

MEMORANDUM TO: Ogden College of Science and Engineering Curriculum Committee

Dr. Melanie Autin
Dr. Royhan Gani
Dr. Scott Grubbs
Dr. Ting-Hui Lee

Dr. Andy Mienaltowski
Dr. Les Pesterfield
Dr. Todd Willian
Dr. Bangbo Yan
Dr. Rong Yang

FROM: Dr. Stuart Burris, Chair

SUBJECT: Agenda for Thursday, February 6, 2025

A. OLD BUSINESS:

- I. Consideration of the minutes of the January 2025 meeting.

B. NEW BUSINESS:

Type of item	Description of Item & Contact Information
Informational	<u>The following items were sent through the expedited process:</u> CS 360, CS 396, CS 425, CS 496 (learning objectives change) BIOL 369 (title change)
Action	Proposal to Revise a Course AGRO 420: Forage Crops Contact: Phillip Gunter, Phillip.gunter@wku.edu , x3151
Action	Proposal to Create a New Course ANSC 352: Applied Horsemanship Contact: Paige Smith, paige.smith@wku.edu , 6159461576
Action	Proposal to Revise a Program Ref. 528: Mathematics Contact: Ngoc Nguyen, ngoc.nguyen@wku.edu , 2704219876
Action	Proposal to Revise a Program Ref. 518: Architectural Science Contact: Shahnaz Aly, Shahnaz.aly@wku.edu , 270-745-5849
Action	Proposal to Revise a Program Ref. 533: Construction Management Contact: Jason Wilson, Jason.wilson@wku.edu , 270-745-2322
Action	Proposal to Change a Course MFGE 394: Lean Systems Contact: Brian Janes, brian.janes@wku.edu , 270-745-4514

Action	Proposal to Create a New Course ETM 310: Manufacturing Safety Contact: Bryan Reaka, bryan.reaka@wku.edu , 270-745-7032
Action	Proposal to Create a New Course ETM 342: Production Operations Contact: Bryan Reaka, bryan.reaka@wku.edu , 270-745-7032
Action	Proposal to Create a New Course ETM 356: Systems design and operations Contact: Bryan Reaka, bryan.reaka@wku.edu , 270-745-7032
Action	Proposal to Create a New Course ETM 371: Quality Systems Contact: Bryan Reaka, bryan.reaka@wku.edu , 270-745-7032
Action	Proposal to Create a New Course ETM 390: Project Planning & Execution Contact: Bryan Reaka, bryan.reaka@wku.edu , 270-745-7032
Action	Proposal to Create a New Course ETM 396: Supply Chain for Leaders Contact: Bryan Reaka, bryan.reaka@wku.edu , 270-745-7032
Action	Proposal to Create a New Course ETM 397: Lean Systems Contact: Bryan Reaka, bryan.reaka@wku.edu , 270-745-7032
Action	Proposal to Create a New Course ETM 430: Supervision Contact: Bryan Reaka, bryan.reaka@wku.edu , 270-745-7032
Action	Proposal to Create a New Course MFGE 355: System Design Contact: Bryan Reaka, bryan.reaka@wku.edu , 270-745-7032
Action	Proposal to Create a New Course MFGE 365: Systems Operation Contact: Bryan Reaka, bryan.reaka@wku.edu , 270-745-7032
Action	Proposal to Revise a Program Ref. 5006: Manufacturing Engineering Technology Contact: Bryan Reaka, bryan.reaka@wku.edu , 270-745-7032

C. OTHER BUSINESS

Members Present: Meeting held via email.

FROM: Dr. Stuart Burris, Chair

The agenda was officially open for discussion on January 9th at 9:30 AM.

OLD BUSINESS:

Minutes from the November 2024 meeting were approved as posted.

NEW BUSINESS:

Action Agenda:

Ting-Hui/Mienaltowski moved to approve all three proposals.

Ref. 578: Meteorology; approved

Ref.728: Mathematics; approved

MFGE 310: Safety in Industry; approved

Other Business:

None

A clear majority vote of ‘yes’ on all three items was reached at 12:44 PM on January 9th.

Course Change Request

Date Submitted: 01/30/25 9:06 am

Viewing: **AGRO 420 : Forage Crop**

Management ~~Crops~~

Last approved: 09/27/23 3:17 am

Last revision: 01/30/25 12:40 pm

Changes proposed by: phl16936

Catalog Pages
referencing this
course

[Agronomy \(AGRO\)](#)

[Agronomy \(AGRO\)](#)

Proposed Action

Active

Contact(s)

Name	E-mail	Phone
Phillip Gunter	phillip.gunter@wku.edu	(270) 745-3151

Review Type Full Review Expedited

Term for implementation Fall 2025

Academic Level Undergraduate

Course prefix (subject area) AGRO - Agronomy

Course number 420

Department Agriculture

In Workflow

1. **AGRI Approval**
2. **SC Dean**
3. SC Curriculum Committee
4. Undergraduate Curriculum Committee
5. University Senate
6. Provost
7. Course Inventory

Approval Path

1. 01/30/25 10:59 am
Paul Woosley
(paul.woosley):
Approved for AGRI
Approval

History

1. Sep 27, 2023 by
William William
(todd.willian)

College Science and Engineering

Course title

Forage Crop Management ~~Crops~~

Abbreviated course title FORAGE CROP MANAGEMENT ~~GROPS~~

Course description

Familiarizes students with grass and legume forage crops. Crops will be considered from the standpoint of pasture, hay, and silage crops, along with discussions of forage physiology and nutrient cycling. ~~Distribution, improvement, morphology, culture, harvesting and utilization of forage crops are presented.~~

Credit hours 3 ~~2~~

Repeatable

Yes

Number of repeats 2

For maximum credits 2

Default grade type Standard Letter Alternate grade type(s)

Is this course intended to span more than one term?

No

Schedule type

~~Lecture~~

Lecture/Lab

CIP Code 010304 - Crop Production.

Does this course have prerequisites

Yes

Prerequisites

And/Or	(	Course/Test Code	Min Grade/Score	Academic Level	)	Concurrency?
		AGRO 110	D	UG		No
And		AGRO 350	D	UG		No
And		BIOL 120	D	UG		No

Corequisites

~~AGRO 424 - Forage Crops Laboratory~~

Equivalent Courses

Restrictions:

College restriction? No

Field of study
restriction/major? No

Classification
restriction? No

Departmental
Restrictions

Reason for changing
the course

The current ~~Addition-of~~ course ~~format of a two-hour class objectives~~ and ~~one-hour lab is less than ideal for modern a course instruction. outline.~~ The restrictions of weather on forage growth and management of forages during the academic year, late summer through early winter and late winter through early spring, preclude much of the potential hands-on learning activities. Converting the course to a three-hour class/lab will provide additional instruction opportunities for the course while providing flexibility for hands-on, on-farm activities when opportunities arise.

Is this related to
other courses at
WKU?

No

What departments/programs have been consulted concerning potential impact (e.g. to possible duplication or conflict, changed corequisite or prerequisite for equivalent courses, etc.)? Please provide names and dates for individuals consulted.

N/A

Is this course part of
a program that leads
to teacher
certificate? No

Are you seeking
Colonnade approval
for this course? No

Student Learning
Outcomes

#	Student Learning Outcomes
1	Recognize common forage crop species and classify them based upon their botanical characteristics.
2	Identify methods of forage crop establishment, including seedbed preparation, weed control and planting guidelines.
3	Describe best practices for in-season management and harvest of various forage crop species.
4	Explain methods for forage crop nutritional value assessment via techniques such as sampling, testing, and analysis.
5	Explain methods for forage crop utilization with an emphasis on economic and environmental considerations.

Content outline

#	Topic
1	I. Introduction II. Identification and Classification of Forage Crops III. Forage Crop Physiology IV. Forage Crop Selection and Establishment V. Forage Crop Management VI. Harvest and Storage of Forage Crops VII. Forage Crop Utilization and Nutritional Value Assessment VIII. Economic and Environmental Considerations

Student expectations and requirements

Tentative texts and course materials

[Suggested Text: Southern Forages, 2015, Ball, Lace, and Hoveland, published by the International Plant Institute, ISBN-13: 978-0996019927.](#)

[Most material is provided during the classroom instruction phase of the course.](#)

Special equipment, materials, or library resources needed

Additional information

Supporting documentation

Course Change Request

New Course Proposal

Date Submitted: 01/30/25 11:20 am

Viewing: **ANSC 352 : Applied Horsemanship**

Last revision: 01/30/25 11:20 am

Changes proposed by: pgm45000

In Workflow

1. **AGRI Approval**
2. **SC Dean**
3. SC Curriculum Committee
4. Undergraduate Curriculum Committee
5. University Senate
6. Provost
7. Course Inventory

Proposed Action

Approval Path

1. 01/30/25 12:55 pm
Paul Woosley
(paul.woosley):
Approved for AGRI
Approval

Active

Contact(s)

Name	E-mail	Phone
Paige Smith	paige.smith@wku.edu	6159461576

Term for implementation Fall 2025

Academic Level Undergraduate

Course prefix (subject area) ANSC - Animal Science Course number 352

Department Agriculture

College Science and Engineering

Course title
Applied Horsemanship

Abbreviated course title APPLIED HORSEMANSHIP

Course description

Application of horsemanship skills within the equine industry. Field trips are required with this course on predetermined dates. Through theoretical knowledge and practical application, students will develop the riding skills, horsemanship, and competition strategies necessary to excel at the collegiate level.

Credit hours 3

Repeatable

Yes

Number of repeats 2

For maximum credits 6

Default grade type Standard Letter Alternate grade type(s)

Is this course intended to span more than one term?

No

Schedule type

Lecture/Lab

CIP Code 010507 - Equestrian/Equine Studies.

Does this course have prerequisites

Yes

Prerequisites

And/Or	(	Course/Test Code	Min Grade/Score	Academic Level	)	Concurrency?
	(	ANSC 232	C	UG	)	Yes
And	(	ANSC 333	C	UG	)	Yes

Corequisites

Equivalent Courses

Restrictions:

College restriction? No

Field of study restriction/major? No

Classification restriction? No

Departmental
Restrictions

Reason for
developing the
proposed course

To meet growing interest of students seeking knowledge in collegiate level competition. To promote sportmanship and teamwork within the equine unit and WKU Equestrian Team.

Is this related to
other courses at
WKU?

No

What departments/programs have been consulted concerning potential impact (e.g. to possible duplication or conflict, changed corequisite or prerequisite for equivalent courses, etc.)? Please provide names and dates for individuals consulted.

None

How many sections
of this course per
academic year will
be offered?

1

How many students
per section are
expected to enroll in
this proposed
course?

25

How many students
per academic year
are expected to
enroll?

25

How were these
projections
calculated? Explain
any supporting
evidence/data you
have for arriving at
these projections:

Based off of current interest and riding team numbers

Is this course part of a program that leads to teacher certificate? No

Are you seeking Colonnade approval for this course? No

Student Learning Outcomes

#	Student Learning Outcomes
1	Demonstrate advanced riding skills in chosen equestrian discipline(s) following safe and effective riding practices.
2	Apply theoretical knowledge of equine science, training principles, and stable management to effectively care for horses.
3	Develop and implement competition strategies based on judging criteria and showmanship techniques.

Content outline

#	Topic
1	Equine care, including horse health, nutrition, grooming, and safe handling practices.
2	Types of riding disciplines.
3	Appropriate showing apparel within the industry.
4	Understanding and reading patterns used in Horsemanship, Reining, Cow Horse, Trail and Ranch Riding classes.
5	Showmanship skills.
6	Understanding the scoring systems within the show industry.

Student expectations and requirements

Outside of regular class meeting times, there will be a minimum of two required weekends of field trips to horse shows.

Tentative texts and course materials

None

Special equipment, materials, or library resources needed

Jeans and riding boots

Additional
information

Supporting
documentation

Reviewer Comments

Key: 9796

Program Change Request

Date Submitted: 01/31/25 9:33 am

Viewing: **528 : Mathematics, Bachelor of Arts**

Last approved: 05/23/24 10:49 am

Last edit: 01/31/25 9:33 am

Changes proposed by: ngc72640

Catalog Pages
Using this Program
[Mathematics, Bachelor of Arts \(528\)](#)

Proposed Action

In Workflow

1. **MATH Approval**
2. **SC Dean**
3. **SC Curriculum Committee**
4. Undergraduate Curriculum Committee
5. University Senate
6. Provost
7. Program Inventory

Approval Path

1. 01/31/25 3:27 pm
Kanita DuCloux (kanita.ducloux):
Approved for MATH Approval
2. 01/31/25 4:18 pm
Stuart Burris (stuart.burris):
Approved for SC Dean

History

1. May 25, 2021 by Rheanna Plemons (rheanna.plemons)
2. Sep 27, 2021 by Jennifer Hammonds (jennifer.hammonds)
3. Mar 7, 2022 by Jessica Dorris (jessica.dorris)
4. Jul 20, 2022 by Ryan Wilson (ryan.wilson)
5. Apr 12, 2023 by Jennifer Hammonds (jennifer.hammonds)

6. Mar 11, 2024 by ptr05178
 7. May 23, 2024 by Ngoc Nguyen (ngoc.nguyen)

Active

Contact Person

Name	Email	Phone
Ngoc Nguyen	ngoc.nguyen@wku.edu	2704219876

Term of Implementation 2025-2026

Program Reference Number 528

Review Type Full Review

Academic Level Undergraduate

Program Type Major

Degree Types Bachelor of Arts

Department Mathematics

College Science and Engineering

Program Name (eg. Biology) Mathematics, Bachelor of Arts

Will this program have concentrations?
 Yes

Concentrations

Concentrations

- Fundamental Analysis & Discrete (MAAD)
- Fundamentals of Applied Mathematics (MAAM)
- Fundamentals of Math Studies (MAMS)

CIP Code 27.0101 - Mathematics, General.

Will this program lead to teacher certification?
 No

Does the proposed program contain 25% or more new content not previously taught in another course at WKU? If yes, contact the Office of the Provost for additional SACSCOC proposal requirements

No

Catalog Content

Program Overview (Catalog field: Overview tab)

This major is for students that intend to pursue a graduate degree in mathematics, and/or intend to pursue employment in business and industry. This major does not lead to teacher certification.

Curriculum Requirements (Catalog field: Program Requirements)

Program Requirements (51 hours)

Approved Shared Content from /shared/undergraduate-major-requirements/
Last Approved: Jul 3, 2024 1:10pm

A baccalaureate degree requires a minimum of 120 unduplicated semester hours. More information can be found at www.wku.edu/registrar/degree_certification.php.

