STEM - 1010 - Mathematics and Technology (QS)

1. 2024-25 Course Proposal - REVISE

Read Before You Begin

FILL IN all fields required marked with an *.

ATTACH representative syllabus and General Education rationale if needed.
Complete the **Acknowledgement** section at the end of the proposal.

LAUNCH proposal by clicking Validate and Launch at the top.

Once the proposal has been launched, **APPROVE** the proposal to move the proposal forward in the workflow.

This course proposal form is to REVISE a course, if you need to SUSPEND, DISCONTINUE, or create a NEW course please use the course proposal form designed for that purpose.

IF you are proposing a change to the course prefix or course number use the NEW course proposal form and remember to Discontinue the exisiting course.

Tutorials can be found on the Curriculum SharePoint.

Course Curriculum Outline

Effective Term* AY 2024-2025

Proposed Changes* ☑ Course Title ☑ Course Description ☐ Pre/Co-requisites
☐ Registration Restrictions ☐ Credit/Contact Hours ☐ Semesters Taught
☐ Learning Outcomes ☑ General Education 5-year review
☑ General Education Attribute ☐ Other, explain in Rationale

Rationale* Major change in course. Including title and description.

This course will be taught at SLCC for technology students and it will be taught in the Utah high schools as a concurrent course. Seeking GenEd QS designation.

Impact Report*

Source: 2023-2024 SLCC General Catalog	
Prerequisite:	EET 1140 - AC and DC Circuits
	MFET 2410 - Quality Concepts and Statistical Applications
Recommended Prerequisite:	EDDT 2260 - Machine Design
	EET 2240 - Advanced Radio Frequency Systems
Description	MFET 2410 - Quality Concepts and Statistical Applications
Recommended Corequisite:	EET 1110 - Basic Electronics
	EET 1130 - Digital Systems
Programs	Electronics Engineering Technology: AAS (CTE)
	Electronics Engineering Technology: CC (CTE)
	Engineering Design Manufacturing Technology: AAS (CTE)
	Engineering Drafting and Manufacturing Technology: CC (CTE)
	Quantitative Studies (QS)

Impact Response* Updating this class will be provide better accessibility to more students. Ensuring its Gen Ed designation will help students in the above listed programs.

Division* Natural Sciences & Engineering

Prefix* STEM

Number* 1010

Course Title (30 character limit)* Math and Technology (QS)

Long Course Title* Mathematics and Technology (QS)

Course Description (400 character limit)* This course shows how technology improves students' mathematical literacy to increase problem-solving skills in the sciences. This course will help students master mathematical techniques and concepts through exposure to important problems they are likely to encounter in technology based fields.

****Please include any recommended pre-/co-requistes in the course description. It should be a formatted how you want students to see it in the catalog. Recommended requisites are not enforced by Banner.****

Prerequisite(s):* None.

Corequisite(s):* none.

Other Registration Restrictions:* none.

Semesters Offered:* All

SLCC Equivalent Course(s)* none.

Is there an Equivalent (or Potentially Equivalent) Course at other USHE Institution(s)?* ○ Yes ◉ No

If Yes, Explain

General Education Designation

Is this Course Designed for General Education?* ◉ Yes ○ No

If yes, select General Education Designation Quantitative Studies (QS)

Credit Hours

Credit Hours 3

Contact Lecture 3

Contact Lab

Contact Other

Total Contact Hours 3

Billable Hours

Repeatability

Can this Course be Repeated for Additional Credit?* ○ Yes ◉ No

If Yes, What's the Repeat Limit?

If yes, What's the Maximum Repeatable Credits?

Course Learning Outcomes

Complete the applicable fields below with the course-level student learning outcomes and indicate how they align to the SLCC Student Learning Outcomes.

See SLCC Assessment webpage for additional details about College-Wide Student Learning Outcomes.

