

# ILLINOIS DRAFTING EDUCATORS ASSOCIATION

Randy Jacobs, IDEA Competition Director  
Heartland Community College  
1500 West Raab Road  
Normal, Illinois 61761



September 12, 2011

Dear Drafting Educator:

The Illinois Drafting Educators Association has appreciated the support of hundreds of drafting teachers for the past 30 or more years. For years, community colleges have taken on the time-consuming task of running this competition for secondary programs, and we are excited to continue this great tradition. We are again calling on you and your colleagues to participate in the **35<sup>TH</sup> IDEA Regional Drafting-Design Competition** that will be held on **Friday, March 9, 2012**, at sixteen centers across the state. *NOTE: In case of regional date conflicts, Friday, March 2, can be used as an alternate date if needed.* First and second place regional winners will be eligible to compete at our state competition to be held on **April 14, 2012**, at Illinois State University in Normal. Last year, nearly 100 teachers and 1,000 students were involved at the regional level. At the State Competition, over 60 teachers and 200 students were involved.

This year's paperwork will again be handled primarily via the IDEA web site, including regional site locations, calendar of events, rules and regulations, entry forms, and updates. Please check the web site -<http://www.idea-online.org/> and look under the [Competitions](#) link.

As a former board member, I have been involved in IDEA for many years, and helped judge the state competition at ISU. Dr. Ryan Brown at ISU will continue his role as the primary "problem" guy, and will be the main coordinator for the state competition. Richard Johansen, retired IDEA member, continues to develop architectural problems for the competition. We are looking forward to working with you to make this event a positive experience for you and your students.

Thanks again for making last year's drafting contest such a success!

Sincerely,

Randy Jacobs, Competition Director - Heartland Community College  
Office: 309-268-8872 Cell: 309-530-5483 Email: [randall.jacobs@heartland.edu](mailto:randall.jacobs@heartland.edu)

cc: Ryan Brown, Assistant Competition Director - Illinois State University  
Office: 309-438-2611 Cell: 309-825-2147 Email: [rkbrown@ilstu.edu](mailto:rkbrown@ilstu.edu)



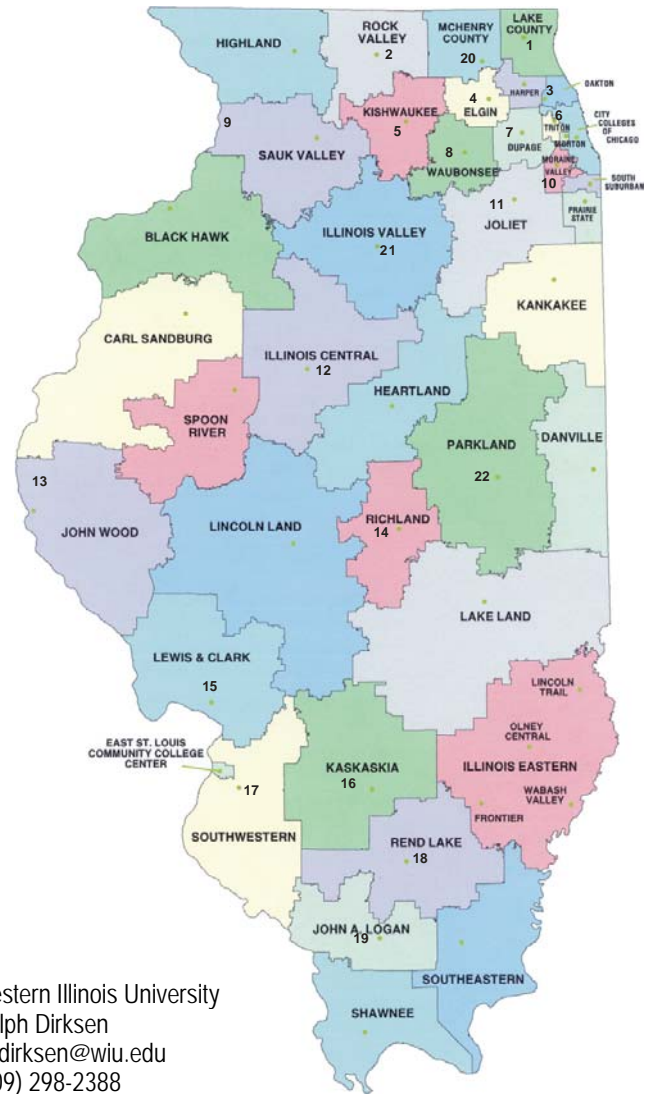
**- JANUARY 11 DRAFT -  
- WATCH FOR UPDATES -**