Students who began WKU in the Fall 2014 and thereafter should review the Colonnade requirements located at: <https://www.wku.edu/colonnade/colonnaderequirements.php>.

A major in mathematics provides a Bachelor of Arts degree and requires either a minimum of 36-39 semester hours for a general major with a minor or second major or a minimum of 51 semester hours for an extended major. Note: All mathematics courses listed as prerequisites for other mathematics courses must have been completed with a grade of “C” or better.

Students in the extended major (528) are required to satisfy a computational requirement by completing two courses chosen from [CS 180](#), [CS 290](#), [STAT 330](#), [MATH 371](#), [PHYS 316](#), or [PHYS 318](#). [If [MATH 371](#) is selected to fulfill this requirement, it cannot also be used as an elective in the extended major (528).]

To prepare for graduate study in mathematics, the student must complete a minimum of 51 hours of mathematics with the following requirements:

Core Courses

MATH 136	Calculus I	4
MATH 137	Calculus II	4
MATH 237	Multivariable Calculus	4
MATH 307	Introduction to Linear Algebra	3
MATH 310	Introduction to Discrete Mathematics	3
MATH 317	Introduction to Algebraic Systems	3
MATH 337	Elements of Real Analysis	3
MATH 431	Intermediate Analysis I	3
MATH 498	Senior Seminar	1-3
Total Hours		28-30

Select one of the following concentrations:

B1: Fundamentals of Analysis and Discrete Mathematics

MATH 417	Algebraic Systems	3
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MATH 439	Topology I	3
MATH 450	Complex Variables	3
Select two of the following:		6
MATH 323	Geometry I	
MATH 415	Algebra and Number Theory	
MATH 473	Introduction to Graph Theory	
Select six elective hours from the following:		6
MATH 275	Introductory Topics in Mathematics (up to 3 hours)	
STAT 301	Introductory Probability and Applied Statistics	
MATH 305	Introduction to Mathematical Modeling	
MATH 323	Geometry I	
MATH 331	Differential Equations	
MATH 370	Applied Techniques in Mathematics	
MATH 382	Probability and Statistics I	
MATH 398	Seminar (up to 3 hours)	
MATH 405	Numerical Analysis I	
MATH 406	Numerical Analysis II	
MATH 409	History of Mathematics	
MATH 415	Algebra and Number Theory	
MATH 435	Partial Differential Equations	
MATH 470	Introduction to Operations Research	
MATH 473	Introduction to Graph Theory	
MATH 475	Selected Topics in Mathematics (up to 6 hours)	
MATH 482	Probability and Statistics II	
Total Hours		21
B2: Fundamentals of Applied Mathematics		
MATH 331	Differential Equations ¹	3
MATH 370	Applied Techniques in Mathematics ¹	3
MATH 382	Probability and Statistics I ¹	3
MATH 405	Numerical Analysis I ¹	3
Select two of the following: ¹		6
MATH 305	Introduction to Mathematical Modeling	
MATH 406	Numerical Analysis II	

MATH 435	Partial Differential Equations	
MATH 470	Introduction to Operations Research	
MATH 482	Probability and Statistics II	
Select three credit hours of the following:		3
MATH 275	Introductory Topics in Mathematics	
STAT 301	Introductory Probability and Applied Statistics	
MATH 305	Introduction to Mathematical Modeling	
MATH 323	Geometry I	
MATH 398	Seminar	
MATH 406	Numerical Analysis II	
MATH 409	History of Mathematics	
MATH 415	Algebra and Number Theory	
MATH 417	Algebraic Systems	
MATH 435	Partial Differential Equations	
MATH 439	Topology I	
MATH 450	Complex Variables	
MATH 470	Introduction to Operations Research	
MATH 473	Introduction to Graph Theory	
MATH 475	Selected Topics in Mathematics	
MATH 482	Probability and Statistics II	
Total Hours		21

B3: Fundamentals of Mathematical Studies

MATH 450	Complex Variables	3
Select two of the following:		6
MATH 405	Numerical Analysis I	
MATH 406	Numerical Analysis II	
MATH 409	History of Mathematics	
MATH 415	Algebra and Number Theory	
MATH 417	Algebraic Systems	
MATH 435	Partial Differential Equations	
MATH 439	Topology I	
MATH 470	Introduction to Operations Research	
MATH 473	Introduction to Graph Theory	

<u>MATH 482</u>	Probability and Statistics II	
Select twelve elective hours of the following:		12
<u>MATH 275</u>	Introductory Topics in Mathematics (up to 3 hours)	
<u>STAT 301</u>	Introductory Probability and Applied Statistics	
<u>MATH 305</u>	Introduction to Mathematical Modeling	
<u>MATH 323</u>	Geometry I	
<u>MATH 331</u>	Differential Equations	
<u>MATH 370</u>	Applied Techniques in Mathematics	
<u>MATH 382</u>	Probability and Statistics I	
<u>MATH 398</u>	Seminar (up to 3 hours)	
<u>MATH 405</u>	Numerical Analysis I	
<u>MATH 406</u>	Numerical Analysis II	
<u>MATH 409</u>	History of Mathematics	
<u>MATH 415</u>	Algebra and Number Theory	
<u>MATH 435</u>	Partial Differential Equations	
<u>MATH 470</u>	Introduction to Operations Research	
<u>MATH 473</u>	Introduction to Graph Theory	
<u>MATH 475</u>	Selected Topics in Mathematics (up to 6 hours)	
<u>MATH 482</u>	Probability and Statistics II	
Total Hours		21

1

Students may take certain 500-level mathematics courses for undergraduate credit in place of courses listed in items B1i, B1ii, B2i, B2ii, B3i, or B3ii with the approval of the mathematics department chair. No minor or second major for the extended major is required.

The Department of Mathematics offers a Joint Undergraduate Master's Program (JUMP) which provides academically outstanding students the opportunity to complete both an undergraduate Bachelor of Arts degree and a graduate Master of Science degree in an accelerated timeframe. The MS in Mathematics prepares students to be competitive applicants for admission into a Ph.D. program and/or for positions where strong research skills are needed. Contact the graduate program coordinator for additional information, see <https://catalog.wku.edu/graduate/science-engineering/mathematics/mathematics-ms/>

This JUMP program allows students to start working toward their MS in Mathematics with a concentration in General Mathematics, Computational Mathematics, or Mathematical Economics (Ref: 085) while completing their Bachelor of Arts degree in Mathematics (Ref: 528 and 728) or a Bachelor of Science degree in Mathematical Economics (Ref: 731). Undergraduate students admitted into JUMP may take graduate courses that count toward both undergraduate and graduate degrees. Up to 12 credit hours can be double-counted toward both degrees, and up to 15 hours of graduate courses can be taken while a student is completing the undergraduate degree. The key benefit of the JUMP program is that it allows students to earn a bachelor's and a master's degree in an accelerated timeframe. For more information, see <https://www.wku.edu/math/>.

To be considered for admission to the JUMP program to earn a BA in Mathematics (or a BS in Mathematical Economics) and a MS in Mathematics in an accelerated timeframe, a student must meet the following requirements:

- Be a Mathematics or a Mathematical Economics major (includes programs with reference numbers 528, 728, and 731);
- Have completed at least 60 hours total, with at least 24 hours earned at WKU;
- Have at least 15 or more credit hours remaining to complete the bachelor's degree;
- Have completed or be enrolled in 15 credit hours in Mathematics;
- Have a minimum cumulative undergraduate GPA of 3.25;
- Have one of the following:

a. 3.25 GPA in the Mathematics or Mathematical Economics major AND a grade of B or higher in at least one of the courses: MATH 307, MATH 310, MATH 317, MATH 337, MATH 439;

b. 3.0 GPA in the Mathematics or Mathematical Economics major AND a grade of B or higher in at least two of the courses: MATH 307, MATH 310, MATH 317, MATH 337, MATH 439.

All applicants to Mathematics JUMP must submit to a Graduate Coordinator the following documents for consideration: two letters of recommendation from a WKU Mathematics faculty members and a statement of purpose outlining academic goals and motivation for pursuing the JUMP program.

4-Year Plan

Fundamentals of Analysis & Discrete Mathematics Concentration

First Year

Fall	Hours	Spring	Hours
MATH 136	4	MATH 137	4
CS 180	4	CS 290 or STAT 330	3-4
ENG 100	3	COMM 145	3
Colonnade - Natural & Physical Sciences w/ lab	3-5	HIST 101 or HIST 102	3
		Colonnade - Social & Behavioral Science	3
	14-16		16-17

Second Year

Fall	Hours	Spring	Hours
MATH 307	3	MATH 237	4
MATH 310	3	Math upper-division Elective	3
ENG 200	3	Colonnade - Natural & Physical Sciences w/ no lab	3
Colonnade - Arts & Humanities	3	Colonnade - Writing in the Disciplines	3
World Language Requirement or General Elective	3	General Elective	3
	15		16

Third Year

Fall	Hours	Spring	Hours
MATH 317	3	MATH 337	3
Math upper-division Elective	3	MATH 417	3
Colonnade - Social & Cultural	3	Colonnade - Local to Global	3
Colonnade - Systems	3	General Elective	3
General Elective	3	General Elective	3
	15		15

Fourth Year

Fall	Hours	Spring	Hours
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First Year

Fall	Hours	Spring	Hours
MATH 431	3	MATH 450	3
MATH 439	3	MATH 498	3
Math upper-division Elective	3	Math upper-division Elective	3
General Elective	3	General Elective	3
General Elective	2	General Elective	3
	14		15

Total Hours 120-123

Fundamentals of Applied Math Concentration

First Year

Fall	Hours	Spring	Hours
MATH 136	4	MATH 137	4
CS 180	4	CS 290 or STAT 330	3-4
ENG 100	3	COMM 145	3
Colonnade - Natural & Physical Sciences w/ lab	3-5	HIST 101 or HIST 102	3
		Colonnade - Social & Behavioral Science	3
	14-16		16-17

Second Year

Fall	Hours	Spring	Hours
MATH 307	3	MATH 237	4
MATH 310	3	MATH 331	3
ENG 200	3	Math upper-division Elective	3
Colonnade - Arts & Humanities	3	Colonnade - Natural & Physical Sciences w/ no lab	3
World Language Requirement or General Elective	3	Colonnade - Writing in the Disciplines	3
	15		16

Third Year

Fall	Hours	Spring	Hours
MATH 317	3	MATH 337	3
MATH 382	3	MATH 370	3
MATH 405	3	Colonnade - Local to Global	3
Colonnade - Social & Cultural	3	Colonnade - Systems	3
General Elective	3	General Elective	3
	15		15

Fourth Year

Fall	Hours	Spring	Hours
MATH 431	3	MATH 498	3
Math upper-division Elective	3	Math upper-division Elective	3
General Elective	3	General Elective	3
General Elective	3	General Elective	3
General Elective	2	General Elective	3
	14		15

Total Hours 120-123

Fundamentals of Math Studies Concentration

First Year

Fall	Hours	Spring	Hours
<u>MATH 136</u>	4	<u>MATH 137</u>	4
<u>CS 180</u>	4	<u>CS 290</u> or <u>STAT 330</u>	3-4
<u>ENG 100</u>	3	<u>COMM 145</u>	3
Colonnade - Natural & Physical Sciences w/ lab	3-5	<u>HIST 101</u> or <u>HIST 102</u>	3
	14-16	Colonnade - Social & Behavioral Science	3
			16-17

Second Year

Fall	Hours	Spring	Hours
<u>MATH 307</u>	3	<u>MATH 237</u>	4
<u>MATH 310</u>	3	Math upper-division Elective	3
<u>ENG 200</u>	3	Math upper-division Elective	3
Colonnade - Arts & Humanities	3	Colonnade - Natural & Physical Sciences w/ no lab	3
World Language Requirement or General Elective	3	Colonnade - Writing in the Disciplines	3
	15		16

Third Year

Fall	Hours	Spring	Hours
<u>MATH 317</u>	3	<u>MATH 337</u>	3
Math upper-division Elective	3	<u>MATH 450</u>	3
Colonnade - Local to Global	3	Math upper-division Elective	3
Colonnade - Social & Cultural	3	Colonnade - Systems	3
General Elective	3	General Elective	3
	15		15

Fourth Year

Fall	Hours	Spring	Hours
<u>MATH 431</u>	3	<u>MATH 498</u>	3
Math upper-division Elective	3	Math upper-division Elective	3
General Elective	3	General Elective	3
General Elective	3	General Elective	3
General Elective	2	General Elective	3
	14		15

Total Hours 120-123

Will this program be managed or owned by more than one department?

No

Does this program include courses from outside your department?

Please insert one Learning Outcome per box. Click green plus sign for additional LO boxes

Learning Outcomes
and Measurement
Plan

	List all student learning outcomes of the program.	Measurement Plan
SLO 1	Be prepared for employment in government, industry, or academic settings	Rubric measurement of their senior project in MATH 498 which consists of a 12-to-20-page paper and a 25-minute presentation of their senior project. Students will complete an exit survey. Request alumni to complete a post-graduation survey.
SLO 2	Use technology and apply mathematics to solve problems effectively.	Rubric measurement of their senior project in MATH 498 which consists of a 12-to-20-page paper and a 25-minute presentation of their senior project. Students will complete an exit survey. Request alumni to complete a post-graduation survey.
SLO 3	Utilize critical thinking and communicate ideas effectively.	Rubric measurement of their senior project in MATH 498 which consists of a 12-to-20-page paper and a 25-minute presentation of their senior project.

Assessment Template: https://www.wku.edu/academicaffairs/ee/assurance_learning_resources.php

Upload Assessment
Plan

Delivery Mode

Is 25% or more of this program offered at a location other than main campus?

No

Enter Location(s)
and Percentage of
Program Offered at
Location(s)

Is 50% or more of this program offered by distance education (online asynchronous, online synchronous, connected classrooms, etc.)?

No

Do you plan to offer 100% of this program online?

No

If no, enter the percentage of the program that will be taught online.

0

Do you plan to offer 100% of this program face-to-face?

Yes

Do you plan to offer at least 25% of this program as a direct assessment competency-based educational program?

No

See the SACSCOC Policy on Direct Assessment Competency-based Educational Programs.

<https://www.sacscoc.org/pdf/081705/DirectAssessmentCompetencyBased.pdf>

Library Resources

Attach library resources

Rationale for the program proposal?

