High School / Middle School
Drone Workshop
&
Programming Competition

School of Computer Science
College of Engineering
University of Oklahoma

April 11th, 2020
Rawl Engineering Practice Facility
OU Main Campus, Norman OK

Sponsored by Devon Energy

Join us for the 100th annual OU Computer Science Workshop and Competition. The University of Oklahoma ACM Programming Team, School of Computer Science and College of Engineering are hosting a combined Drone Workshop and Programming Competition for high school and middle school students on Saturday, April 11th, 2020. Experienced programmers and newcomers to programming are welcome. All students are invited to participate in the morning Drone Workshop. In the afternoon, students will have their choice of competing in either the Programming or Drone Competitions.

Schedule

8:30 am - 9:00 am  Check-in: Rawl Engineering Practice Facility
9:00 am - noon      Drone Workshop
Noon - 1:00 pm      Lunch and College of Engineering Presentation
                   Lunch is provided
1:00 pm - 4:15 pm  Programming Competition
1:00 pm - 4:15 pm  Drone Competition
4:15 pm - 4:30 pm  Break
4:30 pm - 5:00 pm  Awards & Closing
Drone Workshop (Morning)

Students will learn the basics of working in the Python programming language and apply these skills to the task of learning to fly mini-drones. The morning workshop is open to all.

Programming Competition (Afternoon)

In this competition, teams of up to 2 students compete to solve logic and mathematical challenges using the programming language of their choice (one of Java, Python 2/3, C, C++, C#, Kotlin). Problems range in difficulty from simple looping and printing questions to more complex problems. Teams earn points for each problem solved in the three-hour period, so speed and accuracy are essential.

A team may compete in one of two divisions:

- The teams in the Experienced Division work on their own and compete directly against one-another. These teams are eligible for the top awards.
- The Newcomers Division is designed for students who are just learning to program or who are new to competing in this format. These teams may request help from the competition mentors on any aspect of the competition problems. Newcomers may also request that their coach join them during the competition. In this case, the coach will agree to provide only logic and problem solving advice, and not code.

To prepare for the competition, students should create an account at HackerRank, which will be used to provide problems and judge submissions. The Sock Merchant problem provides a good example of the format of the problems. We encourage competitors to practice solving a range of problems from this site before they arrive on the competition day. You may also try out the problems from the 2019 competition (login required).

Drone Programming Competition (Afternoon)

In the drone competition, teams of up to two students will compete to solve logical and mathematical challenges using python and flying drones. Teams will earn points for each challenge that they solve in the three hour period. Given that drones are a new domain for everyone, there will only be one division for the competition. Students in this division will be
allowed to ask for help from any of the mentors and coaches, provided that the coaches limit their help to advice and not code.

Requirements

- At check-in, all students must provide a Release Form signed by their parent or guardian
- All students must be accompanied by an adult (e.g., a teacher or a parent). This adult must remain on the premises while the students are on the OU campus. Multiple teams may share the same adult

Registration

- The registration deadline is Monday, April 6th
- Registration Form: https://forms.gle/fDAHmJABF6fWDtW39

Notes

- Computers will be provided for all of the activities
- Teams participating in the programming competition may bring notes and books to reference during the event
- Teams of one may be combined to make teams of two for the Drone activities
- For those traveling from outside the Norman/OKC area, a limited number of scholarships are available for teams to help cover travel costs. Contact Dr. Andrew Fagg for more information

Contact

Questions may be addressed to Dr. Andrew Fagg, School of Computer Science at fagg@ou.edu