

Senior Capstone Project Proposal

The project is designed for a team of students working toward completion of a project, within two semesters¹.

Title	Passivation Immersion Tester
Sponsor	Contact person Andrew Koselke, Wayne Buchan Company name: Bowmar LLC
	Contact info: 260-747-3121, Akoselke@bowmarllc.com , wdbuchan@bowmarllc.com
Description	Retro-fitting and reworking of a current 5-bay water immersion tester with new electronics appropriate for long-term use in an industrial environment. Bowmar currently has possession of a 5-bay water immersion tester for assuring NADCAP compliance on passivated metal components per ASM2700. This tester has 5 individually controlled bays (or dunk tanks) that automatically fill and empty from a master water supply tank. In addition to the active controls, an additional requirement is data logging the individual test cycles by Job Order, Person Clocking on the Job, and Date/Time. The controls must incorporate this data logging. It is expected that the entire electronics package on the current tester is to be redesigned and replaced.
Disciplines (ME, EE, CS, etc.)	This is primarily an electrical project although it does have mechanical aspects in regards to electrical cabinet construction and fluid transfer. It may find some appeal to a mechanical student with an interest in manufacturing automation.
For ECE	The nature of the application lends itself to a PLC-based solution. Usage of a touch screen HMI is requested.
Estimated budget	\$5000.00
Technology Disclosed? If so, what?	Timing requirements necessary to power associated pumps and/or solenoids to control fluid transfer. Specification of data to be logged.
Additional requirements	Existing tanks, tester frame, and air circulation fans to be re-used.

¹In general, one semester has 15 weeks. For a 3 credit hours course, a student is expected to work minimum of 8 hours per week for the project which is equivalent to minimum of 120 hours.

²This information is for reference purposes only, and it will help us to identify a suitable faculty advisor and form student teams..

<p>NDA or IP Assignment agreement requested?</p>	<p>If it becomes necessary for the students to enter the Bowmar inspection area at some point during the project, then an NDA will need to be signed.</p>
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Technology and ECCN:

“If your project involves ‘technology’ that is either (a) not publicly available or (b) includes proprietary source code (not executable files), then it requires an ECCN.” ‘Technology,’ for this purpose, is defined as “information necessary for the development, production, use, operation, installation, maintenance, repair, overhaul or refurbishing of an item. Technology may be in any tangible form, such as written or oral communications, blueprints, drawings, photographs, plans, diagrams, models, formulae, tables, engineering designs and specifications, computer-aided design files, manuals or documentation, electronic media or information revealed through visual inspection.”

Interactive tool to determine ECCN:

<https://www.bis.doc.gov/index.php/export-control-classification-interactive-tool>

NDAs and IP Assignments:

The sponsoring company typically has NDAs and IP assignment forms that it wishes to use. Neither the NDA nor the IP assignment is an agreement with Purdue directly; these agreements are between the students and the sponsoring company. Of course, our office can review the company-provided documents to be certain it aligns with Purdue’s standards. Alternatively, our office has draft agreements which we could provide for the sponsor’s use. Again, as NDAs are between the student and the sponsor, Purdue cannot be a party to or advise the sponsor or the student on the NDAs, other than to outline some basic expectations as to fairness and suitability of the NDA to a student project.

Sponsor Acknowledgements:

By way of background, Purdue University professors who have senior capstone class projects involving outside sponsor companies notify our office so that we can prepare an acknowledgement form for the sponsoring company’s completion. This is not a contract but an acknowledgement form signed by sponsoring companies which lays out Purdue’s guidelines regarding class projects and outside company inputs, potential export control issues, and student intellectual property. Some sponsoring companies offer a monetary donation to the project, but that is not a requirement.

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