

NIA Graduate Program: Fall 2021

FULL COURSE LIST

HAMPTON UNIVERSITY

TBD			
* Courses taught on HU campus			
+ Course instructor on-site at NIA			

GEORGIA TECH

Aerospace Engineering (MS and PhD)			
AE 6009 Q	Viscous Flow	Menon	Asynchronous streaming media
AE 6030 Q	Unsteady Aerodynamics	Smith	
AE 6100 Q	Structural Stability I	TBA	
AE 6114 Q	Fundamental Solid Mechanics	Rimoli	
AE 6170 Q	Structural Optimization	Kennedy	
AE 6230 Q	Structural Dynamics	Hanagud	
AE 6333 Q	Rotorcraft Design I	McColl	
AE 6343 Q	Aircraft Design I	Mavris	
AE 6353 Q	Orbital Mechanics	Ho	
AE 6372 Q	Aerospace Systems Engineering	Garcia	
AE 6373 Q	Advanced Design Methods I Lecture	Mavris	
AE 6373 Q01	Advanced Design Methods I Laboratory	Mavris	
AE 6393 Q	Intro to Systems of Sys Eng	Bagdatli	
AE 6451 Q	Electric Propulsion	Walker	
AE 6530 Q	Multivar Linear Sys & Ctl	Haddad	
AE 6760 Q	Acoustics I	Arvanitis	
AE 6765 Q	Kinetics & Thermo Gases	Jagoda	
AE 7772 Q	Fundamentals of Fracture Mechanics	Xia	
AE 8803 QRA	Spec Topics - Advanced Aerodynamics of Vertical Lift	Rauleder	

*Synchronous (live) course received or delivered from NIA.

+ Course instructor on-site at NIA

NORTH CAROLINA STATE UNIVERSITY

Mechanical and Aerospace Engineering (MS and PhD)			
MAE 504	Fluid Dynamics of Combustion I		Asynchronous streaming media
MAE 505	Heat Transfer Theory and Applications		
MAE 511	Advanced Dynamics with Applications to Aerospace Systems		
MAE 517	Advanced Precision Manufacturing for Products, Systems and Processes		
MAE 531	Engineering Design Optimization		
MAE 533	Finite Element Analysis I		
MAE 541	Advanced Solid Mechanics I		
MAE 551	Airfoil Theory		
MAE 586	Project Work in Mechanical Engineering		
Electrical and Computer Engineering (courses only)			
ECE 506	Architecture of Parallel Computers		Asynchronous streaming media
ECE 511	Analog Electronics		
ECE 513	Digital Signal Processing		
ECE 514	Random Processes		
ECE 534	Power Electronics		
ECE 542	Neural Networks		

ECE 550	Power System Operations and Control		
ECE 556	Mechatronics		
ECE 560	Embedded Systems Architectures		
ECE 564	ASIC and FPGPA Design With Verilog		
ECE 568	Nanomanufacturing Techniques and Applications in Naonsytems		Asynchronous streaming media
ECE 570	Computer Networks		
ECE 573	Internet Protocols		
ECE 574	Computer and Network Security		
ECE 578	LTE and 5G Communications		
ECE 585	The Business of the Electric Utility Industry		
ECE 587	Power System Transients Analysis		
ECE 592-602	Topics in Data Science		
ECE 592-611	Optimization and Algorithms		
ECE 600	Graduate Orientation		
ECE 714	Advanced Integrated Circuit Design: Date Converters		
ECE 732	Dynamics and Control of Electric Machines		
ECE 748	Advanced Verification with UVM		
Industrial & Systems Engineering (courses only)			
ISE 501	Introduction to Operations Research		
ISE 515	Manufacturing Process Engineering		
ISE 535	Python Programming for Industrial & Sytems Engineers		
ISE 544	Occupational Biomechanicx		
ISE 552	Design and Control of Production and Service Systems		Asynchronous streaming media
ISE 560	Stochastic Models in Industrial Engineering		
ISE 589-601	Digital Manufacturing		
ISE 589-606	Probability and Statistics for Engineers		
ISE 716	Automated Systems Engineering		
Materials Sciences and Engineering (courses only)			
MSE 500	Modern Concepts in Materials Science		
MSE 509	Nuclear Materials		
MSE 540	Processing of Metallic Materials		
MSE 545	Ceramic Processing		
MSE 708	Thermodynamics of Materials		Asynchronous streaming media
MSE 721	Nanoscale Simulations and Modeling		
MSE 723	Materials Informatics		
MSE 760	Materials Science in Processing of Semiconductor Devices		
MSE 791-605	Nonferrous Alloys		
These courses are offered asynchronously and utilize WEB accessible streaming or CDROMs delivered to the student. For updates on asynchronous courses go to: http://EngineeringOnline.ncsu.edu .			
*Synchronous (live) course received or delivered from NIA.			
X Course instructor on-site at NIA			
NORTH CAROLINA A&T UNIVERSITY			
Computer Engineering			
TBD			
Electrical Engineering			
*Synchronous (live) course received or delivered from NIA.			
OLD DOMINION UNIVERSITY			
Aerospace Engineering (MS and PhD)			
NIA received or web delivery			
Mechanical and Aerospace Engineering (MS and PhD)			

