## Mech and Aero - Joint (MAAJ)

Mechanical and Aerospace Engineering (Joint) (MAAJ) Courses

MAAJ 5001 [0.5 credit] (AMM 5101) Theory of Elasticity

MAAJ 5002 [0.5 credit] (AMM 5102) Advanced Stress Analysis

MAAJ 5003 [0.5 credit] (AMM 5103) Theory Perfectly Plastic Solid

MAAJ 5004 [0.5 credit] (MCG 5104) Theory of Plates and Shells

MAAJ 5005 [0.5 credit] (MCG 5105) Continuum Mechanics

MAAJ 5006 [0.5 credit] (AMM 5106) Advanced Topics in Elasticity

MAAJ 5007 [0.5 credit] (MCG 5107) Adv. Dynamics w/Applications

MAAJ 5008 [0.5 credit] (MCG 5108) Finite Element Analysis

MAAJ 5009 [0.5 credit] (MCG 5109) Advanced Topics in Finite Element Analysis

MAAJ 5010 [0.5 credit] (MCG 5310)
Performance and Economics of V/Stol Aircraft

MAAJ 5011 [0.5 credit] (AMM 5138) Advanced Topics in Advanced Materials and Manufacturing

MAAJ 5012 [0.5 credit] (AMM 5364) Computational Metallurgy

MAAJ 5013 [0.5 credit] (MCG 5125) Advanced Dynamics MAAJ 5014 [0.5 credit] (MCG 5314)
Ground Transportation Systems and Vehicles

MAAJ 5015 [0.5 credit] (MCG 5120) Micro and Nano Systems

MAAJ 5021 [0.5 credit] (MCG 5321) Methods of Energy Conversion

MAAJ 5022 [0.5 credit] (MCG 5322) Nuclear Engineering

MAAJ 5025 [0.5 credit] (MCG 5325) Wind Engineering

MAAJ 5026 [0.5 credit] (MCG 5326) System Modelling, Dynamics and Control

MAAJ 5027 [0.5 credit] (MCG 5327) Nonlinear System Analysis and Controls

MAAJ 5028 [0.5 credit] (MCG 5328) 3D Machine Vision: From Robots to the Space Station

MAAJ 5030 [0.5 credit] (MCG 5330) Engineering Acoustics

MAAJ 5031 [0.5 credit] (MCG 5331) Aero-Acoustics

MAAJ 5042 [0.5 credit] (MCG 5342) Gas Turbines

MAAJ 5048 [0.5 credit] (MCG 5348) Convective Heat and Mass Transfers

MAAJ 5050 [0.5 credit] (MCG 5300) Fundamentals of Fluid Dynamics Also listed as MECH 5000.

MAAJ 5051 [0.5 credit] (AMM 5130)
Deformation and Fracture of Engineering Materials

MAAJ 5052 [0.5 credit] (AMM 5122)
Failure Analysis of High-Temperature Protective
Coatings for Aerospace Applications

MAAJ 5053 [0.5 credit] (AMM 5124) MAAJ 5122 [0.5 credit] (MCG 5352) **Fatigue and Damage Tolerance in Aircraft Optimal Control Systems** MAAJ 5054 [0.5 credit] (MCG 5147) MAAJ 5123 [0.5 credit] (MCG 5353) **Finite-Volume Methods for Compressible Flows Robotics** MAAJ 5055 [0.5 credit] (MCG 5148) MAAJ 5151 [0.5 credit] (MCG 5311) **High-Performance Parallel Scientific Computing Dynamics and Aerodynamics of Flight** Includes: Experiential Learning Activity Also listed as MECH 5101. MAAJ 5056 [0.5 credit] (AMM 5125) **Materials Characterization Techniques** MAAJ 5152 [0.5 credit] (MCG 5301) **Theory of Viscous Flows** MAAJ 5057 [0.5 credit] (AMM 5121) Materials Selection in Engineering Design MAAJ 5153 [0.5 credit] (MCG 5303) **Incompressible Non-Viscous Flows** MAAJ 5058 [0.5 credit] (MCG 5149) **Non-Equilibrium Gas Dynamics** MAAJ 5154 [0.5 credit] (MCG 5304) **Compressible Non-Viscous Flows** MAAJ 5059 [0.5 credit] (MCG 5309) **Environmental Fluid Mechanics** Includes: Experiential Learning Activity MAAJ 5155 [0.5 credit] (MCG 5315) Also listed as MECH 5009. Orbital Mechanics and Space Control Includes: Experiential Learning Activity Also listed as MECH 5105. MAAJ 5100 [0.5 credit] (MCG 5110) Micromechanics of Solids MAAJ 5156 [0.5 credit] (AMM 5381) **Lightweight Structures** MAAJ 5101 [0.5 credit] (MCG 5111) **Gas Dynamics** MAAJ 5157 [0.5 credit] (MCG 5121) **Space Mission Analysis and Design** MAAJ 5102 [0.5 credit] (AMM 5317) **Experimental Stress Analysis** MAAJ 5158 [0.5 credit] (MCG 5308) **Experimental Methods in Fluid Mechanics** MAAJ 5103 [0.5 credit] (AMM 5374) **Integrated Manufacturing - CIMS** MAAJ 5159 [0.5 credit] (MCG 5122) **Smart Structures** MAAJ 5105 [0.5 credit] (MCG 5115) **Non-Linear Optimization** MAAJ 5206 [0.5 credit] (AMM 5126) **Deformation of Materials** MAAJ 5107 [0.5 credit] (AMM 5117) **Intro to Composite Materials** Includes: Experiential Learning Activity MAAJ 5209 [0.5 credit] (AMM 5129) **Hot Working of Metals** MAAJ 5108 [0.5 credit] (AMM 5118) **Introduction to Plasticity** MAAJ 5251 [0.5 credit] (MCG 5354) Guidance, Navigation and Control

