



## 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:

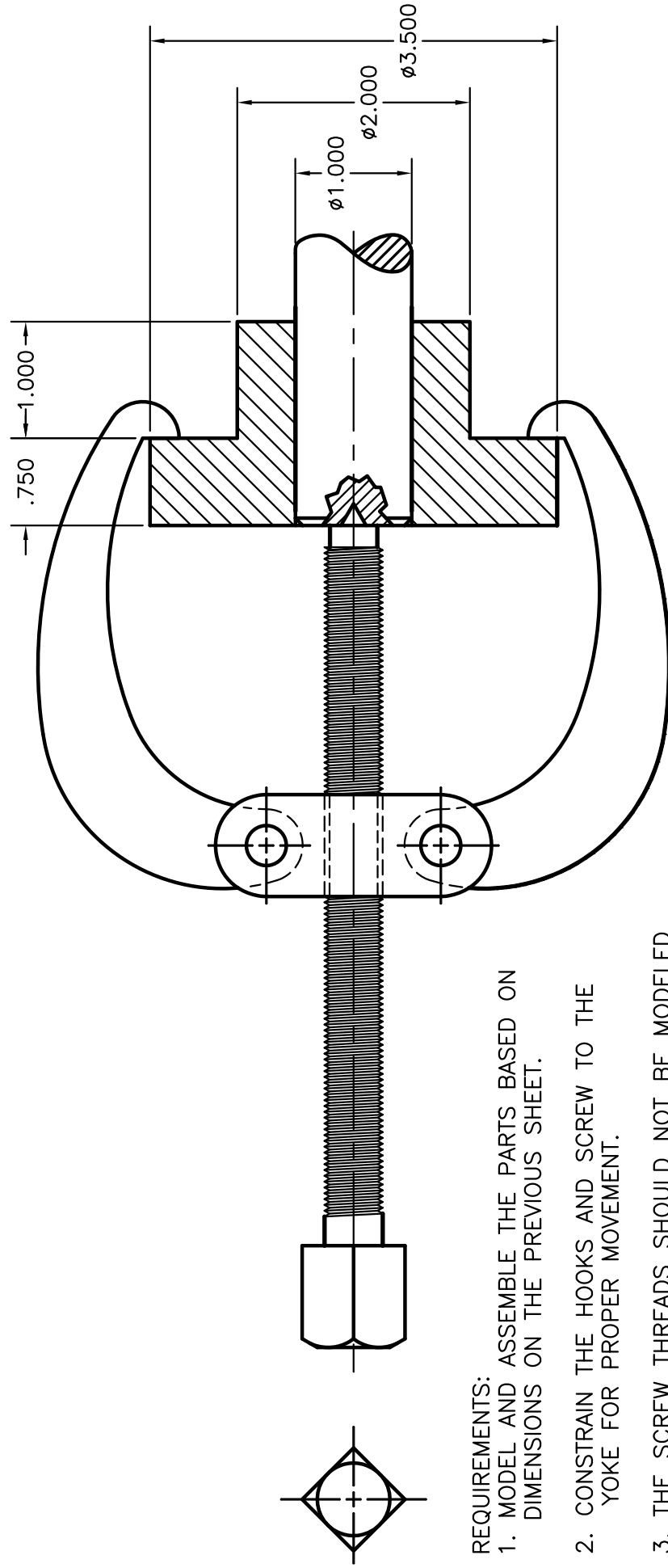
- YOU ARE CREATING INDIVIDUAL PARTS, AN ASSEMBLY MODEL, AND AN ASSEMBLY DRAWING OF A GEAR PULLEY THAT ALLOW THE DESIGNER TO STUDY THE FUNCTION OF THE PULLER.

#### 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**