



CAPSTONE Marketplace PROJECT PROPOSAL INSTRUCTIONS

GENERAL INFORMATION

The System Engineering Research Center’s (SERC) Capstone Marketplace has posted new announcements for university senior design teams, “2019-2020” Research Topics” on the www.capstonemarketplace.org website. Academic institutions intending to pursue a SERC award for their students are encouraged to submit an “Expression of Interest” (EOI) to SERC, using the website template. Request For Proposals (RFP) will be sent to the university if the Research Topic remains unsubscribed. As a change for this year, we expect to award multiple university teams for selected Research Topics.

A few details on proposal formats have changed, these are outlined in this document. Proposals will be evaluated and awards announced as rapidly as possible. SERC intends to review and make its awards for the upcoming academic year by mid-September. Exceptions to this schedule may be made on request. Additional Research Topics from Capstone sponsors may be announced on the website at any time.

ELIGIBILITY

Proposals may be accepted from non-SERC universities, as well as from SERC consortium members. SERC now awards Capstone Marketplace Contracts to any U.S. educational institution, with ABET accreditation, conducting undergraduate engineering design projects.

REQUEST FOR EXPRESSIONS OF INTEREST (EOI)

Universities start their participation in the award process by submitting an Expression of Interest (EOI) to the Capstone Marketplace website. (A fillable template is available on the website in the “Process” section and can be submitted directly to the Marketplace). Information is requested on the form as follows:

- a) Name of University: _____
- b) Problem Numeric Designator: example: 2019 NSW 21 _____
- c) Problem Short Title: Military Freefall Flight Data Recorder _____
- d) Faculty Advisor(s): _____
- e) Academic Department(s): _____
- f) Contact Information
(email and phone number): _____
- g) Comments: _____

RFP and PROJECT PROPOSALS

As Expressions Of Interest are received at the Capstone Marketplace, SERC will issue a “Request For Proposal” for each EOI. If the Research Topic is no longer open, universities who have submitted EOI’s for the topic will be notified. The website will be updated periodically to indicate when Research Topics are fully subscribed. On receiving a Request For Proposal, universities will gain access to additional project information, including detailed problem descriptions, background information, and government points of contact. Advisors are requested to submit project proposals to the Capstone Marketplace as early as possible. Proposals shall include a budget estimate and a schedule showing project milestones. SERC anticipates that universities will conduct standard, two-semester student Capstone Projects.

Universities pursuing multiple Research Topics are strongly encouraged to designate a “Capstone Coordinator” who will be the single point of contact on campus for administrative details, including schedules, communications, deliverables, and other issues.

The proposal describes the Faculty Advisor’s intentions for the conduct of the Capstone Project. The Project Description can be brief and should not exceed three (3) pages in length. Project information sheets and Budget sections do not count against this limit. The use of system engineering techniques for guiding Capstone Project team efforts are important and will be a factor in the selection process. Please refer to “SERC Capstone Marketplace Objectives 2018” in the “Resources” section of the website. Proposal formats are provided in this document.

PROPOSAL SUBMISSION

Proposals may be submitted at any time after RFP. Proposals in advance of student team assignments are acceptable and expected.

Proposals must be submitted electronically to capstonemarketplace@sercuarc.org Attachments should be in MS Office or PDF formats.

Proposals should include “Proposal for (Short Title of Research Topic)” in their email subject line, and to request a “read receipt” on submission. Universities may submit multiple proposals, but only on different Research Topics.

CONTRACT FORM

SERC will award Firm Fixed Price contracts to universities, with incremental payments for deliverables.

AWARDS AND FUNDING

SERC awards to universities for Capstone Projects will normally be made in amounts up to \$5000, for a total of two semesters of student design activity, with appropriate budget justifications. In exceptional circumstances, awards of up to \$10,000 may be made. Milestone payments against deliverables will be as specified in contract agreements. Normally 4 milestones will be specified, 2 per semester. Universities may invoice SERC after the successful completion of each milestone. Copies of deliverables must be sent to the Capstone Marketplace before invoices and payments will be made.