1. Acquire substantive knowledge
2. Communicate effectively
3. Develop quantitative literacies
4. Think critically
5. Express creatively
6. Knowledge and skills to be civically engaged
7. Work with others in a professional and constructive manner
8. Develop information literacy
9. Develop computer literacy

If you have more than 8 CLOs, you may put multiple CLOs with the same college-wide learning outcome alignment into the same box.

Course Learning Outcome #1*	Demonstrate the following minimum set of specific skills: => Complete mastery of rational and decimal fractions. => Use algebra in technological situations => Practical knowledge of trigonometry and the ability to apply it. Skill will be demonstrated on right triangles. => The ability to construct and analyze geometry with circles, arcs and tangents. => Be able to differentiate polynomials, and transcendentals. => Be able to apply the chain rule. => Solve minimum and maximum problems. => Solve position – velocity – acceleration problems.	**#1 SLO Alignment***	**1. Acquire substantive knowledge** **3. Develop quantitative literacies**

Course Learning Outcome #2*	Demonstrate the following minimum set of specific skills using technological tools (such as CAD and programing): =>Using real word applications construct, solve, and analyze mathematical models. => Construct graphs for mathematical functions. => Find derivatives and integrals. => Construct and solve linear systems using graphical techniques. => Solve growth and decay problems.	**#2 SLO Alignment***	1. Acquire substantive knowledge 3. Develop quantitative literacies
Course Learning Outcome #3*	Express concepts, ideas, and problem-solving techniques using correct mathematical notation and language. Problems will be solved both individually and in groups to satisfy realistic engineering conditions.	**#3 SLO Alignment***	4. Think critically 5. Express creatively
Course Learning Outcome #4	Demonstrate mathematical operations and develop skills in logical thinking.	**#4 SLO Alignment**	1. Acquire substantive knowledge 4. Think critically
Course Learning Outcome #5	Organize, present and explain solutions to problems involving real-world application and will have necessary mathematical knowledge and skills to succeed in technology disciplines.	**#5 SLO Alignment**	4. Think critically 5. Express creatively
Course Learning Outcome #6	Communicate the mathematics used in a technical field.	**#6 SLO Alignment**	2. Communicate effectively

Course Learning Outcome #7

#7 SLO Alignment

Course Learning Outcome #8

#8 SLO Alignment

Acknowledgements and Attachments

Please attach any required files by navigating to the right side menu and clicking "Files". Record when this has been completed in the checkbox, below.

REMINDER: Revisions made to the *Course Learning Outcomes* will require an updated syllabus be completed and attached to this proposal.

Attached*

- [x] I acknowledge that all areas of this proposal are complete as required for the purpose of this proposal.
- [x] A representative syllabus is attached.
- [x] The General Education Rationale is attached if required.
- [ ] The General Education signature assignment is attached if required.

Acalog Owner

Acalog Course OID

ADMIN ONLY

School - Banner

Division - Banner

Department - Banner

Level

- [ ] UG
- [ ] SC
- [ ] AP

Course Grade Mode

Steps for STEM - 1010 - Mathematics and Technology (QS)

