

# Mech and Aero - Joint (MAAJ)

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## 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)**  
Topics:Finite Element Analysis

**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 5152)**  
Failure Analysis of High-Temperature Protective Coatings for Aerospace Applications

**MAAJ 5053 [0.5 credit] (AMM 5124)**  
Failure and Damage Tolerance in Aircraft

**MAAJ 5054 [0.5 credit] (MCG 5147)**  
Finite-Volume Methods for Compressible Flows

**MAAJ 5055 [0.5 credit] (MCG 5148)**  
High-Performance Parallel Scientific Computing

**MAAJ 5056 [0.5 credit] (AMM 5125)**  
Materials Characterization Techniques

**MAAJ 5057 [0.5 credit] (AMM 5121)**  
Materials Selection in Engineering Design

**MAAJ 5058 [0.5 credit] (MCG 5149)**  
Non-Equilibrium Gas Dynamics

**MAAJ 5059 [0.5 credit] (MCG 5309)**  
Environmental Fluid Mechanics  
Includes: Experiential Learning Activity  
Also listed as MECH 5009.

**MAAJ 5100 [0.5 credit] (MCG 5110)**  
Micromechanics of Solids

**MAAJ 5101 [0.5 credit] (MCG 5111)**  
Gas Dynamics

**MAAJ 5104 [0.5 credit] (MCG 5114)**  
Analy and Des: Pressure Vessels

**MAAJ 5105 [0.5 credit] (MCG 5115)**  
Non-Linear Optimization

**MAAJ 5107 [0.5 credit] (AMM 5117)**  
Intro to Composite Materials  
Includes: Experiential Learning Activity

**MAAJ 5108 [0.5 credit] (AMM 5118)**  
Introduction to Plasticity

**MAAJ 5109 [0.5 credit] (AMM 5119)**  
Fracture Mechanics

**MAAJ 5151 [0.5 credit] (MCG 5311)**  
Dynamics and Aerodynamics of Flight  
Includes: Experiential Learning Activity  
Also listed as MECH 5101.

**MAAJ 5155 [0.5 credit] (MCG 5315)**  
Orbital Mechanics and Space Control  
Includes: Experiential Learning Activity  
Also listed as MECH 5105.

**MAAJ 5206 [0.5 credit] (AMM 5126)**  
Deformation of Materials

**MAAJ 5209 [0.5 credit] (AMM 5129)**  
Hot Working of Metals

**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 5306 [0.5 credit] (MCG 5136)**  
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 Advanced Materials and  
Manufacturing Engineering

**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 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)**  
Mecanique de Fluides

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

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

**MAAJ 5652 [0.5 credit] (MCG 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)**  
CAD/CAM  
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] (MCG 5369)**

**Metallic Phases and Transformations**

**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)**

**Multivariate 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**