A typical schedule of milestones will include:

- Completion of Kickoff Meeting with Customer, presentation and acceptance of written Project Plan and “Quad Chart”
- End of 1st Semester Interim Design Review
- 2nd Semester Interim Design Review (usually before Spring Break)
- Final Deliverables, Demonstrations, Final Report and Presentations (at the end of the Academic Year)

ADDITIONAL NOTES ON SELECTION AND AWARD PROCESS

1. Universities must have a current Capstone Marketplace account. Instructions for joining the website are available on www.capstonemarketplace.org.
2. Capstone Marketplace “Research Topics” are posted on the website. This list contains Problem “Numeric Designators” and “Short Titles” (for Example: “2019 NSW 21 Military Freefall Flight Data Recorder ”), as well as a paragraph “Problem Description”. Most problems have been submitted to SERC by government organizations using a standardized Problem Nomination Worksheet form. This worksheet includes background, previous research efforts, government “customer” expectations for project outcomes, and Points of Contact. These problem worksheets will be made available to universities who have submitted Expressions of Interest.
3. University students are free to name their team and their project as they see fit. However, we ask that teams maintain the “Numeric designators” and “Short Titles” in project documentation, to allow the Marketplace to best track numerous team efforts.
4. University-Unique Research. Universities may now submit their ideas for Research Topics to the Marketplace. These topics will be shared with government organizations to attract their interest for additional Capstone projects. A template and additional guidance for unsolicited research topics, titled “Academic Inputs for Capstone Marketplace Research Topics” is provided under the “Resources” tab on the website. **The window for university submissions of any unique research ideas for the Fall Semester will close at the end of August 2019.**
5. Graduate Students. Capstone teams may now include graduate students. Please see additional information on graduate students in Capstone research under the “Resources” tab of the website.
6. Research Topic Updates. The Capstone Research Topic list will be regularly updated to show changes, fully subscribed topics, and new information regarding proposal requests and awards. Additional Capstone problems may be posted as government sponsorship and participation increases.
7. Proposals will be evaluated by Capstone Marketplace managers, SERC personnel, and government representatives. Considerations will include:
 - a. Faculty involvement and support of Capstone teams
 - b. Approaches for guiding student teams in design processes
 - c. University resources, labs and other facilities, equipment
 - d. Previous research which may apply
 - e. Alignment with SERC “Capstone Marketplace Objectives”
 - f. Past performance on Capstone projects
 - g. Funding requested (Please note SERC policies on administrative overhead and direct labor costs)
8. Awards will be announced as rapidly as possible, to facilitate the start of Fall Semester academic activities. SERC intends to complete awards on current 2019-2020 Research Topics by the end of September. Some “Research

Topics” may not be pursued; the scope of awards will be based on the extent of academic interest, government sponsor participation, and funds available.

POST AWARD

Capstone student teams have government organizations and Subject Matter Experts as their “customers”. SERC’s “Capstone Marketplace Objectives”, referenced on the website, document SERC’s concepts for teams’ and academic advisors’ relationships with government organizations. Student teams will be expected to execute their activities like small industry research and development businesses. It is important that student team members and Faculty Advisors become familiar with terms and conditions of the SERC contract, including descriptions of deliverables. An early team deliverable will be a Project Plan. The student team is expected to write this document, guidance is available on the website under the “Resources” tab. The Project Plan is an agreement between the student team and the government “customer” to manage expectations on the conduct of the project. The plan is presented by students at a “Kickoff” meeting or First Design Review. The plan should include:

- a. Statement of Work (what the Project Team is to do, including objectives and specific deliverables)
- b. Project Organization (students and “customers”)
- c. Facilities and Equipment
- d. Schedules and Reporting Plan (including development path and milestones)
- e. Budgets and Spend Plan
- f. Intellectual Property
- g. Closeout Plan for Project, including disposition of residual funds, materials, government property, etc.