Adding a statement to the end of the JUMP description: "All applicants to Mathematics JUMP must submit to a Graduate Coordinator the following documents for consideration: two letters of recommendation from a WKU Mathematics faculty members and a statement of purpose outlining academic goals and motivation for pursuing the JUMP program."

Additional Attachments

Additional information or attachments

Reviewer Comments

Program Change Request

Date Submitted: 01/14/25 9:23 am

Viewing: **518 : Architectural Science, Bachelor of Science**

Last approved: 06/15/23 9:10 am

Last edit: 01/14/25 9:23 am

Changes proposed by: shh64934

Catalog Pages
Using this Program
[Architectural Science, Bachelor of Science \(518\)](#)

Proposed Action

Active

Contact Person

Name	Email	Phone
Shahnaz Aly	shahnaz.aly@wku.edu	270-745-5849

In Workflow

1. **EAS Approval**
2. **SC Dean**
3. SC Curriculum Committee
4. Undergraduate Curriculum Committee
5. University Senate
6. Provost
7. Program Inventory

Approval Path

1. 01/15/25 12:08 pm
Shahnaz Aly (shahnaz.aly):
Approved for EAS Approval

History

1. May 18, 2021 by Rheanna Plemons (rheanna.plemons)
2. Apr 22, 2022 by Jessica Dorris (jessica.dorris)
3. Apr 12, 2023 by Jennifer Hammonds (jennifer.hammonds)
4. Jun 15, 2023 by Jessica Dorris (jessica.dorris)

Term of Implementation	2025-2026
Program Reference Number	518
Review Type	Full Review
Academic Level	Undergraduate
Program Type	Major
Degree Types	Bachelor of Science
Department	Engineering & Applied Sciences, School of
College	Science and Engineering
Program Name (eg. Biology)	Architectural Science, Bachelor of Science

Will this program have concentrations?

No

CIP Code 04.0901 - Architectural Technology/Technician.

Will this program lead to teacher certification? No

Does the proposed program contain 25% or more new content not previously taught in another course at WKU? If yes, contact the Office of the Provost for additional SACSCOC proposal requirements

No

Catalog Content

Program Overview (Catalog field: Overview tab)

Architectural Science is a bridge between design theory and construction practice. Architectural Technologists perform a variety of important functions in many areas of the architectural and building construction fields and are widely recognized by professionals in the construction industry. Graduates find employment as drafters, designers, construction planners, estimators, inspectors, technical sales representatives, and many other exciting areas.

Career Opportunities

Graduates obtain employment in a wide variety of organizations: architectural firms, engineering firms, interior design firms, contractors, design-build construction firms, surveying firms, government agencies, construction product manufacturers, construction material suppliers, inspection and testing firms, specialty consultants, and computer applications consultants.

Program Description

The program in Architectural Science is designed to provide graduates with a practical architectural education combining an understanding of the philosophy of building design with an applied technical knowledge of construction systems and materials. Graduates are prepared with the knowledge and skills to assist in developing drawings and related documentation, constructing architectural models, developing architectural renderings, creating digital images and visualizations, preparing cost estimates and construction planning documentation, and making professional presentations. Program instruction includes architectural drafting, construction methods and materials, design principles, environmental systems, building systems, building codes, structural principles, project management, sustainability, and professional presentations.

Curriculum Requirements (Catalog field: Program Requirements)

Program Requirements (78 hours)

Approved Shared Content from /shared/undergraduate-major-requirements/
Last Approved: Jul 3, 2024 1:10pm

A baccalaureate degree requires a minimum of 120 unduplicated semester hours. More information can be found at www.wku.edu/registrar/degree_certification.php.

Students who began WKU in the Fall 2014 and thereafter should review the Colonnade requirements located at: <https://www.wku.edu/colonnade/colonnaderequirements.php>.

Program Courses

AS 151	Architectural Graphics	3
AS 163	Architectural Drafting	3
AS 251	3D Modeling and Imaging	3
CM 261	Construction Methods and Materials	3
CM 262	Construction Laboratory	1
AS 263	Architecture Documentation I	3
AS 273	Architectural Detailing	3

<u>CM 282</u>	Building Structures	3
<u>AS 305</u>	Building Codes	3
<u>SEAS 325</u>	Survey of Building Systems	3
<u>AS 351</u>	Building Information Modeling	3
<u>AS 373</u>	Architecture Documentation II	3
<u>AS 369</u>	Architectural Design Studio I	4
<u>MFGE 390</u>	Project Management	3
<u>SEAS 398</u>	Internship I	1
<u>MFGE 430</u>	Technology Management / Supervision / Team Building	3
<u>CM 363</u>	Construction Estimating and Bidding	3
<u>AS 469</u>	Architectural Design Studio II	4
<u>AS 488</u>	Comprehensive Design	3
<u>AS 490</u>	Senior Research for Architectural Sciences	3
<u>CE 303</u>	Construction Management	3
<u>ENG 306</u>	Business Writing	3
or <u>ENG 307</u>	Technical Writing	
<u>MGT 200</u>	Legal Environment of Business	3
or <u>MGT 210</u>	Organization and Management	
Select 14 hours of advisor-approved architectural science electives		14
<u>IDFM 120</u>	Visual Design I	
<u>IDFM 201</u>	Interior Design Studio I	
<u>IDFM 221</u>	Visual Design II	
<u>IDFM 243</u>	Materials and Finishes for Interior Design	
<u>IDFM 300</u>	Interior Design Studio II	
<u>IDFM 301</u>	Interior Design Studio III	
<u>IDFM 304</u>	Lighting and Environmental Controls	
<u>IDFM 344</u>	Digital Rendering for Interiors	
<u>IDFM 401</u>	Interior Design Studio V	
<u>IDFM 421</u>	Portfolio Design	
<u>IDFM 427</u>	Visual Design III	
<u>CE 160</u>	Principles of Surveying	
<u>CE 161</u>	Principles of Surveying Lab	
<u>CE 316</u>	Equipment & Methods	

<u>CM 462</u>	Construction Scheduling	
Total Hours		78
A minor or second major is not required.		
Additional Courses Required for the Major		
<u>MATH 117</u>	Trigonometry	3
<u>ECON 150</u>	Introduction to Economics	3
or <u>ECO 150C</u>	Introduction to Economics	
or <u>ECON 202</u>	Principles of Economics (Micro)	
or <u>ECO 202C</u>	Principles of Economics (Micro)	
or <u>ECON 203</u>	Principles of Economics (Macro)	
or <u>ECO 203C</u>	Principles of Economics (Macro)	
or <u>ECON 375</u>	Moral Issues of Capitalism	
or <u>ECON 390</u>	Economics, Law, and Public Choice	
<u>AS 180</u>	Introduction to Architecture	3
Total Hours		9
4-Year Plan		

Finish in Four Plan

First Year

Fall	Hours	Spring	Hours
<u>AS 151</u>	3	<u>AS 163</u>	3
<u>AS 180</u>	3	<u>CM 261</u>	3
<u>MATH 117</u>	3	<u>CM 262</u>	1
<u>ENG 100</u>	3	<u>ENG 200</u>	3
<u>HIST 101</u> or <u>HIST 102</u>	3	Colonnade - Arts & Humanities	3
		Colonnade - Natural & Physical Science w/out lab	3
	15		16

Second Year

Fall	Hours	Spring	Hours
<u>AS 251</u>	3	<u>AS 273</u>	3
<u>AS 263</u>	3	<u>AS 351</u>	3
<u>AS 305</u>	3	<u>COMM 145</u>	3
<u>ECON 202</u>	3	<u>SEAS 325</u>	3
<u>CM 282</u>	3	<u>AS 369</u>	4
	15		16

Third Year

Fall	Hours	Spring	Hours
<u>AS 373</u>	3	<u>MFGE 390</u>	3
<u>CE 303</u>	3	Architectural Science Elective	3
Architectural Science Elective	3	<u>ENG 300</u>	3

First Year

Fall	Hours	Spring	Hours
Colonnade - Social & Cultural	3	General Elective	3
<u>SEAS 398</u>	1	Colonnade - Local to Global	3
	13		15

Fourth Year

Fall	Hours	Spring	Hours
<u>AS 469</u>	4	Colonnade - Natural & Physical Science w/Lab	3
<u>AS 488</u>	3	<u>AS 490</u>	3
General Elective	3	Colonnade - Connections	3
MFGE 430	3	Management Elective	3
Architectural Science Elective	2	<u>ENG 306</u> or <u>ENG 307</u>	3
<u>CM 363</u>	<u>3</u>		
	15		15

Total Hours 120

Will this program be managed or owned by more than one department?

No

Does this program include courses from outside your department?

Please insert one Learning Outcome per box. Click green plus sign for additional LO boxes

Learning Outcomes
and Measurement
Plan

	List all student learning outcomes of the program.	Measurement Plan
SLO 1	Demonstrate the ability to identify, formulate strategies and solve technical problems.	Analysis of pre-design of capstone project (comprehensive design), analysis of design development and construction documents of capstone project (Senior project), and appraisal of Student technical skills by employers during internship.
SLO 2	Demonstrate an ability to possess effective (oral/ written and/or graphic) communication skills.	Appraisals from industry professionals of capstone projects presentations, appraisals from industry professionals of schematic design presentations, and appraisal of student communication skills by employers during internship
SLO 3	Demonstrate the knowledge and capacity to manage a project through the different design phases.	Analysis of schematic design of capstone project, appraisals from industry professionals of capstone projects, and appraisal of students

	List all student learning outcomes of the program.	Measurement Plan
		project management skills by employers during internship.

Assessment Template: https://www.wku.edu/academicaffairs/ee/assurance_learning_resources.php

Upload Assessment
Plan

Delivery Mode

Is 25% or more of this program offered at a location other than main campus?

No

Enter Location(s)
and Percentage of
Program Offered at
Location(s)

Is 50% or more of this program offered by distance education (online asynchronous, online synchronous, connected classrooms, etc.)?

No

Do you plan to offer 100% of this program online?

No

If no, enter the percentage of the program that
will be taught online.

0

Do you plan to offer 100% of this program face-to-face?

Yes

Do you plan to offer at least 25% of this program as a direct assessment competency-based educational program?

No

See the SACSCOC Policy on Direct Assessment Competency-based Educational Programs.

<https://www.sacscoc.org/pdf/081705/DirectAssessmentCompetencyBased.pdf>

Library Resources

Attach library
resources

Rationale for the program proposal?

The MFGE 430 course satisfied the management requirement under ATMAE accreditation, since the program is no longer accredited by ATMAE the program faculty are looking to strengthen the technical aspects of the curriculum.

Adding CM 363 as a core course in the curriculum will enable students to understand how a set of drawings that they put together is used by contractors and construction professionals to cost a project which is an essential skill for the workforce.

Additional Attachments

Additional information or attachments

Revised by Registrar 4/22/22. MFGE 430 updated to SEAS 430 effective 202230.

Revised by Registrar 6/15/2023. SEAS prefixes changes to MFGE prefix.

Reviewer Comments

Program Change Request

Date Submitted: 01/11/25 6:47 am

Viewing: **533 : Construction Management, Bachelor of Science**

Last approved: 06/15/23 8:01 am

Last edit: 01/11/25 6:47 am

Changes proposed by: jsn97026

Catalog Pages
Using this Program
[Construction Management, Bachelor of Science \(533\)](#)

Proposed Action

In Workflow

1. **EAS Approval**
2. **SC Dean**
3. SC Curriculum Committee
4. Undergraduate Curriculum Committee
5. University Senate
6. Provost
7. Program Inventory

Approval Path

1. 01/15/25 12:02 pm
Shahnaz Aly (shahnaz.aly):
Approved for EAS Approval

History

1. Mar 25, 2021 by Rheanna Plemons (rheanna.plemons)
2. May 13, 2021 by Rheanna Plemons (rheanna.plemons)
3. May 18, 2021 by Rheanna Plemons (rheanna.plemons)
4. May 19, 2021 by Rheanna Plemons (rheanna.plemons)
5. Apr 22, 2022 by Jessica Dorris (jessica.dorris)
6. Apr 22, 2022 by Jessica Dorris (jessica.dorris)
7. Apr 12, 2023 by Jennifer Hammonds

(jennifer.hammonds)
8. Jun 15, 2023 by
Jessica Dorris
(jessica.dorris)

Active

Contact Person

Name	Email	Phone
Jason Wilson	jason.wilson@wku.edu	2707452322

Term of Implementation 2024-2025

Program Reference Number 533

Review Type Full Review

Academic Level Undergraduate

Program Type Major

Degree Types Bachelor of Science

Department Engineering & Applied Sciences, School of
College Science and Engineering

Program Name (eg. Biology) Construction Management, Bachelor of Science

Will this program have concentrations?
No

CIP Code 52.2001 - Construction Management, General.

Will this program lead to teacher certification?
No

Does the proposed program contain 25% or more new content not previously taught in another course at WKU? If yes, contact the Office of the Provost for additional SACSCOC proposal requirements

No

Catalog Content

Construction Management involves planning, coordination, and control of projects from inception to completion. Construction Managers work out of a main or field office to perform a variety of important functions, including Project Planning, Cost Management, Time Management, Quality Management, Safety Management, and Contract Administration.

Career Opportunities

Graduates obtain employment in a wide variety of organizations, including construction management firms, general contractors, and specialty contractors serving the commercial, industrial, heavy civil, and residential construction sectors. They may choose to become specialists in estimating, scheduling, safety, quality, or field supervision. Typical job titles include project manager, project engineer, office engineer, field engineer, estimator, quantity surveyor, and superintendent, along with many others.

Program Description

The program in Construction Management is designed to provide students with technical and managerial skills needed to assume leading positions in the construction industry. A minor or second major is not required. Course requirements for the major are shown below. Students should consult with an advisor in planning their four-year degree program.

Curriculum Requirements (Catalog field: Program Requirements)

Program Requirements (71 hours)

Approved Shared Content from /shared/undergraduate-major-requirements/
Last Approved: Jul 3, 2024 1:10pm

A baccalaureate degree requires a minimum of 120 unduplicated semester hours. More information can be found at www.wku.edu/registrar/degree_certification.php.

Students who began WKU in the Fall 2014 and thereafter should review the Colonnade requirements located at: <https://www.wku.edu/colonnade/colonnaderequirements.php>.