## IDEA Regional Competition Sites

Visit [www.idea-online.org](http://www.idea-online.org) for registration rules, forms, sample problems from the past, and more!

If you know your regional competition site, contact them for local information. If you are not sure of the site number for your school, you should contact the State Competition Director for advice. You may also contact regional directors of nearby competition sites for more information.

For 2012, registration and fees should be **postmarked** and **paid** by **February 10, 2012**.



- |   |  |  |
|---|--|--|
| 1. College of Lake County<br>Steve Dulmes<br>sdulmes@clcollinois.edu<br>(847) 543-2330  | 7. College of Dupage<br>Jane Ostergaard<br>osterg@cdnet.cod.edu<br>(630) 942-2331                                      | 13. Western Illinois University<br>Ralph Dirksen<br>re-dirksen@wiu.edu<br>(309) 298-2388               |
| 2. Rock Valley College<br><br><b>No Longer a<br/>Competition Site</b>                   | 8. Waubonsee Community College<br>David Ball<br>dball@waubonsee.edu<br>(630) 466-7900 ext 2327                         | 14. Richland Community College<br>Brett Willits<br>bwillits@richland.edu<br>(217)875-7211, Ext. 435    |
| 3. Oakton Community College<br>Joe Cirone<br>jcirone@oakton.edu<br>(847)376-7612        | 9. Morrison Institute of Technology<br>Janice Drosopoulos<br>jdrosopoulos@morrison.tec.il.us<br>(815) 772-7218 ext. 32 | 15. Lewis & Clark Comm. College<br>Rick Burgess<br>rburg@lc.edu<br>(618) 468-4931                      |
| 4. Elgin Community College<br>Jesse Bader<br>jbader@elgin.edu<br>(847) 214-7599         | 10. Moraine Valley Community College<br>Charles Bales<br>bales@morainevalley.edu<br>(708) 974-5401                     | 16. Kaskaskia College<br>Richard Rittenhouse<br>RRittenhouse@kaskaskia.edu<br>(618) 545-3000 ext. 3356 |
| 5. Kishwaukee College<br>Mark Schwendau<br>schwendau@aol.com<br>(815) 825-2086 ext. 348 | 11. Joliet Community College<br>Scott Boudreau<br>sboudrea@jcc.edu<br>(815) 280-2410                                   | 17. Southwestern Illinois College<br>Shauna Scribner<br>shauna.scribner@swic.edu<br>(618) 235-2700     |
| 6. Triton College<br><br><b>No Longer a<br/>Competition Site</b>                        | 12. Illinois Central College<br>Mark DeJarnatt<br>Mark.dejarnatt@icc.edu<br>(309) 694-5584                             | 18. Rend Lake College<br>Kevin Weston<br>westonk@rlc.edu<br>(618) 437-5321 ext. 348                    |
|   |  | 19. John A. Logan College<br>Ron Parks<br>ronparks@jalc.edu<br>(618) 985-3741                          |
|   |  | 20. McHenry Community College<br>Bob Mihelich<br>bmihelich@mchenry.edu<br>(815) 455-8719               |

State Competition Director  
**Randy Jacobs**  
Heartland Community College  
[randall.jacobs@heartland.edu](mailto:randall.jacobs@heartland.edu)

Asst. Competition Director  
**Ryan K. Brown**  
Illinois State University  
[rkbrown@ilstu.edu](mailto:rkbrown@ilstu.edu)

