

BESA-Mechanical Engineering

Fall 2023

Bachelor of Engineering Studies and Arts (BESA)

College of Engineering (ENG) Concentration in Mechanical Engineering

105 units (minimum)

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Mathematics & Science Prerequisites

21-120	Differential and Integral Calculus (Gen Ed) (Freshman year)	10
21-122	Integration and Approximation (Gen Ed) (Freshman year)	10
21-254	Linear Algebra and Vector Calculus for Engineers	11
21-260	Differential Equations	9
15-110	Principles of Computing (Gen Ed)	10
33-141	Physics I for Engineering Students (Gen Ed) (Freshman year)	12
33-142	Physics II for Engineering and Physics Students (Freshman year)	12

Note: The BESA Gen Ed Science and Technology requirement can be filled with either 15-110 or 15-112. Students may start taking MechE Courses upon completion of Calculus I, Calculus II and Physics I.

Mechanical Engineering Courses

60 units

24-101	Fundamentals of Mechanical Engineering (Freshman year; co-req: 21-120, 33-141)	12
xx-xxx	2 nd Introduction to Engineering course, student's choice	12
24-200	Maker Series: Intro to Manual Machining (Sophomore year)	1
24-251	Electronics for Sensing and Actuation (Sophomore year)	3
24-261	Mechanics I: 2D Design (Fall, Sophomore year; prereq: 21-122, 33-106/33-121/ 33-141/33-151)	10
24-262	Mechanics II: 3D Design (Spring, Sophomore year; prereq: 33-106/33-141/33-151, 24-261)	10
24-370	Mechanical Design: Methods and Applications (Fall, Junior year; prereq: 24-200, 24-202, 24-262)	12

Electives

45 units minimum

Choose 5 elective courses. Each course should be a minimum of 9 units. At least 3 courses should be from the following MechE courses and 2 of the courses may be ENG with prerequisites in consultation with the concentration advisor.

24-221	Thermodynamics (Fall; prereq: 21-122, 24-101, 33-106/33-121/33-141/33-151)	10
24-231	Fluid Mechanics (Spring; prereq: 21-122, 33-106/33-141/33-151)	10
24-291	Environmental Systems on a Changing Planet (Fall)	9
24-292	Renewable Energy Engineering (Spring; prereq: 33-106/33-141)	9
24-300 or above		

BESA Free Electives

Take any Carnegie Mellon course. A maximum of 9 units of physical education and/or military science may be counted toward this requirement.