Table of Curriculum

☐ Undergraduate Program

Classification	Subject No.	Subject Name	Lecture:Lab.: Credit (Homework)	Semester	Remark
Elective Basic Courses	MAE106	Human and Machine	3:0:3(3)	Fall	
	MAE208	New Design and Experience in Mechanical Systems	2:3:3(3)	Spring	
Mandatory Major Course	MAE200	Basic Mechanical Practice	2:3:3(3)	Spring	
	MAE205	Mechanical Engineering Laboratory	2:3:3(3)	Fall	
	MAE340	Engineering Design	2:3:3(6)	Fall	
	MAE400	Capstone Design I	1:6:3(6)	Spring	
Elective Major Courses (Basic Courses)	MAE211	Thermodynamics	3:0:3(6)	Spring	
	MAE221	Fluid Mechanics	3:0:3(6)	Fall	
	MAE231	Solid Mechanics	3:1:3(6)	Spring	
	MAE251	Dynamics	3:0:3(6)	Fall	
	MAE307	Applied Electronics	2:3:3(6)	Spring	
	MAE311	Heat Transfer	3:0:3(6)	Spring	
	MAE351	Mechanical Vibrations	3:0:3(6)	Spring	
	MAE360	Modeling and Control of Engineering Systems	3:3:4(6)	Fall	
	MAE370	Understanding of Materials and Processing	3:0:3(6)	Spring	
Elective Major Courses (Advanced Courses)	MAE206	Machine System Automation	2:3:3(6)	Fall	
	MAE301	Numerical Analysis	3:0:3(6)	Spring	
	MAE302	Creative Problem Solving	2:3:3(6)	Spring	
	MAE305	Electronics Laboratory for Mechanical Engineers	2:3:3(6)	Fall	
	MAE312	Energy and Environment	3:0:3(6)	Fall	
	MAE320	Applied Fluid Mechanics	3:0:3(6)	Spring	
	MAE330	Foundation of Stress Analysis	3:0:3(6)	Spring	
	MAE341	Mechanical Component Design	3:0:3(6)	Fall	
	MAE342	Mechanism Design	3:0:3(6)	Fall	
	MAE371	Advanced Materials Engineering and its Application	3:0:3(6)	Fall	
	MAE401	Capstone Design II	1:6:3(6)	Fall	
	MAE404	Introduction to Simulation of Medical Procedures	3:1:3(6)	Spring	
	MAE411	Design of Energy Systems	3:0:3(6)	Fall	
	MAE413	Engine Technology	3:0:3(6)	Spring	
	MAE414	Applied superconductivity and Thermal Engineering	3:0:3(6)	Fall	
	MAE416	Vehicle Dynamics	3:0:3(6)	Spring	
Elective Major Courses (Advanced Courses)	MAE420	Applied Fluid Mechanics	3:0:3(6)	Spring	
	MAE430	Introduction to Reliability in Mechanical Engineering Design	3:0:3(6)	Fall	

Classification	Subject No.	Subject Name	Lecture:Lab.:Credit (Homework)	Semester	Remark
	MAE431	Introduction to Continuum Mechanics	3:0:3(6)	Fall	
	MAE432	Deformation, Fracture and Strength of Materials	3:0:3(6)	Spring	
	MAE440	Engineering Design via FEM	3:1:3(6)	Spring	
	MAE452	Noise Control Engineering	3:0:3(6)	Fall	
	MAE453	Introduction to Robotics Engineering	3:0:3(6)	Fall	
	MAE460	Automatic Control	3:3:4(6)	Fall	
	MAE461	Introduction to Fuel Cell Systems	3:0:3(6)	Spring	
	MAE471	Precision Engineering	3:1:3(6)	Fall	
	MAE475	Mechanical Engineering and Applied Mathematics	3:0:3(6)	Fall	
	MAE480	Introduction to Biomedical Optics	3:0:3(6)	Fall	
	MAE481	Introduction to Electromagnetism & Optics	3:1:3(6)	Spring	
	MAE484	Structure & Function of Human Body	3:0:3(6)	Fall	
	MAE487	Mechanics of cellular movements and mimetics	3:0:3(6)	Spring	
	MAE488	Introduction to biomedical machine technology	3:0:3(6)	Fall	
	MAE491	Special Topics in Mechanical Engineering	3:0:3(6)	Spring · Fall	
	MAE493	Special Topics in Mechanical Engineering I	1:0:1	Summer · Winter	
	MAE494	Special Topics in Mechanical Engineering II	2:0:2	Summer · Winter	
Research	MAE490	Thesis Study	0:6:3	Spring · Fall	
	MAE495	Individual Study	0:6:1	Spring · Fall	
	MAE496	Seminar	1:0:1	Spring · Fall	