MAE 460/560	Introduction to Space Systems Engineering	Asundi	TR 9:30am-10:45am*
MAE 601	Engineering Mathematics	Kotinis	TR 1:00pm-2:15pm*
MAE 604	Analytical Dynamics	Newman	MW 11:00am-12:15pm*
MAE 605	Advanced Classical Thermodynamics	Taylor	MW 1:00pm-2:15pm*
MAE 640	Modern Control Theory	Alberts	MW 1:00pm-2:15pm*
MAE 672	Design of Experiments	Landman	TR 4:20pm-5:35pm*
MAE 716/816	Computational Fluid Dynamics I	Baysal	F 10:00am-12:40pm*
MAE 730/830	Finite Element Analysis	Hao	W 4:20pm-7:00pm*
MAE 734/834	Theory of Vibrations	Xu	TR 2:30pm-3:45pm*
MAE 745/845	Space Flight Dynamics and Controls	Newman	TR 1:00pm-2:15pm*
MAE 753/853	Composite Materials	Kravchenko	TR 11:00am-12:15*
MAE 785/885	Advanced Manufacturing Technology	Tomovic	MW 1:00pm-2:15pm*
MAE 795/895	Satellite Remote Sensing	Bernath	MW 9:30am-10:45am*
Chemical Engineering			
CHEM 758	Satellite Remote Sensing	Bernath	MW 9:30am-10:45am*
<i>*Synchronous (live) course received on student desktop or laptop</i>			
UNIVERSITY OF MARYLAND			
Aerospace Engineering (MS and PhD) These courses are currently on UMD's schedule to be offered to NIA students as distance courses on Zoom due to COVID-19 situation			
ENAE 631	Helicopter Aerodynamics I	Chopra	TR 2:00pm-3:15pm
ENAE 636	Helicopter Dynamics II	Datta	MW 9:30am-10:45am
ENAE 651	Smart Structures	Chopra	TR 9:30am-10:45am
ENAE 684	Computational Fluid Dynamics I	Baeder	TR 11:00am-12:15pm
<i>Above are synchronous (live) course received on student's desktop or laptop</i>			
UNIVERSITY OF VIRGINIA			
Civil Engineering			
CE 5020 (Section 600, Class Number (19766)	Geographic Information Systems	Miller	Asynchronous
CE 5320 (Section 600, Class Number (19768	Adv Reinforced Concrete Design	Gomez	Asynchronous
CE 5340 (Section 600, Class Number (19769)	Advanced Structures	Gomez	Asynchronous
CE 5400 (Section 600, Class Number (19770)	Traffic Operations	Park	Asynchronous
CE 5500 (Section 600, Class Number (19771)	Special Topics: Construction Scheduling	Franco	Asynchronous
CE 6470 (Section 600, Class Number (19772)	Transport Economics & Finance	Chen	Asynchronous
CE 6500 (Section 600, Class Number (19799)	Special Topics in CE	Duran	Asynchronous
CE 6700 (Section 600, Class Number (19801)	Energy Principles in Mechanics	Gomez, III	Asynchronous
CE 6710 (Section 600, Class Number (19773)	Adv. Mech of Materials	Pindera	Asynchronous
Chemical Engineering			
CHE 6665 (Section 600, Class Number (19775)	Tech for Chem Engr Analysis & Design	Paolucci	Asynchronous
Electrical and Computer Engineering (MS and Ph.D.)			
ECE 6501 (Section 600, Class Number (19776)	Topics: Electrical & Computer Engr	Gupta	Asynchronous
Materials Sciences and Engineering (MS and Ph.D.)			
MSE 6010 (Section 600, Class Number (19780)	Elec & Crystal Structure of Mtrls	Reinke	Asynchronous
MSE 6120 (Section 600, Class Number (19782)	Characterization of Materials	Sun	Asynchronous
MSE 6230 (Section 600, Class Number (19783)	Thermodynamics of Materials	Zhou	Asynchronous
MSE 6592 (Section 600, Class Number (19784)	Topics in Material Science: Additive Manufacturing Metals	Martukanitz	Asynchronous
MSE 6592 (Section 601, Class Number (19785)	Topics in Material Science: Adv Thin-Film Optoelectronics	Lee	Asynchronous
MSE 6592 (Section 602, Class Number (19787)	Topics in Material Science: Semiconductor Devices	Shukla	Asynchronous
MSE 6592 (Section 603, Class Number (19789)	Topics in Material Science: Materials Science of Polymers	Cai	Asynchronous
MSE 6592 (Section 604, Class Number (19790)	Topics in Material Science: Temperature Oxidation	Opila	Asynchronous

