Program Information Report

Engineering and Design Technology (CTEDT)

Certificate

Program Effective Term: **Fall 2014**

The Engineering Design Technology program prepares students to create and design products using engineering software and production methods used in today's growing global economy. Students will be introduced to product design processes and engineering and design technology concepts. Using various software tools, students will experiment with design concepts. Using various software tools, students will experiment with design concepts as a mean to developing unique products for the construction, automotive or other production industries. Hands-on experience with design-appropriate materials will round out the development process.

Continuing Eligibility Requirements:
Students must earn a "C" or better in all courses.

Major/Area Requirements		**(19 credits)**
CMG 125	Introduction to Engineering Design Technology	4
EGT 100	Introduction to Product Design	3
EGT 125	Advanced Engineering Design Technology	3
EGT 150	Engineering Design Technology Material Science	3
EGT 175	Engineering Design Technology Material Processing	3
	Restricted Elective: art, manufacturing, welding, woodworking or other department approved course.	3-4

Minimum Credits Required for the Program: **19**

PROGRAM PROPOSAL FORM

☐ **Preliminary Approval** – Check here when using this form for preliminary approval of a program proposal, and respond to the items in general terms.

☒ **Final Approval** – Check here when completing this form after the Vice President for Instruction has given preliminary approval to a program proposal. For final approval, complete information must be provided for each item.

Program Name:	Engineering Design Technology	**Program Code:**
Division and Department:	Construction Technology/ Advanced Technologies and Public Services	CTEDT
Type of Award:	☐ AA ☐ AS ☐ AAS ☒ Cert. ☐ Adv. Cert. ☐ Post-Assoc. Cert. ☐ Cert. of Comp.	
Effective Term/Year:	Fall 2014	**CIP Code:**
Initiator:	Cristy Lindemann	15000

Program Features Program's purpose and its goals. Criteria for entry into the program, along with projected enrollment figures. Connection to other WCC programs, as well as accrediting agencies or professional organizations. Special features of the program.	The future of America is in creative startups. Techies are designing not only the new computer game, applications and program, but the accessories that go with them. Market America and manufacturing brokerages are the new way we develop products to meet the social marketplace. WCC needs to be competitive with those programs that exist not only at the university level, but within our community. TECHSHOP and MAKERSMART are companies where anyone can pay a small amount to use shop tools and learn at their own pace how to design and produce the products of the future. Currently, four departments across divisions are collaborating on this program. WCC has existing programs and has closed other programs, but has nothing that covers basic design which could grow into something that could articulate to one of our four-year institutions, including U of M. Our engineering courses are math and science based, which align well for Mechanical, Electrical or Structural Engineers. However, we are missing the courses for those who would like to be one of these new tech designers.
Need Need for the program with evidence to support the stated need.	Overall, the economy is on track to generate more than 20 million new jobs by 2020, according to the BLS. And nearly 55 million existing jobs will open up as a result of retirements or workers changing jobs and careers. Some seven million of those new jobs will be good, high-paying ones in the knowledge, professional, and creative class sectors – including science and technology, management, and the arts. By 2020, the knowledge, creative and professional jobs, with an average pay of $70,890 today, will make up a third of the workforce. Not all of those jobs require an advanced degree or even a college education. While roughly three-quarters of college grads do this kind of work, four in ten knowledge workers – 16.6 million of them – do not have college degrees, according to a study by Kevin Stolarick of the University of Toronto and Elizabeth Currid-Halkett of the University of Southern California. Simply doing knowledge-based and creative work boosts wages by 16 percent, about the same as another 1.5 years of additional college, according to research by economist Todd Gabe. These types of positions fall into occupational categories such as Commercial and Industrial Designers (3.6% increase in positions between 2008 and 2018), Industrial Engineering Technicians (9.1% increase in positions between 2008 and

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	2018), Mechanical Engineering Technicians (0.8% increase in positions between 2008 and 2018) and Electro-Mechanical Technicians (7% increase in positions between 2008 and 2018)*. The 2012 median pay for positions in these fields ranges between $50,980 and $57,850. **Michigan Department of Technology, Management and Budget Employment Forecasts 2008-2018*

Program Outcomes/Assessment State the knowledge to be gained, skills to be learned, and attitudes to be developed by students in the program. Include assessment methods that will be used to determine the effectiveness of the program.	Outcomes	Assessment method
	1. **Create product design using engineering software.**	1. **Portfolio**
	2. **Identify products that have shaped the 21st century.**	2. **Test**
	3. **Identify material failures, based on testing requirements.**	3. **Test**
	4. **Identify best production methods for specified product.**	4. **Test**

Curriculum List the courses in the program as they should appear in the catalog. List minimum credits required. Include any notes that should appear below the course list.	**EGT 100 Intro to Product Design -3** **CMG 125 Introduction to Engineering and Design Technology –4** **EGT 125 Advanced Engineering and Design Technology – 3** **EGT 150 Engineering Design Technology Material Science – 3** **EGT 175 Engineering Design Technology Material Processing – 3** **Elective (Art, Manufacturing, Welding, Wood Working, other approved by department) – 3-4** **Total 18-19 credits**

Budget Specify program costs in the following areas, per academic year:		**START-UP COSTS**	**ONGOING COSTS**
	Faculty	**$2000**	**$12,000**
	Training/Travel	**$1000**	**$500**
	Materials/Resources	**$40,000**	**$10,000**
	Facilities/Equipment	**$25,000**	**$10,000**
	Other		
	TOTALS:	**$68,000**	**$32,500**

Program Description for Catalog and Web site	The Engineering Design Technology program prepares students to create and design products using engineering software and production methods used in today's growing global economy. Students will be introduced to product design processes and engineering and design technology concepts. Using various software tools, students will experiment with design concepts as a means to developing unique products for the construction, automotive or other production industries. Hands-on experience with design-appropriate materials will round out the development process.
Program Information	**Accreditation/Licensure** - TBD **Advisors –** Cristy Lindemann/Coley McLean **Advisory Committee** - TBD **Admission requirements –** college level **Articulation agreements** **Continuing eligibility requirements –** C or better in program courses

Assessment plan:

Program outcomes to be assessed	Assessment tool	When assessment will take place	Courses/other populations	Number students to be assessed
Create products design using engineering software.	Portfolio	Every three years	Program graduates who completed Intro and Advanced Engineering Design technology	All
Identify best production method for specified material.	Test	Every three years	Program graduates who completed Engineering Design Technology Material Science & Engineering Design Technology Material Processing	All
Identify material failures, based on testing requirements.	Test	Every three years	Program graduates who completed Engineering Design Technology Material Science & Engineering Design Technology Material Processing	All
Identify best production methods for specified product.	Test	Every three years	Program graduates who completed Engineering Design Technology Material Science & Engineering Design Technology Material Processing	All

Scoring and analysis plan:

1. Indicate how the above assessment(s) will be scored and evaluated (e.g. departmentally-developed rubric, external evaluation, other). Attach the rubric.

   Portfolios will be assessed using a departmentally-developed rubric
   Tests will be assessed using an answer key and a departmentally-developed rubric

2. Indicate the standard of success to be used for this assessment.

   75% of students will score 70% or higher

3. Indicate who will score and analyze the data.

   Departmental faculty

REVIEWER	PRINT NAME	SIGNATURE	DATE
Department Chair/Area Director	Cristy Lindemann		1.16.14
Dean	Marilyn Donham		1.16.14
Vice President for Instruction ☐ Approved for Development ☐ Final Approval	William Abernethy		02/04/14
President	Rose Bellanca		2/04/14
Board Approval			2/25/14

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