CM 261	Construction Methods and Materials	3
CM 262	Construction Laboratory	4
MFGE 274	Industrial Statistics	3
CM 282	Building Structures	3
CM 363	Construction Estimating and Bidding	3
CM 462	Construction Scheduling	3
Select one of the following:		3-4
CM 490	Senior Research for Construction Management	3
CM 250	Contract Documents	3
or GE 303	Construction Management	
CM 346	Applied Soil Mechanics and Foundations	3

or CE 410	Soil Mechanics	
<u>AS 163</u>	Architectural Drafting	3
MFGE 217	Industrial Materials	3
<u>AS 305</u>	Building Codes	3
<u>CE 160</u> & <u>CE 161</u>	Principles of Surveying and Principles of Surveying Lab	4
AGMC 170 & AGMC 171	Introduction to Agricultural Mechanization & Introduction to Agricultural Mechanization Laboratory	
<u>CE 303</u>	<u>Construction Management</u>	<u>3</u>
<u>CE 316</u>	Equipment & Methods	3
<u>CE 370</u> & <u>CE 371</u>	<u>Materials of Construction</u> & <u>Construction Materials Laboratory</u>	<u>3</u>
<u>CE 410</u> & <u>CE 411</u>	<u>Soil Mechanics</u> & <u>Soil Mechanics Lab</u>	<u>3-4</u>
<u>or CM 346</u>	<u>Applied Soil Mechanics and Foundations</u>	
<u>MATH 183</u>	<u>Introductory Statistics</u>	<u>3</u>
<u>or ECON 206</u>	<u>Statistics</u>	
<u>or MFGE 271</u>	<u>Industrial Statistics</u>	
<u>SEAS 325</u>	Survey of Building Systems	3
MFGE 374	Quality Assurance	3
<u>SEAS 398</u>	Internship I	1
MFGE 430	Technology Management / Supervision / Team Building	3
<u>ACCT 110</u>	<u>Accounting for Decision Makers</u>	<u>3</u>
<u>or FIN 161</u>	<u>Personal Finance</u>	
<u>ECON 202</u>	Principles of Economics (Micro)	3
<u>or ECON 203</u>	Principles of Economics (Macro)	
ECON 203	Principles of Economics (Macro)	
ECON 375	Moral Issues of Capitalism	
ECON 390	Economics, Law, and Public Choice	
EGO 150G	Introduction to Economics	
EGO 202G	Principles of Economics (Micro)	
EGO 203G	Principles of Economics (Macro)	
<u>MGT 200</u>	<u>Legal Environment of Business</u>	<u>3</u>
<u>MGT 210</u>	Organization and Management	3

Select one of the following introductory accounting-financial courses:		3
AGGT-220	Principles of Financial Accounting	
<u>MKT 220</u>	Basic Marketing Concepts	3
<u>CM Technical Electives - Take 12 hours of the following courses.</u>		<u>12</u>
<u>AS 351</u>	<u>Building Information Modeling</u>	
<u>BDAN 250</u>	<u>Introduction to Analytics</u>	
<u>BDAN 305</u>	<u>Data Modeling and Analysis</u>	
<u>BDAN 310</u>	<u>Business Data Analytics</u>	
<u>BDAN 330</u>	<u>Structured Data Analysis</u>	
<u>CE 378</u>	<u>Route Surveying</u>	
<u>CE 380</u>	<u>Boundary Surveying</u>	
<u>CE 426</u>	<u>Advanced Construction Materials</u>	
<u>ECON 305</u>	<u>Labor Economics</u>	
<u>ECON 307</u>	<u>Financial Data Modeling</u>	
<u>ECON 385</u>	<u>Economic Development</u>	
<u>ECON 414</u>	<u>Managerial Economics</u>	
<u>ENT 312</u>	Entrepreneurship	
Select one of the following Business Law courses:		3
<u>ENG 306</u>	<u>Business Writing</u>	
<u>or ENG 307</u>	<u>Technical Writing</u>	
<u>ENT 380</u>	<u>New Venture Business Planning</u>	
<u>FIN 330</u>	<u>Principles of Finance</u>	
<u>FIN 350</u>	<u>Risk Management and Insurance</u>	
<u>FIN 389</u>	<u>Financial Analysis and Modeling</u>	
<u>GISC 316</u>	<u>Geographic Information Systems I</u>	
<u>GISC 317</u>	<u>Geographic Information Systems II</u>	
<u>GISC 414</u>	<u>Remote Sensing Fundamentals</u>	
<u>GISC 417</u>	<u>GIS Analysis & Modeling</u>	
<u>GISC 477</u>	<u>Special Topics in GIS</u>	
<u>MGT 301</u>	Business Law	
<u>MGT-333</u>	<u>Management of Nonprofit Organizations</u>	
Select one of the following Intro to Economics/Principals of Economics:		3
<u>AGEC-360</u>	<u>Agricultural Economics</u>	

EGON 150	Introduction to Economics	
MFGE 310	Safety in Industry	
MFGE 390	Project Management	
or ETM 390	Course ETM 390 Not Found	
MFGE 394	Lean Systems	3
MGT 305	Ethics and Critical Thinking	
MGT 311	Human Resource Management	
MGT 313	Decision Modeling	
MGT 314	Operations Management	
MGT 326	Managing Projects in Organizations	
MGT 400	Employment Law	
MGT 423	Sourcing and Procurement Management	
MKT 325	Personal Selling	
FIN 164	Personal Finance	
FINC 161G	Personal Finance	
RE 170G	Essentials of Real Estate	
SUPR 100	Introduction to Commerce and Organizational Structures	
SUPR 102	Introduction to Ethical Issues in Organizations	
SUPR 110	Basic Bookkeeping and Performance Reporting	
SUPR 250	Entrepreneurship and Organizational Innovation	
SUPR 252	Selling and Sales Supervision	
MKT 425	Advanced Personal Selling Strategies	
SEAS 367	Supervised Work Experience in Industry	

Total Hours

71-72

Additional Course

Choose a Chemistry Course and Lab		4-5
CHEM 105 & CHEM 106	Fundamentals of General Chemistry and Fundamentals of General Chemistry Laboratory	
CHEM 120 & CHEM 121	College Chemistry I and College Chemistry I Laboratory	
GEOL 111	The Earth	3
MATH 117	Trigonometry	3
or MATH 118	College Algebra and Trigonometry	

Total Hours

10-11

4-Year Plan

Finish in Four Plan

First Year

Fall	Hours	Spring	Hours
AS 163	3	CHEM 105 & CHEM 106 (or CHEM 120 and CHEM 121)	4
MATH 117	3	Colonnade: Natural & Physical Sciences	3
ENG 100	3	HIST 101 or HIST 102	3
Colonnade: Arts & Humanities	3	Colonnade: Human Communication	3
Economics Elective	3	GEOL 111	3
ACCT 110 or FIN 161	3	Colonnade: Literary Studies	3
		COMM 145	3
		CM 261	3
	15		15

Second Year

Fall	Hours	Spring	Hours
CM 282	3	MGT 210	3
MFGE 310	3	General Elective	2
CE 160	3	MATH 183	3
CE 161	1	MKT 220	3
MFGE 217	3	ECON 202	3
Accounting/Finance Elective	3	GENERAL ELECTIVE	3
MGT 200	3	MFGE 374	3
CHEM 105	4	CM 261	3
& CHEM 106		CM 262	4
	14		15

Third Year

Fall	Hours	Spring	Hours
CM 363	3	CE 316	3
AS 305	3	CM 462	3
CM 250	3	Connections - Local to Global	3
MFGE 394	3	CM 363	3
ENG 300	3	CM TECH ELECTIVE	3
SEAS 325	3	CM TECH ELECTIVE	3
CM TECH ELECTIVE	3		
CE 303	3		
	15		15

Fourth Year

Fall	Hours	Spring	Hours
MFGE 430	3	CM 490	3
SEAS 325	3	MFGE 374	3
CM 462	3	SEAS 398	1

First Year

Fall	Hours	Spring	Hours
<u>CE 410</u>	3	Connetions - Systems	3
MFGE 390	3	General Elective	3
<u>CE 411</u>	<u>1</u>	<u>GENERAL ELECTIVE</u>	<u>4</u>
<u>CE 370</u>	<u>2</u>	<u>GENERAL ELECTIVE</u>	<u>4</u>
<u>CE 371</u>	<u>1</u>		
CM TECH ELECTIVE	3		
<u>Connections: Social & Cultural</u>	<u>3</u>		
	16		15

Total Hours 120

Will this program be managed or owned by more than one department?

No

Does this program include courses from outside your department?

Yes

Outside Courses

Details

Who approved including these courses?	When were they approved?
<u>Dr. Leslie North</u>	<u>1/9/25</u>
<u>Dr. Whitney Peake</u>	<u>1/10/25</u>
<u>Dr. Kanita DuCloux</u>	<u>1/9/25</u>
<u>Dr. David Zimmer</u>	<u>1/10/25</u>
<u>Dr. Ray Blankenship</u>	<u>1/10/25</u>
<u>Dr. Lukas Forbes</u>	<u>1/10/25</u>

Please insert one Learning Outcome per box. Click green plus sign for additional LO boxes

Learning Outcomes
and Measurement
Plan

	List all student learning outcomes of the program.	Measurement Plan
SLO 1	Demonstrate the skills of construction management competencies including estimating, planning, scheduling, project control, print reading, safety management, quality management and construction law.	Results from internship surveys and assessment of student work with rubrics.
SLO 2	Demonstrate the ability to communicate effectively with a range of audiences.	Results from internship surveys and assessment of student work with rubrics.

	List all student learning outcomes of the program.	Measurement Plan
SLO 3	Demonstrate managerial and leadership experience through working in teams to solve problems, and participation in required internships.	Results from internship surveys and assessment of student work with rubrics.

Assessment Template: https://www.wku.edu/academicaffairs/ee/assurance_learning_resources.php

Upload Assessment
Plan

Delivery Mode

Is 25% or more of this program offered at a location other than main campus?

No

Enter Location(s)
and Percentage of
Program Offered at
Location(s)

Is 50% or more of this program offered by distance education (online asynchronous, online synchronous, connected classrooms, etc.)?

No

Do you plan to offer 100% of this program online?

No

If no, enter the percentage of the program that
will be taught online.

<10 %

Do you plan to offer 100% of this program face-to-face?

Yes

Do you plan to offer at least 25% of this program as a direct assessment competency-based educational program?

No

See the SACSCOC Policy on Direct Assessment Competency-based Educational Programs.

<https://www.sacscoc.org/pdf/081705/DirectAssessmentCompetencyBased.pdf>

Library Resources

Attach library
resources

Rationale for the program proposal?

The Construction Management (CM) program changes align with ACCE Accreditation and to meet industry needs. In addition to meeting industry needs, the revised curriculum allows for students to pursue additional certificates which will allow an easier transition into the MBA program or pursue Professional Land Surveyor (PLS) licensure. The CM advisory board made up of representatives from several local companies, faculty, and an ACCE reviewer was involved in the process of curriculum changes for the CM program.

Changes will provide more flexibility for students to choose their path and reduce the need for exception forms required for courses that are often full or restricted to other majors.

Additional Attachments

Additional information or attachments

~~SEAS Approval: 9/27/2019 OCSE Approval: 9/24/2020 UGC Approval: 10/20/2020
Senate Approval: 11/5/2020 Provost Approval: 12/7/2020 Revised by Registrar 4/22/22. ACCT 200 updated to ACCT 220 effective 2022/30. Revised by Registrar 6/15/2023. SEAS prefix changed to MFGE and BUS prefix changes to SUPR.~~

Reviewer Comments

Course Change Request

Date Submitted: 01/21/25 3:09 pm

Viewing: **MFGE 394 : Lean Systems**

Formerly known as: **SEAS 394**

Last approved: 06/05/24 3:17 am

Last revision: 01/21/25 3:09 pm

Changes proposed by: bry60656

Catalog Pages
referencing this
course

MFGE 394:

[Manufacturing Engineering Technology](#)

Proposed Action

In Workflow

1. **EAS Approval**
2. **SC Dean**
3. SC Curriculum Committee
4. Undergraduate Curriculum Committee
5. University Senate
6. Provost
7. Course Inventory

Approval Path

1. 01/15/25 11:40 am
Shahnaz Aly
(shahnaz.aly):
Rollback to Initiator
2. 01/16/25 5:44 pm
Shahnaz Aly
(shahnaz.aly):
Approved for EAS Approval
3. 01/21/25 12:50 pm
Stuart Burris
(stuart.burris):
Rollback to Initiator
4. 01/21/25 3:10 pm
Shahnaz Aly
(shahnaz.aly):
Approved for EAS Approval

History

1. Oct 22, 2021 by
Bryan Reaka
(bryan.reaka)
2. Oct 22, 2022 by
Gregory Arbuckle
(greg.arbuckle)

3. Jan 23, 2023 by Jessica Dorris (jessica.dorris)
4. Nov 28, 2023 by Hanna Khouryieh (hanna.khouryieh)
5. Jun 5, 2024 by Jessica Dorris (jessica.dorris)

Active

Contact(s)

Name	E-mail	Phone
Brian Janes	brian.janes@wku.edu	2707454514

Review Type Full Review Expedited

Term for implementation Fall 2025

Academic Level Undergraduate

Course prefix MFGE - Manufacturing Engineering Technology Course number 394
(subject area)

Department Engineering & Applied Sciences, School of

College Science and Engineering

Course title Lean ~~Systems~~

Abbreviated course title LEAN ~~LEAN AND SUPPLY CHAIN SYSTEMS~~

Course description

Applications of lean ~~and supply chain~~ principles across disciplines. This is the enhancement of customer value, elimination and reduction of all forms of waste from supplier to end user.

Credit hours 3

Repeatable

Yes

Number of repeats 2

For maximum credits 3

Default grade type Standard Letter Alternate grade type(s)

Is this course intended to span more than one term?

No

Schedule type

Lecture

CIP Code 150613 - Manufacturing Engineering
Technology/Technician.