# IDEA Annual Drafting-Design Competition

*Timetable for the 2012 Competition*



**February 10<sup>th</sup>** – Regional Registration Deadline:

1. Mail registration form and fee payment to:

**Attn: Joe Sieczkowski**

IDEA Financial Director  
South Elgin High School  
224 Juniper Circle  
Streamwood, IL 60107

email: [JoeSieczkowski@u-46.org](mailto:JoeSieczkowski@u-46.org)

**NOTE:** Send by registered mail if concerned about deadline.

2. Email registration form to:

[IDEA@heartland.edu](mailto:IDEA@heartland.edu)

Randy Jacobs, IDEA Competition Director

3. Email a third registration form to your regional director at the site in which your school will be competing.

**February 24<sup>th</sup>** – Regional Registration Update:

Email any changes to your final counts to your Regional Director and  
[IDEA@heartland.edu](mailto:IDEA@heartland.edu)

**March 9<sup>th</sup>** – IDEA regional contest at the Regional Competition Site

**March 2<sup>nd</sup>** - Alternate date for regions that cannot facilitate the March 9 date. Contact Competition Director for clarification.

**April 1<sup>st</sup>** – State Registration Deadline:

Registration forms for the state competition need to be emailed by the **REGIONAL DIRECTOR** by **April 1<sup>st</sup>**. **This is a critical deadline for state competition planning.**

**Individual teachers may also confirm and assist with state planning by emailing a list of their qualifying students, with an indication of those who plan to attend, to the Assistant Competition Director, Ryan K. Brown, at ISU. [rbrown@ilstu.edu](mailto:rbrown@ilstu.edu)**

**April 14<sup>th</sup>** – IDEA State Competition at ISU in Normal, Illinois

# Regional Awards Distribution Chart

(Effective for 2012 Competitions)

<b>NEW SINCE 2011 – ALL DIVISIONS HAVE AT LEAST ONE 1<sup>ST</sup> AND 2<sup>ND</sup> PLACE WINNER, REGARDLESS OF THE NUMBER OF ENTRANTS.</b>			
# of Entrants/Division	First Place	Second Place	Third Place
0-10	1	1	0
11-15	1	1	1
16-20	1	1	2
21-25	1	2	2
26-30	2	2	2
31-35	2	2	3
36-40	2	3	3
41-45	3	3	3
46-50	3	3	4
51-55	3	4	4
56-60	4	4	4
61-65	4	4	5
66-70	4	5	5
71-75	5	5	5
76-80	5	5	6
81-85	5	6	6
86-90	6	6	6

**Reminder: Only 1st & 2nd place winners qualify for the state competition**

# 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 community college 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 limited 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 of objectives of the competition dictate that students must compete at their feeder Community College, or 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 checks will be the winner.
4. **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. **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.
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: Depending on the regional setup and enrollment, there may be two sets of winners within this 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.) AutoCAD™ and MicroStation™. Check with the Regional Director for specifics. Not all regional directors are able to provide both options for this division.**

**Effective 2012 – The Machine Board Division is no longer offered. The new Assembly Modeling Division has been added to maintain the same number of divisions.**

### **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 x 60 degree)
3. Scales: Customary inch and/or metric for Introductory; Mechanical Engineer's scale with decimal inches, fractional inches, and 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 if case of waiting a turn.**

#### **State:**

At the state competition at ISU, 2012 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. 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 or the state competition 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. NEW 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.



## ILLINOIS DRAFTING EDUCATORS ASSOCIATION

# INTERMEDIATE LEVEL ASSEMBLY MODELING

# IDEA PRACTICE 2012

DO NOT OPEN BOOKLET UNTIL INSTRUCTED TO DO SO

PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY.....

#### GETTING STARTED:

1. FOLLOW INSTRUCTIONS FOR GETTING REGISTERED & GETTING THE SCORING SHEET IDENTIFIED.
2. DO NOT LETTER ANYTHING ON THE SCORING SHEET, BUT MAKE SURE YOUR ENTRY OR REGISTRATION NUMBER IS THE SAME ON BOTH FORMS AND ON YOUR DRAWING.
3. IF TIME PERMITS, YOU ARE PRODUCING SEVERAL PART FILES, AN ASSEMBLY FILE, AND A DRAWING FILE.
4. THIS IS A TIMED TEST, AND ALL CONTESTANTS MUST STOP AT A GIVEN POINT AFTER THE COMPETITION BEGINS. YOUR REGIONAL CONTEST DIRECTOR OR CONTEST PROCTOR WILL GIVE YOU INSTRUCTIONS ABOUT SUBMITTING YOUR WORK TO BE JUDGED. EACH SITE MAY BE DIFFERENT, SO LISTEN UP, AND GOOD LUCK!

