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To: Mechanical/Manufacturing Engineering Technology Deans, Chairs, and Faculty

From: Dan Burklo, Ph.D.  
Faculty Lead, Mechanical/Manufacturing Engineering Technology TAG Review/Revision Panel

Re: Updates to the Mechanical/Manufacturing Engineering Technology Transfer Assurance Guide (TAG) Course Learning Outcomes

Date: September 30, 2016

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### **Background**

The Ohio Articulation and Transfer Network (OATN) sent a request to me as the Mechanical/Manufacturing Engineering Technology Transfer Assurance Guide (TAG) Review Panel lead last summer to determine if the Mechanical/Manufacturing Engineering Technology TAG courses were in need of a review/update. I discussed this request with the review panel members and other colleagues during a statewide meeting of the Ohio Engineering Technology Educators Association (OETEA). I informed the OATN staff that although the course learning outcomes for statics, strength of materials, fluid mechanics, manufacturing processes, engineering materials, CAD, and 3D Modeling were current, there were some confusion and concerns about the original spirit of creating a CAD TAG course (since the inception) and a 3D Modeling course (added to the MET TAG in 2009).

On August 8, 2016, the Mechanical/Manufacturing Engineering Technology TAG Panel met in person to discuss further all seven TAG courses and revise/update as needed, especially related to CAD and 3D Modeling. During the meeting, our panel made several minor changes to the existing course criteria and was able to agree on a solution for the CAD and 3D Modeling issue. The proposed changes were shared with the panel members again prior to sending out to the Ohio Engineering Technology Educators Association (OETEA) members for additional feedback and support. We received positive feedback from both groups and are delighted to share the updates with you, with the help from the Ohio Articulation and Transfer Network staff.

### **Updates**

In the attached MET TAG pathway document, you will find the revised TAG course learning outcomes for OET007 Statics, OET008 Strength of Materials, OET009 Fluid Mechanics, OET010 Manufacturing Processes, OET012 CAD, and OET013 Engineering Materials. OET021 3D Modeling has been eliminated as a separate TAG course starting spring 2017. A summary of the specific changes are noted below.

Basically, the faculty panel's changes to the TAG course outcomes centered on three primary objectives:

1. Clarification of TAG expected learning outcomes through the use of measurable verbiages (Bloom's Taxonomy verbiages)
2. Consolidation of TAG course learning outcomes where it made sense, and
3. Implementation of the original intent to allow institutions the flexibility to use either 2D or 3D CAD programs to meet the "CAD" TAG course applicability requirement.

#### OET012 CAD and OET021 3D Modeling

At the inception of the Mechanical/Manufacturing Engineering Technology TAGs, it was determined computer aided design (CAD) was an important part of the curriculum, and therefore the "CAD" TAG (OET012) was created. With the evolution of CAD programs, 3D modeling programs are becoming more common in some regions, yet not necessarily the norm. Based on the availability of institutional resources and regional workforce needs, the original intent of creating a new 3D Modeling TAG was to allow institutions to fulfil the "CAD" requirement using either a 2D or 3D program. The intent of the 3D Modeling TAG was not to require institutions to create additional courses to teach the essence of CAD using two different programs.

As both OET012 and OET021 TAG course criteria had very similar overarching concepts, it was felt by the faculty panel that the courses could be combined into one general CAD TAG course. Therefore, our panel made modifications to the course learning outcomes for the existing CAD (OET012) course by assessing the overlap between 2D CAD and 3D modeling courses. As we discussed, it was evident that we as professionals expect students to demonstrate a certain understanding and proficiency of a commercial CAD system based on ASME (ANSI) Y14.5M or equivalent ISO standards. By doing so, we were able to combine the two TAG courses into one general CAD course and keep the OET012 TAG number.

If you have any questions, please feel free to contact me at [dburklo@northweststate.edu](mailto:dburklo@northweststate.edu) or (419) 267-1273.

I wish to express my thanks for the dedicated work of the Mechanical/Manufacturing Engineering Technology TAG Faculty Review/Revision Panel for their collaboration in updating the learning outcomes. The faculty members of the MET TAG Review/Revision Panel included: Dan Burklo (Revision/Review Panel Lead, Northwest State Community College), Sudershan Jetley (Bowling Green State University), Shane Bendele (Columbus State Community College), Thomas Looker (Edison State Community College), Rob Speckert (Miami University), Scott Dilling (The University of Akron), Janet Dong (University of Cincinnati), and Randy Wharton (Zane State College).

### **Implication to Your Currently Approved TAG Courses**

Because the spirit of the previous learning outcomes continues to be implemented for all of the courses, the Statewide Faculty Panel members recommended that institutions with a course already approved for the respective TAG course not be required to resubmit for additional validation. The updated learning outcomes will be used for any new submissions beginning winter 2016 TAG review cycle, which will begin on January 23, 2017.

