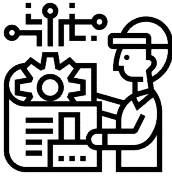


# Department of Mechanical Engineering

## [기계공학과]

### ■ Department Introduction [학과소개]



Mechanical Engineering deals with numerous systems and has a variety of important applications such as automobiles, aircraft, ships, home appliances, electronic devices, power plants and so on. The mechanical systems and the fundamental science and technology of mechanical and aerospace engineering have made dramatic advances and high impacts on the global economies and the standard of living. In the track of mechanical and aerospace engineering, students are educated and trained to learn the underlying principles of mechanical and aerospace engineering and to apply the knowledge to real-world examples and case studies hands-on. Disciplines include thermodynamics, fluid mechanics, solid mechanics, dynamics, machine design, advanced materials processing, laser-assisted manufacturing, micro/nano machining, unmanned vehicle control, MEMS, biomedical products, controls and mechatronics, acoustics, tribology and so on.

### 1. Graduation Requirement [졸업 이수요건]

Category 구분		Credits 이수학점	Remarks 비고	Subtotal 소계
Basic 기초	Required 필수	17	Calculus I(3), General Physics I(3), General Chemistry I(3), General Biology(3), Introduction to AI Programming I(3), General Chemistry Lab I(1), General Physics Lab I(1) (Total 17 credits)	At least 30 Credits
	Elective 선택[학과 지정]	13	Complete basic elective courses at least 13 credits including Applied Linear Algebra(3) and Differential Equations(3)	
Major 전공	Required 필수	27	Refer to Required course list below	At least 48 Credits
	Elective 선택	21	Refer to Elective course list below	
	Internship 인턴십	3	Internship (Choose one among Research, Industrial, Venture Creation, Co-op)	3 Credits
Free Elective 자유선택		19	All courses acceptable	At least 19 Credits

\* For Liberal Arts and Leadership requirements, refer to school Common requirements

## 2. Basic Requirements [기초 이수요건]

No.	Course Code	Course Title	Major 전공	Double Major 복수전공	Minor 부전공
			13 credits	6 credits	-
1	MTH112	Calculus II (3)	○		
2	PHY103	General Physics II (3)	○		
3	CHM102	General Chemistry II (3)	○		
4	PHY108	General Physics Lab II (1)	○		
5	CHM106	General Chemistry Lab II (1)	○		
6	MTH201	Differential Equations (3)	●	●	
7	MTH203	Applied Linear Algebra (3)	●	●	
8	MTH211	Statistics (3)	○		
9	MGT102	Entrepreneurship (3)	○		
10	IE101	Introduction to Data Science(3)	○		
11	ITP117	Introduction to AI Programming II(3)	○		
12	ITP111	Probability & Random Process (3)	○		
13	ITP112	Discrete Mathematics (3)	○		
14	UNI101	Understanding Major (1) <b>Mechanical Engineering and Future</b>	○		

●: Required ○: Elective ◐: Recommended, ( ): credits

## 3. Curriculum [기계공학과 교육과정]

### ▶ Credit Requirements [이수학점]

Department (School)	Major(전공)			Double Major(복수전공)			Minor(부전공)		
	R	E	Total	R	E	Total	R	E	Total
Department of Mechanical Engineering	27	21	48	18	18	36	9	9	18

\*R: Required, E: Elective

### ▶ Required [전공필수]

Course Code	Course Title	Major	Double	Minor	Cred -Lect -Exp.	Remarks	Semester
MEN210	Thermodynamics 열역학	○	○	○	3-3-0		1
MEN220	Fluid Mechanics 유체역학	○	○	○	3-3-0		2
MEN230	Solid Mechanics I 고체역학 I	○	○	○	3-3-0		1
MEN231	Solid Mechanics II 고체역학 II	○	○	○	3-3-0	[PRE] MEN230	2
MEN250	Mechanical Drawing and Lab 기계제도 및 실습	○	○	○	3-2-2		1
MEN270	Dynamics 동역학	○	○	○	3-3-0		2
MEN300	Mechanical Engineering Lab I 기계공학실험 I	○	○	○	3-1-4	[PRE] MEN231, MEN310	2
MEN310	Heat Transfer 열전달	○	○	○	3-3-0	[PRE] MEN210, MEN220	1

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Course Code	Course Title	Major	Double	Minor	Cred -Lect -Exp.	Remarks	Semester
MEN490	Thesis Study 졸업연구	○			3-0-6		1,2
<b>Total</b>		<b>27</b>	<b>24</b>	<b>24</b>			

※ Double Major: Take 6 courses(18 credits) among above courses excluding MEN490 Thesis Study.

