

## Program Outcomes Guide #3 (POG #3)

**Program Title:**       **AAS Mechanical Engineering Technology with Option in Computer-Aided Design**

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### Expected Learning Outcomes

Upon completion of this program, it is expected that the student be able to:

- apply for an entry level position at an engineering firm or manufacturing facility.
- transfer to an applied engineering technology/manufacturing baccalaureate degree major.
- have all the skills necessary to function as a contributing member of an engineering team.
- apply current knowledge and practices to solve specific technical problems.
- create, modify, and apply current industry standards to CAD drawings.

**Assessment** (How do students demonstrate achievement of this outcome?)

Upon completion of this program, students will have completed and be able to provide the following:

- Students will be able to provide a CAD portfolio that demonstrates the following:
  - Skill in using the software and computer.
  - Student will be able to take an engineering design problem from concept through finished product.
  - Student will understand and be able to communicate in the language that computer-aided design drafters use to speak with one another.
  - Students will be able to create a resume, a logo, and a variety of architectural and mechanical drawings.
- Student will be able to provide an engineering workbook created using spreadsheet software to solve a real-world engineering problem. This workbook will contain professional formatting, various user-defined and built-in functions, macros, formulas, tables, charts, and custom buttons necessary to solve a common engineering problem.
- Student will be able to provide various handwritten and electronic engineering calculations developed using a professional GFSA (Given-Find-Solution-Answer) format that is commonly used in the engineering industry.
- Student will be able to provide a prototype of a mechanical part or assembly that he/she designed using 3D CAD software.

**Validation** (What methods are used to validate your assessment?)

- We validate our assessments through feedback from our industry advisory committee. Curriculum, course projects, and learning outcomes are presented to the advisory committee. The advisory committee then provides feedback, the feedback is evaluated, and curriculum is modified accordingly.
- We validate our assessments through feedback from companies who employ our student interns. Internship learning outcomes are written in accordance with program learning

outcomes. Internship site supervisors evaluate each intern's performance according to the internship learning outcomes.

**Results** (What do the data show?)

- Results vary based on the type of student. Students who work hard in class typically succeed once they are placed in industry. Overall, our students are getting internships and our graduates are getting jobs. Engineering companies like Cinetic Landis and Volvo have given us incredible feedback on the performance of our students.

**Follow-up** (How have you used the data to improve student learning?)

- Curriculum has been modified to incorporate more applied and hands-on type learning.
- Students are encouraged to apply for internships so they can get real-world experience before they complete the program.
- We have broadened our one-on-one tutoring availability for students who need extra help outside of the classroom. The Student Success Center has helped tremendously with this and as a result, we have seen very positive changes in our students' academic performance.

**Budget Justification**

(What resources are necessary to improve student learning?)

See the CAD COGs for resources necessary to improve student learning.