(see website Project Plan Outline for more information)

CAPSTONE MARKETPLACE PROPOSAL

I. PROJECT INFORMATION SHEET:

- a) University Name: _____
- b) Numeric Designator
and Research Topic Short Title: _____
- c) Faculty Advisor(s): _____
- d) Academic Department(s): _____

- e) Contact Information.
Include Academic and
University Business Office contacts: _____

- f) Project Period: _____

- g) Project Team Name (if known): _____

- h) Requested Amount: _____

- i) Additional Comments: _____

II. PROJECT DESCRIPTION (3 pages max)

Description should include the following:

- a) **Project Title** (please include Numeric Designator and Research Topic “Short Title”)
- b) **Organization**
 - i. Faculty supporting Capstone Project
 - ii. Approximate composition of student Capstone Team

c) **Project Execution**

Proposals in advance of student team assignments are expected. Proposers are to provide general descriptions of how their design team will be guided for the duration of the project. Detailed descriptions of specific technical approaches to solutions are not required; these technical details are expected later from the student teams as they commence their design processes. The Capstone Marketplace web document “SERC Capstone Marketplace Objectives” lists desired additional attributes regarding how student teams develop their designs.

Execution description should include:

- I. Intended activities
- II. System engineering and development approaches to be used
- III. Schedules
- IV. Closeout procedures
- V. University facilities, equipment, and resources available to Capstone Project
- VI. Previous Research applicable to Capstone Project
- VII. Relationships with any government organizations or others relevant to Project (where applicable)
- VIII. Literature cited

III. BUDGET (the following budget table is provided as a guide)

Budget Category	Cost
1. Project Materials (including tools and non-capital equipment)	
2. Services (machining, fabricating, copying, etc.)	
3. Travel	
4. Publications, periodicals, etc. (literature relevant to the project)	
5. Other	
6. Special use supplies or items	
Total Direct Costs	
Indirect Costs (include F&A and other)	
Total Project Budget	
Comments: SERC Capstones are enrichment opportunities for students. We request proposers collaborate by reducing or eliminating F&A and overhead charges. The percentages of Capstone funds available to students will be factors in award selections.	

BUDGET JUSTIFICATIONS (please provide amplifying information for each category)

1. **Project Materials** (a general list of projected materials)
2. **Services**
3. **Travel**
Anticipated travel must be limited and justified. Provide estimates of trips, personnel, durations.
4. **Publications**
5. **Other:**
 - a. **Special use supplies or items. Examples may include:**
 - i. Computer hardware and software not provided by the university
 - ii. Laboratory and shop equipment

(please see notes below on purchase of capital equipment)

Special use supplies will require compelling justification. Universities will normally be expected to contribute such supplies as part of their collaborative support to Capstone teams.

Additional Notes**Facilities and Administrative Costs (F&A)**

SERC's policy on Facilities and Administrative costs in Capstone work is provided on the website. Capstone efforts are intended to be enrichment experiences for undergraduate engineering students. Universities are requested to collaborate with their contributions to the projects, including labor, facilities and equipment, material, services etc. to support student teams. F&A rates and other overhead charges which are minimized or eliminated will be factors in award selections.

Status and Residuals

Contracts will be Firm Fixed Price awards with milestone payments. Universities shall include in their proposal, brief descriptions of how they will manage Capstone funds. Team Project reviews will be milestone deliverables under the contract. Updates on Project spend plans are expected in these reviews. Universities must state their intended disposition of any residual monies at the conclusion of Capstone Project work.

Restrictions on the use of SERC funds

Capstone project funds are not allowed for:

- a. Purchase of capital equipment (purchase of durable items with a cost of \$5000 or more will require special permission)
- b. Personal items (t-shirts, banners, apparel, etc.)
- c. Personal computer hardware, software, electronics, or other IT support not required for the Capstone Project
- d. Books, magazines, periodicals, subscriptions, other reference material not required for Capstone Project execution
- e. Personal travel not required for Capstone work
- f. Direct labor charges for faculty, support staff, consultants, etc.

For required Capstone travel, expenses including transportation, lodging, meals, subsistence and miscellaneous shall comply with GSA regulations.

SERC CAPSTONE – PROJECT REVIEW USE ONLY

Date Submitted: _____ Date Reviewed: _____

Approved: Yes _____ No _____ Amount Funded: _____