MAAJ 5252 [0.5 credit] (MCG 5356)

**Neuro and Fuzzy Control** 

MAAJ 5109 [0.5 credit] (AMM 5119)

**Fracture Mechanics** 

MAAJ 5253 [0.5 credit] (MCG 5366) Finite Element Analysis II

MAAJ 5254 [0.5 credit] (MCG 5483) Fundamentals of Combustion Also listed as MECH 5204.

MAAJ 5255 [0.5 credit] (MCG 5324) Building Performance Simulation Includes: Experiential Learning Activity Also listed as MECH 5205.

MAAJ 5301 [0.5 credit] (MCG 5131) Heat Transfer by Conduction

MAAJ 5302 [0.5 credit] (MCG 5132) Heat Transfer by Convection

MAAJ 5303 [0.5 credit] (MCG 5133) Heat Transfer by Radiation

MAAJ 5304 [0.5 credit] (MCG 5134) Heat Transfer w/Phase Change

MAAJ 5305 [0.5 credit] (MCG 5343) Advanced Thermodynamics

MAAJ 5306 [0.5 credit] (MCG 5136) Special Studies in Fluid Mech and Heat Transfer

MAAJ 5307 [0.5 credit] (AMM 5137) Special Studies in Solid Mechanics and Materials

MAAJ 5308 [0.5 credit] (MCG 5138) Advanced Topics in Mechanical Engineering

MAAJ 5309 [0.5 credit] (MCG 5375) CAD/CAM

MAAJ 5311 [0.5 credit] (MCG 5471) Special Topics in Mechanical and Aerospace Engineering

MAAJ 5312 [0.5 credit] (MCG 5472) Special Topics in Mechanical and Aerospace Engineering MAAJ 5313 [0.5 credit] (MCG 5473) Special Topics in Mechanical and Aerospace Engineering

MAAJ 5314 [0.5 credit] (MCG 5474) Special Topics in Mechanical and Aerospace Engineering

MAAJ 5315 [0.5 credit] (MCG 5475) Special Topics in Mechanical and Aerospace Engineering

MAAJ 5316 [0.5 credit] (MCG 5476) Special Topics in Mechanical and Aerospace Engineering

MAAJ 5317 [0.5 credit] (MCG 5477) Special Topics in Mechanical and Aerospace Engineering

MAAJ 5318 [0.5 credit] (MCG 5478) Special Topics in Mechanical and Aerospace Engineering

MAAJ 5319 [0.5 credit] (MCG 5479)
Special Topics in Mechanical and Aerospace
Engineering

MAAJ 5340 [0.5 credit] (MCG 5344) Gas Turbine Combustion

MAAJ 5352 [0.5 credit] (MCG 5332) Instrumentation Techniques Also listed as MECH 5302.

MAAJ 5354 [0.5 credit] (MCG 5334) Computational Fluid Dynamics of Compressible Flow Also listed as MECH 5304.

MAAJ 5356 [0.5 credit] (MCG 5306) Theory of Subsonic Flows

MAAJ 5357 [0.5 credit] (MCG 5307) Theory of Supersonic Flows

MAAJ 5401 [0.5 credit] (MCG 5141) Statistical Thermodynamics MAAJ 5402 [0.5 credit] (MCG 5370) Special Topics in Mechanical and Aeronautical Engineering

MAAJ 5403 [0.5 credit] (MCG 5470) Special Topics in Mechanical and Aerospace Engineering

MAAJ 5408 [0.5 credit] (MCG 5551) Theorie d'Ecoulement Visqueux

MAAJ 5409 [0.5 credit] (MCG 5552) Theorie de Turbulence

MAAJ 5451 [0.5 credit] (MCG 5341) Turbomachinery Includes: Experiential Learning Activity Also listed as MECH 5401.

