## Curriculum

## □ Undergraduate Program

Classification	Subject No.	Subject Name	Lecture:Lab.: Credit (Homework)	Semester	Remark
Basic Course	MS211	Introduction to Materials Science and Engineering	3:0:3(3)	Spring, Fall	
Major (Mandatory)	MS212	Thermodynamics of Materials	3:0:3(3)	Spring	
	MS311	Phase Transformation and Microstructural Evolution	3:0:3(3)	Spring	
	MS321	Advanced Materials Lab	1:6:3(6)	Spring	
	MS322	Advanced Materials Lab II	1:6:3(6)	Fall	
	MS213	Crystallography and Diffraction	2:3:3(3)	Fall	
	MS214	Thermochemical Process in Materials Science and Engineering	3:0:3(3)	Fall	
	MS215	Mechanical Behavior of Materials	3:0:3(3)	Fall	
	MS216	Introduction to Electrical and Magnetic Properties of Materials	3:0:3(3)	Spring	
	MS310	Introduction to Quantum Chemistry	3:0:3(3)	Spring	
	MS331	Nanomaterials Science & Technology	3:0:3(3)	Spring	
	MS340	Polymer Materials	3:0:3(3)	Fall	
	MS354	Corrosion and Oxidation of Metals	3:0:3(3)	Fall	
	MS360	Mechanics of Materials	3:0:3(3)	Fall	
Major (Elective)	MS371	Structure and Properties of Engineering Alloys	3:0:3(3)	Spring	
· /	MS381	Introduction to Solid State Physics	3:0:3(3)	Fall	
	MS412	Material Design and Manufacturing Process	2:3:3(5)	Spring	
	MS415	Introduction to Semiconductor Devices	3:0:3(2)	Spring	
	MS421	Introduction to Ceramics	3:0:3(3)	Spring	
	MS424	Understanding of Electronic Systems for Materials Engineers	3:0:3(3)	Fall	
	MS425	Introduction to Biomaterials	3:0:3(3)	Spring	
	MS431	Nano-Biomaterials	3:0:3(3)	Fall	
	MS481	Semiconductor Processing	3:0:3(2)	Fall	
	MS482	Special Topics in Materials Science and Engineering	3:0:3(3)	Spring, Fall	
	MS490	Research in Materials Science and Engineering	0:6:3(3)		
	MS495	Individual Study	0:6:1(3)		
	MS496	Seminar	1:0:1(3)		

\* Note: 400 and 500 level courses open to both undergraduate and graduate students

## Graduate Program

CC010Special Lecture on Leadership1.0.0FallrequiredCC020Ethics and Safey 11AUSpring-FallCC030Scientific Writing3.0.3Spring-FallCC510Introduction to Computer Application2.3.3Spring-FallCC511Probability and Statistics2.0.3Spring-FallCC512Introduction to Materials and Engineering3.0.3Fall1CC513Engineering Economy and Cost Analysis3.0.3Fall1CC530Entreprenurship and Business Strategies3.0.3Spring-FallCC531Olaborative System Design and Engineering4.0.4SpringCC532Collaborative System Design and Engineering4.0.4SpringMS511Thermodynamics and Phase Equilibria3.0.3(3)SpringMS512Statistical Thermodynamics in Materials System3.0.3(3)SpringMS513Thir Film Processing3.0.3(3)SpringMS514Diffusion in Solid3.0.3(3)FallMS515Thir Birl Processing3.0.3(3)SpringMS514Infruduction to Dislocations3.0.3(3)FallMS515Thir Birl Processing3.0.3(3)FallMS514Infruduction to Dislocations3.0.3(3)FallMS515Infruduction to Dislocations3.0.3(3)FallMS514Infruduction to Dislocations3.0.3(3)Fall <th>Classificatio n</th> <th>Subject No.</th> <th>Subject Name</th> <th>Lecture:Lab.: Credit (Homework)</th> <th>Semester</th> <th>Remark</th>	Classificatio n	Subject No.	Subject Name	Lecture:Lab.: Credit (Homework)	Semester	Remark
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MS619Electronic Ceramics Materials3:0:3(2)FallMS620Optical Materials3:0:3(3)SpringMS621Dielectric Materials3:0:3(3)Spring		MS615	Structure and Properties of Interfaces	3:0:3(3)	Spring·Fall	
MS620Optical Materials3:0:3(3)SpringMS621Dielectric Materials3:0:3(3)Spring		MS617	Electrochemistry of Solids for Materials Scientist	2:3:3(3)	Fall	
MS620Optical Materials3:0:3(3)SpringMS621Dielectric Materials3:0:3(3)Spring		MS619	Electronic Ceramics Materials		Fall	
MS621 Dielectric Materials 3:0:3(3) Spring						
		MS624	Optical Waves and Periodic Media	3:0:3(3)	Fall	

\* Note: 400 and 500 level courses open to both undergraduate and graduate students

Classificatio n	Subject No.	Subject Name	Lecture:Lab.: Credit (Homework)	Semester	Remark
	MS631	Alloy Design and Applications	3:0:3(3)	Fall	
	MS632	Creep and Superplasticity	3:0:3(3)	Spring	
	MS633	Solid State Chemical Sensors	3:0:3(3)	Fall	
	MS634	Crystal Physics	3:0:3(3)	Spring	
	MS635	Semiconductor Integrated Process Design	3:0:3(2)	Fall	
	MS642	Electronic Packaging Technology	3:0:3(2)	Spring	
	MS643	Sintering	3:0:3(3)	Fall	
	MS644	Advanced Polymeric Materials	3:0:3(3)	Fall	
	MS653	Microstructural Analysis in Materials Science	2:3:3(3)	Spring	
	MS654	Surface Science	3:0:3(2)	Spring	
	MS656	Corrosion & Mechanochemical Reactions on Surfaces	2:3:3(3)	Fall	
	MS657	Environmental Effects on the Degradation of Materials	3:0:3(3)	Spring	
Elective Course	MS660	Fracture Mechanics	3:0:3(3)	Spring	
course	MS661	Fatigue Phenomena in Metals	3:0:3(3)	Fall	
	MS662	Mechanical Properties of Thin Films	3:0:3(3)	Spring	
	MS670	Sol-Gel Nano Materials and Process	3:0:3(3)	Fall	
	MS671	First-principles Modeling of Materials	3:0:3(3)	Spring·Fall	
	MS672	Special Topics on Nano Material Technology	3:0:3(3)	Spring·Fall	
	MS673	Photochemical Materials	3:0:3(3)	Spring	
	MS684	Principles of Semiconductor Devices	3:0:3(3)	Spring	
	MS685	Physics of Magnetism and Magnetic Materials	3:0:3(2)	Fall	
	MS686	Photovoltaic Materials	3:0:3(3)	Spring	
	MS696	Special Topics in Advanced Materials I	3:0:3(3)	Spring·Fall	
	MS697	Special Topics in Advanced Materials II	3:0:3(3)	Spring·Fall	
	MS698	Special Topics in Advanced Materials III	3:0:3(3)	Spring·Fall	
Research	MS960	Research in Materials Science and Engineering (Master)			
	MS966	Seminar (Master)	1:0:1(3)		
	MS980	Research in Materials Science and Engineering (Doctorate)			
	MS986	Seminar (Doctorate)	1:0:1(3)		

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