



## 2020 MATE PA Regional ROV Competition INFORMATION

**Registration for the MATE PA Regional ROV Competition opened on January 2, 2020.**

Check out MATE PA Regional ROV Competition <http://www.materovcompetition.org/pennsylvaniaregistration> Additional information will be posted in the <http://www.materovcompetition.org/regionalevents>.

**Competition day for all classes:** Saturday, May 9, 2020

**Location:** Villanova University, Swim Complex & Bartley Hall, Villanova, PA 19085

**For all classes:** If you have questions about the product demonstration tasks or product demonstration props, please ask those questions on the [competition forums](#). For questions regarding the PA ROV competition operations, contact regional coordinator, V. Vanessa Morris, [vmvrobot@gmail.com](mailto:vmvrobot@gmail.com).

### **EXPLORER class:**

EXPLORER class companies can attend the MATE PA Regional ROV Competition to demonstrate their vehicle. If EXPLORER class companies wish to attend and practice with an in-water product demonstration run, contact the PA regional coordinator, V. Vanessa Morris [vmvrobot@gmail.com](mailto:vmvrobot@gmail.com) by March 31<sup>st</sup>, 2020. EXPLORER class companies that wish to volunteer at the PA regional should contact V. Vanessa Morris, by March 31<sup>st</sup>, 2020.

### **RANGER class:**

**Company limit:** There is no limit to the number of students who can compete as part of a company. The MATE PA Regional ROV Competition registration is limited to two RANGER class companies per school. Schools wishing to register after we have reached capacity should contact the regional coordinator, V. Vanessa Morris, [vmvrobot@gmail.com](mailto:vmvrobot@gmail.com), to be placed on a waiting list. These schools will be notified by March 21<sup>st</sup> whether or not space is available.

RANGER class registration for the MATE PA ROV Regional Competition will close on April 15, 2020 or when filled to capacity.

### **Engineering & Communication requirements:**

- **Technical documentation**
  - **Technical documentation**
  - **Company spec sheet**
  - **SIDs (separate from the SIDs in the technical documentation)** (including electrical, fluid)
  - **Non-ROV device design document**
  - **Company Safety Review**
- **Engineering presentation**
- **Marketing display**

### **Note:**

Team Spec Sheet & SIDs are due by 11:59 PM, **Wednesday, April 15<sup>th</sup>**. Email to [twin2121@hotmail.com](mailto:twin2121@hotmail.com)

Technical documentation components are due by 11:59 PM on **Wednesday, April 22<sup>nd</sup>**. Email to [vmvrobot@gmail.com](mailto:vmvrobot@gmail.com)

Corporate Responsibility documentation is due by **Friday, April 24<sup>th</sup>**. Email to [vmvrobot@gmail.com](mailto:vmvrobot@gmail.com)

JSA is due by **Friday, April 24<sup>th</sup>** (optional). Email to [vmvrobot@gmail.com](mailto:vmvrobot@gmail.com)

See the [RANGER Competition Manual](#) [section 2.2 Safety pre-inspection, section 2.2.1 Safety documentation requirements, Part 5: Engineering & Communication] for more info on the required documentation.

The MATE PA Regional will use these documents to conduct an **initial safety review** worth 20 points using the [initial safety inspection sheet](#).



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NOTE: By submitting your technical and other documentation, you are giving the MATE ROV Competition permission to publish these documents on its web site.

Engineering presentations will be delivered in a classroom setting.

### **Other important dates:**

- The last day to pass the fluid power quiz is March 15<sup>th</sup>.
- The last day to submit laser specifications is April 1<sup>st</sup>.
- The last day to submit a JSA is April 24<sup>th</sup>.
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### **6.1.2 Image Recognition Documentation**

- **NOTE for 2020!!!**
- The MATE ROV Competition is not requiring documentation submission for image recognition in 2020.

