ideal solutions to “problems” require teams to cut across engineering, management, business, and other disciplines
- **Direct contact with “real” customers.** The Marketplace provides direct contact with Subject Matter Experts who actively participate in guiding problem solutions
- **Critical thinking.** Emphasis on student skills in forming, justifying, presenting project decisions and outcomes. Analytic and empirical results used.
- **Mirroring business models of small entrepreneurs** Organization, planning, technical effort, schedules, status and reviews, financial tracking, risk management, and reporting that duplicate best business practices.
- **2 semesters of activity.** Nominally 3 hour credits each semester.
- **Tangible “deliverables”.** The object of the SERC Capstone is to “make something” (hardware or software) that has application to a “problem”.
- **Value to government customers.** Student efforts produce research, analysis, prototypes, “out of the box” approaches and other technical data valued by their customers.