

# IDEA Drafting-Design Competition - Rules and Regulations

## **General Information:**

1. There is a \$7.00 entrance fee per student for regional competition. There is no additional registration fee for contestants that advance to the state competition.
2. Instructors who are not members by December 1<sup>st</sup> of the current school year must pay a \$30.00 membership fee to I.D.E.A. before students will be registered for the competition.
3. Entry is limited to three (3) entrants and one (1) alternate of each instructor's students per division. When the regional site cannot handle entry numbers, each teacher will be allowed to enter two students per division.  
*Note: In an effort to increase attendees, additional entrants may be allowed upon approval by your Regional and State Directors.*
4. Exception to Number 3: Due to space limitations, the Architectural CAD category is divided into 2D and 3D competitors, but each school is still limited to 3 entrants for Architectural CAD. This exception was created to allow for two methods of solving the architectural CAD problem, yet not adding a complete category in all regional schools. Each region may handle this division as space requirements dictate.
5. Competition drawings and grading sheets may be picked up by the competitors after the awards ceremony.
6. Students enrolled in Industrial Technology programs meeting more than 1.5 hours per day may NOT compete in the Introductory Divisions.
7. The goals and objectives of the competition dictate that students must compete at their feeder Community College, if it is a regional site, or otherwise at the nearest regional site.
8. For exceptions to Number 7, contact the State Competition Director to facilitate a check on available space at another competition site, and the Director will need to evaluate the implications of the exception.
9. A student can only be registered in one division.
10. First and second place winners will qualify to advance to the state competition.
11. Students NOT registered for the regional competition will NOT be allowed to compete. Only regional competitors can qualify to attend the state competition.
12. Check for entry deadlines in the registration materials.

## **Eight Award Divisions:**

1. **Introductory Board:** **Entrants must have had less than one year of high school drafting.** Competitors will draw specified views of a given drawing problem. The drawing solution is a multiview problem, and will fit on either "A" or "B" size media. Competitors may also be asked to check 2D distances between specified corners of the object. Recommended time limit: 1.5 hours for the multiview drawing and distance checking.
2. **Introductory CAD:** **Entrants must have had less than one year of high school drafting.** Competitors will draw specified views of a given drawing problem. The solution will be designed to fit on either "A" or "B" size media. Competitors will also be asked to check 2D distances between specified corners of the object. Recommended time limit: 1.5 hours for the multiview drawing and distance checking.
3. **3D CAD Modeling:** **Entrants may have more than one year of high school drafting.** Competitors will model small objects within a designated time period. Entrants will calculate volume and distance checks of the objects modeled. The time limit will vary from 1 - 1.5 hours. Usually, there will be MORE problems than most students can do, but the student who scores the most correct volume and distance check points will be the winner.
4. **3D Assembly Modeling:** **Entrants may have more than one year of high school drafting.** Competitors will model a number of parts and assemble them. The problem will best be solved with a parametric constraint-based modeling program such as Inventor™ or Solidworks™. Recommended time limit: 1.5 hours.
5. **2D Machine CAD:** **Entrants may have more than one year of high school drafting.** Competitors will draw specified views (orthographic, auxiliary and/or sectional) from given pictorial or orthographic views in inches or metric. The solution will include dimensioning and notes and will fit on "B" or "C" size media. Recommended time limit: 1.5 hours. Note: This is still a 2D drawing problem. No 3D modeling will be allowed to assist with problem solving. Instructors are discouraged from allowing students to draw 2D drawings with programs that are primarily 3D programs. For example, even though a student might be able to create a 2D drawing with Inventor without using 3D models, this is NOT something that an instructor should coach a student to do!
6. **Architectural Board:** **Entrants may have more than one year of high school drafting.** Competitors will design and/or draw specified views, details, or sections using materials, specifications and drawings provided. The drawing will fit "B" or "C" size media. Recommended time limit: 1.5 hours.
7. **Architectural CAD (2-subdivisions):** **Entrants may have more than one year of high school drafting.** Competitors will design a solution and then either draw or model specified views, details, or sections from materials, specifications and drawings provided. The drawing(s) will fit "B" or "C" size media. Recommended time limit: 1.5 hours.