Does this course have prerequisites

Yes

Prerequisites

And/Or	(	Course/Test Code	Min Grade/Score	Academic Level	)	Concurrency?
	(	MATH 116	C	UG		
Or		MATH 116E	C	UG		
Or		MA 116C	C	UG)	
Or	(	MATH 117	D	UG		
Or		MA 117C	D	UG)	
Or		MATH 118	D	UG		
Or		MATH 119	D	UG		
Or		MATH 127	D	UG		
Or		MATH 121	D	UG		
Or		MATH 136	D	UG		
Or		MATH 137	D	UG		
Or		MATH 206	D	UG		
Or		MATH 237	D	UG		
Or		MATH 240	D	UG		
Or		MATH 275	D	UG		
Or		MATH 304	D	UG		
Or		MATH 305	D	UG		
Or		MATH 306	D	UG		

Corequisites

Equivalent Courses

Restrictions:

College restriction? No

Field of study
restriction/major? No

Classification
restriction? No

Departmental
Restrictions

Reason for changing
the course

The topics of Lean and Supply Chain are two separate topics and need to be addressed in separate in depth courses. Lean is the operational aspect of removing wastes within a facility. As a global pandemic and multiple natural disasters have shown, disruptions in Supply Chains are becoming more common and need to be addressed more fully within the context of the global economy. thus the sections on supply Chain are being reverted from this course and allocated to MFGE 396 which is a course dedicated to the issues of Supply.

Is this related to
other courses at
WKU?

No

What departments/programs have been consulted concerning potential impact (e.g. to possible duplication or conflict, changed corequisite or prerequisite for equivalent courses, etc.)? Please provide names and dates for individuals consulted.

N/A

Is this course part of
a program that leads
to teacher
certificate? No

Are you seeking
Colonnade approval
for this course? No

Student Learning
Outcomes

#	Student Learning Outcomes
1	Explain the origins and principles of the lean system
2	Identify and describe the tools of lean

#	Student Learning Outcomes
3	Solve practical problems of lean, logistics, operations, and communication systems
4	Apply the principles and tools of lean to an industrial system

Content outline

#	Topic
1	<p>Introduction to the lean manufacturing and the just-in-time philosophy, and supply chainsystems. Topics include:</p> <p>1.The birth of lean production <u>system</u> system</p> <p>2. Lean Manufacturing and the Toyota Production System</p> <p>3. Inventory and Variation</p> <p>4. Stability</p> <p>5. Significance of lead time</p> <p>6. Standardized Work</p> <p>7. Just-In-Time</p> <p>8. Jidoka</p> <p>9. Involvement</p> <p>10. Planning and Goals</p> <p>11. Strategies to becoming Lean</p> <p>12. How to implement Lean</p> <p>13. The culture of Lean Production</p> <p>14. Cellular Manufacturing</p>
<u>2</u>	<u>Lean Manufacturing and the Toyota Production System</u>
<u>3</u>	<u>Inventory and Variation</u>
<u>4</u>	<u>Stability</u>
<u>5</u>	<u>Significance of lead time</u>
<u>6</u>	<u>Standardized Work</u>
<u>7</u>	<u>Just-In-Time</u>
<u>8</u>	<u>Jidoka</u>
<u>9</u>	<u>Involvement</u>
<u>10</u>	<u>How to implement Lean</u>
<u>11</u>	<u>The culture of Lean Production</u>
<u>12</u>	<u>Cellular Manufacturing</u>

Student expectations and requirements

Tentative texts and
course materials

Special equipment,
materials, or library
resources needed

Additional
information

Supporting
documentation

Reviewer Comments

Shahnaz Aly (shahnaz.aly) (01/15/25 11:40 am): Rollback: SLO Changes

Stuart Burris (stuart.burris) (01/21/25 12:50 pm): Rollback: Changes to course titles have to go through full review.

Course Change Request

New Course Proposal

Date Submitted: 01/15/25 6:14 pm

Viewing: **ETM 310 : Manufacturing Safety**

Last revision: 01/15/25 6:14 pm

Changes proposed by: bry60656

Proposed Action

In Workflow

1. **EAS Approval**
2. **SC Dean**
3. SC Curriculum Committee
4. Undergraduate Curriculum Committee
5. University Senate
6. Provost
7. Course Inventory

Approval Path

1. 01/15/25 11:07 am
Shahnaz Aly
(shahnaz.aly):
Rollback to Initiator
2. 01/16/25 5:44 pm
Shahnaz Aly
(shahnaz.aly):
Approved for EAS
Approval

Active

Contact(s)

Name	E-mail	Phone
Bryan Reaka	bryan.reaka@wku.edu	2707457032

Term for implementation Fall 2025

Academic Level Undergraduate

Course prefix (subject area) ETM - Engineering Technology Management Course number 310

Department Engineering & Applied Sciences, School of

College Science and Engineering

Course title
Manufacturing Safety

Abbreviated course title MANUFACTURING SAFETY

Course description

Safety from a supervisor's perspective with knowledge of industrial issues necessary to understand how these topics relate to those personnel currently working full time in manufacturing facilities. Application of accident prevention methods including recognition, avoidance and removal of potential injury causing elements of the workplace.

Credit hours 3

Repeatable

Yes

Number of repeats 2

For maximum credits 3

Default grade type Standard Letter Alternate grade type(s)

Is this course intended to span more than one term?

No

Schedule type

Lecture

CIP Code 151501 - Engineering/Industrial Management -
151501 - Engineering/Industrial Management

Does this course have prerequisites

No

Corequisites

Equivalent Courses

Restrictions:

College restriction? No

Field of study restriction/major? Yes

Select:

Include

Major:

Field of stud/major restriction
5007 - Engineering Technology Management

Field of stud/major restriction

555 - Computer Information Tech

Classification restriction? No

Departmental Restrictions

This course will be for ETM majors only

Reason for developing the proposed course

This course will be used for the online ETM (2 plus 2) majors only and reflects the nature of the course being for those already working in industry this will distinguish this course from the MFGE prefixed course which is a face to face section. This course pulls the majority of its content from the MFGE prefixed course with the same number there is about a 5-10% differential in content between the two courses.

Is this related to other courses at WKU?

Yes

Related courses

SFTY 270 - General Safety

What departments/programs have been consulted concerning potential impact (e.g. to possible duplication or conflict, changed corequisite or prerequisite for equivalent courses, etc.)? Please provide names and dates for individuals consulted.

Department Chair in Public Health Dr Mkanta was asked about this course via e-mail on November 1, 2024. His response via e-mail on November 6, 2024 was "DPH will support this course because it is targeted towards the ETM students only as indicated in the email."

How many sections of this course per academic year will be offered?

2

How many students per section are expected to enroll in this proposed course?

30

How many students per academic year

are expected to enroll?
60

How were these projections calculated? Explain any supporting evidence/data you have for arriving at these projections:

These projection are inline with what we have seen over the last two or three academic years.

How are these related?

The number of students enrolling in the Engineering Technology management program at WKU over the past 3 years

Is this course part of a program that leads to teacher certificate? No

Are you seeking Colonnade approval for this course? No

Student Learning Outcomes

#	Student Learning Outcomes
1	Locate potential hazards in the workplace setting
2	Identify effects of excessive noise on hearing loss
3	Explain value of OSHA within a workplace
4	Summarize ways to mitigate hazards in a manufacturing setting

Content outline

#	Topic
1	Accident costs
2	Workers Compensation
3	OSHA as it relates to Toxic Substances
4	OSHA as it relates to Noise and Vibration

#	Topic
5	OSHA as it relates to Bloodborne Pathogens
6	Violence in the Workplace
7	OSHA as it relates to Emergency Preparation
8	OSHA as it relates to Accident Investigation

Student expectations and requirements

Tentative texts and course materials

OSHA 1910 (General Industry) standard from US Department of Labor

Special equipment, materials, or library resources needed
none

Additional information

Supporting documentation

Reviewer Comments

Shahnaz Aly (shahnaz.aly) (01/15/25 11:07 am): Rollback: SLO changes

Course Change Request

New Course Proposal

Date Submitted: 01/15/25 6:21 pm

Viewing: **ETM 342 : Production Operations**

Last revision: 01/15/25 6:21 pm

Changes proposed by: bry60656

Proposed Action

In Workflow

1. **EAS Approval**
2. **SC Dean**
3. SC Curriculum Committee
4. Undergraduate Curriculum Committee
5. University Senate
6. Provost
7. Course Inventory

Approval Path

1. 01/15/25 11:10 am
Shahnaz Aly
(shahnaz.aly):
Rollback to Initiator
2. 01/16/25 5:44 pm
Shahnaz Aly
(shahnaz.aly):
Approved for EAS
Approval

Active

Contact(s)

Name	E-mail	Phone
Bryan Reaka	bryan.reaka@wku.edu	2707457032

Term for implementation Fall 2025

Academic Level Undergraduate

Course prefix (subject area) ETM - Engineering Technology Management Course number 342

Department Engineering & Applied Sciences, School of

College Science and Engineering

Course title
Production Operations

Abbreviated course title PRODUCTION OPERATIONS

Course description

Methods for producing quality products for suppliers and manufacturing operations of multiple varieties in industry. Will include examples from various manufacturing industries.

Credit hours 3

Repeatable

Yes

Number of repeats 2

For maximum credits 3

Default grade type Standard Letter Alternate grade type(s)

Is this course intended to span more than one term?

No

Schedule type

Lecture

CIP Code 150613 - Manufacturing Engineering
Technology/Technician - 150613 -
Manufacturing Engineering
Technology/Technician

Does this course have prerequisites

No

Corequisites

Equivalent Courses

Restrictions:

College restriction? No

Field of study
restriction/major? Yes

Select:

Include

Major:

Field of stud/major restriction
5007 - Engineering Technology Management

Field of stud/major restriction

555 - Computer Information Tech

Classification restriction? No

Departmental Restrictions

Reason for developing the proposed course

This course will be used for the online ETM (2 plus 2) majors only and reflects the nature of the course being for those already working in industry this will distinguish this course from the MFGE prefixed course which is a face to face section. This course pulls the majority of its content from the MFGE prefixed course with the same number there is about a 10% differential in content between the two courses.

Is this related to other courses at WKU?

No

What departments/programs have been consulted concerning potential impact (e.g. to possible duplication or conflict, changed corequisite or prerequisite for equivalent courses, etc.)? Please provide names and dates for individuals consulted.

None this course will be within the School of Engineering and Applied Sciences.

How many sections of this course per academic year will be offered?

2

How many students per section are expected to enroll in this proposed course?

30

How many students per academic year are expected to enroll?

60

How were these projections

calculated? Explain any supporting evidence/data you have for arriving at these projections:

These projection are inline with what we have seen over the last two or three academic years.

Is this course part of a program that leads to teacher certificate? No

Are you seeking Colonnade approval for this course? No

Student Learning Outcomes

#	Student Learning Outcomes
1	List manufacturing terms used in industry
2	Identify subtractive processing methods
3	Identify additive processing methods

Content outline

#	Topic
1	Ferrous Materials
2	Nonferrous Metals
3	Polymers
4	Composite Materials
5	Metal casting
6	Metal rolling
7	Metal forging
8	Extrusion and Drawing
9	Sheet-metal Forming
10	Powder Metal
11	Plastics and Composite Materials

#	Topic
12	Nontraditional machining / Laser/ DMD
13	Rapid-prototyping
14	Waterjet machining
15	Machining
16	Manufacturing Systems

Student expectations and requirements

Tentative texts and course materials

Kalpakjian, S., Schmid, S. R. Manufacturing Engineering and Technology

Special equipment, materials, or library resources needed
none

Additional information

Supporting documentation

Reviewer Comments

Shahnaz Aly (shahnaz.aly) (01/15/25 11:10 am): Rollback: SLO Changes

Course Change Request

New Course Proposal

Date Submitted: 01/15/25 6:33 pm

Viewing: **ETM 356 : Systems design and operations**

Last revision: 01/15/25 6:33 pm

Changes proposed by: bry60656

Proposed Action

In Workflow

1. **EAS Approval**
2. **SC Dean**
3. SC Curriculum Committee
4. Undergraduate Curriculum Committee
5. University Senate
6. Provost
7. Course Inventory

Approval Path

1. 11/18/24 10:58 am
Mark Cambron
(mark.cambron):
Rollback to Initiator
2. 01/15/25 11:12 am
Shahnaz Aly
(shahnaz.aly):
Rollback to Initiator
3. 01/16/25 5:44 pm
Shahnaz Aly
(shahnaz.aly):
Approved for EAS Approval

Active

Contact(s)

Name	E-mail	Phone
Bryan Reaka	bryan.reaka@wku.edu	2707457032

Term for implementation Fall 2025

Academic Level Undergraduate

Course prefix (subject area) ETM - Engineering Technology Management Course number 356

Department Engineering & Applied Sciences, School of

College Science and Engineering
Course title Systems design and operations
Abbreviated course title SYSTEMS DESIGN AND OPERATIONS

Course description

A study of manufacturing operations and their administration, facilities-layout, work systems, forecasting and decision making. Applications of resource planning determining product demand, controlling inventory, goods and services

Credit hours 3

Repeatable

Yes

Number of repeats 2

For maximum credits 3

Default grade type Standard Letter Alternate grade type(s)

Is this course intended to span more than one term?

No

Schedule type

Lecture

CIP Code 151501 - Engineering/Industrial Management.

Does this course have prerequisites

No

Corequisites

Equivalent Courses

Restrictions:

College restriction? No

Field of study restriction/major? Yes

Select:

Include

Major:

Field of stud/major restriction
5007 - Engineering Technology Management
555 - Computer Information Tech

Classification restriction? No

Departmental Restrictions

Reason for developing the proposed course

This course will be used for the online ETM (2 plus 2) majors only and reflects the nature of the course being for those already working in industry this will distinguish this course from the MFGE prefixed course which is a face to face section. This course pulls the majority of its content from the MFGE prefixed course with the same number there is about a 10% differential in content between the two courses.

Is this related to other courses at WKU?

Yes

Related courses

MGT 314 - Operations Management

What departments/programs have been consulted concerning potential impact (e.g. to possible duplication or conflict, changed corequisite or prerequisite for equivalent courses, etc.)? Please provide names and dates for individuals consulted.

Management Department has been contacted (Dr Whitney Peake) via e-mail on November 1, 2024 and reply from Dr Peake indicating there are no objections from Operations/ Supply Chain faculty with this course on November 11, 2024.

How many sections of this course per academic year will be offered?

2

How many students per section are expected to enroll in this proposed course?

30

How many students per academic year are expected to enroll?

60

How were these projections calculated? Explain any supporting evidence/data you have for arriving at these projections:

These projection are inline with what we have seen over the last two or three academic years.

How are these related?

