University of Washington Human Powered Submarine Team

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Website: http://courses.washington.edu/uwsub

Team Structure

Controls  Design Lead: Jon Zepf, jtzepf@gmail.com
Design and manufacture system to dynamically control submarine as it advances; coordinate with Hull and Propulsion to integrate all systems smoothly and efficiently.

Hull  Design Lead: Jemma Gaber, gaberjk@gmail.com
Design and manufacture submarine hull; work with local businesses to obtain work space for various manufacturing processes; apply finishing details to submarine hull; design system integration components and aid in integration process.

Propulsion
Design and manufacture system to propel submarine in water; coordinate with Hull and Controls to integrate all systems smoothly and efficiently.

495 Objectives (4 Credits):
- Design integral submarine component
- Develop usable manufacturing plan
- Coordinate with design group to incorporate all plans
- 3 hours/credit each week, 120 hours total

499 Objectives (2-5 Credits):
- Gain fundamental submarine understanding
- Actively contribute to design group progress
- Present quarter’s accomplishments in detail
- 3 hours/credit each week

Team Objectives (Spring Quarter):
- Achieve neutral buoyancy and trim submarine
- Test propulsion system statically
- Test controls system statically
- Test emergency systems
- Test submarine under race conditions in open water
- Assign diving roles for competition
- Prepare, prime and paint submarine hull
- Install Rio computer and take thrust data during testing
Grading Breakdown

Final Report 30%
Work Credit-Hours* 30%
Final Presentation 20%
Mid-Term Report 10%
Mid-Term Presentation 10%
Shop Certification required

*Hours for the first five weeks must be submitted by the mid-term presentations. Hours for the following five weeks must be submitted by the final presentations. All following hours must be submitted by 5:00pm on the Friday of finals week.

*Extra credit will be awarded for excess hours of commitment.

Important Dates:

Mid-term presentation: Wednesday, April 27th
Mid-term report: (Due) Monday, May 2nd
Final presentation: Wednesday, June 1st
Final report: (Due) Wednesday, June 8th

The Human Powered Submarine (HPS) Team is intended to be an engineering learning tool in design, manufacturing, and team experience. Just as important, the team will build a fully functioning submarine. The excitement of developing such a vessel culminates with spring-time testing, in local bodies of water. Every member of the team is invited to take advantage of our partnership with Lighthouse Diving Center, where we receive considerable discounts in SCUBA classes and equipment rental.

Every two years, the HPS Team travels to the International Submarine Races in Bethesda, Maryland. Submarines are raced at the Carderock Naval Surface Warfare Center, home of one of the largest aquatic testing basins in the world. The next competition is this coming June, 2011!