**University of Maine**

**Job Description**

**U.S. Persons Only**

**TITLE:** Engineer I –II in Ocean Engineering

**DEPARTMENT:** Advanced Structures & Composites Center

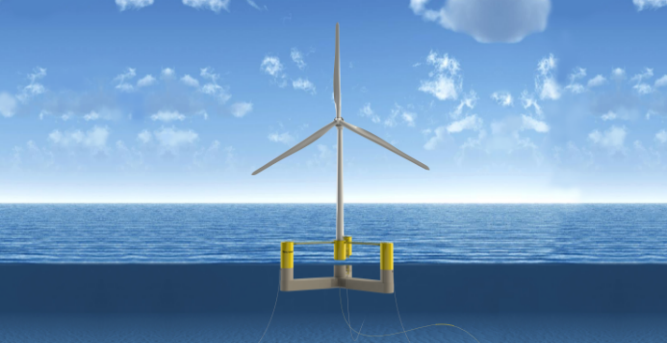
**DATE:**  July 2022

**REPORTS TO:**  Engineer IV

**Introduction to the Advanced Structures and Composites Center**

The Advanced Structures and Composites Center (ASCC) is a world-leading, interdisciplinary center for research, education, and economic development encompassing material sciences, advanced manufacturing and engineering of composites and structures. Housed in a 100,000ft2 ISO-17025 accredited facility, the ASCC has been recognized nationally and internationally for cutting edge research programs leading and impacting new industries including offshore wind and marine energy, civil infrastructure, bio-based large-scale 3D printing, soldier protection systems and innovative defense-related applications. The ASCC is the largest university-based research Center in Maine, and one of the fastest growing research laboratories in the world, with research revenue growth of 5X in the past 5 years. Facility has expanded to include 13 integrated laboratories with more than 260 full and part time personnel, including faculty, staff and students. Since its founding in 1996 with support from the National Science Foundation, the Center has financially sponsored more than 2,600 students, received 70 patents, received over 26,000 visitors**,** created 14 spinoff companies through licensing of patents or trade secrets, and received more than 40 national and global awards for research excellence.

3Dirigo, a 25 ft. long, 5,000lbs patrol boat printed by UMaine in 72 hours, winning a Guinness World Record.



ASCC secured $150 million commitment to build a 10-12MW floating turbine using its patented VolturnUS technology.

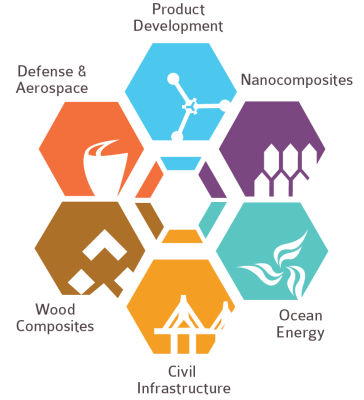
The ASCC’s 2020 Strategic Plan, called GEM, focuses the Center’s work on Green Energy and Materials development. Through GEM, the Center is at the forefront of major new sustainability industries in the U.S., including these recent successful initiatives:

* Floating offshore wind technology developed at the ASCC led to a $100 million investment by global energy heavyweights Diamond Offshore Wind and RWE Renewables, and $50 million investment from the US DOE, to launch the first full-scale floating offshore wind project off the Maine coast. [Read more about this accomplishment](https://www.rechargenews.com/wind/global-energy-heavyweights-buy-into-us-flagship-floating-wind-power-pilot/2-1-853183?fbclid=IwAR1BBecQnACb1d0plfn03lIGeuMWPHTblxKW8I8N3e2peSHmZxhppDK9V5o)
* Awarded three Guinness World Records for the world’s largest prototype polymer 3D printer, largest solid 3D-printed object, and largest 3D-printed boat. The awards came after ASCC printed 3Dirigo, a 25ft marine patrol vessel weighing 5,000lbs in under 3 days. [Read more about this accomplishment](https://umaine.edu/news/blog/2019/10/10/umaine-composites-center-receives-three-guinness-world-records-related-to-largest-3d-printer/)



Largest polymer 3D printer in the world, commissioned at ASCC in Q4 2019. The print volume is 60 ft x 22ft x 10ft, and deposition rate is 150 lbs/hour