MSE 7140 (Section 600, Class Number (19791)	Physics of Materials	Ihiefeld	Asynchronous
MSE 7820 (Section 600, Class Number (19792)	Materials Science Seminar	Shukla	Asynchronous
Mechanical and Aerospace Engineering (MS and PhD)			
MAE 6410 (Section 600, Class Number (19777)	Engineering Mathematics I	Wood	Asynchronous
MAE 6620 (Section 600, Class Number (19778)	Linear State Space Systems	Tao	Asynchronous
Engineering Physics (MS and Ph.D.)			
Systems Engineering (MS and Ph.D.)			
SYS 6003 (Section 600, Class Number (19793)	Optimization Models & Methods I	Riggs	Asynchronous
SYS 6005 (Section 600, Class Number (19794)	Stochastic Modeling I	Iqbal	Asynchronous
SYS 6581 (Section 600, Class Number (19795)	Selected Topics in Sys Engr	Behl	Asynchronous
<i>*Synchronous (live) course received on student desktop or laptop</i>			
VIRGINIA TECH			
Aerospace and Ocean Engineering (MS and P.D)			
AOE 5074	Advanced Ship Structural Analysis	Gilbert	Asynchronous
AOE 5124	Advanced Aero Hydrodynamics	Massa	Asynchronous
AOE 5135	Vehicle Propulsion	Lowe	Asynchronous
AOE 5174	Introduction to Plasma Science	TBA	Asynchronous
AOE 5204	Vehicle Dynamics and Control	Psiaki	Asynchronous
AOE 5304	Advanced Naval Architecture	Brizzolara	Asynchronous
AOE 5314	Naval and Marine Engineering System Design	Brown	Asynchronous
AOE 5315	Naval Ship Design	Brown	Asynchronous
AOE 5324	Principles of Naval Engineering with Applications	Brown	Asynchronous
AOE 5434G	Advanced Introduction Composite Fluid Dynamics	Choi	Asynchronous
AOE 5604	Modeling Composites Damage	Seidel	Asynchronous
AOE 5614	Modeling Multifunct Composites	Seidel	Asynchronous
AOE 5744	Linear Systems Theory	TBA	M-SA - Weekly live sessions
AOE 5734	Applied Linear Systems	Southward	Asynchronous
AOE 5774	Nonlinear Systems Theory	Sultan	Asynchronous
AOE 6124	Hypersonic Aerodynamics	Young	Asynchronous
Materials Science and Engineering (MS and Ph.)			
Mechanical Engineering (MS and PhD)			
<p># Courses are available for graduate credit XX ONLINE course. Primarily received at desktop. **Synchronous (live) course delivered at the Peninsula Graduate Center ME courses are delivered at NIA Headquarters.</p> <p style="text-align: right;">*Synchronous (live) course received or delivered from NIA X Course instructor on-site at NIA. All VT AOE, ESM, MSE and</p>			