

**Undergraduate Research Contract
(For all ME 498/499 course registration)**

All students who wish to earn credit for undergraduate research must complete this contract with the faculty member. This form must be submitted and approved by the students' academic advisor. This contract will stay with the students file in the ME Undergraduate Office. After this contract is approved by all parties, the student will complete course registration via the Scheduling Assistant in MyPurdue. This process must be completed by the end of the second week of classes. By filling out this contract, the student is stating they understand the requirements to successfully complete this research experience with a grade at the conclusion of the term the research course is registered.

Student Name Aliah Adriana Binti Khairul Hisham **PUID** 000070000

Registration Term Fall '21 **Credit Applied*** as (check one): **ME 498** **ME 499** **Credit Hours** 3
*Select ME 498 if first time completing research with faculty, and ME 499 if continuing research from previous term

Project title, description, and tasks (project title will be needed to complete registration, describe the project, what specific tasks the student will be responsible for, etc.):

Project Title: Renewable-Powered Water Systems
Description: We will design a process that eliminates (or reduces) the need for a hydraulic converter on a reverse osmosis water desalination system. The intention is to create a state of the art wave-powered system.
Tasks: Research prior publications related to the project, define the system, create models to simulate the system (MATLAB/Simulink and environmental studies), integrate the new hydraulic coupling with the RO system and validate the performance of the new hydraulic coupling system

Project objectives and deliverables (intended outcomes & completion requirements, ex. oral or written report, etc.):

The project objective is to design a model of a wave-energy supplemented reverse osmosis system with increased efficiency by the elimination of energy losses through conversion. The written deliverables include a lab notebook for documentation and a final report. Additionally, the oral deliverables include weekly progress reports and a final presentation. An overall deliverable will be a working Simulink model that outperforms the prior model.

Project grading (grade mode – reminder p/np cannot be used to meet degree requirements; what metrics will be used to assign grade etc.):

10% documentation; 10% data in shared drive; 20% time in lab/on project; 25% weekly progress reports; 5% weekly lab meetings; 10% final presentation; 15% final progress report; 5% lab cleanup. More details are on our lab's undergrad guide. The progress reports and final presentation will include graphs and data useful towards the publications on the project.

Student Name Aliah Adriana Binti Khairul Hisham
Faculty Name David Warsinger
Advisor Name LouAnna Eichrodt

Student Signature _____
Faculty Signature _____
Advisor Signature _____

Date approved (to be completed by advisor) ___/___/___

Once approved, complete variable title course registration via the Scheduling Assistant in MyPurdue. Will require approval of both instructor and academic advisor.