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THE PROBLEM: CREATE PARAMETRIC MODELS AND A CONSTRAINED ASSEMBLY MODEL OF THE PARTS OF A GEAR PULLER, AS ILLUSTRATED IN THE CLASSIC DRAFTING TEXT, BASIC TECHNICAL DRAWING. THE TEXTBOOK DRAWING SHOWS THREE UNIQUE PARTS, AND TWO SETS OF STANDARD BOLTS WITH NUTS. YOU ALSO NEED TO CREATE MODELS OF TWO "DUMMY" SHAFTS AND PULLEYS THAT ALLOW THE DESIGNER TO STUDY THE FLEXIBILITY OF THIS DEVICE.

YOU HAVE BEEN GIVEN REFERENCE SHEETS THAT EXPLAIN THE REQUIREMENTS. THERE ARE WRITTEN NOTES AND INSTRUCTIONS. ANYTHING NOT EXPLAINED BY THESE ILLUSTRATIONS AND NOTES CAN BE YOUR ORIGINAL DESIGN IDEA.

#### IN SUMMARY:

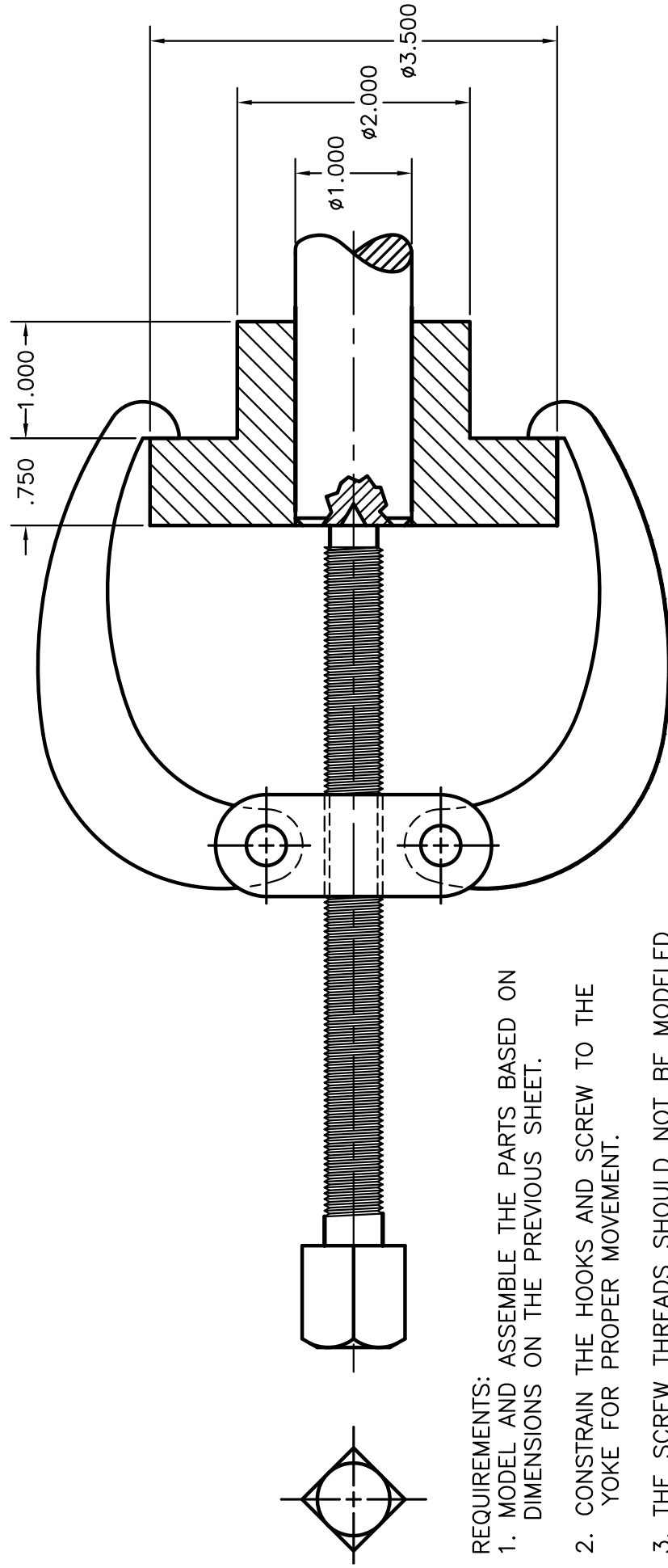
- YOU ARE CREATING INDIVIDUAL PARTS, AN ASSEMBLY MODEL, AND AN ASSEMBLY DRAWING OF A GEAR PULLEY THAT ALLOW THE DESIGNER TO STUDY THE FUNCTION OF THE PULLER.