The number of students enrolling in the Engineering Technology management program at WKU over the past 3 years

Is this course part of a program that leads to teacher certificate? No

Are you seeking Colonnade approval for this course? No

Student Learning Outcomes

#	Student Learning Outcomes
1	Plan for productivity, capacity, demand, and a balanced system in relation to facilities, equipment, and long-term planning
2	Identify optimal facility locations
3	Create and interpret forms of dependent and independent inventory
4	Create and interpret production scheduling

Content outline

#	Topic
1	Facilities layout
2	Work system

#	Topic
3	Forecasting and decision making
4	Product and service design
5	Capacity planning
6	Facilities location and design
7	Production scheduling
8	Inventory management

Student expectations and requirements

Tentative texts and course materials

Operations Management 15 edition with McGraw Hill connect
ISBN978-1-260-23889-1
Author Stevenson
Publisher McGraw Hill

Special equipment, materials, or library resources needed
None needed

Additional information

Supporting documentation

Reviewer Comments

Mark Cambron (mark.cambron) (11/18/24 10:58 am): Rollback: Program asked to have it returned.
Shahnaz Aly (shahnaz.aly) (01/15/25 11:12 am): Rollback: SLO Changes

Course Change Request

New Course Proposal

Date Submitted: 01/15/25 6:44 pm

Viewing: **ETM 371 : Quality Systems**

Last revision: 01/15/25 6:44 pm

Changes proposed by: bry60656

Proposed Action

In Workflow

1. **EAS Approval**
2. **SC Dean**
3. SC Curriculum Committee
4. Undergraduate Curriculum Committee
5. University Senate
6. Provost
7. Course Inventory

Approval Path

1. 01/15/25 11:15 am
Shahnaz Aly
(shahnaz.aly):
Rollback to Initiator
2. 01/16/25 5:44 pm
Shahnaz Aly
(shahnaz.aly):
Approved for EAS
Approval

Active

Contact(s)

Name	E-mail	Phone
Bryan Reaka	bryan.reaka@wku.edu	2707457032

Term for implementation Fall 2025

Academic Level Undergraduate

Course prefix (subject area) ETM - Engineering Technology Management Course number 371

Department Engineering & Applied Sciences, School of

College Science and Engineering

Course title
Quality Systems

Abbreviated course title QUALITY SYSTEMS

Course description

A study of quality systems in use in industry. Application of acceptance sampling. covering military and ISO Quality organization and standards.

Credit hours 3

Repeatable

Yes

Number of repeats 2

For maximum credits 3

Default grade type Standard Letter Alternate grade type(s)

Is this course intended to span more than one term?

No

Schedule type

Lecture

CIP Code 151501 - Engineering/Industrial Management.

Does this course have prerequisites

No

Corequisites

Equivalent Courses

Restrictions:

College restriction? No

Field of study restriction/major? Yes

Select:

Include

Major:

Field of stud/major restriction
5007 - Engineering Technology Management
555 - Computer Information Tech

Classification restriction? No

Departmental
Restrictions

Reason for
developing the
proposed course

This course will be used for the online ETM (2 plus 2) majors only and reflects the nature of the course being for those already working in industry this will distinguish this course from the MFGE prefixed course which is a face to face section. This course pulls the majority of its content from the MFGE prefixed course with the same number there is about a 10% differential in content between the two courses.

Is this related to
other courses at
WKU?

No

What departments/programs have been consulted concerning potential impact (e.g. to possible duplication or conflict, changed corequisite or prerequisite for equivalent courses, etc.)? Please provide names and dates for individuals consulted.

none

How many sections
of this course per
academic year will
be offered?

2

How many students
per section are
expected to enroll in
this proposed
course?

30

How many students
per academic year
are expected to
enroll?

60

How were these
projections
calculated? Explain
any supporting
evidence/data you
have for arriving at
these projections:

These projection are inline with what we have seen over the last two or three academic years

Is this course part of a program that leads to teacher certificate? No

Are you seeking Colonnade approval for this course? No

Student Learning Outcomes

#	Student Learning Outcomes
1	Describe the basic principles associated with Quality Management Systems.
2	Describe techniques and tools for quality design and process improvement.
3	Demonstrate the use of quality control tools.
4	Describe the importance of teamwork, employee engagement and leadership for quality improvement.

Content outline

#	Topic
1	Total Quality Management and Quality Philosophies
2	Frameworks for Quality
3	Malcolm Baldrige National Quality Award (MBNQA)
4	Tools and Techniques for Quality Design and Control
5	Statistical Process Control
6	Tools and Techniques for Quality Improvement
7	The Deming Cycle
8	Six Sigma DMAIC Methodology
9	The Seven QC Tools
10	Quality in Customer-Supplier Relationships
11	Practices for Dealing with Customers
12	Quality Audits
13	Cost of Quality

Student
expectations and
requirements

Tentative texts and
course materials

Quality and Performance Excellence by James R. Evans, 8th edition, 2016, South-Western Cengage Learning

Special equipment,
materials, or library
resources needed
none

Additional
information

Supporting
documentation

Reviewer Comments

Shahnaz Aly (shahnaz.aly) (01/15/25 11:15 am): Rollback: SLO Changes

Course Change Request

New Course Proposal

Date Submitted: 01/15/25 6:49 pm

Viewing: **ETM 390 : Project planning and execution**

Last revision: 01/15/25 6:49 pm

Changes proposed by: bry60656

Programs
referencing this
course

[533: Construction Management, Bachelor of Science](#)

Proposed Action

Active

Contact(s)

Name	E-mail	Phone
Bryan Reaka	bryan.reaka@wku.edu	2707457032

Term for implementation Fall 2025

Academic Level Undergraduate

Course prefix (subject area) ETM - Engineering Technology Management Course number 390

Department Engineering & Applied Sciences, School of

College Science and Engineering

Course title
Project planning and execution

In Workflow

1. **EAS Approval**
2. **SC Dean**
3. SC Curriculum Committee
4. Undergraduate Curriculum Committee
5. University Senate
6. Provost
7. Course Inventory

Approval Path

1. 01/15/25 11:17 am
Shahnaz Aly (shahnaz.aly):
Rollback to Initiator
2. 01/16/25 5:44 pm
Shahnaz Aly (shahnaz.aly):
Approved for EAS Approval

Abbreviated course title PROJECT PLANNING AND EXECUTION

Course description

Core concepts of project planning and execution based on processes of initiating, planning, executing, controlling, and closing projects. Topics include project proposals, project selection, scope definition, CPM and PERT scheduling, budgeting, control techniques, and project manager skills.

Credit hours 3

Repeatable

Yes

Number of repeats 2

For maximum credits 3

Default grade type Standard Letter Alternate grade type(s)

Is this course intended to span more than one term?

No

Schedule type

Lecture

CIP Code 151501 - Engineering/Industrial Management.

Does this course have prerequisites

No

Corequisites

Equivalent Courses

Restrictions:

College restriction? No

Field of study restriction/major? Yes

Select:

Include

Major:

Field of stud/major restriction
5007 - Engineering Technology Management
555 - Computer Information Tech

Classification restriction? No

Departmental Restrictions

Reason for developing the proposed course

This course will be used for the online ETM (2 plus 2) majors only and reflects the nature of the course being for those already working in industry this will distinguish this course from the MFGE prefixed course which is a face to face section. This course pulls the majority of its content from the MFGE prefixed course with the same number there is about a 5-10% differential in content between the two courses.

Is this related to other courses at WKU?

No

What departments/programs have been consulted concerning potential impact (e.g. to possible duplication or conflict, changed corequisite or prerequisite for equivalent courses, etc.)? Please provide names and dates for individuals consulted.

none

How many sections of this course per academic year will be offered?

2

How many students per section are expected to enroll in this proposed course?

30

How many students per academic year are expected to enroll?

60

How were these projections calculated? Explain any supporting evidence/data you

have for arriving at
these projections:

These projection are inline with what we have seen over the last two or three academic years

Is this course part of No
a program that leads
to teacher
certificate?

Are you seeking No
Colonnade approval
for this course?

Student Learning
Outcomes

#	Student Learning Outcomes
1	Describe effective project management practices and skills.
2	Identify network techniques commonly used to project scheduling.
3	Prepare project budgets and cost estimates.
4	Estimate and allocate resources to project activities.

Content outline

#	Topic
1	The Project Life Cycle (Phases)
2	Scope Planning
3	Work Breakdown Structures
4	Project Planning
5	Establishing Project Schedules
6	Network Diagrams
7	Resource Allocation
8	Procurement Planning
10	Communication Planning
12	Project Execution
13	Project Evaluations

Student
expectations and
requirements

Tentative texts and
course materials

Portny, S. E., Mantel, S. J., Meredith, J. R., Shafer, S. M., Sutton, M. M., and Kramer, B. E.; Project
Management, 1st ed. John Wiley and Sons

Special equipment,
materials, or library
resources needed
none

Additional
information

Supporting
documentation

Reviewer Comments

Shahnaz Aly (shahnaz.aly) (01/15/25 11:17 am): Rollback: SLO Changes

Course Change Request

New Course Proposal

Date Submitted: 01/15/25 6:55 pm

Viewing: **ETM 396 : Supply Chain for Leaders**

Last revision: 01/15/25 6:55 pm

Changes proposed by: bry60656

In Workflow

1. **EAS Approval**
2. **SC Dean**
3. SC Curriculum Committee
4. Undergraduate Curriculum Committee
5. University Senate
6. Provost
7. Course Inventory

Proposed Action

Approval Path

1. 01/15/25 11:22 am
Shahnaz Aly
(shahnaz.aly):
Rollback to Initiator
2. 01/16/25 5:44 pm
Shahnaz Aly
(shahnaz.aly):
Approved for EAS
Approval

Active

Contact(s)

Name	E-mail	Phone
Bryan Reaka	bryan.reaka@wku.edu	2707457032

Term for implementation Fall 2025

Academic Level Undergraduate

Course prefix (subject area) ETM - Engineering Technology Management Course number 396

Department Engineering & Applied Sciences, School of

College Science and Engineering

Course title
Supply Chain for Leaders

Abbreviated course title SUPPLY CHAIN FOR LEADERS

Course description

Supply chain management, logistics within a worldwide view. Exploring the value of information, customer expectations and decision support systems.

Credit hours 3

Repeatable

Yes

Number of repeats 2

For maximum credits 3

Default grade type Standard Letter Alternate grade type(s)

Is this course intended to span more than one term?

No

Schedule type

Lecture

CIP Code 15.1501 - 15.1501

Does this course have prerequisites

No

Corequisites

Equivalent Courses

Restrictions:

College restriction? No

Field of study restriction/major? Yes

Select:

Include

Major:

Field of stud/major restriction
5007 - Engineering Technology Management

Classification restriction? No

Departmental
Restrictions

Reason for
developing the
proposed course

This course will be used for the online ETM (2 plus 2) majors only and reflects the nature of the course being for those already working in industry this will distinguish this course from the MFGE prefixed course which is a face to face section. This course pulls the majority of its content from the MFGE prefixed course with the same number there is about a 5-10% differential in content between the two courses.

Is this related to
other courses at
WKU?

No

What departments/programs have been consulted concerning potential impact (e.g. to possible duplication or conflict, changed corequisite or prerequisite for equivalent courses, etc.)? Please provide names and dates for individuals consulted.

none

How many sections
of this course per
academic year will
be offered?

2

How many students
per section are
expected to enroll in
this proposed
course?

30

How many students
per academic year
are expected to
enroll?

60

How were these
projections
calculated? Explain
any supporting
evidence/data you
have for arriving at
these projections:

This number is based on the potential enrollment of students from the ETM program.

Is this course part of a program that leads to teacher certificate? No

Are you seeking Colonnade approval for this course? No

Student Learning Outcomes

#	Student Learning Outcomes
1	Explain supply chain management concepts.
2	Recognize the role of logistics, purchasing, operations, and inventory management in making effective decisions for managing the supply chains.
3	Demonstrate quantitative analysis skills that are needed for managing the supply chains.

Content outline

#	Topic
1	Supply chain strategy
2	Supply chain networks and design
3	Logistics and transportation
4	Sourcing and costing
5	Forecasting and demand planning
6	Supply chain relationship management

Student expectations and requirements

Tentative texts and course materials

Sanders, Nada R.; Supply Chain Management: A Global Perspective; John Wiley & Sons

Special equipment, materials, or library resources needed
none

Additional
information

Supporting
documentation

Reviewer Comments

Shahnaz Aly (shahnaz.aly) (01/15/25 11:22 am): Rollback: SLO Changes

Key: 9875

Course Change Request

New Course Proposal

Date Submitted: 01/15/25 7:03 pm

Viewing: **ETM 397 : Lean Systems**

Last revision: 01/15/25 7:03 pm

Changes proposed by: bry60656

Proposed Action

In Workflow

1. **EAS Approval**
2. **SC Dean**
3. SC Curriculum Committee
4. Undergraduate Curriculum Committee
5. University Senate
6. Provost
7. Course Inventory

Approval Path

1. 01/15/25 11:23 am
Shahnaz Aly
(shahnaz.aly):
Rollback to Initiator
2. 01/16/25 5:44 pm
Shahnaz Aly
(shahnaz.aly):
Approved for EAS
Approval

Active

Contact(s)

Name	E-mail	Phone
Bryan Reaka	bryan.reaka@wku.edu	2707457032

Term for implementation Fall 2025

Academic Level Undergraduate

Course prefix (subject area) ETM - Engineering Technology Management Course number 397

Department Engineering & Applied Sciences, School of

College Science and Engineering

Course title
Lean Systems

Abbreviated course title LEAN SYSTEMS

Course description

Applications of lean principles in industrial disciplines. This is the enhancement of customer value, elimination and reduction of all forms of waste within a facility.

Credit hours 3

Repeatable

Yes

Number of repeats 2

For maximum credits 3

Default grade type Standard Letter Alternate grade type(s)

Is this course intended to span more than one term?

No

Schedule type

Lecture

CIP Code 15.1501 - 15.1501

Does this course have prerequisites

No

Corequisites

Equivalent Courses

Restrictions:

College restriction? No

Field of study restriction/major? Yes

Select:

Include

Major:

Field of stud/major restriction
5007 - Engineering Technology Management
555 - Computer Information Tech

Classification restriction? No

Departmental
Restrictions

Reason for
developing the
proposed course

This course will be used for the online ETM (2 plus 2) majors only and reflects the nature of the course being for those already working in industry this will distinguish this course from the MFGE 394 course which is a face to face section. This course pulls the majority of its content from the MFGE prefixed course with the same number there is about a 50% differential in content between the two courses. The 50% difference is because the MFGE 394 course was a combination of two separate courses at one time and this is about half that course content.