복수전공: 졸업연구를 제외한 8과목 중 최소 6과목(18학점) 이수

※ Minor: Take 3 courses(9 credits) among above excluding MEN490 Thesis Study.

부전공: 졸업연구를 제외한 8과목 중 최소 3과목(9학점) 이수

※ Courses that are not required for Minor/Double Major can be counted as Elective course.

복수전공자, 부전공자에게 필수로 인정되지 않는 전공필수 과목을 이수했을 경우 전공선택으로 인정가능

▶ Elective [전공선택]

Course Code	Course Title	Major	Double	Minor	Cred -Lect -Exp.	Remark	Semester
MEN201	Computational Tools for Engineers 공학전산기법	○	○	○	3-3-0		2
MEN211	Applied Thermodynamics 응용열역학	○	○	○	3-3-0	[PRE] MEN210	2
MEN301	Numerical Analysis 수치해석	○	○	○	3-2-2	[PRE] MTH201	2
MEN302	Introduction to Finite Element Method 유한요소법개론	○	○	○	3-3-0	[PRE] MEN231	2
MEN303	Applied Engineering Mathematics 응용공학수학	○	○	○	3-3-0		1
MEN320	Applied Fluid Mechanics 응용유체역학	○	○	○	3-3-0	[PRE] MEN220	1
MEN350	Manufacturing Processes and Lab 기계공작법 및 실습	○	○	○	3-2-2	[PRE] MEN230	1
MEN351	Machine Element Design 기계요소설계	○	○	○	3-3-0	[PRE] MEN231	2
MEN352	Creative Engineering Design I (Capstone Design) 창의적공학설계 I (캡스톤디자인)	○	○	○	3-1-4		2
MEN353	Manufacturing System Design & Simulation 생산시스템 설계 및 시뮬레이션	○	○	○	3-3-0		2
MEN370	Dynamic Systems and Control 시스템제어	○	○	○	3-3-0		1
MEN371	System Dynamics 시스템 동역학	○	○	○	3-3-0		1
MEN400	Mechanical Engineering Lab II 기계공학실험 II	○	○	○	3-1-4	[PRE] MEN231, MEN270, MEN310	1
MEN411	Combustion 연소공학	○	○	○	3-3-0	[PRE] MEN210, MEN220	1
MEN412	Air-Conditioning and Refrigeration 공기조화냉동	○	○	○	3-3-0	[PRE] MEN210	2
MEN413	Computational Fluid Dynamics 전산유체역학	○	○	○	3-3-0	[PRE] MEN301, MEN320	2
MEN414	Design of Fluid Thermal Systems 열유체시스템 설계	○	○	○	3-3-0	[PRE] MEN310	2
MEN415	Aerodynamics 공기역학	○	○	○	3-3-0	[PRE] MEN220	1
MEN420	Introduction to Aerosol Technology 에어로졸공학개론	○	○	○	3-3-0	[PRE] MEN220	1

