## AEROSPACE ENGINEERING

### Enrollment
Fall 2011

<table>
<thead>
<tr>
<th>Undergraduate Students</th>
<th>683</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graduate Students</td>
<td>135</td>
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<tr>
<td>Master’s</td>
<td>63</td>
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<tr>
<td>Ph.D.</td>
<td>72</td>
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### Quality Indicators

<table>
<thead>
<tr>
<th>Total Faculty</th>
<th>35</th>
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</thead>
<tbody>
<tr>
<td>Professors</td>
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<tr>
<td>Associate Professors</td>
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<tr>
<td>Assistant Professors</td>
<td>3</td>
</tr>
<tr>
<td>Non-tenured/Non-tenure Track</td>
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</tbody>
</table>

### U.S. News & World Report Rankings

- Undergraduate: 6
- Graduate: 8

### Centers and Laboratories

- Academic Center for Aging Aircraft
- AggieSat Lab Student Satellite Program
- Center for Autonomous Robotic and UAV Systems
- Center for Mechanics and Control
- Center for Mechanics of Composites
- Consortium for Autonomous Space Systems
- Damping Laboratory
- Electroactive Materials Robotics Laboratory
- Electromechanical Characterization Laboratory
- Flight Mechanics Laboratory
- Flight Research Laboratory
- Flight Simulation Laboratory
- General Materials Laboratory
- Klebanoff/Saric Unsteady/quiet Wind Tunnel
- Laser Diagnostics for Combustion and Propulsion
- Materials and Testing Laboratory
- NASA URETI Texas Institute for Intelligent Bio-Nano Materials and Structures (TiiMS)
- Oran W. Nicks Low-Speed Wind Tunnel (TEES)
- Propulsion Laboratory
- Texas A&M National Aerothermochemistry Laboratory
- Actively Controlled Expansion Hypersonic Tunnel
- Ames Supersonic Tunnel
- Mach 7 Shock Tunnel
- NASA Langley Mach 6 Quiet Tunnel
- Supersonic Pilot Tunnel
- Wave Propagation Laboratory

### Research Areas

#### Aerodynamics and Fluid Mechanics

- Active Flow Control
- Aerodynamics
- Aerothermochemistry
- Combustion
- Compressible, Hypersonic and Plasma Turbulence Theory, Modeling and Experiments
- Flight Measurements of Air Quality
- Gas Dynamics
- High-Speed Aerodynamics and Heat Transfer
- Kinetic Theory-Based CFD
- Laser Diagnostics
- Micro and Nanosatellite Design
- Novel Flow Diagnostics Instrumentation Development
- Propulsion
- Responsive Space Missions
- Roughness
- Turbomachinery
- Turbulent Flows
- UAV and RPV Development and Flight Test

- Wind-Flight Experiments and CFD in Boundary Layer Stability and Transition,
  Laminar Flow Control and Low-Reynolds-Number Aerodynamics

#### Dynamics and Controls

- Aeroelasticity
- Analytical Dynamics
- Autonomous Intelligent Control
- Autonomous Systems
- Cooperative Methods for Urban Search and Rescue (USAR)
- Design of In-Space Imaging Systems
- Fault Tolerant Adaptive Control
- Formation Flying
- Intelligent Cockpit Systems and Displays
- Mission Analysis
- Morphing Air and Space Vehicle
- Navigation Sensors
- Networked Control Systems
- Nonlinear Dynamics
- Orbit and Attitude Estimation
- Realtime/Anytime Path Planning

#### Materials and Structures

- Active Materials
- Composite Materials and Structures
- Computational Materials Science
- Computational Mechanics and Simulation
- Damage Mechanics
- Damping
- Discrete Dislocation Plasticity
- Dynamic Fracture
- Electric and Dielectric Polymers and Polymer Nanocomposites
- Ferroelectric Materials
- Fracture Mechanics
- MEMS and NEMS
- Multifunctional Materials
- Nanomaterials (Particles, Wires and Tubes)
- Nondestructive Testing and Evaluation
- Polymers