* First large-scale bio-based additive manufacturing program in the US, via a $20M additive manufacturing program with Oak Ridge National Lab to work with the forest products industry to produce new bio-based materials that will be conducive to 3D printing large-scale products such as boat hull molds, shelters, building components, tooling for composites and wind blades. [Read more about this accomplishment](https://oakridgetoday.com/2019/05/01/ornl-university-of-maine-to-announce-20-million-3d-printing-manufacturing-partnership/)
* Selected to lead the $14.2 million Transportation Infrastructure Durability Center with 5 other universities across New England to develop more sustainable, transformative and economical solutions to address our nation’s infrastructure challenges. [Read more about this accomplishment](https://composites.umaine.edu/2018/06/13/umaine-wins-14-2m-u-s-dot-award-form-transportation-infrastructure-durability-center/#:~:text=UMaine%20Wins%20%2414.2M%20DOT,Composites%20Center%20%2D%20University%20of%20Maine)

**Purpose**: This position will conduct, direct, manage and /or oversee analysis and design work for the research and development of offshore renewable energy technologies and work collaboratively with faculty, staff, and graduate and undergraduate students at the Advanced Structures and Composites Center.

**Essential Duties & Responsibilities:**

Scope:

* + Assists in planning, executes, and reports on analysis, design and testing aspects in area of expertise of a variety of R&D projects
  + Operates and maintains sophisticated scientific testing equipment to conduct research
  + Reviews processing methods and materials and develops and recommends improvements
  + Develops and writes work instructions and executes changes in drafts as required
  + Participates in providing weekly, quarterly and monthly progress reports to the program manager as well as to clients and sponsors
  + Writes industrial contract proposals and assists in writing proposals for grants and other contracts
  + Assists in writing technical reports and papers detailing research and development activities for journals, periodicals, clients, and sponsors
  + Develops and maintains updated Gantt charts for projects

Impact:

* + Participates in providing monthly progress reports to the program manager as well as to clients and sponsors
  + Position responsibilities and decision-making, involving evaluation of project information, impact the direction and/or success of the project or task.
  + Decisions may require developing or applying alternatives or precedents and errors are not typically apparent.

Contacts:

* + Communicates with vendors to establish purchase specifications for research and testing materials, non-capital equipment and capital equipment
  + Participates in meetings with clients

Authority:

* Supervises and manages a team of undergraduate students in research and laboratory activities
* Supervises operation and maintenance of testing equipment
* Instructs others in the use of equipment
* Assists graduate students in completing, executing and planning R&D projects through testing, data analysis, design and manufacturing
* Provides safety and environmental management supervision and advice for graduate and undergraduate students

Fiscal Responsibility:

* + Researches, recommends and determines specifications for purchase of equipment, materials and supplies for use in research projects

Performs other reasonably related duties as assigned

**Knowledge & Skill Qualifications:**

**Required:**

* B.S. in related Engineering field or an equivalent combination of education and experience
* This position requires three to less than five years of relevant professional experience
* Advanced coursework or equivalent experience in some of the following areas: advanced composites, finite element modeling, engineering design, advanced mechanics of materials
* Excellent oral and written communication skills
* Demonstrated ability to handle multiple projects and constant deadlines

**Preferred:**

* Experience in carrying out static and dynamic laboratory load tests of composites
* Experience or coursework in finite-element stress analysis
* Experience in student research
* Experience in some of the following areas: naval architecture, offshore design, structural engineering, hydrodynamics, model testing of offshore structures, floating offshore wind turbine design and modeling, offshore design standards, CAD, and met ocean data analysis

**Position Type:** Contingent on funding and successful performance.

**Work Schedule:** Normal University of Maine business hours are Monday through Friday 8:00 a.m. to 4:30 p.m. Due to the nature of the position, work beyond regular hours (to include evenings and weekends) will be necessary to meet the requirements of the position. The employee shall establish regular office hours and in consultation with the supervisor, adjust the work schedule as appropriate. **This position is considered Essential Personnel in the ASCC Storm Day Policy.**

**Work Environment:** Work will be performed at the Advanced Structures and Composites Center 87,000 ft2 laboratory with a world-leading team of over 240 faculty, staff and students who conduct contract research with a variety of public and private entities developing the next generation of low-cost, high performance composite materials.

**Schedule for Evaluation:** In the initial six months of employment and annually thereafter in accordance with the UMPSA agreement.

**Job Family:** 07 **/ Salary Band:** 05 or 06.

Appropriate background checks will be required.

The finalist for this position must successfully complete a pre-employment physical.

All UMS employees are required to comply with applicable policies and procedures, as well as to complete applicable workplace related screenings, and required employee trainings, such as Information Security, Safety Training, Workplace Violence and Sexual Harassment.