**2013-2014 UC Berkeley Master of Engineering**

**Capstone Project Proposal**

**Overview:**

The Capstone Project, a 5-unit Maser of Engineering course requirement, integrates core leadership coursework with a student’s engineering concentration. Capstone Project teams range from three to ﬁve students, drawn from the cross-disciplinary engineering cohort, to apply diverse knowledge and skills to actual industry problems, identiﬁed by faculty or industry partners. The Fung Institute for Engineering Leadership within the College of Engineering provides capstone cohort support and curriculum integration.

**Capstone Sponsor Information:**

Please read the following instructions and requirements before submitting your proposal. In order to be considered, this document must be completed in full. By submitting this proposal, you agree to its inclusion in the *UC Berkeley Master of Engineering Capstone Project Portfolio* for the 2013-14 Academic Year. Use of links, diagrams and images to illustrate your project is encouraged. Example projects can be found here: <http://funginstitute.berkeley.edu/programs/capstone-projects>

**Timeline for submission and important deadlines:**

|  |  |  |
| --- | --- | --- |
| **Year** | **Dates** | **Activity** |
| **2013** | **March** | **Capstone Project Call for Proposals** |
|  | **By April 1** | Submit a one-sentence description of your project idea. |
|  | **By May 1** | **Full Project Proposals due**  Please use the proposal form supplied. |
|  | **May-July** | **Proposal Review –** screening for skill set and objective fit with incoming M.Eng. class**.** |
|  | **July-August** | **Student Project Exploration**  Industry advisors should be available for questions and interview screening of students during this time. |
|  | **August 12-31** | **Capstone Team Selection Process, Sponsor and Faculty office hours** |
|  | **September 1-12** | **Capstone Final Match:** Notification no later than Sept 12 |
|  | **Early December** | **Fall Student Poster Session** |
| **2014** | **Early May** | **Spring Student Poster Session** |
|  | **May 1-17** | **Final Student Presentations and Deliverables** to Industry & Faculty Advisors |

If selected for the 2013-2014 Capstone Project Portfolio you will be responsible for sponsoring and adhering to the terms you outline below. **As the Capstone Sponsor, please *initial* the following requirements by which you are agreeing to the following:**

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X Provide a point person from your organization to advise the capstone team on a regular basis and throughout the whole duration of the project

X Supply all necessary tools, software, and/or data necessary to do the project in a timely manner

X Ensure the project has achievable deliverables that fit into a 9-month timeframe

X Provide clear objectives for both the technical and business-related challenges of the

project

By signing below you are indicating that you completed this form to the best of your knowledge and are agreeing to all the requirements of UC Berkeley’s Capstone Project Program as listed above.

We look forward to working with you!

Name: Linda Braly Title: Sr. Director, Engineering

Email: linda.braly@Lamrc.com Phone: 510 572-8540

Signature or Initials: LB

Date: 5/20/2013

*Questions?* Contact Beth Hoch hoch@berkeley.edu or 510-664-4587

**Proposal Form (please complete all sections):**

|  |  |
| --- | --- |
| **Project Title** | FastLab: Optimization of Resources, Data Management and Utilization via Software integration, data collection and user interface optimization. |
| **Industry Partner**  Company Name, Department, and Website | Lam Research Corp., Etch Product Group |
| **Problem**  (Describe the industry problem your project addresses in 100 words or less.) | Collection of all relevant data generated during development activities so that it can be reused is a challenge despite all the new IT tools available. Information/data required to generate utilization metrics and document experiments requires context to understand. This requires significant manual effort to generate. Current systems are point-solutions which do not integrate well together, have significant data redundancies, may not be user-friendly and have limited off-line / mobile capability which has become increasingly important in a heavily resource constrained environment. |
| **Technical Challenge**  (Highlight the technical challenge of the problem in 100 words or less) | * Ability for engineers to quickly and easily schedule equipment equipment time, collect critical data parameters without significant manual effort to record start / stop time, document data parameters and to collect data in context so that it can be reused. * Integration of disparate lab systems so that they collect the right amount of data efficiently and enable authorized users to collect process trends to speed the cycle of learning. |
| **Objective**  (In 100 words or less, use bullet format and ensure objective is practical for a 9 month project) | * Design /Integrate Lam system and system software with “user-friendly” interfaces such as touch screens, badge readers, mobile apps to more easily collect critical equipment data, minimize data redundancies and optimize use of equipment and engineering time spent. * Database, form and workflow design to eliminate duplication of manually entered data, optimize user experience and enable reporting and data reuse. |
| **Project Illustration (Optional)**  Include websites, videos, diagrams or images to help students understand your project |  |
| **Open or Closed Model – Please check one:**  Open Model (Public collaborative and may use university lab equipment) or Closed Model (Virtual internship, private, with faculty liaison)  \* Please list the necessary equipment, software or data that is needed and will be provided to the team. | Please select one and clearly outline what, if any, resources will be provided:  Open Model/Public collaborative  **Tools and Equipment that will be provided include:**  Closed Model/Virtual internship  **Tools and Equipment that will be provided include:** |
| **Ideal Team Size**  (We prefer teams of 4 students, unless otherwise specified) | 4 or less |
| **Departments Accepted**  (Choose from CEE, EECS, IEOR, ME, MSE, NE. Indicate ideal team makeup and technical concentrations desired, i.e.  “1 CEE ; 1 EECS; 2 IEOR”) | *Please indicate your ideal team makeup by specifying the technical concentrations desired.*  BIOE= Bioengineering General Program  CEE = Civil & Environmental Engineering  EECS = Electrical Engineering & Computer Science  IEOR = Industrial Engineering & Operations Research  MSE = Materials Science & Engineering  ME = Mechanical Engineering  NE = Nuclear Engineering  (1-2 EECS, 2-3 IEOR) |
| **Specific Skills Required**  (i.e. *C/C++/C#, Python ,CAD, Robot Kinematics, MATLAB, Excel Financial Modeling, etc.*)  The more detail provided here the better team match you will receive. | Desired, but not required: .NET preferable (C/C++/C#)  Will learn SharePoint as part of internship  Database structures and reporting (SQL and SSR) |
| **Coursework**  (Indicate any recommended/required prerequisite/co-requisite classes) |  |
| **Industry Advisor(s)**  **Name, Email, Phone Number**  \*If this is a closed model an Industry Point Person from your organization is required for the duration of the project and must be available to advise the team on a regular basis and provide all necessary resources | Linda Braly  [Linda.braly@lamrc.com](mailto:Linda.braly@lamrc.com)  (510) 572-8540 |
| **Faculty Advisor(s) or Academic Liaison**  **Name, Department, and Email**  \*If this is an open model the Faculty Advisor or Academic Liaison is the primary party responsible for the advising and guidance of the capstone team, including providing all the necessary resources |  |