### Systems with Delay
- Trajectory Optimization
- Vision-based Navigation Systems

### Wind-Flight Experiments and CFD in Boundary Layer Stability and Transition,
Laminar Flow Control and Low-Reynolds-Number Aerodynamics

### Dynamic Fracture

### Electric and Dielectric Polymers and Polymer Nanocomposites

### Ferroelectric Materials

### Fracture Mechanics

### MEMS and NEMS

### Multifunctional Materials

### Nanomaterials (Particles, Wires and Tubes)

### Nondestructive Testing and Evaluation

### Polymers
BIOLOGICAL and AGRICULTURAL ENGINEERING

Enrollment Fall 2011
Texas A&M Office of Institutional Studies and Planning

<table>
<thead>
<tr>
<th>Undergraduate Students</th>
<th>334</th>
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<tr>
<td>Graduate Students</td>
<td>84</td>
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<tr>
<td>Master's</td>
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Quality Indicators

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<thead>
<tr>
<th>Total Faculty</th>
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<tr>
<td>Professors</td>
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U.S. News & World Report Rankings

<table>
<thead>
<tr>
<th>Rankings Among Public Institutions</th>
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<tr>
<td>Undergraduate: 5</td>
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<td>Graduate: 4</td>
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Centers and Laboratories

<table>
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<th>Centers and Laboratories</th>
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<tbody>
<tr>
<td>Advanced Life Support Laboratory</td>
</tr>
<tr>
<td>Bioenergy Testing and Analysis Laboratory</td>
</tr>
<tr>
<td>Biological Engineering Sensor Technologies</td>
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<tr>
<td>Bioseparations Laboratory</td>
</tr>
<tr>
<td>Center for Agricultural Air Quality</td>
</tr>
<tr>
<td>Engineering and Science</td>
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<tr>
<td>Cotton Engineering Laboratory</td>
</tr>
<tr>
<td>Food Processing Systems Laboratory</td>
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<tr>
<td>Food Safety Engineering Laboratory</td>
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<tr>
<td>Irrigation Technology Center</td>
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<tr>
<td>Precision Agriculture Laboratory</td>
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<tr>
<td>Physical Properties/Biological Materials Laboratory</td>
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<td>Soil and Water Engineering Group</td>
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<td>Vadose Zone Research Laboratory</td>
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Research Areas

<table>
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<tr>
<th>Research Areas</th>
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<tr>
<td>Agricultural Air Quality</td>
</tr>
<tr>
<td>Animal Waste Management</td>
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<td>Biofuels</td>
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<td>Biological Process Systems</td>
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<td>Biosecurity</td>
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<td>Bioseparations</td>
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<tr>
<td>Controlled Environment Agriculture</td>
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<tr>
<td>Cotton Processing</td>
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<tr>
<td>Environmental and Natural Resources</td>
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<td>Irrigation</td>
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<tr>
<td>Machine Systems</td>
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<tr>
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<td>Precision Agriculture</td>
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<td>Water Quality</td>
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BIOMEDICAL ENGINEERING

Enrollment Fall 2011
Texas A&M Office of Institutional Studies and Planning

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Quality Indicators

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<tr>
<th>U.S. News &amp; World Report Ranking</th>
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<tbody>
<tr>
<td>Rankings Among Public Institutions</td>
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<tr>
<td>14 Graduate</td>
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</table>

Endowed Professorship Holders | 2 |

Centers and Laboratories

Biomaterials Testing Laboratory
Biomedical Micro/Nanoscale Devices Laboratory
Cardiac Biomechanics Laboratory
Cellular Biomechanics Laboratory
Continuum Biomechanics Laboratory
Medical Device Systems Safety Laboratory

Molecular Biomechanics Laboratory
Optical Biosensing Laboratory
Optical Imaging Laboratory
Rehabilitation Engineering Laboratory
Soft Tissue Biomechanics Laboratory
Tissue Microscopy Laboratory