### **Competition set-up:**

RANGER companies will complete all three tasks in one product demonstration run. On competition day, RANGER companies will receive two attempts at the product demonstration. Each product demonstration time will consist of:

- 5-minute set-up period
- 15-minute product demonstration period
- 5-minute demobilization period

The higher of the two product demonstration scores will be added to your ENGINEERING & COMMUNICATION and SAFETY score to determine the total, overall score for the competition.

### **EXPLORER**

- Documentation (technical document, spec sheet, SIDs, non-ROV device design, company safety review, JSA)
- Corporate Responsibility
- Video Demonstration

### **Operational:**

**Size and Weight:** The MATE PA Regional ROV Competition will conduct size or weight measurements. Companies advancing to the world championship must meet size and weight requirements as well.

**Pool:** The pool has a flat bottom. The depth for the RANGER class product demonstrations is approximately 4ft. to 13 ft. All underwater product demonstrations will take place within 10 meters from the side of the pool. The product demonstration station will be no more than 3 meters from the side of the pool. Tether length should be calculated accordingly.

**Product Demonstration Station:** A table and two chairs will be provided at each product demonstration station.

The MATE PA Regional ROV Competition will NOT provide video monitors for RANGER class companies. Companies must provide their own video displays. See Vehicle Design & Building Specifications (3.8.2) in the [RANGER Competition Manual](#) for number of video displays allowed.



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Diver Support: Diver support will be available during the product demonstration runs, but any diver assistance will constitute a penalty.

Personal Flotation Devices: Companies are not required to wear PFDs at the pool edge. The MATE PA Regional ROV Competition will NOT have PFDs available for use.

Power: RANGER class companies will use a dedicated power supply that will provide the nominal 12 volts.

Pressurized cylinders: All pressurized cylinders must be approved by the US DOT.

Shared equipment: If you are planning on sharing equipment (monitors, pressurized cylinders), please contact the regional coordinator, Vanessa Morris, **by Friday, April 10<sup>th</sup>**.

Companies are responsible for bringing their own device to retrieve the sediment sample from inside the drain pipe and their own quadrat to count mussels. The MATE PA Regional will not provide this equipment for you.

Each RANGER station at the MATE PA Regional will have a powered Seabin. However, companies will not receive additional points for illuminating the LEDs on the powered Seabin. RANGER companies will receive the same amount of points for inserting a powered or unpowered connector into the power port on the Seabin.

### Safety Inspection:

RANGER class companies will visit a safety inspection station in Bartley Hall, 2<sup>nd</sup> floor the company workstation area. During registration, RANGER class companies will receive their safety inspection score sheet. After they have set up their system and are ready for inspection, they should move to the safety inspection station with their score sheet. A safety inspector will conduct the safety inspection.

Companies that pass their safety inspection will be given a blue PASSED card; the safety inspector will keep the safety inspection score sheet. Companies must present the blue PASSED card to the product demonstration station judge in order to compete in the pool. Companies that fail their safety inspection must address the issue and return to the safety inspection station for another inspection.

The MATE PA ROV Regional will offer 10 points for a job site safety analysis (JSA).

### **Note for 2020!!!**

The MATE ROV PA Regional will offer up to 20 points for Corporate Responsibility. See the [RANGER Competition Manual](#) [Section 5.5 Corporate Responsibility] for more information.

Corporate responsibility documents are due by 11:59 PM on **Friday, April 24<sup>th</sup>** emailed to regional coordinator [vmvrobot@gmail.com](mailto:vmvrobot@gmail.com). See the [RANGER Competition Manual](#) [Section 6.1.1 Corporate Responsibility Documentation] for additional information.

### SCOUT Class:

### **Note for 2020!!!**

**Company limit:** The MATE PA Regional ROV Competition is limited to two SCOUT class companies or of the two - one Scout and one Ranger class team per school.



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SCOUT class registration for the MATE PA Regional ROV Competition will close on April 15<sup>th</sup>, 2020.

### **Engineering & Communication requirements:**

- **Engineering Presentation**
- **Technical Documentation**
- **Marketing Display**

Engineering presentations will be delivered in Bartely Hall, Villanova University. Tables will be provided for the engineering presentations.

