I. Course Information/Signature Page

Date: 4/6/2022
Course Title: MAT 148 Applied Technical Mathematics 1
Proposed Course Title (*only for courses proposing new titles through Curriculum Committee*):
 Click here to enter proposed course title.
Department/Subject Designator: Mathematics
Number credits: 4
Pre-requisites/Co-requisites: MAT 096 Elementary Algebra and Trigonometry, or equivalent background knowledge (written into the Course Description)
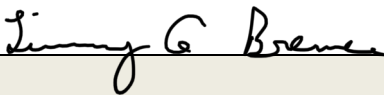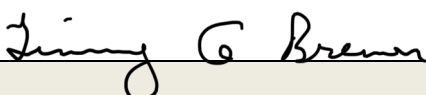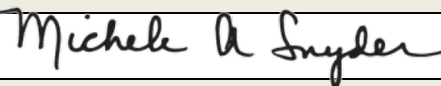**Sponsor Proposer: Timmy Bremer**
Sponsor Department(s): Mathematics
Cross-listed proposer (if applicable): Click here to enter cross-listed proposer.
Cross-listed department (if applicable): Click here to enter cross-listed department.
Effective semester/year of Proposed GE Addition: Fall 2022

Approvals		Yes	No
Sponsoring Department: (Chair signs for Department)	*Timmy G Bremer* Date 7 Apr '22	✓	
Comments:			
Department Chair:	*Timmy G Bremer* Date 7 Apr '22	✓	
Comments:			
Sponsoring Division: (Dean signs for Division)	*Michele A Snyder* Date 4/12/2022	X	
Comments:			
Cross-listed Department (if applicable): (Chair signs for Department)	Date		
Comments:			
Cross-listed Division (if applicable): (Dean signs for Division)	Date		
Comments:			
These signatures will be obtained upon approval of the course as a General Education course			
General Education Committee: (Chair signs for Committee)	*[signature]* Date 5/6/24	✓	
Comments:			
Registrar:	Date		
Comments:			
VPAA/CAO:	Date		
Comments:			

SUNY Broome General Education
Course Proposal and Revision Form

II. SUNY GER Categories

a. Select a category for which the course is proposed to become a General Education course. *Please note that your course must meet the learning outcomes for the specific General Education category selected and include the SUNY general education learning outcomes.*

☒Mathematics
☐Natural Sciences
☐Diversity: Equity, Inclusion, and Social Justice
☐U.S. History and Civic Engagement
☐Social Sciences
☐World History and Global Awareness
☐Humanities
☐The Arts
☐World Language
☐Communication (Written)
☐Communication (Oral)

b. Select any infused competencies for which your course meets. *Please note that if selected, your course must demonstrate that it meets these learning outcomes.*

☐Critical Thinking
☐Information Literacy

c. Justification. Please specify how this course meets the General Education content guidelines. Your response should specifically address how your course meets the content guidelines detailed in the Guidelines for the Approval of State University General Education Required Courses found at: http://system.suny.edu/media/suny/content-assets/documents/academic-affairs/general-education/GenEdCourseGuidelines_2017.pdf

MAT 148 is a necessary math course for students to be successful in the Manufacturing Technology program, and the only math course required by the program. It addresses all areas of the SUNY Math Gen Ed Student Learning Outcomes at a level consistent with comparable Gen Ed courses MAT 130 and MAT 133, with a focus on techniques and applications appropriate to the program

III. Student Learning Outcomes

a. List the proposed course student learning outcomes.

Students will demonstrate mathematical skill and quantitative reasoning, including the ability to

- **Interpret and draw inferences from appropriate models such as formulas, graphs, tables, or schematics**

- **Represent mathematical information symbolically, visually, numerically, or verbally as appropriate**
- **Employ quantitative methods such as arithmetic, algebra, geometry, or statistics to solve problems**

IV. Catalogue Description

a. Please enter the course description as will be or is currently listed in the SUNY Broome College Catalogue.

This is a course in intermediate algebra and trigonometry with technical applications. Topics include: operations in the real number system, expressions and functions, first-degree equations, properties of lines, systems of linear equations, trigonometric functions, geometry (perimeters, areas, volumes of common figures), polynomials, exponents, algebraic products and factoring, algebraic fractions and operations, rational expressions, radical expressions, quadratic equations, and graphs of functions. This course requires MAT 096 Elementary Algebra & Trigonometry or equivalent background knowledge.

V. Topical Outline

Please describe the specific topics which will be addressed within this course. *You should ensure that your topical list meets the General Education category student learning outcomes.*

1) Scientific notation, roots, and radicals

2) The arithmetic of polynomial expressions

3) Solving equations and literal formulas

4) The geometry of lines, angles, triangles, quadrilaterals, and circles

5) Function notation and graphing using the rectangular coordinate system

6) Right triangle trigonometry and applications

7) Systems of two linear equations in two variables

8) Factoring polynomials, the algebra of rational expressions, and solving rational equations

9) Quadratic equations, completing the square, and te quadratic formula

10) Ratio, proportion, and variation

VIII. SUNY Broome General Education Assessment Plan

Please complete the General Education Assessment Plan form.

Submission Instructions: Email the completed **General Education Course Proposal Form** to the Chair of the General Education Committee.

SUNY Broome General Education Course Assessment Map & Plan
SUNY Broome GE Course SLO Alignment with SUNY-GER Course Alignment/SUNY Broome ILOs

Course Title and Number: Please list the course number and title here*: MAT 148 Applied Technical Mathematics 1*

SUNY-GER Category: Please list the name of the SUNY–GER category here: *Mathematics (and Quantitative Reasoning)*

Assessment Schedule: Please list the assessment schedule here, including semester and year it will occur; if assessment is done each semester, please indicate this. *2024 Fall, 2027 Fall, etc.*

Which SUNY Broome ILO do you believe this course maps to, if any:
        (ILO 4) Scientific and quantitative reasoning

SUNY Broome Course SLO *(every course SLO should be listed, as stated within the college catalogue & course syllabus)*	SUNY Broome ILO *(If an SLO maps to a SUNY Broome ILO, indicate it here by naming the ILO; otherwise leave blank)*	Assessment Timeline *(indicate the frequency in which assessment occurs, including semester and year within assessment cycle)* *All SLOs must be assessed at least once every 3 years*	Learning Activity *(indicate the learning activity used to assess the SLO)*	Criteria for Success/Benchmark *(indicate the criteria used to assess SLO & the benchmark for success)*
Interpret and draw inferences from appropriate mathematical models such as formulas, graphs, tables, or schematics	**(ILO 4)** Scientific and quantitative reasoning	Fall 2024, Fall 2027, etc.	Relevant questions used on activities, quizzes or exams A scoring rubric will be used	Benchmark: 60% of the students in the categories of **completely correct or generally correct** as defined by the scoring rubric for the assessment
Represent mathematical information symbolically, visually, numerically, or verbally as appropriate	**(ILO 4)** Scientific and quantitative reasoning	Fall 2024, Fall 2027, etc.	Relevant questions used on activities, quizzes or exams A scoring rubric will be used	Benchmark: 60% of the students in the categories of **completely correct or generally correct** as defined by the scoring rubric for the assessment
Employ quantitative methods such as arithmetic, algebra, geometry, or statistics to solve problems.	**(ILO 4)** Scientific and quantitative reasoning	Fall 2024, Fall 2027, etc.	Relevant questions used on activities, quizzes or exams A scoring rubric will be used	Benchmark: 60% of the students in the categories of **completely correct or generally correct** as defined by the scoring rubric for the assessment
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