

2017 IEEE Region 5 Annual Meeting and Student Events

Circuit Design Contest

Rules and Regulations

Version 2 (11/14/2016)

The Contest is open to undergraduate IEEE Student members who are registered for the R5 Conference. Each team will consist of two students from the same Student Branch. Single-person teams are not permitted. Only one team per Student Branch is permitted, unless there are open slots not filled by teams from independent Student Branches.

Space is limited in the labs. There are only guaranteed spots for the first twenty (20) teams. Teams are encouraged to register early to ensure a place in the contest.

The design problem may be analog, digital, or a mixed digital and analog design. Participants will generally be juniors or seniors who have completed courses in digital logic design, circuits, and electronics covering topics such as transistors, operational amplifiers, comparators, timers, and digital logic. No assembler or higher-level language software will be needed.

Each team may bring one textbook of their choice, a scientific calculator, a notebook, and a laptop computer with simulation software of their choice that may be used during the competition. Electronic versions of a textbook will count as the one textbook limit. Computers cannot be used for Internet access. All participants are expected to adhere to the IEEE Code of Ethics, respecting the rules and spirit of the Circuit Design competition.

The design problem will be provided to the teams at the start of the Contest. Participants will build the entire system using the parts and test equipment provided. Work neatly on the laptop and notebook. Students are not allowed other electronic communication devices such as cell phones. A team of judges from industry and academia will evaluate each design and demonstration during the afternoon of the competition.

Complementary transportation shall be provided from the conference hotel, leaving the conference hotel exactly at 8:00 am. Please note that the bus shall not wait for anyone. Participants shall be provided a brown-bag of lunch and break items, that they should pick up from the conference hotel prior to boarding the bus.

Procedures:

- All teams are to work independently in completing their projects.
- Teams should bring their own pencils, pens, paper, ruler, templates, calculator, and laptop. No other student-provided materials will be permitted. Component cost data, specifications and data sheets will be provided.
- Orientation begins at 9:00am and the problem is provided to the teams at orientation. All teams will have until 2:30 pm to complete their project. Circuit work will end at that point. Project demonstration to the judges will then be from 2:30pm to 3:30pm. Teams finishing early may demonstrate their project early. Each team will have about 5 minutes for their demonstrations and to answer questions from the judges.
- Laboratory Notebooks must be turned in by 3:30pm.

- Teams must first develop a preliminary paper design (in the Laboratory Notebook) including a logic/schematic diagram and a set of engineering specifications. Students are encouraged to simulate their design using the laptop and software of their choice. Teams must bring their preliminary design to the judges for approval before proceeding to construction. Approval to proceed does not imply any particular assessment of your design.
- Parts available for your design are provided to you in a package of parts. No other parts are permitted.
- Following construction and debugging of the project, each team will demonstrate performance against specifications to a contest judge. Both team members will be expected to answer questions about the project during this checkout.
- Your Laboratory Notebook will serve as your Final Report on the project. Neatness and completeness will count. Organize your notebook in a way that separates the major stages of the design. Information in the notebook should include:
 - Title Page: team number, title of project, date (do not include school or student names)
 - Analysis of specifications and design computations
 - Logic diagrams, circuit schematics and timing diagrams
 - Tests conducted to verify performance to specifications
 - Cost analysis
 - Conclusions
- Judges may ask questions during the design and troubleshooting process in order to help them assess the thought processes of the participants.
- Scoring guidelines: simulation, experimental prototype, functionality/creativity of the solution, laboratory notebook, clarity of the presentation.