MAAJ 5452 [0.5 credit] (AMM 5144)
Superalloys and Ceramix-Metal Matrix Composites

MAAJ 5457 [0.5 credit] (MCG 5347) Conductive and Radiative Heat Transfer Also listed as MECH 5407.

MAAJ 5459 [0.5 credit] (MCG 5349) Two-Phase Flow and Heat Transfer

MAAJ 5500 [0.5 credit] (MCG 5557) Méthodes numeriques en mécanique

MAAJ 5501 [0.5 credit] (MCG 5151) Laminar Flow Theory

MAAJ 5502 [0.5 credit] (MCG 5152) Theory of Turbulance

MAAJ 5505 [0.5 credit] (MCG 5155) Inviscid Flow Theory

MAAJ 5506 [0.5 credit] (MCG 5156) Measurement of Fluid Mech

MAAJ 5507 [0.5 credit] (MCG 5157) Num Comp:Fluid Dyn and Heat Tran MAAJ 5509 [0.5 credit] (AMM 5159) Advanced Production Planning and Control

MAAJ 5550 [0.5 credit] (MCG 5350) Advanced Vibration Analysis Includes: Experiential Learning Activity Also listed as MECH 5500.

MAAJ 5555 [0.5 credit] (MCG 5355) Stability Theory & Application Also listed as MECH 5505.

MAAJ 5557 [0.5 credit] (MCG 5124) Advanced Kinematics Includes: Experiential Learning Activity

Also listed as MECH 5507.

MAAJ 5607 [0.5 credit] (MCG 5167) Nuclear Reactor Engineering

MAAJ 5608 [0.5 credit] (AMM 5168) Industrial Organization

MAAJ 5609 [0.5 credit] (MCG 5169) Advanced Topics in Reliability Engineer

MAAJ 5652 [0.5 credit] (AMM 5362) Failure Prevention

MAAJ 5655 [0.5 credit] (MCG 5365) Finite Element Analysis I Also listed as MECH 5605.

MAAJ 5656 [0.5 credit] (MCG 5367) The Boundary Element Method Includes: Experiential Learning Activity Also listed as MECH 5607.

MAAJ 5657 [0.5 credit] (MCG 5361) Creative Problem Solving and Design Also listed as MECH 5601.

MAAJ 5659 [0.5 credit] (AMM 5123)
Microstructure and Properties of Materials
Also listed as MECH 5609.

MAAJ 5700 [0.5 credit] (MCG 5170) Computer-Aided Design Includes: Experiential Learning Activity MAAJ 5701 [0.5 credit] (MCG 5171) Applied Reliability Theory

MAAJ 5703 [0.5 credit] (MCG 5173) Systems Engineer and Integration

MAAJ 5707 [0.5 credit] (MCG 5177) Robot Mechanics

MAAJ 5709 [0.5 credit] (AMM 5179) Manufacturing System Analysis

MAAJ 5750 [0.5 credit] (AMM 5345) Surfaces and Coatings Also listed as MECH 5700.

MAAJ 5751 [0.5 credit] (AMM 5369)
Metallic Phases and Transformations
Precludes additional credit for MECH 5701.

MAAJ 5802 [0.5 credit] (AMM 5182) Theory of Elastic Instability

MAAJ 5804 [0.5 credit] (MCG 5184) Mechatronics

MAAJ 5805 [0.5 credit] (MCG 5185) Multivariable Digital Control

MAAJ 5806 [0.5 credit] (MCG 5186) Non-Linear Disc Dyn and Control

MAAJ 5850 [0.5 credit] (MCG 5480) Special Topics in Mechanical and Aerospace Engineering Also listed as MECH 5800.

MAAJ 5851 [0.5 credit] (MCG 5380) Safety and Risk Assessment of Nuclear Power

MAAJ 5852 [0.5 credit] (MCG 5483) Special Topics in Mechanical and Aerospace Engineering Also listed as MECH 5802.

MAAJ 5853 [0.5 credit] (MCG 5488) Special Topics in Mechanical and Aerospace Engineering Also listed as MECH 5803. MAAJ 5854 [0.5 credit] (MCG 5384) Special Topics in Mechanical and Aerospace Engineering

Also listed as MECH 5804.

MAAJ 5855 [0.5 credit] (MCG 5482) Special Topics in Mechanical and Aerospace Engineering

Also listed as MECH 5805.

MAAJ 5857 [0.5 credit] (MCG 5487) Special Topics in Mechanical and Aerospace Engineering

Also listed as MECH 5807.

MAAJ 5858 [0.5 credit] (MCG 5376) Special Topics in Mechanical and Aerospace Engineering

Also listed as MECH 5808.

MAAJ 5901 [0.5 credit] (MCG 5191) Combustion in Premixed Systems

MAAJ 5902 [0.5 credit] (MCG 5192) Combustion in Diffusion System