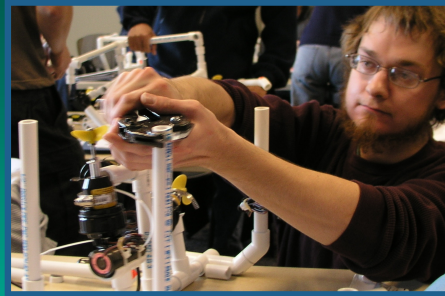


Teacher In-Service



ADULT CLASSES:

GLNMM will provide teacher in-service ROV programs designed to develop curriculum in the use of ROV activities for the classroom. These programs will include ROV activities that instructors will be able to take back to their classes. Additional instruction in the operation of a professional ROV and dives to explore shipwrecks or fish habitats will be part of this class. CEU credits are available.

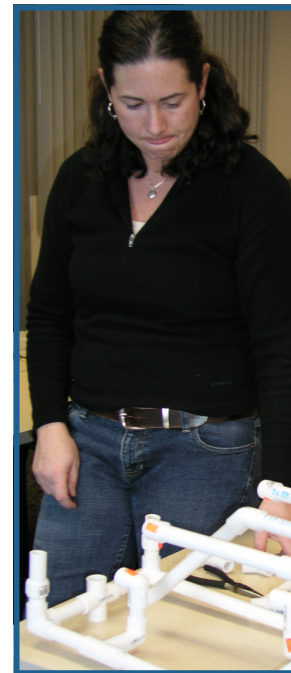


CLASS FEES

BASIC CLASS:
\$10 per person

INTERMEDIATE CLASS:
\$20 per person

ADVANCED CLASS:
\$40 per person

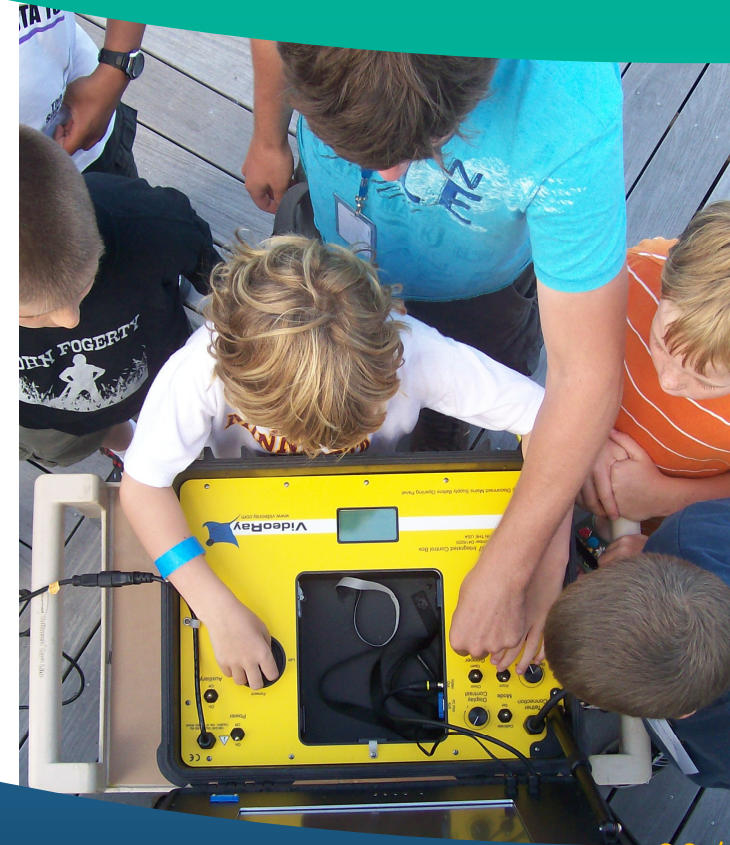


Great Lakes Naval Memorial And Museum

Underwater Technology . . .

Design and Build

Remotely Operated Vehicles—ROVs



Great Lakes Naval Memorial and Museum

1346 Bluff Street

Muskegon, Michigan 49441

South side of the Muskegon Channel Wall

(231) 755-1230

mgleason@glmmm.org

www.glmmm.org

Educational experiences for students of all ages at your school or at the Museum

Great Lakes Naval Memorial And Museum

Technology

Students Underwater Robotic Classes (K-12)

Exploration

Technology is part of everyone's lives today in positive and negative ways. Young people are spending less time in nature and while they use technology, often they do not understand it well. Communication, teamwork and the hard sciences are often lacking in many of our student's areas of interest. To address these concerns GLNMM offers an educational program that addresses STEM areas by using Remotely Operated Vehicles (ROV), small robots that operate underwater, to encourage improvements in STEM areas.

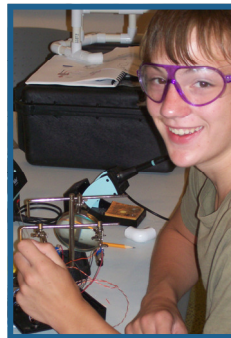
GLNMM provides hands-on educational experiences for K-12 students at the Museum or in the classroom. Students will practice team work, learn to communicate and improve their creativity by designing and building their own under water robot or ROV. Enhance these experiences with a museum tour that includes, exhibits, films and the WWII submarine "USS SILVERSIDES". The ROV program is available to travel and can be a class that Museum staff present at your school.



This experience is designed to help with STEM and other educational emphasis areas. K-12 students are using technology in ways that few could have predicted just a few years ago but often using does not mean understanding what they are using. Therefore these classes are designed to explain the technology and use it to enable

the students to understand physics, math and engineering because of the hands-on nature of this educational experience.

BASIC: A one or two hour experience where students learn the physics of buoyancy and balance while designing and building a ROV as a team. As part of this class an overview of the historical uses and present day operations of ROVs will be given. This class can be offered in the student's school by a traveling museum team.



INTERMEDIATE: A two to four hour experience that builds on the basic class topics. Added to this class are motors and in water driving and testing of the ROV buoyancy and balance in a water tank.

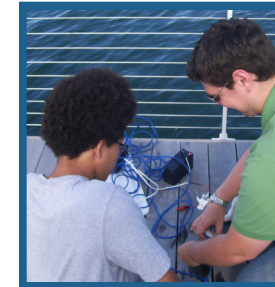
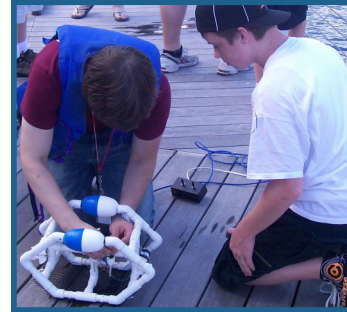
ADVANCE: A half or full day experience that builds on the first classes but add a water proof camera to the ROV. This class includes an open water dive following the water tank test of their ROV. The students

will be able to operate their ROV next to the WWII Submarine SILVERSIDES. Students will also learn to drive a professional ROV.

MATE ROV COMPETITIONS: Teachers may help their students to continue this experience by participating in an annual national competition with the assistance of GLNMM staff.



**S U M M E R
P R O G R A M S :** GLNMM offers ROV programming during the summer months. Students will learn to build their own ROV and take the finished product home from these multi-day classes.



**S H I P W R E C K
E X P L O R A T I O N S :** Participants will be an active member of an expedition to explore a Great Lakes shipwreck using ROVs and side scan sonar. This program will provide an in depth experience of the technology that scientists use to explore the world's oceans.

MARITIME ARCHEOLOGY: This class will provide the participants with the opportunity to use ROVs as an archeology tool. Learning to document shipwrecks will be part of the class experience.



Your Partner
For Education and Fun!