Companies should set up their marketing displays in the Lobby, Bartley Hall the morning of the competition. The location to set up company posters will be marked. MATE will not provide poster boards; companies should provide their own [36" x 48" poster board](#).

### **Competition setup:**

SCOUT companies will complete all three tasks in one product demonstration run. On competition day, SCOUT companies will get two attempts at the product demonstration. The product demonstration time will consist of:

- 3-minute set-up period
- 10-minute product demonstration period
- 2-minute demobilization period

The higher of the two product demonstration scores will be combined with the Engineering & Communication and Safety score to get the company's total score.

### **Operational:**

**Size and Weight:** The MATE PA Regional ROV Competition will conduct size or weight measurements.

SCOUT class companies **MUST** use Anderson Powerpole connectors to connect to the MATE power supply. See the [SCOUT Competition Manual](#) for more information.

**Pool:** The pool has a flat bottom. The depth for the SCOUT class product demonstrations is approximately 5 feet.

**Diver Support:** Diver support will be available during the product demonstration runs, but any diver assistance will constitute a penalty.

**PFDs:** Companies are not required to wear PFDs at the pool edge. The MATE ROV Competition will **NOT** have PFDs available for use.

**Power:** SCOUT class companies will use either a dedicated power supply that will provide the nominal 12 volts or a 12-volt deep cycle marine battery.

**Shared equipment:** If you are planning on sharing equipment with other companies, please contact the regional coordinator, V. Vanessa Morris, by Friday, April 10<sup>th</sup>.

### **Safety inspection:**



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A SCOUT safety inspection table will be located on the second floor of Bartley Hall. After registering the morning of the competition, SCOUT class companies are required to take their vehicle to this table for inspection. SCOUT class companies are required to email an electrical **SID** (and a fluid power SID if applicable) to Jane White, teams' liaison, twin2121@hotmail.com. See the Vehicle Design & Building Specifications [Section 2.0 Safety] in the [SCOUT Competition Manual](#) for more information.

Companies that pass the safety inspection will be given a blue PASSED card; the safety inspector will keep their safety inspection score sheet. Companies must present the blue PASSED card to the product demonstration station judge in order to compete in the pool. Companies that fail their safety inspection must correct the issue and return to the safety inspection table to have their vehicle re-inspected.

The MATE PA Regional will offer points for Corporate Responsibility to SCOUT class companies.

### SCORING OVERVIEW

The competition consists of product demonstrations, engineering and communication, and safety with the following scoring breakdown:

<p><b>Product demonstrations)</b></p> <ul style="list-style-type: none"> <li>▪ 270 points (max), plus a time bonus</li> <li>▪ Size and weight restrictions</li> </ul> <p>20 points (max)</p> <ul style="list-style-type: none"> <li>▪ Product demonstration organizational effectiveness</li> </ul> <p>10 points (max)</p>	<p><b>Marketing displays</b></p> <p>50 points (max)</p> <ul style="list-style-type: none"> <li>▪ Company Spec Sheet</li> </ul> <p>20 points (max)</p> <ul style="list-style-type: none"> <li>▪ Corporate Responsibility</li> </ul> <p>20 points (max)</p>
<p><b>Engineering &amp; Communication</b></p> <ul style="list-style-type: none"> <li>▪ Technical documentation</li> </ul> <p>100 points (max)</p> <ul style="list-style-type: none"> <li>▪ Engineering presentations</li> </ul> <p>100 points (max)</p>	<p><b>Safety</b></p> <ul style="list-style-type: none"> <li>▪ Initial Safety and Documentation Review</li> </ul> <p>20 points (max)</p> <ul style="list-style-type: none"> <li>▪ Safety Inspection</li> </ul> <p>30 points (max)</p> <ul style="list-style-type: none"> <li>▪ Job Safety Analysis (JSAs)</li> </ul> <p>10 points (max)</p> <p><b>TOTAL POINTS = 650</b></p>

GOOD LUCK TO ALL TEAMS!