Research Areas

Anti-Fold Surface
Biologically Inspired Materials
Biomaterials
Biomechanics
Biomedical Electronics and Instrumentation
Biomedical Imaging
Biomedical Signal Processing
Biophotonics
Cardiac, Vascular and Cellular Mechanics
Clinical Engineering
Computational Mechanics
Computer Simulation of Biomolecules
Constitutive Modeling
Control Theory

Finite Element Methods
Human Factors and System Safety
Magnetic Resonance Imaging
Nano and Micro Biosensing and Imaging
Nonlinear Optical Microscopy
Nonlinear Solid Mechanics
Optical Diagnostics
Optical Imaging
Optical Sensing
Orthopedic Rehabilitation Engineering
Polymer Colloids and Hydrogels
Soft Tissue Biomechanics
Telemedicine
Tissue Engineering
Research Areas

Biomedical and Biomolecular
- Artificial Tissues
- Biofilms
- Biofuel Production, Including Biohydrogen
- Biomaterials
- Biosensing
- Cellular Engineering
- Conversion of Biomass
- Drug Delivery
- Metabolic Engineering
- Micro-encapsulation
- Protein Engineering
- Systems Engineering

Complex Fluids
- Chemical Waves in Hydrogels
- Crystallization and Deposition
- Light Scattering
- Mass Transfer
- Molecular Level Simulation
- Particle Technology and Colloidal Science
- Polymer Adsorption and Adhesion
- Rheological Properties
- Wetting and Thin Film Studies

Computational Chemical Engineering
- Ab Initio Calculations
- Atomistic Modeling
- Density Functional Theory
- Materials Modeling
- Nanotechnology
- Reaction Mechanisms and Rates
- Thermodynamic Property Prediction

Environmental
- Absorptive Separations
- Bioremediation
- Catalytic and Advanced Oxidation
- Integrated Biorefineries
- Organic Synthesis

Materials
- Complex Multicomponent Systems
- Diffusion
- Electronic Materials
- Materials Processing
- Membrane Separations
- Polymer Properties
- Reaction Kinetics
- Rheology
- Solution Thermodynamics
- Structure Processing
- Thermodynamics
- Thin Films

Microelectronics
- Biochips
- Electrical Discharge Machining Process
- Electrode Erosion
- Mechanism of Plasma Processes
- Nano Electronics
- Novel Devices
- Particle Transport
- Plasma Phase Chemistry
- Semiconductor Devices
- Surface Reactions
- Thin Film Technologies
- Thin Film Transistors
- ULSIC

Microfluidics
- Controlled Emulsification
- Colloidal Self-Assembling

Modeling and Simulation

Nanotechnology

Process Safety
- Abnormal Situation Management
- Accident Database (Development and Analysis)
- Aerosol Generation and Modeling
- Calorimetry, Reactive Chemicals and Chemical Engineering
- Computational Chemistry
- Computational Fluid Dynamics Modeling
- Development of Analytical and Computational Tools
- Fires and Explosions
- Improve Process Design Software
- Inherently Safer Design and Technology
- LNG Design and Safety
- Metrics for Safety Systems
- Quantitative Risk Assessment
- Safety Culture and Climate
- Vapor Dispersion Modeling

Process Systems Engineering
- Process Design and Synthesis
- Process Integration
- Process Modeling, Operation and Control
- Process Optimization

Reaction Engineering
- Catalysis
- Determination of Kinetics
- Reactor Design and Configuration

Thermodynamics
- Correlations
- Equations of State
- Measurements
  - Densities
  - Phase Behavior
Zachry Department of
CIVIL ENGINEERING

Enrollment Fall 2011
Texas A&M Office of Institutional Studies and Planning

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<thead>
<tr>
<th>Undergraduate Students</th>
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<tr>
<td>Ph.D.</td>
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Quality Indicators

Total Faculty  67
Professors     24
Associate Professors 23
Assistant Professors 13
Non-tenured/Non-tenure Track 6