**NOTE: CLARIFICATION FOR THE ARCHITECTURAL 2D CAD DIVISION – STUDENTS MAY NOW BRING A TEMPLATE START FILE THAT HAS LAYERS SET UP AND SYMBOL LIBRARIES ON HAND. IT IS NOT PRACTICAL THAT STUDENTS CREATING 2D CAD DRAWINGS ALSO CREATE SYMBOLS FROM SCRATCH, NOR SPEND TIME SETTING UP LAYERS, LETTERING STYLES, DIMENSION STYLES, ETC. BE AWARE THAT NOT ALL COMPUTERS HAVE THE SAME DRIVE TYPES, SO VERIFY WITH YOUR REGIONAL DIRECTOR THAT YOUR METHOD OF BRINGING TEMPLATES FILES OR SYMBOL LIBRARIES WILL WORK, BE IT MEMORY STICK, CD, FLOPPY DISK (SURELY NOT!), ETC.**

**NOTE 2: Depending on the regional setup and enrollment, there may be two sets of winners within the Architectural CAD division. Entrants must designate **2D or 3D** when registering. Students who “draw” all the views using drafting procedures will be judged separately from those who “model” the building and use software to create the views. 3D modeling will only be allowed for entrants who specified 3D on their registration form. These entrants will use 3D modeling tools within programs such as AutoCAD Architecture™, Revit™, ArchiCAD™, SoftPlan™, etc. Entrants who marked 2D on their form must create all the views without using 3D models. EVEN THOUGH 3D PROGRAMS CAN DRAW 2D VIEWS, the 2D Division is for those who use 2D CAD commands (LINES, DIMENSIONS, TEXT, ARCS, etc.) such as AutoCAD™ and MicroStation™. Check with the Regional Director for specifics. Not all regional directors are able to provide both options for this division.**

### **Board Competitors:**

Students in this field are responsible for providing their own board drafting equipment at the regional and state competition sites. Competitors are to provide the following recommended equipment for both regional and state competitions:

1. Drawing board with T-square, parallel rule, or drafting machine (Minimum size 20" X 24").
2. Triangles (45 degree and 30/60 degree)
3. Scales: Customary inch and/or metric for Introductory; Mechanical Engineer's scale with decimal inches, fractional inches, and/or a metric ruler or scale for the Machine division; Architect's scale for the Architectural division.
4. Protractor
5. Eraser (manual), erasing shield, brush, dry cleaning pad, powder, or dust rag
6. Drafting tape
7. Compass or full instrument set
8. Lead sharpening device
9. Pencils or lead holders with appropriate leads
10. Circle template (up to 2")
11. Ellipse template (up to 2")
12. Backing paper (18" X 24")
13. Pocket calculator

### **CAD Competitors:**

#### **Regional:**

Teachers or students should check with the Regional Director of their site to see what equipment will be available for the student competitor to use. If a site has a limited number of CAD systems, a Regional Director may allow students to bring their own system. **Some Regional Directors may have to offer CAD competitions in shifts, so entrants may wish to bring reading or study materials in case of waiting a turn.**

#### **State:**

At the state competition at ISU, only current versions of the Autodesk products will be provided. Students using programs other than AutoCAD™, Inventor™, and Revit Architecture™ will be allowed to bring their own CAD system. Even at the state competition, students wishing to bring their own system for the products above could make arrangements to do so. In 2013 & 2014, state competitors in the 3D CAD Modeling, and Intro CAD divisions were required to take their own computers to ISU, and were provided only with table space and a power strip, and that will likely be the case again in 2015. Due to enrollment issues at some regionals, regional directors may wish for some students to bring their own systems. In addition, students should be coached on how to deal with generic installations of Autodesk products that may be different than their home school. For the state competition, teachers are encouraged to contact the assistant competition director, Ryan Brown, and double-check available system setups.

## **All Competitors:**

### **Scoring:**

1. Qualified judges, from industry when possible, will score problems in each division.
2. Drawing problems will be judged on completeness, accuracy, line quality, lettering and neatness. CAD problems will be judged on completeness, accuracy, line types and dimensioning, and with various "spot-check" rubrics.

### **Prizes:**

1. A first place plaque will be awarded in each division at each regional site. At the state competition, the 1<sup>st</sup> place teacher will also receive a plaque. SINCE 2011: At the state competition, students will be awarded medals instead of plaques.
2. Additional vendor prizes (such as CAD software or drafting tools or textbooks) may be awarded if available.

### **Responsibilities:**

1. Student transportation is the responsibility of the participating schools and instructors or parents.
2. The student, instructor, and parents are responsible for being adequately prepared for the above events.
3. While the hosting sites will take careful measures during the competitions, the I.D.E.A. organization, regional sites, and/or ISU are NOT responsible for students and their respective CAD systems while attending these competitions. Participating teachers, students, and parents should take necessary steps to meet the liability requirements of their respective institutions.
4. The I.D.E.A. organization, regional sites, and/or ISU are NOT responsible for students as they travel to and from the regional and/or state competition sites. Teachers should take necessary steps to meet the liability requirements of their respective institutions.