※ Note: 400 level courses open to both undergraduate and graduate students

❑ Graduate Program

Classification	Subject No.	Subject Name	Lecture:Lab.: Credit (Homework)	Semester	Remark
Mandatory General Course	CC010	Special Lecture on Leadership	1:0:0	Spring·Fall	
	CC500	Scientific Writing	3:0:3	Spring·Fall	
	CC510	Introduction to Computer Application	2:3:3	Spring·Fall	
	CC511	Probability and Statistics	2:3:3	Spring·Fall	
	CC512	Introduction to Materials and Engineering	3:0:3	Spring·Fall	
	CC513	Engineering Economy and Cost Analysis	3:0:3	Fall	
	CC522	Introduction to Instruments	2:3:3	Fall	
	CC530	Entrepreneurship and Business Strategies	3:0:3	Spring	
	CC532	Collaborative System Design and Engineering	4:0:4	Spring	
Elective Course	MAE500	Mathematical Methods in Mechanical Engineering	3:0:3(6)	Spring	
	MAE502	Introduction to Finite Element Method	3:0:3(6)	Spring	
	MAE505	Measurement Instrumentation	3:1:3(6)	Fall	
	MAE510	Advanced Fluid Mechanics	3:0:3(6)	Spring	
	MAE511	Advanced Thermodynamics	3:0:3(6)	Spring	
	MAE512	Advanced Heat Transfer	3:0:3(6)	Fall	
	MAE513	Advanced Combustion	3:0:3(6)	Fall	
	MAE514	Multiphase Flow I	3:0:3(6)	Fall	
	MAE515	Cryogenic Engineering	3:0:3(6)	Spring	
	MAE521	Viscous Fluid Flow	3:0:3(6)	Fall	
	MAE525	Turbomachinery	3:0:3(6)	Fall	
	MAE326	Introduction to Nanotech Processing	3:0:3(6)	Fall	
	MAE530	Advanced Mechanics of Solids	3:0:3(6)	Spring	
	MAE531	Numerical Stress Analysis	3:1:3(6)	Fall	
	MAE533	Fracture Mechanics	3:0:3(6)	Fall	
	MAE534	Fatigue Fracture and Strength	3:0:3(6)	Spring	
	MAE535	Experimental Stress Analysis	2:3:3(6)	Spring	
	MAE536	Mechanics of Plastic Deformation	3:0:3(6)	Fall	
	MAE537	Optional design of Composite Structures	3:0:3(6)	Spring	
	MAE543	Optimal Design	3:1:3(6)	Fall	
	MAE545	Theory of Hydrodynamic Lubrication	3:0:3(6)	Spring	
	MAE547	Knowledge - Based Design System	3:1:3(6)	Fall	
	MAE548	Feature Based Modeling	3:1:3(6)	Fall	
	MAE549	Reliability in Microsystems Packaging	3:1:3(6)	Fall	
	MAE550	Advanced Dynamics	3:0:3(6)	Fall	
	MAE551	Linear Vibration	3:0:3(6)	Spring	
	MAE552	Introduction to Acoustics	3:0:3(6)	Spring	
	MAE553	Robot Dynamics	3:0:3(6)	Spring · Fall	
	MAE554	Future energy-utilization engineering	3:0:3(6)	Spring · Fall	
	MAE561	Linear System Control	3:0:3(6)	Spring	
	MAE562	Digital System Control	3:0:3(6)	Spring	
Elective Course	MAE563	Microprocessor Application	2:3:3(6)	Fall	
	MAE564	Artificial Neural Network : Theory and Applications	3:0:3(6)	Spring	

Classification	Subject No.	Subject Name	Lecture:Lab.: Credit (Homework)	Semester	Remark
	MAE567	Introduction to Statistical Thermodynamics	3:0:3(6)	Fall	
	MAE570	Advanced Manufacturing Systems	3:0:3(6)	Spring	
	MAE571	NC/CAM	3:1:3(6)	Fall	
	MAE572	Design and Implementation of Nano Actuation System	2:3:3(6)	Spring	
	MAE574	Joining Engineering	3:1:3(6)	Fall	
	MAE576	Vehicle Dynamics and Control	3:1:3(6)	Spring	
	MAE582	Introduction to Microfabrication Technology	3:0:3(6)	Spring	
	MAE583	MEMS Design and Experimental Microfabrication	2:3:3(6)	Fall	
	MAE585	Mechanics and Control of Human Movement	3:0:3(6)	Spring	
	MAE586	Biomechanical modeling and Simulation of tissue behavior	3:0:3(6)	Fall	
	MAE587	Optomechatronics	3:0:3(6)	Fall	
	MAE588	Fuel Cell System Design and Numerical Analysis	3:0:3(6)	Fall	
	MAE589	Applied Optics	3:1:3(6)	Spring	
	MAE590	Design of Complex Mechanical Systems	3:0:3	Fall	
	MAE591	Random Data : Analysis and Processing	3:1:3(6)	Fall	
	MAE592	Laser : Principles and Applications	3:0:3(6)	Fall	
	MAE600	Mechanical System Design Project 1	0:9:3(6)	Spring	
	MAE601	Mechanical System Design Project 2	0:9:3(6)	Fall	
	MAE604	Metrology	2:3:3(6)	Spring	
	MAE605	Boundary Element Method	3:1:3(6)	Fall	
	MAE606	Creative Knowledge Creation Process and Application	3:0:3(6)	Fall	
	MAE607	Computational Linear Algebra	3:1:3(6)	Spring	
	MAE611	Convective Heat Transfer	3:0:3(6)	Spring	
	MAE612	Transport Phenomena	3:0:3(6)	Spring	
	MAE613	Computational Fluid Mechanics and Heat Transfer	3:0:3(6)	Fall	
	MAE616	Automobile Technology and Environment	3:0:3(6)	Fall	
	MAE617	Advanced Vehicle Control Design	3:0:3(6)	Fall	
	MAE621	Turbulence	3:0:3(6)	Fall	
	MAE623	Rotating Flow	3:0:3(6)	Fall	
	MAE631	Analytical Solid Mechanics	3:0:3(6)	Fall	
	MAE632	Theory of Viscoelasticity	3:0:3(6)	Fall	
	MAE633	Mechanical Behavior of Polymeric and Composite Materials	3:0:3(6)	Fall	
	MAE634	Intelligent Structures and Components	3:0:3(6)	Fall	
	MAE635	Plastic Analysis and Design of Structures	3:0:3(6)	Fall	
	MAE638	Axiomatic Design of Composite Structure	3:0:3(6)	Spring	every other year
	MAE642	Medical Biomechanics	3:0:3(6)	Fall	
	MAE643	Theory of Mechanisms	3:0:3(6)	Fall	
	MAE644	Tribology	3:0:3(6)	Spring	
	MAE647	STEP for Electronic Commerce	3:1:3(6)	Spring	every odd-numbered year
	MAE651	Rotor Dynamics	3:0:3(6)	Spring	
	MAE652	Computational Vibration Analysis	3:0:3(6)	Fall	

