

Date Submitted: 11/21/24 2:35 pm

Viewing: **BS-ME : Bachelor of Science in Mechanical Engineering**

Last approved: 12/18/21 11:52 am

Last edit: 11/21/24 2:34 pm

Changes proposed by: vural

Catalog Pages
Using this Program
[Bachelor of Science in Mechanical Engineering](#)

In Workflow

1. MMAE Chair
2. Academic Affairs
3. Undergraduate Academic Affairs
4. AC Dean
5. Undergraduate Studies Committee Chair
6. Faculty Council Chair
7. Academic Affairs

Approval Path

1. 11/21/24 2:45 pm
Louis Cattafesta III (lcattafestaiii): Approved for MMAE Chair
2. 11/22/24 2:13 pm
Ayesha Qamer (aqamer): Approved for Academic Affairs
3. 11/22/24 2:15 pm
Joseph Gorzkowski (jgorzkow): Approved for Undergraduate Academic Affairs
4. 11/24/24 10:21 pm
Hamid Arastoopour (arastoopour): Approved for AC Dean
5. 11/26/24 4:43 pm
Kathiravan Krishnamurthy (kkrishn2): Approved for Undergraduate Studies Committee Chair

Program Status	Active		
Is this a significant curriculum change?			
Requestor	Name	Murat Vural	E-mail
		vural@iit.edu	
Origination Date	<u>2024-11-21</u> 2021-12- 4		
Is this an interdisciplinary program?	No		
Academic Unit	Mechl, Materials & Arspc Engrg		
College	Armour College of Engineering		
Program Title	Bachelor of Science in Mechanical Engineering		
Effective Academic Year	<u>2025</u> 2022 - <u>2026</u> 2023	Effective Term	Fall 2025
Academic Level	Undergraduate		

History

1. Oct 18, 2017 by clmig-jwehrheim
2. Nov 8, 2017 by Sarah Pariseau (sparisea)
3. Apr 27, 2018 by Sarah Pariseau (sparisea)
4. Dec 18, 2021 by Murat Vural (vural)

If all courses in a subject in your department are required, please enter each subject followed by the number ranges in the "Quick Add" field in the pop up box when you click the green plus button below. For example: ARCH 100-499.

What courses will factor the major GPA?

Program Type Degree

Degree Type Bachelor of Science (BS)

CIP Code

14.1901 - Mechanical Engineering.

Is there more than one Academic Unit proposer?

No

Program Code BS-ME

Program Attribute

Total Program 127

Credit Hours

Please provide a summary and rationale for the requested program revision.

[Thermal sciences course requirements in the BS-ME program have been reduced from 4 courses to 3 courses by replacing the MMAE 321 \(Applied Thermodynamics\) with a technical elective requirement. This has been approved by full MMAE faculty after reviewing the BS-ME program requirements in peer institutions \(which is typically two courses\) to create more flexibility for our students through technical electives. See the attached document entitled "Minor Curriculum Changes in the MMAE Department.pdf".](#)

Program Narrative and Justification

Narrative description of how the institution determined the need for the program. For example, describe what need this program will address and how the institution became aware of that need. If the program is replacing a current program(s), identify the current program(s) that is being replaced by the new program(s) and provide details describing the benefits of the new program(s). If the program will be offered in connection with, or in response to, an initiative by a governmental entity, provide details of that initiative.

Narrative description of how the program was designed to meet local market needs, or for an online program, regional or national market needs. For example, indicate if Bureau of Labor Statistics data or State labor data systems information was used, and/or if State, regional, or local workforce agencies were consulted. Include how the course content, program length, academic level, admission requirements, and prerequisites were decided; including information received from potential employers about course content; and information regarding the target students and employers.

Narrative description of any wage analysis the institution may have performed, including any consideration of Bureau of Labor Statistics wage data related to the new program.

Narrative description of how the program was reviewed or approved by, or developed in conjunction with, one or more of the following: a) business advisory committees; b) program integrity boards; c) public or private oversight or regulatory agencies (not including the state licensing/authorization agency and accrediting agency); and d) businesses that would likely employ graduates of the program. For example, describe the steps taken to develop the program, identify when and with whom discussions were held, provide relevant details of any proposals or correspondence generated, and/or describe any process used to evaluate the program.

Admission Entry Details

What are the enrollment estimates?

Year 1

Year 2

Year 3

Attach Additional Program Justification Document(s) [Minor Curriculum Changes in the MMAE Department.pdf](#)

Academic Information

Advising

Since quality advising is a key component of good retention, graduation, and career placement, how will students be mentored? What student professional organizations will be formed? How will the department work with the Career Services office to develop industry connections?

Program Resources

Which program resources are necessary to offer this program?