In regards to OET012 CAD and OET021 3D Modeling approved courses, the changes to the OET012 criteria are now inclusive of 3D courses. Our panel does not wish your institution to go through a resubmission of your already approved courses; however, we would like your assistance in determining which course(s) should be included in the OET012 TAG guarantee. You have a few options, and here are a few tips to consider when making your decision. OATN staff would like your institution to notify them with your course option to be now included in the revised OET012.

1. *If you offer only a 2D CAD course that is approved for OET012, your TAG guarantee will remain intact.*
2. *If you offer only a 3D Modeling course that is approved for OET021, this course can be submitted and approved as OET012 without further panel review for validation.*
3. *If you offer both CAD and 3D Modeling courses and both are TAG approved for OET012 and O21 respectively,*
  - a) *You can add OET021 approved course to the OET012. This will mean that either course (2D or 3D CAD) can be awarded for incoming OET012 approved TAG courses, which will be applied as the equivalent course toward the appropriate MET degree requirement at your institution; OR*
  - b) *You can keep your currently TAG approved OET012 course, but expire the TAG guarantee for the OET021 3D Modeling approved course at the end of fall 2016 term; OR*
  - c) *You can expire your currently TAG approved OET012 course at the end of fall 2016 term and replace with the OET021 3D Modeling approved course for the TAG statewide guarantee starting spring 2017 term.*

OATN staff requested that your TAG coordinator inform the OATN of the institutional decision about OET012 by October 31, so that they can make necessary changes in their Course Equivalency Management System (CEMS). This change will also be made to the Career-Technical Assurance Guide (CTAG) (CTMET005) approval by the OATN staff.

According to the OATN staff, their [TAG course description website](#) has also been updated to include submission templates, which can be used to prepare for your future TAG submissions. Should you have any questions about the submission process, please contact Hideo Tsuchida at (614) 644-0642 or [htsuchida@highered.ohio.gov](mailto:htsuchida@highered.ohio.gov) or Michelle Blaney at (614) 644-9601 or [mblaney@highered.ohio.gov](mailto:mblaney@highered.ohio.gov) at the Ohio Articulation and Transfer Network.

Thank you very much.

Below shows the current approvals for OET012 and OET021:

Belmont College	OET012 – ECE 1120
Bowling Green State University	OET012 – ENGT 1100 (not currently approved) and/or ENGT 2100 (not currently approved) – need to submit either or both courses for panel review
Central Ohio Technical College	OET012 – ARCH 110, 111
Central State University	OET012 – INT 1210 OET021 – INT 2320
Cincinnati State Technical and Community College	OET012 – MET 131 (approved) and/or MET 132 (not currently approved)
Clark State Community College	OET012 – CAD 1101 OET021 – CAD 2100
Cleveland State University	OET012 – MCE 180, 181 (currently under panel review)
Columbus State Community College	OET012 – MECH 1145
Cuyahoga Community College	OET012 – MET 2041 (approved) and/or MET 2610 (not currently approved)
Eastern Gateway Community College	OET012 – DES 115 (approved) and/or DES 215 (not currently approved)
Edison State Community College	OET012 – MET 130S (approved) and/or MET 245S and 247S (not currently approved)
Hocking College	OET021 – AMD 2203 (need to be grandfathered in for OET012)
Kent State University	OET012 – MERT 12001 OET021 – TECH 34002
Lakeland Community College	OET012 – CADT 1100 (not currently approved) and/or CADT 2100 (not currently approved) – need to submit either or both courses for panel review
Lorain County Community College	OET012 – CADD 235 OET021 – CADD 213
Marion Technical College	OET012 – MET 1200 (approved) and/or MET 1300 (not currently approved)
Miami University	OET012 – ENT 135 OET021 – ENT 235
North Central State College	OET012 – ENRD 2150 (approved) and/or ENRD 2170 (not currently approved)
Northwest State Community College	OET012 – CAD 112 OET021 – CAD 213
Owens Community College	OET012 – CAD 115 (approved) and/or CAD 210 (not currently approved)
Rhodes State College	OET012 – MET 1000

	OET021 – MET 2440
Shawnee State University	OET012 – ETCA 1201 OET021 – ETCA 1301
Sinclair College	OET012 – MET 1371 (approved) and/or MET 1201 (not currently approved)
Southern State Community College	OET012 – ENDS 2230
Stark State College	OET012 – DET 125 OET021 – DET230
Terra State Community College	OET012 – CAD1110 OET021 – CAD 1320
The University of Akron	OET012 - ?
The University of Toledo	OET012 – MET 1250 (approved) and/or MET 2350 or 2150 (not currently approved)
University of Cincinnati	OET012 – MET 1072C OET012 – EGTN 1025C OET021 – MET 1073C
Washington State Community College	OET012 – DRFT 2530
Youngstown State University	OET012 – DDT 1503, 1504 OET021 – DDT 2606
Zane State College	OET012 – MECH 2000 OET021 – MECH 1100