Classification	Subject No.	Subject Name	Lecture:Lab.:Credit (Homework)	Semester	Remark
	MAE653	Mechanical Signature and System Analysis	3:1:3(6)	Fall	
	MAE654	Noise Control	3:0:3(6)	Fall	
	MAE655	Robotics Engineering	3:1:3(6)	Fall	
	MAE656	Vehicle NVH	3:1:3(6)	Fall	
	MAE661	Optimal Control	3:0:3(6)	Spring	
	MAE662	Design of Precision Actuation System	3:0:3(6)	Spring	
	MAE674	Optical Imaging System Design	3:0:3(6)	Fall	
	MAE683	Human Robot Interaction: Haptics	3:0:3(6)	Fall	
	MAE686	Mechanobiology	3:0:3(6)	Fall	
	MAE692	Wave Propagation	3:0:3(6)	Spring	
	MAE711	Radiation Heat Transfer	3:0:3(6)	Spring	
	MAE712	Experimental methods in High Temperature Thermal Engineering	2:3:3(6)	Fall	
	MAE714	Multiphase Flow II	3:0:3(6)	Spring	
	MAE722	Computational Turbulence Modeling	3:0:3(6)	Spring	
	MAE724	Stratified Flow	3:0:3(6)	Fall	
	MAE731	Nonlinear Computational Mechanics of Solid	3:0:3(6)	Spring	
	MAE732	Reliability in Strength Design	3:0:3(6)	Fall	
	MAE734	Analytical Fracture Mechanics	3:0:3(6)	Spring	
	MAE741	Advanced Optimal Design	3:0:3(6)	Fall	
	MAE752	Structure-borne Sound	3:0:3(6)	Fall	
	MAE761	Nonlinear System Control	3:0:3(6)	Spring	
	MAE762	Adaptive Control System	3:0:3(6)	Spring	
	MAE771	Analysis and Design of Metal Forming Processes	3:1:3(6)	Fall	
	MAE781	Molecular Dynamics and Nanomechanics	3:0:3(6)	Spring	
	MAE800	Special Topics in Mechanical Engineering	3:0:3(6)	Spring · Fall	
	MAE801	Special topics in Mechanical Engineering I	1:0:1	Summer · Winter	
	MAE802	Special topics in Mechanical Engineering II	2:0:2	Summer · Winter	
	MAE810	Special Topics in Thermal & Fluid Engineering	3:0:3(6)	Fall	
	MAE830	Special Topics in Design Engineering	3:0:3(6)	Fall	
	MAE850	Special Topics in Dynamics and Control	3:0:3(6)	Spring · Fall	
	MAE870	Special Topics in Production Engineering	3:0:3(6)	Spring · Fall	
Research	MAE960	M.S. Thesis		Spring · Fall	
	MAE964	Individual Research M.S.	0:3:1	Spring · Summer · Fall · Winter	
	MAE966	Seminar (M.S. Program)	1:0:1	Spring · Fall	
	MAE967	Individual Research M.S.	0:6:2	Spring · Fall	
Research	MAE980	Ph.D. Thesis		Spring · Fall	
	MAE985	Individual Research Ph.D.	0:3:1	Spring · Summer · Fall · Winter	
	MAE986	Seminar (Ph.D)	1:0:1	Spring · Fall	

※ Note: 500 level courses open to both undergraduate and graduate students

※ CC532 Collarborative System Design and engineering credit is granted to only Renaissance Program students. Changwon-KAIST program students and general scholarship students.