

## STEM Course Descriptions:

- **Power Engineering and Renewable Energy**  
In this course, we'll explore how power is created and learn about steam, turbines, and electricity. Plus, we'll chat about the latest and greatest in alternative and renewable energy. Picture yourself in the engine room of a massive 550 ft. training ship, the *Enterprise*. You'll get hands-on experience and even build your working model of a steam cycle in an engineering lab. Lastly, you'll team up to construct a gas-fired steam plant that's not just any plant but one that makes electricity. Get ready to power up your engineering skills and have a blast doing it.
- **Remotely Operated Vehicles and Their Use in Oceanography**  
Get ready for a fantastic adventure into the world of underwater robots. Dive into the exciting universe of ROVs—Remote Operated Vehicles—and explore how they're built and used in the vast oceans. In this course, we'll uncover the history of these machines and discover the secrets behind their underwater missions. Buckle up for a thrilling competition activity where you will build your own ROV and test its abilities in the campus pool.
- **Science of Emergency Management**  
In this course, you'll learn about disaster preparedness, fire safety, light search and rescue, and join the awesome Community Emergency Response Team (CERT). Based on the National Incident Management System and the EM Disaster Cycle, prepare for a journey through the past 10 years of emergency management in the United States. You'll be hands-on heroes, working with a fully functional emergency operations center on campus where you'll have specific roles and responsibilities that will unleash your inner emergency superhero.
- **Discover Science on Cape Cod**  
In this course, we'll uncover the secrets of Cape Cod's stunning landscapes, dive into the mysteries of coastal erosion, and discover the power of storms. We'll be hitting the outdoors for hands-on experiments and embarking on two exciting field trips to Sandy Neck Beach and the Cape Cod Canal. In this class, we'll become geology and meteorology detectives, focusing on the local wonders of erosion, coastal processes, lightning, and other wild weather events. Are you ready to unlock the wonders right in our own backyard?
- **Marine Environmental Issues on Cape Cod**  
In this course, we'll tackle four important problems: nutrient loading, pesky harmful algal blooms, saving our wetlands, and battling invasive plants. Did you know wetlands are like superheroes but endangered? We're part of a real-life mission to save a nearby marsh, and we're teaming up with the Army Corps of Engineers, and the Town of Bourne to make a difference. We'll also board a Mass Maritime Academy vessel and head out to a local estuary to tie

together everything we've learned in class. Get ready for an epic journey into the heart of environmental heroism.

- **Chemistry of Water**

Don't let the course title fool you! You'll uncover the secrets of water and its mind-blowing properties. We're talking cool experiments every day – from checking out what makes water tick to exploring how it can clean up its act as a solution. We'll even tackle a super important project about phosphorus and water pollution to save the day. Get hands-on with real-deal lab equipment, like special glassware and a spectrophotometer, just like the experts in a college chemistry lab.

- **Navigation and Ship Handling**

Sail through the seas of boating safety, unravel the secrets of navigation, chart your course, plan thrilling voyages, and master seamanship. Plus, get ready to become a certified Boating Operator with this Coast Guard-approved course. You'll learn essential seamanship skills like tying knots, mastering line work, and even conquering lifeboat operations. Experience the thrill of our high-tech Radar labs and Ship's Bridge Simulator. The ultimate challenge awaits in the capstone project – a team-based simulator exercise where you and your friends will navigate a massive 600 ft. ship into the bustling Boston Harbor.

- **Strength of Materials**

In this course, you'll explore the stuff behind how structures work. We'll uncover the secrets of materials, learn about stress and strain (think stretching and squeezing forces), discover the twists and turns of torsion, and unravel the mysteries of bending moments and temperature changes in all sorts of structures. You'll team up with your friends to build an epic bridge model. From sketching out designs to the ultimate challenge of testing its strength, this class is all about putting your engineering skills to the test. Are you up for the challenge?

- **Alternative Energy**

*We are introducing a new course all about alternative energy! Course description to be announced soon.*

## Advanced Studies and Leadership Program

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