

SECC eNewsletter

Call for Contestants – All students are welcome!

To inspire students' interest in STEM through hands-on and creativity projects



Special Edition

ABOUT THIS EVENT

Interested in a STEM coding project without coding experience? Interested in an integrated STEM project where students can learn and use concepts in computer science, environmental science and engineering? Have a TI calculator you want to put it to an optimal use? Want to hear STEM professionals on their experience and hot topics in STEM?

DFW 2019 SECC is your opportunity to bring industry attention to your idea, your work, compete for cash prizes, and gain STEM experience and valuable input from industry experts.

[Registration](#) deadline to reserve your spot is January 31st, 2019 includes free STEM Seminar and demo. Event details are available at <http://cie-dfw.org/events/2019/SECC/>. Training resources and videos are also available in next page.

OBJECTIVES OF THE EVENT

- Promote and inspire students' interest in STEM through recognition and real world challenges.
- Stimulate students' career interests in STEM through interaction with industry.
- Encourage students to be creative and confident. Lead students to try new ideas, have different ways of thinking, and problem-solving.
- Encourage self-expression of ideas in order to boost self-confidence.
- Acknowledge and celebrate students' uniqueness and diversity.



EVENT PLATFORMS & COMPETITION CATEGORIES

Engineering Challenges (EC): A hands-on challenge with specific set of hardware (purchase required) and predefined guidelines. Topics will be provided by event's corporate sponsors and students will compete the challenge at the event date using own or improved methods or ideas. A project poster is required; Oral presentation is not required.

Creativity Challenges (CC): A creativity challenge where students present the ideas through a Powerpoint oral presentation and poster at the event date. Topics will be provided by event's corporate sponsors to connect students' ideas and creativity to real world applications. It is not required to purchase any hardware for this entry.

STEM Seminar "Unleashing Creativity through STEM Projects"

A free seminar designed for parents and students of all grades. STEM professionals will share their experience, hot topics, or collaboration with local schools, with a Q&A session following.

WHY PARTICIPATE IN THIS EVENT?

- Gaining experience solving real world STEM challenges
- Applying ideas and creativity to real world applications
- Interactions with industry and event's corporate sponsors
- Strengthening STEM and innovation skills by problem-solving
- Networking

EVENT FLYER – Click the image to download the flyer



DFW 2019 Student Engineering & Creativity Competition (SECC) & Free STEM Seminar
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Sponsors:



ELIGIBILITY

- **EC or CC Entry:** Students who are U.S. citizen and currently enrolled in grades 6 to 12 in fall semester 2018
- **STEM Seminar:** Parents and students of all grades

REGISTRATION FEE

- **For EC entry:** \$10 for students of CIE members; \$15 for all other students, plus tool kit cost (\$30~\$40) depends on the topic. See next page for details on available EC topics.
- **For CC Entry:** \$10 for students of CIE members; \$15 for all other students. Tool kit is not required.
- **STEM Seminar:** Free admission but registration is required

DIVISIONS & EVENT LOCATION – EC and CC Entry

- **Division-A:** 6th to 8th grades – Accept individual or group
- **Division-B:** 9th to 12th grades – Accept individual or group
- Both Divisions will take place at the same event venue

AWARDS PER DIVISION

- [EC]: 1st place: \$350; 2nd place: \$250; 3rd place: \$150
- [CC]: 1st place: \$200; 2nd place: \$100; 3rd place: \$50

*Award recipients will be recognized at the event ceremony by corporate sponsors, CIE's website and eNewsletter, local news media, and showcased in CIE's Annual Convention.

IMPORTANT DATES

Event Registration Deadline:

- **February 16th, 2019** (to reserve your spot)

Registration Fee Payment Deadline:

- **February 16th, 2019** (Pay fee & toolkit cost if EC entry)

Event Date (Competition and STEM Seminar) @UT Dallas

- **March 23rd, 2019 (Saturday); 9:00AM – 1:00PM**

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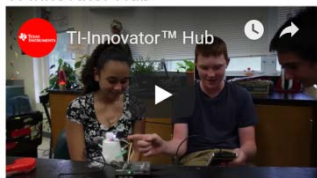
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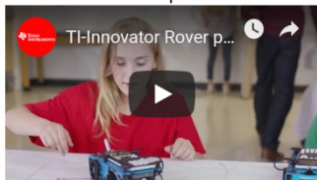
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SECC Resource YouTube Videos – Click the video to play

TI-Innovator Hub



TI-Innovator Rover puts STEM into motion



Drought in Africa inspires students to invent smart irrigation system



Training Resources & Videos

A. Useful Links to Learn about Related Hardware / Device

- What is the Hub: Click [here](#)
- What is the Rover: Click [here](#)
- How to learn TI-BASIC: Click [here](#)
- Introductory Feedback and Control activity: Click [here](#)
- YouTube How-To videos: Click [here](#)
- Smart Irrigation Project: Click [here](#)
- How to interface to the HUB using a breadboard kit: Click [here](#)

B. Useful Links to Purchase Related Hardware / Devices:

- Texas Instruments® TI-Innovator™ Hub with TI LaunchPad™ Board: Click [here](#)
- Texas Instruments® TI-Nspire CX Handheld: Click [here](#)
- Texas Instruments® TI-84 Plus CE Graphing Calculator: Click [here](#)
- These are only suggestion. You may find less expensive when shop around.

C. Links to Student STEM Project Materials (Examples):

- Click [here](#) for details
- Digital Mood Ring Project
- Pet Car Alarm Project
- Smart Irrigation Project
- Making Music with Code
- Modeling the Four Chamber Heart



Topics for Engineering Challenges (EC)

Click [here](#) for topic details. Students are encouraged to utilize the Training Resources & Videos to learn about related hardware / devices, places to purchase related hardware / devices, and examples of similar student STEM projects.

Division-A (6~8 Grades): [EC.A1 - Irrigation System](#)

Students are challenged to design a unique solution to the problem of growing food for astronauts during a two year mission to Mars. The system will be controlled via a program written on the calculator that implements an algorithm that monitors the sensor inputs and actuates outputs in accordance with ecological principles necessary for food production.

Division-A (6~8 Grades): [EC.A2 - Contact Mini Voltage Detector](#)

Students are challenged to build a battery tester for a single cell alkaline battery. Design requirements include a display of the voltage of the battery and a text message displayed on the calculator indicating the state of the battery's charge. In addition, an RGB LED should display at least three different colors to indicate the status of the battery's charge.

Division-B (9~12 Grades): [EC.B1 - Smart Irrigation System](#)

Students are challenged to design a unique solution to the engineering problem of building a growing chamber for an agribusiness company in Texas that researches genetically modified cotton plants. The system will be controlled via a program written on the calculator that implements an algorithm that monitors the sensor inputs and actuates outputs in accordance with ecological principles necessary for maintaining plants within the growing chamber.

Topics for Creativity Challenges (CC)

Click [here](#) for topic details

Division-A (6~8 Grades): [CC.A1 - Space Plant Growing Chamber](#)

Design a plant growing chamber for food to be used for a space flight to Mars. Chamber must include the irrigation and lighting system built in the Engineering Challenge. Chamber needs to hold the plants in a soil mixture and deliver water in the weightless environment of space.

Division-B (9~12 Grades): [CC.B1 - Agricultural Plant Growing Chamber](#)

Design a plant growing chamber for genetically modified agricultural plants. Chamber must include the irrigation system built in the Engineering Challenge. The growth chamber needs to contain any pollen produced by the GMO plants while provided sufficient air circulation.