Course Code	Course Title	Major	Double	Minor	Cred -Lect -Exp.	Remark	Semester
MEN431	Introduction to Plastic Deformation 소성학개론	○	○	○	3-3-0	[PRE] MEN231	1
MEN432	Introduction to Mechanics of Composite Materials 복합재역학개론	○	○	○	3-3-0	[PRE] MEN231	1
MEN451	Introduction to MEMS MEMS 개론	○	○	○	3-3-0		1
MEN452	Creative Engineering Design II (Capstone Design) 창의적공학설계 II (캡스톤디자인)	○	○	○	3-1-4		1
MEN453	Computer Aided Engineering 컴퓨터이용공학	○	○	○	3-2-2		1
MEN454	Optimal Design 최적설계	○	○	○	3-2-2		1
MEN455	3D Printing 3D 프린팅	○	○	○	3-3-0		1
MEN457	Introduction to Electric-Electronic Engineering 전기전자공학개론	○	○	○	3-3-0	[PRE] PHY103	1
MEN461	Introduction to Robotics 로봇공학	○	○	○	3-3-0		2
MEN470	Mechanical Vibration 기계진동학	○	○	○	3-3-0	[PRE] MEN270	2
MEN481	UAV Flight Control and Simulation 무인기 비행제어 및 시뮬레이션	○	○	○	3-3-0	[PRE] MEN270, MEN370	1
MEN482	UAV Navigation and Flight Computers 무인기 항법 및 운용	○	○	○	3-3-0	[PRE] MEN270, MEN370	2
MEN497	Special Topics in Mechanical Engineering I 기계공학특론 I	○	○	○	3-3-0		-
MEN498	Special Topics in Mechanical Engineering II 기계공학특론 II	○	○	○	3-3-0		-
MEN499	Special Topics in Mechanical Engineering III 기계공학특론 III	○	○	○	3-3-0		-
UEE231	Mechanics of Materials 재료역학	○	○		3-3-0	[PRE] UEE203	2
UEE324	Environmental Thermodynamics 환경열역학	○	○		3-3-0		1
UEE331	Structural Analysis 구조역학	○	○		3-3-0	[PRE] UEE231	1
UEE332	Matrix Structural Analysis 매트릭스구조해석	○	○		3-3-0		1
UEE413	Hydraulics 수리학	○	○		3-3-0		-
UEE432	Introduction to Structural Dynamics 구조동역학개론 (구조진동론)	○	○		3-3-0		2
MSE202	Introduction to Materials Science and Engineering 재료공학개론	○	○		3-3-0		1
MSE370	Introduction to Polymer Materials 고분자재료개론	○	○		3-3-0		2
MSE311	Introduction to Metallic Materials 금속재료개론	○	○		3-3-0		2
MSE354	Introduction to Semiconductor 반도체개론	○	○		3-3-0		1
DES201	Design Elements and Principles 디자인요소와 원리	○	○		3-2-2		1

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Course Code	Course Title	Major	Double	Minor	Cred -Lect -Exp.	Remark	Semester
DES221	Design History & Contexts 디자인 역사와 맥락	○	○		3-3-0		1
BME310	Experimental Design 실험계획법	○	○		3-3-0	[PRE] MTH211	1
BME421	Nano-Bio Engineering 나노바이오공학	○	○		3-3-0		1
BME433	Laser and Biomedical Application 레이저와 바이오 응용	○	○		3-3-0		1
PHY441	Fluid Physics 유체물리학	○	○		3-3-0		2
<b>Total</b>		<b>150</b>	<b>150</b>	<b>102</b>			

※ [PRE]: Prerequisite(선이수), [IDEN]: Identical(동일지정교과)

※ Students affiliated in previous SDM, TFP, MAE, MEN track can take courses from the department of Mechanical Engineering (except for MEN490 Thesis Study) and those courses can be counted as required or elective according to the year that took the course.

※ 기존 SDM, TFP, MEN, MAE 트랙 학생들은 기계공학과 교과를 이수할 경우 개설 학년도의 이수구분으로 인정받을 수 있음 (MEN490 졸업연구 제외)

