MICHIGAN 4-H ROBOTICS WORKSHOP

When and where:

March 18-19, 2017
4-H Kettunen Center, 14901 4-H Drive, Tustin, MI 49688

Who:

4-H members age 13-19 (as of January 1) and volunteers interested in robotics (sign up for a specific track: LEGO Mindstorms EV3, VEX Robotics, Underwater ROVs, Unmanned Aerial Systems, Younger 4-Hers: Robotics & STEAM, and Junk Drawer Robotics).

Cost:

- 4-H Members and Volunteers—$75.00
- Non 4-H Members and Volunteers—$130.00
- Registration fee includes meals, lodging and resources.
- Persons canceling without a replacement by Feb. 24, 2017, will be charged a $20.00 cancellation fee. Persons who do not show up at the workshop, do not have a replacement, or do not cancel to ANR Event Services at events@anr.msu.edu within 48 hours prior to the start of workshop will be billed the full registration fee.
- Not a 4-H member? Contact your county MSU Extension office today!

Registration information:

- The deadline to register for this event is Feb. 24, 2017.
- To register, visit https://events.anr.msu.edu/4HRobotics2017/

Find out more...

Visit the registration site for additional details, including the event handbook.

For more information, contact your county MSU Extension office, Jan Brinn at 269-673-0370 or brinn@anr.msu.edu or Kristy Oosterhouse at 517-543-2310 oosterh6@anr.msu.edu

Accommodations for persons with disabilities may be requested on your registration form.
WORKSHOP AGENDA

Saturday, March 12, 2016

9 – 10 a.m.  Sign-in and Registration – Main Lobby
10 - 10:30 am.  Conference Opening Session (Lakeview Room)
10:30 a.m. – 12 p.m.  Track Sessions

A. LEGO Mindstorm EV3  Computer Lab
   Explore programming and building with LEGO Mindstorms EV3 robotics!
   Participants in this hands-on session will learn about the components with an
   EV3 robot, how to build EV3 robots and modify them for challenges, and how
   to program the robot (including sensors). Learn about how to start a robotic
   club using the EV3s, different competitions available with the EV3s and ideas
   for advanced challenges and scientific uses to try in your club!

B. Underwater ROV  Red Oak Room
   Participants in the Underwater ROV track will have the opportunity to design,
   build, and test drive an underwater ROV. The session will begin with a brief
   presentation outlining the basics of ROV construction, what they are used
   for, and careers in marine technology. Participants will then work in teams to
   build a kit ROV and pilot the vehicle through underwater mission tasks.
   Participants will learn some basic soldering, circuits, buoyancy, and tether
   management as well as piloting. Acquire the knowledge, skills, and resources
to effectively mentor youth in designing and building an ROV, including
participating in competitions such as the Great Lakes Regional MATE ROV
competition. NOTE: Individuals selecting the Underwater ROV session are expected
to register in teams of 2-4 people per club or county. The club or county will be
responsible for covering the cost of the ROV kit ($210/kit). The responsible party will
need to fill out the County ROV registration form with the team member names and
payment. If a County ROV form is not completed for an Underwater ROV registrant
they will be moved to a different track based on availability.

C. VEX Robotics  Cedar Upper
   VEX Robotics offers youth a rich exciting platform to immerse themselves
   into STEM (science, technology, engineering and mathematics) through the
   fun of building robots. The versatility of VEX allows youth the opportunity to
   build whatever they imagine. During the two-day VEX robotics workshop you
   will explore a variety of activities you can use to engage youth in an
   exploration of robotics.
D. **Junk Drawer Robotics** Gerber A
Explore engineering with everyday household items! Using the engineering design process, participants in this track will design and build a variety of articles – from a catapult and clip-mobile to a robotic arm and more – using materials straight out of the ‘trunk of junk’. Learn how to engage youth in science and engineering in a fun way! Activities from this track can easily be done with any type of youth group. You don’t have to be a scientist – just get creative with your ‘junk’ and have fun!

E. **Younger 4-Hers: Robotics & STEAM** Gerber B
Engage our younger 4-Hers; cloverbuds (5-8 year olds) in STEAM and Robotic programming at the county or club level. Develop your skills in guiding youth of this age in Junk Drawer Robotics, Lego WeDo systems, 4-H Space activities and more. Projects will be adapted to meet the younger 4-Hers needs.

F. **Unmanned Aerial Systems** Cedar Lower
Unmanned aerial systems (UAS or drones) are a new and exciting field in robotics and engineering. Learn about ways to engage youth with UAS through a variety of activities. Includes building junk drawer drones all the way to using and flying hobby drones!

12 p.m. **Lunch**
1 – 3 p.m. **Track Sessions**
A. LEGO Mindstorm EV3 Computer Lab
B. Underwater ROV Red Oak Room
C. VEX Robotics Cedar Upper
D. Junk Drawer Robotics Gerber A
E. Younger 4-Hers: Robotics & STEAM Gerber B
F. Unmanned Aerial Systems Cedar Lower

3 – 3:30 p.m. **Flexible Break (time determined by instructors) & Grab a Snack!**
3:30 – 5:30 p.m. **Track Sessions**
A. LEGO Mindstorm EV3 Computer Lab
B. Underwater ROV Red Oak Room
C. VEX Robotics Cedar Upper
D. Junk Drawer Robotics Gerber A
E. Younger 4-Hers: Robotics & STEAM Gerber B
F. Unmanned Aerial Systems Cedar Lower

5:30 – 7 p.m. **Dinner**
### Track Sessions continue as needed

OR

**Optional Evening Programs**

- A. Explore other tracks
- B. Explore Kettunen Center
- C. Explore other STEAM activities
- D. Snacks

#### 11 p.m.

**Youth Bed Check & Quiet Time**

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### Sunday, March 13, 2016

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<td>7:30-8:30 a.m.</td>
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<td>8:30-10 a.m.</td>
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<td>10 - 10:30 a.m.</td>
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<td>12 – 1 p.m.</td>
<td>Lunch</td>
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<td>2:30 – 3 p.m.</td>
<td>Workshop Closing Session <em>(Lakeview Room)</em></td>
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<td>Departure</td>
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