Originator

Status: *Approved*

Participants

Andrew Vogt 10/17/2023 8:43 AM

Associate Dean/Chair

Status: *Approved*

Participants

Jonathan Barnes 11/10/2023 3:13 PM

Curriculum Technician

Status: *Approved*

Participants

Janice Rogers 11/13/2023 11:29 AM

Analysis & Implementation Council Review

Status: *Approved*

Participants

▲ **Analysis & Implementation Council**
2023-11-30_AIC_Proposal_Review

Lyndi Duff * 12/1/2023 10:37 AM

Originator Response

Status: *Approved*

Participants

Andrew Vogt 12/4/2023 5:38 PM

School Curriculum Committee

Status: *Approved*

Participants

▲ **School Curriculum Committee**
12/08/2023 - SME Curriculum Committee

Janice Rogers * 1/18/2024 9:59 AM

ePortfolio

Status: *Deadline Reached*

Participants

Kemone Carby Feleti

Emily Thompson

Modern Campus (System Administrator)
1/19/2024 12:05 AM

General Education Committee

Status: *Restarted*

Participants

▲ **General Education Committee**

Bethany Blinsky *

Lyndi Duff *

▲ **Additional Participants**

General Education Committee

Status: *Approved*

Participants

▲ **General Education Committee**

2024-2-14_GenEd_CurriculumProposals

Bethany Blinsky * 2/15/2024 11:19 AM

Senate Curriculum Committee

Status: *Approved*

Participants

▲ **Senate Curriculum Committee**

2024-2-26_SCC_Proposal_Review

Bethany Blinsky * 2/28/2024 1:07 PM

Faculty Senate

Status: *Approved*

Participants

▲ **Faculty Senate**

2024-03-18_FS_Proposal_Review

Bethany Blinsky * 3/19/2024 10:09 AM

Provost

Status: *Approved*

Participants

Rachel Lewis 3/21/2024 2:34 PM

Banner

Status: *Approved*

Participants

Brogan Stumpf 3/22/2024 1:48 PM

Catalog

Status: *Force Approved*

Participants

Courtney Wood

Brogan Stumpf (System Administrator)
3/27/2024 10:30 AM

Attachments for STEM - 1010 - Mathematics and Technology (QS)

CCO_STEM_1010_GenEd_F18_APPROVED_2017-12-04 - Copy.docx (uploaded by Andrew Vogt, 10/17/2023 8:41 am) **STEM 1010 Comments_2023_12_4.pdf** (uploaded by Bethany Blinsky, 12/4/2023 10:31 am) **STEM_1010_Syllabus_2-14-2024.docx** (uploaded by Bethany Blinsky, 2/14/2024 1:10 pm) **STEM 1010 ePortfolio Signature Assignment.docx** (uploaded by Bethany Blinsky, 2/14/2024 1:27 pm)

Comments for STEM - 1010 - Mathematics and Technology (QS)

Antonette Gray — 2/14/2024 1:19 pm Reply

Please upload the signature assignment when you can.

Ryan Holcomb — 2/14/2024 10:05 am Reply

While the subsequent inclusion of the current ePortfolio statement will indicate that the Signature assignment and the Reflection are to be uploaded, there are additional actions you may wish to take to ensure that students comply.

You may wish to state this in the Signature and the Reflection assignments explicitly. You may also wish to have a Pre-Signature assignment where you have students post the url of their ePortfolio and state the expectations for uploading to my.slcc at the end of the semester.

Jodie Jones — 2/12/2024 10:34 pm Reply

I appreciate the addition of the ePortfolio Signature assignment, and that students have options to chose for their presentations.

I would have liked to have seen a reflection prompt which would provide an intentional opportunity for your students to explore what they learned. For example, you might ask, how did the course improve their mathematical literacy and problem-solving skills in the sciences? How did the course relate to other gen ed courses, to real-life experiences, and how will they use these skills going forward?

Consider adding the current ePortfolio statement to your syllabus. It can be found at: https://slccbruins.sharepoint.com/teams/Curriculum/GenEd/SitePages/General-Education---5-Year-Course-Review.aspx?csf=1&web=1&share=EbKvTfc639tElGapI1Ehxf0BY9Do84D2depScU3f1P1EUQ&e=AusL1W&cid=0dd088b4-55b7-44b2-8f6ec811f46e9580

Sherry Jensen — 2/12/2024 1:10 pm Reply

Curriculog does not list pre-reqs. However, the syllabus lists: PREREQUISITES: Within the last year: MATH 0980 or MATH 0990 w/C grade or better or appropriate placement score; and ENGL 0990 w/C grade or better.

Can Curriculog be updated?

Michael Young

2/12/2024 10:12 am Reply

The Signature Assignment needs to be attached for this course to be reviewed by Gen Ed.