Is this related to
other courses at
WKU?

No

What departments/programs have been consulted concerning potential impact (e.g. to possible duplication or conflict, changed corequisite or prerequisite for equivalent courses, etc.)? Please provide names and dates for individuals consulted.

none

How many sections
of this course per
academic year will
be offered?

2

How many students
per section are
expected to enroll in
this proposed
course?

30

How many students
per academic year
are expected to
enroll?

60

How were these
projections
calculated? Explain
any supporting
evidence/data you
have for arriving at
these projections:

These projection are inline with what we have seen over the last two or three academic years

Is this course part of a program that leads to teacher certificate? No

Are you seeking Colonnade approval for this course? No

Student Learning Outcomes

#	Student Learning Outcomes
1	Explain the origins and principles of the lean system
2	Identify and describe the tools of lean
3	Solve practical problems of lean within communication systems
4	Apply the principles and tools of lean to an industrial system

Content outline

#	Topic
1	The Toyota Production System
2	Stability
3	Standardized Work
4	Just-In-Time
5	Jidoka
6	Involvement
8	Implementing Lean
9	The culture of Lean Production

Student expectations and requirements

Tentative texts and course materials

Dennis, P.; Lean Production Simplified, Productivity Press, New York

Special equipment,
materials, or library
resources needed
none

Additional
information

Supporting
documentation

Reviewer Comments

Shahnaz Aly (shahnaz.aly) (01/15/25 11:23 am): Rollback: SLO Changes

Key: 9874

Course Change Request

New Course Proposal

Date Submitted: 01/15/25 7:07 pm

Viewing: **ETM 430 : Supervision**

Last revision: 01/15/25 7:07 pm

Changes proposed by: bry60656

Proposed Action

In Workflow

1. **EAS Approval**
2. **SC Dean**
3. SC Curriculum Committee
4. Undergraduate Curriculum Committee
5. University Senate
6. Provost
7. Course Inventory

Approval Path

1. 01/15/25 11:25 am
Shahnaz Aly
(shahnaz.aly):
Rollback to Initiator
2. 01/16/25 5:44 pm
Shahnaz Aly
(shahnaz.aly):
Approved for EAS
Approval

Active

Contact(s)

Name	E-mail	Phone
Bryan Reaka	bryan.reaka@wku.edu	2707457032

Term for implementation Fall 2025

Academic Level Undergraduate

Course prefix (subject area) ETM - Engineering Technology Management Course number 430

Department Engineering & Applied Sciences, School of

College Science and Engineering

Course title
Supervision

Abbreviated course title SUPERVISION

Course description

The functions of industrial supervision will be studied. Students will develop the required skills to function in a highly technical, industrial environment in a supervisory capacity. Content includes leadership, management styles and management-labor relations.

Credit hours 3

Repeatable

Yes

Number of repeats 2

For maximum credits 3

Default grade type Standard Letter Alternate grade type(s)

Is this course intended to span more than one term?

No

Schedule type

Lecture

CIP Code 15.1501 - 15.1501

Does this course have prerequisites

No

Corequisites

Equivalent Courses

Restrictions:

College restriction? No

Field of study restriction/major? Yes

Select:

Include

Major:

Field of stud/major restriction
5007 - Engineering Technology Management
555 - Computer Information Tech

Classification restriction? No

Departmental Restrictions

Reason for developing the proposed course

This course will be used for the online ETM (2 plus 2) majors only and reflects the nature of the course being for those already working in industry this will distinguish this course from the MFGE prefixed course which is a face to face section. This course pulls the majority of its content from the MFGE prefixed course with the same number there is about a 10% differential in content between the two courses.

Is this related to other courses at WKU?

No

What departments/programs have been consulted concerning potential impact (e.g. to possible duplication or conflict, changed corequisite or prerequisite for equivalent courses, etc.)? Please provide names and dates for individuals consulted.

none

How many sections of this course per academic year will be offered?

2

How many students per section are expected to enroll in this proposed course?

30

How many students per academic year are expected to enroll?

60

How were these projections calculated? Explain any supporting evidence/data you

have for arriving at these projections:

These projection are inline with what we have seen over the last two or three academic years.

Is this course part of a program that leads to teacher certificate? No

Are you seeking Colonnade approval for this course? No

Student Learning Outcomes

#	Student Learning Outcomes
1	Assess and interpret leadership characteristics for a supervisor
2	Apply motivational skills that a supervisor might use
3	Describe the characteristics of effective team building and team dynamics
4	Solve problems faced by supervisor, such as performance appraisals, worker complaints, discipline, and collective bargaining
5	Assess personal supervisory style and skills and create a plan for improvement

Content outline

#	Topic
1	Supervisory roles
2	Environmental factors influencing supervisory positions
3	Goal setting
4	Staffing and recruiting
5	Motivating others
6	Communicating effectively

Student expectations and requirements

Tentative texts and course materials

Robbins, DeCenzo & Wolter: Supervision Today; Pearson Prentice Hall, Upper Saddle River, NJ.

Special equipment,
materials, or library
resources needed
none

Additional
information

Supporting
documentation

Reviewer Comments

Shahnaz Aly (shahnaz.aly) (01/15/25 11:25 am): Rollback: SLO Changes

Key: 9876

Course Change Request

New Course Proposal

Date Submitted: 01/15/25 7:17 pm

Viewing: **MFGE 355 : System Design**

Last revision: 01/29/25 2:50 pm

Changes proposed by: bry60656

Programs
referencing this
course

[5006: Manufacturing Engineering Technology, Bachelor of Science](#)

In Workflow

1. **EAS Approval**
2. **SC Dean**
3. SC Curriculum Committee
4. Undergraduate Curriculum Committee
5. University Senate
6. Provost
7. Course Inventory

Proposed Action

Approval Path

1. 01/15/25 11:33 am
Shahnaz Aly
(shahnaz.aly):
Rollback to Initiator
2. 01/16/25 5:44 pm
Shahnaz Aly
(shahnaz.aly):
Approved for EAS
Approval

Active

Contact(s)

Name	E-mail	Phone
Bryan Reaka	bryan.reaka@wku.edu	2707457032

Term for implementation Fall 2025

Academic Level Undergraduate

Course prefix (subject area) MFGE - Manufacturing Engineering Technology Course number 355

Department Engineering & Applied Sciences, School of

College Science and Engineering

Course title
System Design

Abbreviated course title SYSTEM DESIGN

Course description

A study of manufacturing facilities layout, work systems, forecasting and decision making. Applications of planning for facilities and equipment determining and controlling inventory, and goods.

Credit hours 3

Repeatable

Yes

Number of repeats 2

For maximum credits 3

Default grade type Standard Letter Alternate grade type(s)

Is this course intended to span more than one term?

No

Schedule type

Lecture

CIP Code 15.0613 - 15.0613

Does this course have prerequisites

Yes

Prerequisites

And/Or	(	Course/Test Code	Min Grade/Score	Academic Level	)	Concurrency?
		MATH 116	C	UG		
	(	MFGE 271	D	UG		Yes
Or		ECON 206	D	UG		Yes
Or		MATH 183	D	UG		Yes
Or		STAT 301	D	UG	)	Yes

Corequisites

Equivalent Courses

Restrictions:

College restriction? No

Field of study restriction/major? No

Classification restriction? Yes

Select:

Exclude

Classification:

Classification restriction
Academy Junior
Freshman

Departmental Restrictions

Reason for developing the proposed course

This courses is for traditional four year face to face students in the Manufacturing program without the industrial experiences. The current course MFGE 356 is a combination of topics and was originally two separate courses within the curriculum. The MFGE 356 course has been looked at by the industrial advisory board and has been determined to need more breath to it, therefore the new proposed course (MFGE 355) will be a portion of the needed coursework to help students understand the layout of the facilities better to help optimize flow within a facility.

Is this related to other courses at WKU?

No

What departments/programs have been consulted concerning potential impact (e.g. to possible duplication or conflict, changed corequisite or prerequisite for equivalent courses, etc.)? Please provide names and dates for individuals consulted.

none

How many sections of this course per academic year will be offered?

1

How many students per section are expected to enroll in

this proposed
course?

25

How many students
per academic year
are expected to
enroll?

25

How were these
projections
calculated? Explain
any supporting
evidence/data you
have for arriving at
these projections:

This is based upon our current enrollment in the Manufacturing Program.

Is this course part of a program that leads to teacher certificate? No

Are you seeking Colonnade approval for this course? No

Student Learning
Outcomes

#	Student Learning Outcomes
1	Plan facilities for productivity, capacity, and demand
2	Create and interpret forms of inventory
3	Practice Demand Forecasting
4	Explain inventory control systems

Content outline

#	Topic
1	Charting Movement
2	Inventory Analysis
3	Expected Customer demand
4	Expansion Opportunities

Student
expectations and
requirements

Tentative texts and
course materials

Operations Management. William J. Stevenson, McGraw-Hill Irwin

Special equipment,
materials, or library
resources needed
none

Additional
information

Supporting
documentation

Reviewer Comments

Shahnaz Aly (shahnaz.aly) (01/15/25 11:33 am): Rollback: SLO Changes

Course Change Request

New Course Proposal

Date Submitted: 01/15/25 7:19 pm

Viewing: **MFGE 365 : Systems Operation**

Last revision: 01/15/25 7:19 pm

Changes proposed by: bry60656

Programs
referencing this
course

[5006: Manufacturing Engineering Technology, Bachelor of Science](#)

In Workflow

1. **EAS Approval**
2. **SC Dean**
3. SC Curriculum Committee
4. Undergraduate Curriculum Committee
5. University Senate
6. Provost
7. Course Inventory

Proposed Action

Approval Path

1. 01/15/25 11:35 am
Shahnaz Aly
(shahnaz.aly):
Rollback to Initiator
2. 01/16/25 5:44 pm
Shahnaz Aly
(shahnaz.aly):
Approved for EAS
Approval

Active

Contact(s)

Name	E-mail	Phone
Bryan Reaka	bryan.reaka@wku.edu	2707457032

Term for implementation Fall 2025

Academic Level Undergraduate

Course prefix (subject area) MFGE - Manufacturing Engineering Technology Course number 365

Department Engineering & Applied Sciences, School of

College Science and Engineering

Course title
Systems Operation

Abbreviated course title SYSTEMS OPERATION

Course description

A study of manufacturing organizations and their funding sources, determining product demand, time studies and production scheduling. Applications of resource, acquiring capital, determining product demand, and services.

Credit hours 3

Repeatable

Yes

Number of repeats 2

For maximum credits 3

Default grade type Standard Letter Alternate grade type(s)

Is this course intended to span more than one term?

No

Schedule type

Lecture

CIP Code 15.0613 - 15.0613

Does this course have prerequisites

Yes

Prerequisites

And/Or	(	Course/Test Code	Min Grade/Score	Academic Level	)	Concurrency?
		MFGE 271	D	UG		No
Or		ECON 206	D	UG		No
Or		MATH 183	D	UG		No
Or		STAT 301	D	UG		No

Corequisites

Equivalent Courses

Restrictions:

College restriction? No

Field of study restriction/major? No

Classification restriction? Yes

Select:

Exclude

Classification:

Classification restriction
Academy Junior
Freshman

Departmental Restrictions

Reason for developing the proposed course

This courses is for traditional four year face to face students in the Manufacturing program without the industrial experiences. The current course MFGE 356 is a combination of topics and was originally two separate courses within the curriculum. The MFGE 356 course has been looked at by the industrial advisory board and has been determined to need more breath to it, therefore the new proposed course (MFGE 365) will be a portion of the needed coursework to help students understand the importance of facility location as well as long term planning of facilities.

Is this related to other courses at WKU?

No

What departments/programs have been consulted concerning potential impact (e.g. to possible duplication or conflict, changed corequisite or prerequisite for equivalent courses, etc.)? Please provide names and dates for individuals consulted.

none

How many sections of this course per academic year will be offered?

1

How many students per section are expected to enroll in this proposed course?

25

How many students per academic year are expected to enroll?

25

How were these projections calculated? Explain any supporting evidence/data you have for arriving at these projections:

This is based upon our current enrollment in the Manufacturing Program.

Is this course part of a program that leads to teacher certificate? No

Are you seeking Colonnade approval for this course? No

Student Learning Outcomes

#	Student Learning Outcomes
1	Create a balanced system in relation to facilities, equipment, and long-term planning
2	Identify optimal facility locations
3	Create and interpret production scheduling
4	Compare goods verses service production.

Content outline

#	Topic
1	Product and service design
2	Capacity scheduling
3	Facilities location
4	Goods verses services

Student expectations and requirements

Tentative texts and
course materials

Palmatier, G. E., Crum, C.: Enterprise Sales and Operations Planning; J Ross Publishing, Inc

Special equipment,
materials, or library
resources needed
none

Additional
information

Supporting
documentation

Reviewer Comments

Shahnaz Aly (shahnaz.aly) (01/15/25 11:35 am): Rollback: SLO Changes

Program Change Request

Date Submitted: 01/29/25 2:36 pm

Viewing: **5006 : Mechatronics Manufacturing Engineering Technology, Bachelor of Science**

Last approved: 04/10/23 10:31 am

Last edit: 01/29/25 2:36 pm

Changes proposed by: bry60656

Catalog Pages
Using this Program
[Manufacturing Engineering Technology, Bachelor of Science \(5006\)](#)

Proposed Action

In Workflow

1. **EAS Approval**
2. **SC Dean**
3. **SC Curriculum Committee**
4. Undergraduate Curriculum Committee
5. University Senate
6. Provost
7. Program Inventory

Approval Path

1. 12/18/24 10:33 am
Shahnaz Aly (shahnaz.aly): Rollback to Initiator
2. 01/15/25 11:46 am
Shahnaz Aly (shahnaz.aly): Rollback to Initiator
3. 01/16/25 5:44 pm
Shahnaz Aly (shahnaz.aly): Rollback to Initiator
4. 01/19/25 2:00 am
Shahnaz Aly (shahnaz.aly): Approved for EAS Approval
5. 01/29/25 2:31 pm
Stuart Burris (stuart.burris): Rollback to Initiator
6. 01/31/25 1:55 pm
Shahnaz Aly (shahnaz.aly): Approved for EAS Approval
7. 01/31/25 2:18 pm
Stuart Burris

(stuart.burris):
Approved for SC
Dean

History

1. Mar 22, 2021 by
Rheanna Plemons
(rheanna.plemons)
2. May 18, 2021 by
Rheanna Plemons
(rheanna.plemons)
3. May 18, 2021 by
Rheanna Plemons
(rheanna.plemons)
4. May 26, 2021 by
Rheanna Plemons
(rheanna.plemons)
5. Apr 22, 2022 by
Jessica Dorris
(jessica.dorris)
6. Apr 22, 2022 by
Jessica Dorris
(jessica.dorris)
7. Apr 22, 2022 by
Jessica Dorris
(jessica.dorris)
8. Sep 26, 2022 by
Jessica Dorris
(jessica.dorris)
9. Nov 15, 2022 by
Jessica Dorris
(jessica.dorris)
10. Apr 10, 2023 by
Gregory Arbuckle
(greg.arbuckle)

Active

Contact Person

Name	Email	Phone
Bryan Reaka	bryan.reaka@wku.edu	2707457032

Term of Implementation 2025-2026

Program Reference Number 5006

Review Type	Full Review
Academic Level	Undergraduate
Program Type	Major
Degree Types	Bachelor of Science
Department	Engineering & Applied Sciences, School of
College	Science and Engineering
Program Name (eg. Biology)	<u>Mechatronics</u> Manufacturing Engineering Technology, Bachelor of Science
Will this program have concentrations?	No
CIP Code	<u>15.0407</u> 15.0613 - <u>Mechatronics, Robotics, and Automation</u> Manufacturing Engineering Technology/Technician.
Will this program lead to teacher certification?	No
Does the proposed program contain 25% or more new content not previously taught in another course at WKU? If yes, contact the Office of the Provost for additional SACSCOC proposal requirements	No

Catalog Content

Program Overview (Catalog field: Overview tab)

This program prepares individuals to apply basic engineering principles and advanced manufacturing technical skills in support of industrial operations. The major includes instruction in optimization theory, human factors, organizational behavior, industrial processes, industrial planning procedures, systems integration, quality, and project management. Graduates achieve positions of leadership in business and industry while practicing innovation in the global marketplace.