#### 4. Curriculum Change [교육과정 변경사항]

Track	2020	→	2021
MEN SDC	SDC202 (SDC Required) Computational Tools for Engineers 공학전산기법	→	MEN201 (Elective) Computational Tools for Engineers 공학전산기법
	MEN211 (Selective Required) Applied Thermodynamics 응용열역학		MEN211 (Elective) Applied Thermodynamics 응용열역학
	MEN301 (Selective Required) Numerical Analysis 수치해석		MEN301 (Elective) Numerical Analysis 수치해석 Prerequisite: MTH201
	MEN302 (Elective) Introduction to Finite Element Method 유한요소법개론 Prerequisite: MEN230		MEN302 (Elective) Introduction to Finite Element Method 유한요소법개론 Prerequisite: MEN231
	MEN320 (Selective Required) Applied Fluid Mechanics 응용유체역학		MEN320 (Elective) Applied Fluid Mechanics 응용유체역학
	MEN350 (Selective Required) Manufacturing Processes and Lab 기계공작법 및 실습		MEN350 (Elective) Manufacturing Processes and Lab 기계공작법 및 실습
	MEN351 (Selective Required) Machine Element Design 기계요소설계		MEN351 (Elective) Machine Element Design 기계요소설계
	SDC304 (SDC Elective) Manufacturing System Design & Simulation 생산시스템 설계 및 시뮬레이션		MEN353 (Elective) Manufacturing System Design & Simulation 생산시스템 설계 및 시뮬레이션
	MEN370 (Selective Required) Dynamic Systems and Control 시스템제어		MEN370 (Elective) Dynamic Systems and Control 시스템제어
	SDC306 (SDC Required) System Dynamics 시스템 동역학		MEN371 (Elective) System Dynamics 시스템 동역학

Track	2020	→	2021
MEN SDC	SDC405 (SDC Elective) 3D Printing 3D 프린팅	→	MEN455 (Elective) 3D Printing 3D 프린팅
	SDC401 (SDC Required) Introduction to Mechatronics 메카트로닉스개론 〈폐지 Abolished〉		MEN231 (Required) Solid Mechanics II 고체역학 II 〈대체과목 Substitution〉
	SDC403 (SDC Required) Project Lab 프로젝트 랩 〈폐지 Abolished〉		MEN490 (Required) Thesis Study 졸업연구 〈대체과목 Substitution〉
	SDC302 (SDC Elective) Circuit Theory & Lab 회로이론 및 실습 〈폐지 Abolished〉		MEN457 (Elective) Introduction to Electric-Electronic Engineering 전기전자공학개론 〈대체과목 Substitution〉
	SDC402 (SDC Elective) Applied Robotics 응용로봇공학 〈폐지 Abolished〉		MEN461 (Elective) Introduction to Robotics 로봇공학 〈대체과목 Substitution〉

\* Existing SDC track students under the school of MANE may take SDC courses according to the table above.

\* 기존 기계항공및원자력공학부 제어설계공학트랙의 경우 위 표의 기계공학과로 편입된 과목 혹은 폐지과목의 경우 대체과목 이수

5. Curriculum Map [교육과정 이수 체계도]

Sophomore		Junior		Senior		
1 <sup>st</sup> semester	2 <sup>nd</sup> semester	1 <sup>st</sup> semester	2 <sup>nd</sup> semester	1 <sup>st</sup> semester	2 <sup>nd</sup> semester	
Thermodynamics	Applied Thermodynamics	Heat Transfer		Introduction to Aerosol Technology	Air-Conditioning and Refrigeration	Thesis Study
				Introduction to Electric-Electronic Engineering		
Solid Mechanics I	Solid Mechanics II	Manufacturing Processes and Lab	Manufacturing System Design and Simulation	Introduction to Plastic Deformation	Introduction to MEMS	Thesis Study
				Introduction to Mechanics of Composite Materials		
Mechanical Drawing and Lab	Mechanical Drawing and Lab	Machine Element Design	Creative Engineering Design I	Creative Engineering Design II	Optimal Design	Thesis Study
	Fluid Mechanics	Applied Fluid Mechanics	Computational Fluid Dynamics	Combustion	Design and Fluid Thermal Systems	Thesis Study
			System Dynamics	Aerodynamics		
	Dynamics	System Control	Introduction to Robotics	3D Printing	Mechanical Vibration	Thesis Study
			Mechanical Vibration	UAV Flight Control and Simulation	UAV Navigation and Flight Computers	
Differential Equations	Applied Linear Algebra	Applied Engineering Mathematics	Mechanical Engineering Lab I	Mechanical Engineering Lab II		Thesis Study
	Computational Tools for Engineers		Numerical Analysis	Computer Aided Engineering		