#### JUDGING:

- JUDGING MAY INCLUDE ANY OR ALL OF THE FOLLOWING: (1) MASS PROPERTIES AND ACCURACY OF INDIVIDUAL PART MODELS; (2) PARAMETRIC NATURE OF THE MODELS THAT ALLOWS FOR VARIOUS SIZES TO BE TWEAKED WITH AUTOMATIC UPDATES TO THE ASSEMBLY; (3) DISTANCE AND ANGLE CHECKING OF THE ASSEMBLY TO CHECK CONSTRAINTS AND SEE HOW ANGLES AND DISTANCES CHANGE BETWEEN TWO SCENARIOS; (4) PROFESSIONAL LAYOUT AND PRESENTATION OF THE ASSEMBLY DRAWING ON A SHEET OF PAPER; (5) COMPLETENESS; (6) TIME ON TASK

AS 2012 IS THE FIRST YEAR FOR THIS COMPETITION, THE JUDGING CRITERIA IS STILL BEING DETERMINED. TRY THIS PRACTICE TEST, AND SEND YOUR THOUGHTS TO DR. RYAN K. BROWN, ILLINOIS STATE UNIVERSITY. EMAIL: [rkbrown@ilstu.edu](mailto:rkbrown@ilstu.edu) PHONE: 309-438-2611





**REQUIREMENTS:**

1. MODEL AND ASSEMBLE THE PARTS BASED ON DIMENSIONS ON THE PREVIOUS SHEET.
2. CONSTRAIN THE HOOKS AND SCREW TO THE YOKE FOR PROPER MOVEMENT.
3. THE SCREW THREADS SHOULD NOT BE MODELED AS HELICAL SCREW THREADS.
4. IF TIME PERMITS, SHOW BOLTS AND NUTS FROM A STANDARD LIBRARY.
5. SCENARIO ONE: SHOW THE PULLER HOLDING A PULLEY THAT IS FLUSH WITH THE END OF A SHAFT, AS SHOWN WITH THE DIMENSIONS ABOVE.
6. SCENARIO TWO: SHOW THE PULLER HOLDING A PULLEY ON A SHAFT WHEREIN ALL DIMENSIONS OF THE SHAFT AND PULLEY ARE EXACTLY HALF THE SIZE OF THE ONES SHOWN.
7. IF TIME PERMITS, CREATE A C-SIZE ASSEMBLY DRAWING OF SCENARIO ONE ON A C-SIZE SHEET OF PAPER, COMPLETE WITH A BILL OF MATERIAL AND IDENTIFICATION BALLOONS. SHOW SHAFT AND PULLEY WITH PHANTOM LINES.



**ASSEMBLY MODELING REFERENCE SHEET 2**

DATE: MARCH, 2012	REGISTRATION
SCALE: NONE	NUMBER:

**ILLINOIS DRAFTING EDUCATORS ASSOCIATION**  
**DRAFTING COMPETITION PRACTICE**