Program Description

A minor or second major is not required. Course requirements for the major are shown below. Students should consult with an advisor in planning their course schedules and career goals.

Project Lead the Way

The School of Engineering and Applied Sciences (SEAS) agrees to grant college level credit for secondary school students from certified Project Lead the Way (PLTW) schools who satisfy the following requirements:

First, students must complete the following two (2) PLTW courses with a grade of B or above and a 6 or above on the End of Course college credit exam: 1. Introduction to Engineering Design; and 2. Principles of Engineering

Second, students must complete two (2) of the following PLTW courses with a grade of B or above and a 6 or above on the End of Course college credit exam: Aerospace Engineering; Biological Engineering; Civil Engineering and Architecture; Computer Integrated Manufacturing; Computer Science and Software Engineering; Digital Electronics; Capstone Course – Engineering Design and Development

Third, students must meet the requirements for admission to Western Kentucky University and enroll in the Bachelor of Science in Manufacturing Engineering Technology program within SEAS. Finally, students requesting the credit must provide a written statement from the instructor of the PLTW program and the principal or guidance counselor, stating the student has successfully completed the program with the above specifications. In addition to the written statement, an official transcript should be submitted for verification.

If the previous four conditions are met, the following three (3) courses will be articulated to the student's Western Kentucky University record:

MFGE 120	Basic Electricity	3
MFGE 205	CADD for Manufacturing	3
AMS EL-L (Lower Level Undergraduate Technical Elective)		6
Total Hours		12

Curriculum Requirements (Catalog field: Program Requirements)

Program Requirements (61 hours)

Approved Shared Content from /shared/undergraduate-major-requirements/

Last Approved: Jul 3, 2024 1:10pm

A baccalaureate degree requires a minimum of 120 unduplicated semester hours. More information can be found at www.wku.edu/registrar/degree_certification.php.

Students who began WKU in the Fall 2014 and thereafter should review the Colonnade requirements located at: <https://www.wku.edu/colonnade/colonnaderequirements.php>.

Technical Core Courses

Select one Finance Elective:		3
ACGT 220	Principles of Financial Accounting	
or MKT 220	Basic Marketing Concepts	
or FIN 164	Personal Finance	
or ECON 202	Principles of Economics (Micro)	
or ECON 203	Principles of Economics (Macro)	
<u>ACCT 110</u>	<u>Accounting for Decision Makers</u>	
<u>or ECON 202</u>	<u>Principles of Economics (Micro)</u>	
<u>or ECON 203</u>	<u>Principles of Economics (Macro)</u>	
<u>or FIN 161</u>	<u>Personal Finance</u>	
<u>or MKT 220</u>	<u>Basic Marketing Concepts</u>	
<u>AGMC 371</u> & <u>AGMC 372</u>	Agricultural Mechanics and Agricultural Mechanics Laboratory	3
<u>MFGE 120</u>	Basic Electricity	3
<u>MFGE 205</u>	CADD for Manufacturing	3
<u>MFGE 217</u>	Industrial Materials	3
<u>MFGE 227</u>	Introduction to Manufacturing Methods	3
<u>MFGE 271</u>	Industrial Statistics	3
<u>MFGE 328</u>	Robotics and Machine Vision	3
<u>MFGE 342</u>	Manufacturing Operations	3
<u>MFGE 343</u>	Automated Systems	3
<u>MFGE 370</u>	Computer Numerical Control	3
<u>MFGE 490A</u>	Senior Research for Manufacturing Engineering Technology	3
<u>SEAS 398</u>	Internship I	1
or <u>SEAS 401</u>	Contemporary Issues in Architecture and Manufacturing	
Total Hours		37
Management Core		
<u>MFGE 310</u>	Safety in Industry	3
MFGE 356	Systems Design and Operation	3
or <u>MGT 314</u>	<u>Operations Management</u>	
<u>MFGE 355</u>	<u>Course MFGE 355 Not Found</u>	<u>3</u>
<u>MFGE 365</u>	<u>Course MFGE 365 Not Found</u>	<u>3</u>
<u>MFGE 371</u>	Quality Assurance	3

MFGE 390	Project Management	3
MFGE 394	Lean Systems	3
MFGE 396	Introduction to Supply Chain Management	3
MFGE 430	Technology Management / Supervision / Team Building	3
Select one Communications Elective:		3
COMM 345	Advanced Presentational Speaking	
or COMM 330	Leadership Communication	
or COMM 346	Persuasion	
or COMM 348	Interpersonal Communication	
or COMM 349	Small Group Communication	
or COMM 362	Organizational Communication	
or MGT 261	Business Communication Fundamentals	
Select one Business Law Elective:		3
MGT 301	Business Law	
or MGT 333	Management of Nonprofit Organizations	
Total Hours		30
Additional Program Requirements:		
Select one of the following Chemistry sequences:		4-5
CHEM 105 & CHEM 106	Fundamentals of General Chemistry and Fundamentals of General Chemistry Laboratory	
OR		
CHEM 120 & CHEM 121	College Chemistry I and College Chemistry I Laboratory	
MATH 117	Trigonometry (or higher)	3
Select one combination from the following Chemistry Sequences:		4-5
PHYS 231 & PHYS 232	Introduction to Physics and Biophysics I and Laboratory for Physics and Biophysics I	4
Total Hours		11-12

†

Please consult with your advisor regarding courses within your major that can overlap with Colonnade Program requirements (such as CHEM 105/106 and CHEM 120/121 [E-NS/SL], COMM 349 [K-SY], ECON 202 and 203 [E-SB], and FIN 161 [E-SB]).

4-Year Plan

Finish in Four Plan

First Year

Fall	Hours	Spring	Hours
<u>CHEM 105</u> & <u>CHEM 106</u>	4	<u>COMM 145</u>	3
<u>ENG 100</u>	3	<u>HIST 101</u> or <u>HIST 102</u>	3
<u>MATH 117</u>	3	<u>MFGE 217</u>	3
<u>MFGE 120</u>	3	<u>MFGE 271</u>	3
<u>MFGE 205</u>	3	Finance Elective	3
	16		15

Second Year

Fall	Hours	Spring	Hours
<u>MFGE 227</u>	3	<u>ENG 200</u>	3
<u>MFGE 371</u>	3	<u>MFGE 342</u>	3
<u>PHYS 231</u> & <u>PHYS 232</u>	4	<u>MGT 301</u> or <u>MGT 333</u>	3
Colonnade - Social & Behavioral Sciences	3	Colonnade - Arts & Humanities	3
General Elective	3	General Elective	3
	16		15

Third Year

Fall	Hours	Spring	Hours
<u>AGMC 371</u> & <u>AGMC 372</u>	3	<u>MFGE 310</u>	3
<u>MFGE 328</u>	3	<u>MFGE 343</u>	3
MFGE 356	3	<u>MFGE 370</u>	3
<u>MFGE 355</u>	<u>3</u>	<u>MFGE 390</u>	3
Communications Elective	3	Connections - Local to Global	3
Connections - Social and Cultural	3		
	15		15

Fourth Year

Fall	Hours	Spring	Hours
<u>ENG 300</u>	3	<u>MFGE 365</u>	<u>3</u>
General Elective	3	<u>MFGE 394</u>	3
<u>MFGE 396</u>	<u>3</u>	<u>MFGE 490A</u>	3
<u>MFGE 430</u>	3	General Elective	3
<u>SEAS 398</u>	1	General Elective	3
Connections - Systems	3	General Elective	3
	13		15

Total Hours 120

Will this program be managed or owned by more than one department?

No

Does this program include courses from outside your department?

Yes

Outside Courses

Details

Who approved including these courses?	When were they approved?
Kanita DuCloux and Alex Lebedinsky	Email Sent 4 Jan.2023
<u>Accounting course change, Stacy R. Bibelhauser</u>	<u>1/15/2025</u>
<u>All others</u>	<u>Previous revisions or program creation</u>

Please insert one Learning Outcome per box. Click green plus sign for additional LO boxes

Learning Outcomes
and Measurement
Plan

	List all student learning outcomes of the program.	Measurement Plan
SLO 1	1. Graduates will possess/ demonstrate the ability to identify, formulate strategies and solve technical problems.	The graduates from the MET program are required to take the Certified Manufacturing Specialist (CMS) exam offered by the Association of Technology, Management, and Applied Engineering (ATMAE) before their final graduation. The ATMAE is the accreditation board of the MET program. The ATMAE's CMS Exam required the students to answer questions about the program's core courses. The following categories of the ATMAE's CMS exam were used to evaluate SLO1: Computer Integrated Manufacturing (CIM) (4 areas), Electronics (2 areas), Industrial Materials (4 areas), Machining (5 areas), Manufacturing Philosophies (3 areas), Metrology (4 areas), Non-traditional Machining (5 areas), and Technical Drafting (8 areas).
SLO 2	2. Graduates will demonstrate an ability to communicate effectively.	Lab reports of MFGE 217: Industrial Materials class The written and graphical presentation competencies were evaluated from the lab reports of the MFGE 217 Industrial Materials class.
SLO 3	3. Graduates will demonstrate the knowledge and capacity to apply managerial/leadership principles and practices to appropriate situations.	The graduates from the MET program are required to take the Certified Manufacturing Specialist (CMS) exam offered by the Association of Technology, Management, and Applied Engineering (ATMAE) before their final graduation. The ATMAE is the accreditation board of the MET program. The ATMAE's CMS Exam required the students to answer areas about the program's core courses. The following

	List all student learning outcomes of the program.	Measurement Plan
		question categories of the ATMAE's CMS exam were used to evaluate SLO3: Production Planning (3 areas), Quality (4 areas), and Supervision/Management (8 areas)

Assessment Template: https://www.wku.edu/academicaffairs/ee/assurance_learning_resources.php

Upload Assessment
Plan

Delivery Mode

Is 25% or more of this program offered at a location other than main campus?

No

Enter Location(s)
and Percentage of
Program Offered at
Location(s)

Is 50% or more of this program offered by distance education (online asynchronous, online synchronous, connected classrooms, etc.)?

Yes

Do you plan to offer 100% of this program online?

No

If no, enter the percentage of the program that
will be taught online.

25 50

Do you plan to offer 100% of this program face-to-face?

Yes

Do you plan to offer at least 25% of this program as a direct assessment competency-based educational program?

No

See the SACSCOC Policy on Direct Assessment Competency-based Educational Programs.

<https://www.sacscoc.org/pdf/081705/DirectAssessmentCompetencyBased.pdf>

Library Resources

Attach library
resources

Rationale for the program proposal?

Mechatronics more closely aligns with the actual content of the BS degree program

ACCT 110 for ACCT 220- This is a change that reflect the course change (ACCT 220 to ACCT 110) completed by the Accounting Department 2 years ago and will reduce the number of I cap exception forms required.

MFGE 396 Addition:

The topics of Lean and Supply Chain are two separate topics and need to be addressed in separate in depth courses. Lean is the operational aspect of removing wastes within a facility. As a global pandemic and multiple natural disasters have shown, disruptions in Supply Chains are becoming more common and need to be addressed more fully within the context of the global economy. thus the sections on supply Chain are being reverted from this course and allocated to MFGE 396 which is a course dedicated to the issues of Supply.

MFGE 355 and MFGE 365 in place of MFGE 356

The two courses (MFGE 355 and 365) are for traditional four year face to face students in the Manufacturing program without the industrial experiences. The current course MFGE 356 is a combination of topics and was originally two separate courses within the curriculum. The MFGE 356 course has been looked at by the industrial advisory board and has been determined to need more breath to it, therefore the new proposed courses (MFGE 355 and 365) will each be a portion of the needed coursework to help students understand the layout and long term implications of facilities.

Additional Attachments

Additional information or attachments

~~SEAS Approval: 4/10/2020~~ ~~OCSE Approval: 4/30/2020~~ ~~UGC Approval: 9/15/2020~~

~~Senate Approval: 10/4/2020~~ ~~Provost Approval: 10/26/2020~~ ~~Revised by Registrar 4/22/22. ACCT 200 updated to ACCT 220 effective 202230.~~

Reviewer Comments

Shahnaz Aly (shahnaz.aly) (12/18/24 10:33 am): Rollback: As requested. I am rolling back the proposal as requested

Shahnaz Aly (shahnaz.aly) (01/15/25 11:46 am): Rollback: amendments

Shahnaz Aly (shahnaz.aly) (01/16/25 5:44 pm): Rollback: adjust ACCT course

Stuart Burris (stuart.burris) (01/29/25 2:31 pm): Rollback: Rolled back by request

Key: 269