



Memo

To: Randy Smith, Vice Provost for Academic Programs, Office of Academic Affairs

From: Cory Matyas, Assistant Dean for Curriculum and Assessment

Date: November 5, 2025

Re: Informational Item – Welding Engineering Math Update

The Welding Engineering program would like to replace the current two-course math sequence - MATH 2173 and MATH 2174 - with a single course, MATH 2177.

This change reduces the total credit hours for graduation from 129 to 127. Effective Autumn 2025.

The Engineering College Committee on Academic Affairs met on November 4, 2025 and reviewed this proposal as an informational item. There were no questions or concerns and a College-level record of support for this proposal was created.

Welding Engineering Program Change Request

For Consideration by the CCAA

David Phillips, Chair, WE UGSC

10/26/2025

1) Program change request detail

The Welding Engineering Program is requesting a curriculum change to its undergraduate Math requirement. Specifically, the request is to change from the current two-semester Math sequence of MATH 2173 (3 credit-hours) and MATH 2174 (3 credit-hours) to a single semester of MATH 2177 (4 credit-hours).

2) Rationale for the change

WE students have had the option to replace MATH 2173 and MATH 2174 with MATH 2177 for at least 5 years, and there has been no indication of any change regarding their subsequent performance in the WE courses which rely on knowledge of advanced Math concepts such as differential equations. This change was added to better align with the MSE program which requires MATH 2177 and offers courses taken by both MSE and WE students.

Therefore, since a pattern of success with MATH 2177 has been well established in the WE program, this change simply moves MATH 2177 from serving as an optional course to a required course, and the two-semester MATH 2173 and MATH 2174 sequence will now become an optional replacement for MATH 2177 (this is primarily to accommodate transfer students who may have taken MATH 2173 and MATH 2174 prior to transferring).

3) Effective semester: AU25

4) Request for an exception to retroactively apply this change to students currently enrolled in MATH 2177 or who previously took MATH 2177, per the following table:

Entry Year	Count of student id
Autumn 2019	1
Autumn 2020	4
Autumn 2021	6
Autumn 2022	15
Autumn 2023	4
Autumn 2024	1
Grand Total	31

5) This change will drop the overall # of credit hours required for graduation in the Welding Engineering Program from 129 to 127.

Bachelor of Science Welding Engineering

The Welding Engineering program is designed to prepare students for successful careers in a variety of specialty areas associated with the design of welded metal components and welding and nondestructive inspection processes. Students in this major will complete a minimum of ~~129~~ **127** hours outlined as follows.

General Education Requirements		
Requirement	Course Options	Hours
GE Launch Seminar	ACADAFF 1201	1
Foundations: Writing and Information Literacy	<i>Student Choice</i>	3
Foundations: Mathematical & Quantitative Reasoning/Data Analysis	<i>Student Choice*</i>	0-5
Foundations: Literary, Visual and Performing Arts	<i>Student Choice</i>	3
Foundations: Historical & Cultural Studies	<i>Student Choice</i>	3
Foundations: Natural Science	<i>Student Choice*</i>	0-5
Foundations: Social & Behavioral Sciences	<i>Student Choice</i>	3
Foundations: Race, Ethnic and Gender Diversity	<i>Student Choice</i>	3
Theme: Citizenship for a Diverse & Just World	<i>Student Choice</i>	4
Theme: Student Choice	<i>Student Choice</i>	4
GE Reflection	Capstone**	Embedded into Major Core Capstone
Total		24-34

College / Degree Requirements ^{a, b}		
Requirement	Course Options	Hours
MATH 1151*, 1172*, (Math & Quantitative Reasoning / Data Analysis)		10
PHYSICS 1250* (Nat Sci)		5
ENGR 1181.0x, 1182.0x		4
ENGR 1100.01		1
Total		20

Major Coursework ^{a, b}		
Course	Title	Hours
Major Core		
WELDENG 2001	Survey of Welding Eng	3
WELDENG 2601	Intro Arc Welding Lab	1
WELDENG 4001	Phy Prin Weld Proc & Lab	4
WELDENG 4002	Phy Prin Weld Proc & Lab 2	4
WELDENG 4101	Welding Metallurgy & Lab	4
WELDENG 4102	Welding Metallurgy & Lab 2	4
WELDENG 4201	Engr Anlys Dsgn Sim & Lab	4
WELDENG 4202	Welding Design	3
WELDENG 4301	Nondestr Eval & Lab	3
WELDENG 4602^	Welding Codes & Proc Qual (^or ISE Manufacturing Process Engineering for cohorts pre Au24)	3
WELDENG 4189	Industrial Experience	1
WELDENG 4901	Capstone Weld Dsgn 1	2
WELDENG 4902**	Capstone Weld Dsgn 2	3
Total		39
Required Non-Major General Courses		
CHEM 1250	General Chemistry for Engineers	4
ECE 2300	Electrical Circuits and Electronic Devices	3
ENGR 1221	Introduction to Computer Programming in MATLAB for Engineers and Scientists	2
ISE 2040	Engineering Economics	2
MATH 2177^A	Mathematical Topics for Engineering	4
MATH-2173	Engineering-Math-B	3
Math-2174	Linear Algebra and Differential Equations for Engineers	3
MATSCEN 2010	Introduction to Engineering Materials	3
MATSCEN 2251	Thermodynamics of Materials	3
MATSCEN 3141	Transformation and Processing of Materials	3
MATSCEN 3333	Materials Science and Engineering Laboratory for Welding Engineering	2
MECHENG 2040	Statics and Introduction to Mechanics of Materials	4
PHYSICS 1251	E&M, Waves, Optics, Modern Physics	5
STATS 3450	Basic Statistics for for Engineers	2
Total		37
Required Technical / Directed / Targeted Electives; Career Courses		
Technical Electives	Total	7

General Education	24-34
College / Degree	20
Major Core	39
Required Non-Major	39 37
Required Technical / Directed / Targeted Electives; Career Courses	7
Minimum Total Credit Hours for Degree	129 127