

MSEP Approved CORE classes

	CATEGORY	Course #/ title	Normally offered
0	Mandatory core course	MATSE/MSE 505 – Advanced Materials	F – annually
1	Thermodynamics	MSE/ME 514 – Thermodynamics of solids CHEM 531 – Advanced Physical Chemistry I PHYS 533 – Thermal and Statistical Physics I PHYS 534 – Thermal and Statistical Physics II ME 526 – Statistical Thermodynamics	F – even years F – annually S – annually S – annually S – odd years
2	Solid State	PHYS 563 – Physics of the Solid State PHYS 463 – Introduction to Solid State & Materials Physics CHEM 480 – Solid State Chemistry MSE 515 – Electronic Properties of Materials	F – annually S – annually F – odd years F – even years
3	Materials characterization	MATSE 571 – Microscopic Analysis of Solid Surfaces MATSE/MSE 521 – Statistics of Microstructures	S – annually S – odd years*
4	Advanced chemistry	CHEM 520 – Advanced Analytical Chemistry CHEM 501 – Advanced Inorganic Chemistry I CHEM 532 – Advanced Physical Chemistry II # CHEM 542 – Advanced Organic Chemistry	F – annually S – odd years F – annually F – annually
5	Quantum mechanics	CHEM 532 – Advanced Physical Chemistry II # PHYS 450 – Introduction to Quantum Mechanics PHYS 550 – Quantum Theory I	F – annually F – annually F – annually
6	Macro-mechanics	CE 514 – Advanced Mechanics of Materials MSE/ME 537 – Fracture Mechanics and Mechanisms ME 501 – Continuum Mechanics MSE/ME 530 – Elasticity MSE/ME 531 – Theory of Plasticity	F – annually S – odd years F – even years F – odd years S – even years
7	Micro-mechanics	MATSE/MSE/ME 513 – Crystal Plasticity MSE/ME 534 – Mechanics of Composite Materials	F – even years F – odd years
8	Transport/kinetics	CHE 510 – Transport Processes CHE 529 – Chemical Engineering Kinetics MATSE/MSE 516 – Phase Transformations	F – annually S – annually S – even years
9	Multi-component systems	MATSE/MSE 506 – Biomaterials MSE 517 – Thin Films MSE 404 – Engineering Composites MSE 543/CE 593 – Polymer Materials and Engineering CHE 585 – Interfacial Phenomena	F – odd years S – odd years S – annually S – even years* S – even years

*irregularly offered

#cannot be counted for two categories