The brief mention of the signature assignment in the syllabus does not describe it's use or purpose and or/grade. Signature Assignments should not be, and are not a "reflective" submission, but should draw on the priority learning outcomes for QS from the Signature Assignment Guide and address the Gen Ed Learning outcomes.

The Course Learning Outcomes are also presented in a confusing way. All 9 college-wide learning outcomes are listed, but the bullet points that follow them do not articulate how all 9 will be met. It is also unclear what "• Express concepts, ideas, and problem-solving techniques using correct mathematical notation and language" as an outcome.

Ali Carrillo Paz

2/11/2024 2:15 pm Reply

Reviewed

Sherry Jensen

2/11/2024 10:07 am Reply

Can you please attach the eportfolio signature assignment and reflection prompts? This is a required component for Gen Ed review.

Zack Allred

11/29/2023 3:36 pm 1 Reply | Reply

Reviewed by Library Services

Andrew Vogt

12/4/2023 4:50 pm

Thank you.

Chris Blankenship

11/29/2023 1:49 pm 1 Reply | Reply

Recommend revising outcomes alignment: to better fit with the college's new approach to college-wide learning outcomes assignment, please limit your CLO alignment to the one or two most relevant of the college-level learning outcomes for each of your course outcomes.

The "by the end of this course, students will" is implied already in each outcome. Remove this language from the CLOs. This will also require you to reword some of your outcomes and sub-outcomes by combining them and simplifying the language, such as the multiple instances of "use technology" in CLO #2.

Other outcomes that don't have sub-outcomes may also need to be simplified, such as CLO #3, where both instances of "express" can be combined: "Express concepts, ideas, and problem-solving techniques using correct mathematical notation and language in working group situations."

CLO #4: Some verb phrases, like "gain knowledge" aren't directly measurable. Use something more tangible, such as "demonstrate" instead.

CLO #6: This reads like an assignment description rather than a learning outcome. What will students gain from this assignment?

Andrew Vogt

12/4/2023 4:57 pm

- CLOs reduced to the 1 or 2 most relevant outcomes.
- Language of CLOs cleaned up by removing unnecessary statements (e.g. "by the end of this course, students will"), repetitive language, and overall reworded for clarity.

Diana Carroll

11/27/2023 1:27 pm 1 Reply | Reply

Prereqs are missing on the syllabus.

Total contact hours missing on proposal.

Agree with comment about course description.

Course objectives and learning outcomes on the proposal need to match.

Is Ken Stonebrook still in this position or with the college? May need to update this portion

Andrew Vogt

12/4/2023 5:36 pm

- Prereqs added to the syllabus
- Contact hours added to the proposal.
- Course description has been improved.
- Learning outcomes are how the same on both the syllabus and the CCO (Course objectives have been removed because of redundancy).
- The end of the syllabus (that relates more to college wide issues) has been eliminated (including the park about Ken Stonbrook) because this information is now contained in the institutional syllabus.

Courtney Wood 11/22/2023 11:21 am 1 Reply | Reply

Please add (QS) to the Course Title.
The course description exceeds the character limit for the field.

Andrew Vogt 12/4/2023 5:03 pm

QS added to the course title. The course description has been shortened.

Nicole Stott 11/17/2023 2:25 pm 1 Reply | Reply

Reviewed by Transfer Articulation

Andrew Vogt 12/4/2023 5:02 pm

Thank you.

Signatures for STEM - 1010 - Mathematics and Technology (QS)

There are no signatures required on this proposal.

Crosslistings for STEM - 1010 - Mathematics and Technology (QS)

STEM - 1010 - Mathematics and Technology (QS) (parent proposal)

This proposal does not have any active crosslisted proposals.

Decision Summary for STEM - 1010 - Mathematics and Technology (QS)

This proposal is complete. No more decisions may be made at this time.