

**MICHIGAN TECH - Mechanical Engineering - All Approved Technical Electives**  
**Complete Catalog List**  
**See notes regarding planned semesters offered below.**

Course Number	Cr.	Semester Planned to be Offered for 2011-2012 Academic Year*	Title	Pre-Requisite(s)
<b>Design</b>				
MEEM4403	4	Fall, Spring, Summer	Computer-Aided Design Methods	ENG 1102
MEEM4405	3	Fall, Spring, Summer	Intro to the Finite Element Method	MEEM3502 AND MA2320/2321/2330 AND MA3520/3521/3530/3560
MEEM5401	3		Design for Reliability	MEEM3501
MEEM5453	2	Fall	See Think Design Delight I	MEEM4911, ENT4960, OR Equivalent
MEEM5454	2	Spring	See Think Design Delight II	MEEM5453 OR ENVE 5453
<b>Dynamic Systems</b>				
MEEM4404	4		Mechanism Syn/Dynamic Modeling	MEEM3502 (C)
MEEM4450	3	Spring	Vehicle Dynamics	(MEEM3502 AND MEEM 3000) OR (EE3305 AND MEEM2700)
MEEM4701	4	Fall	Analy and Exp Modal Analysis	MEEM3000 AND MEEM3700
MEEM4704	3	Spring	Acoustics and Noise Control	MA3160 AND MEEM2700
MEEM4705	4	Fall	Introduction to Robotics and Mechatronics	MEEM4700 (C)
MEEM4720	3	Fall	Space Mechanics	MEEM2700
MEEM4750	3	Spring	Distributed Embedded Control Systems	MEEM4700 OR EE4261
MEEM4990	3		Mechatron Informatics	
MEEM5700	4	Fall	Dynamic Meas/Signal Analysis	MA4520
MEEM5701	3	Fall	Intermediate Dynamics	MEEM2700
MEEM5702	3	Fall	Analytical Vibroacoustics	MEEM3700

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MEEM5703	4	Spring	Exp Methods Vibro-Acoustics	MEEM5700 AND MEEM5702
MEEM5715	3	Fall	Linear Systems Theory and Design	MEEM4700 OR EE4261 OR MA4330
<b>Energy Thermo-Fluids</b>				
MEEM4200	3	Fall	Principles of Energy Conversion	MEEM 3230(C) OR CM 3230 OR ENG 3200 OR MY 3100
MEEM4210	3	Fall	Computational Methods in Thermal Sciences	MEEM3230 (C)
MEEM4220	3	Spring	Internal Combustion Engines I	MEEM3210
MEEM4240	3	Fall	Combustion & Air Pollution	MEEM2200
MEEM4250	3	Spring	Heating/Ventilation/Air Cond	MEEM3230 (C)
MEEM4260	3	Fall	Fuel Cell Technology	MEEM3230 OR CM3110
MEEM4295	3	Fall	Introduction to Propulsion Systems for Hybrid Electric Vehicles	(MEEM2200 OR ENG3200) AND (MEEM4700 OR EE4261)
MEEM4296	2	Fall	Introduction to Propulsion Systems for Hybrid Electric Vehicles Laboratory	MEEM4295 (C) OR EE4295 (C)
MEEM4990 (Section 40)	3	Spring	Compressible Flow/Gas Dynamics	
MEEM5200	3	Fall	Advanced Thermodynamics	MEEM2200
MEEM5210	3	Fall	Advanced Fluid Mechanics	MEEM3210
MEEM5230	3	Spring	Advanced Heat Transfer	MEEM3230

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MEEM5240	3	Spring	Comp Fluid Dynamics for Engg	
MEEM5250	3	Fall	Internal Combustion Engines II	MEEM4220 AND MEEM5200(C)
MEEM5270	3	Spring	Advanced Combustion	MEEM4240
MEEM5280	3		Phase-Change & Two-Phase Flows	MEEM3230
MEEM5295	3	Spring	Advanced Propulsion Systems for Hybrid Electric Vehicles	MEEM4295 OR EE4295
MEEM5296	2	Spring	Advanced Propulsion Systems for Hybrid Electric Vehicles Laboratory	(MEEM 5295(C) OR EE 5295(C)) AND (MEEM 4296 OR EE 4296)
<b>Manufacturing/Industrial</b>				
MEEM4610	3	Spring	Advanced Machining Processes	MEEM2500
MEEM4615	4		Metal Forming Processes	MEEM2500 AND MEEM 2150
MEEM4625	3	Spring	Precision Manuf and Metrology	MEEM3700 (C) AND MEEM3502 (C)
MEEM4630	3	Fall	Human Factors	
MEEM4635	3	Spring	Design with Plastics	MY2100 AND MEEM2150 AND MEEM3210 AND MEEM3230 (C)
MEEM4640	3	Spring	Micromanufacturing Processes	MEEM3502 (C)

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MEEM4650	3	Fall	Quality Engineering	MA3710/3720
MEEM4655	3	Spring	Production Planning	MEEM3501 (C)
MEEM4660	3	Fall	Data Based Modeling & Control	
MEEM4685	3		Env Resp Design & Manuf	
MEEM5615	4		Advanced Metal Forming	MEEM3502 OR MEEM2150
MEEM5645	3		Numerical Analy Manuf Proc	MEEM2500
MEEM5653	3		Life-cycle Engineering	MEEM4901
MEEM5655	3	Spring	Introduction to Lean Manufacturing	
MEEM5670	3	Fall	Experimental Design in Engg	
MEEM5680	3	Spring	Optimization I	
MEEM6670	3		Data Dependent Systems	MEEM4660 OR MEEM5660
<b>Solid Mechanics</b>				
MEEM4150	3	Fall	Intermediate Mechanics of Materials	MEEM2150
MEEM4160	3	Fall	Fund of Exp Stress Analysis	MEEM2150
MEEM4170	3	Spring	Failure of Materials in Mechanics	MEEM3501
MEEM4180	3	Fall	Engineering Biomechanics	MEEM2150 AND MEEM2700
MEEM5110	3	Fall	Continuum Mechanics/Elasticity	MEEM2150 AND MA3520/3521/ 3530/3560
MEEM5130	3	Fall	Nanoscale Science and Technology	

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MEEM5150	3	Spring	Advanced Mechanics of Matls	MEEM2150
MEEM5170	3	Fall	Finite Element and Variational Methods in Engineering	
MEEM5180	3	Spring	Mechanics of Composite Matls	
<b>Inter-Disciplinary</b>				
CE4404	3	Fall	Railroad Engineering	
CE4405	3		International Railroad Engineering	
CM4631	2		Polymer Science Laboratory	CM4610 (C)
CM4650	3	Spring	Polymer Rheology	(CM3110 OR MEEM3210 OR ENG3200 OR MY3110 OR CE3600) AND MA3520/3521/ 3530/3560
CM4655	1	Fall	Polymer Rheology Laboratory	CM4610 (C) OR CH4610 (C) OR CM4650 (C)
MY4130	3	Fall	Principles of Metal Casting	MY2100
MY4155	3	Spring	Composite Materials	MY2100
MY4800	3	Spring	Material and Process Selection in Design	MY2100

\* Semesters/Years offered subject to change. Refer to Schedule of Classes in BanWeb for current offerings.

Course Descriptions available at <http://www.mtu.edu/catalog/undergraduate/course-descriptions/>