Proposed Catalog Entry

Admission
Requirements

Course Requirements

Required Courses

Mechanical Engineering Requirements		(47)
MMAE 100	Introduction to the Profession	3
MMAE 202	Mechanics of Solids	3
MMAE 232	Design for Innovation	3
MMAE 302	Advanced Mechanics of Solids	3
MMAE 305	Dynamics	3
MMAE 313	Fluid Mechanics	3
MMAE 319	Mechanical Laboratory I	4
MMAE 320	Thermodynamics	3
MMAE 321	Applied Thermodynamics	3
MMAE 323	Heat and Mass Transfer	3
MMAE 332	Design of Machine Elements	3
MMAE 350	Computational Mechanics	3
MMAE 419	Mechanical Laboratory II	4

MMAE 432	Design of Mechanical Systems	3
or MMAE 433	Design of Thermal Systems	
MMAE 443	Systems Analysis and Control	3
MMAE 485	Manufacturing Processes	3
Materials Science Requirement		(3)
MS 201	Materials Science	3
Mathematics Requirements		(18)
MATH 151	Calculus I	5
MATH 152	Calculus II	5
MATH 251	Multivariate and Vector Calculus	4
MATH 252	Introduction to Differential Equations	4
Physics Requirements		(8)
PHYS 123	General Physics I: Mechanics	4
PHYS 221	General Physics II: Electricity and Magnetism	4
Chemistry Requirement		(4)
CHEM 124	Principles of Chemistry I with Laboratory	4
Computer Science Requirement		(2)
CS 104	Introduction to Computer Programming for Engineers	2
Humanities and Social Science Requirements		(21)
See Illinois Tech Core Curriculum, sections B and C		21
Interprofessional Projects (IPRO)		(6)
See Illinois Tech Core Curriculum, section E		6
Technical Elective		(12)
Select nine credit hours¹		9
<u>Select twelve credit hours¹</u>		<u>12</u>
Free Electives		(6)
Select six credit hours		6
Total Credit Hours		127

¹

A technical elective is a 300- or higher-level course in any engineering discipline (other than required MMAE courses or their equivalent) or in mathematics, chemistry, physics, or computer science. However, not all such courses are acceptable as technical electives. Students should consult their faculty adviser for a determination of which courses are acceptable. In addition, [ECE 218](#), [ECON 423](#), [INTM 437](#), [INTM 438](#) and [INTM 439](#) are permitted. Any substitutions require written approval by the department.

Bachelor of Science in Mechanical Engineering Curriculum

		Year 1	
Semester 1	Credit Hours	Semester 2	Credit Hours
MMAE 100	3	MS 201	3
MATH 151	5	MATH 152	5
CHEM 124	4	PHYS 123	4
Humanities 200-level Course	3	CS 104	2
		Social Sciences Elective	3
	15		17
		Year 2	
Semester 1	Credit Hours	Semester 2	Credit Hours
MMAE 202	3	MMAE 350	3
MMAE 232	3	MATH 252	4
MATH 251	4	Free Elective	3
PHYS 221	4	Humanities Elective (300+)	3
Humanities or Social Science Elective	3	Social Sciences Elective (300+)	3
	17		16
		Year 3	
Semester 1	Credit Hours	Semester 2	Credit Hours
MMAE 302	3	MMAE 319	4
MMAE 305	3	MMAE 321	3
MMAE 313	3	MMAE 323	3
MMAE 320	3	MMAE 332	3
Humanities Elective (300+)	3	Technical Elective¹	<u>3</u>
		Social Sciences Elective (300+)	3
	15		16
		Year 4	
Semester 1	Credit Hours	Semester 2	Credit Hours
MMAE 419	4	MMAE 432 or 433	3
MMAE 443	3	Technical Elective ¹	3
MMAE 485	3	Technical Elective ¹	3
Technical Elective ¹	3	IPRO Elective II	3
IPRO Elective I	3	Free Elective	3
	16		15
Total Credit Hours: 127			

1

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Specialization
Requirements

Program Outcomes and Assessment Process

What are your learning objectives in this program? Please list each learning objective in the boxes below:

Note: These should be the same as described in your assessment plan at the bottom of this form.

Upload your
assessment plan
here:

Undergraduate Program Requirements

What courses will
factor the major
GPA?

Undergraduate Degree Requirements

Minimum credit hours 127

Specialization required?
No

Minor required?
No

Proposed General Curriculum

List Major Course Requirements

List Mathematics Requirements

List Science Requirements

List Computer Science Requirements

List Humanities and Social Sciences Requirements

List Interprofessional Project (IPRO) Requirements

List Technical Elective Course Options

List Free Elective Credit Hours (if applicable) 6

Semester-by-semester plan of study for the degree program

Report from Faculty
Council

Reviewer
Comments