U.S. News & World Report Rankings
Rankings Among Public Institutions
Undergraduate  7
Graduate       8

Endowed Chair Holders  5
Endowed Professorship Holders  6
Development Professorship Holders  6
National Academy of Engineering Members  1

Centers & Laboratories

Association of American Railroads Affiliated Laboratory (TTI)
Center for Dredging Studies (TEES)
Center for Infrastructure Engineering (TEES)
Center for Ports & Waterways (TTI)
Center for Sustainable Water Systems (TEES)
Center for Transportation Safety (TTI)
Center on Tolling Research (TTI)
Haynes Coastal Engineering Laboratory (TEES)
International Center for Aggregates Research (TTI)
National Geotechnical Experimentation Site
Offshore Technology Research Center (TTI)
Southwest Region University Transportation Center (TTI)
TransLink™ Research Center & Laboratory (TTI)
University Transportation Center for Mobility (TTI)

Construction, Geotechnical & Structural Engineering Laboratories
Construction Materials Laboratory
Electrochemistry Laboratory
Geotechnical Graduate Laboratory

Research Areas

Coastal Engineering
- Beach Nourishment
- Coastal Processes
- Coastal Structures
- Dredging
- Environmental Fluid Dynamics
- Storm Surges & Risks

Construction Engineering & Management
- Construction Materials
- Construction Planning & Field Operations
- Process Modeling
- Project Development & Financing
- Project Management
- Risk Management & Decision Analysis
- Stochastic Simulation

Environmental Engineering
- Air Pollution Contaminant Transport
- Environmental Management
- Hazardous Wastes/Remediation
- Natural Environmental Systems
- Risk Assessment
- Water/Wastewater

Geotechnical Engineering
- Constitutive Modeling
- Earthquake Susceptible Soils
- Expansive Soils
- Instrumentation, Health Monitoring & Assessment
- Scour

Soil Mechanics
- Soil-Structure Interaction

Infrastructure Management & Security
- Condition Assessment
- Infrastructure Security
- Infrastructure & Transportation Asset Management
- Pavement Management
- Performance Modeling & Prediction

Materials Engineering
- Asphaltic & Concrete Pavements
- Construction Materials
- Corrosion Within Structures
- Fracture & Damage Mechanics
- Mechanical Properties & Transport in Concrete Materials
- Micromechanics & Microstructure Characterization
- Nondestructive Testing
- Pavement Evaluation
- Recycled Materials

Ocean Engineering
- Computational Fluid Dynamics
- Dynamics of Offshore Structures
- Fluid-Structure Interaction
- Mooring Systems
- Multiphase Flow
- Naval Architecture
- Nonlinear Hydrodynamics
- Ocean Wave Dynamics

Structural Engineering
- Building, Transportation & Offshore Structures
- Damage Detection
- Engineering Risk Analysis
- Fatigue & Fracture
- Preservation of Historic Structures
- Seismic & Wind Performance
- Smart Materials & Structures
- Structural Reliability
- Vibrations, Sensing & Control

Transportation Engineering
- Geometric Design
- Intelligent Transportation Systems
- Planning
- Scheduling Algorithms
- Traffic Control Devices
- Transit Systems
- Transportation Economics
- Transportation Operations
- Transportation Safety
- Transportation Systems Modeling

Water Resources Engineering
- Hydraulics
- Hydrology
- Remote Sensing
- Sustainability
- Systems Analysis
- Water Resources Planning & Management
Computer Science and Engineering

Enrollment Fall 2011
Texas A&M Office of Institutional Studies and Planning

<table>
<thead>
<tr>
<th>Undergraduate Students</th>
<th>770</th>
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<td>Total Faculty</td>
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<tr>
<td>Professors</td>
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<td>Non-tenured/Non-tenure Track</td>
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Quality Indicators

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<th>U.S. News &amp; World Report Rankings</th>
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<tr>
<td>Rankings Among Public Institutions</td>
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<tr>
<td>Computer Engineering</td>
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<tr>
<td>Computer Science</td>
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</tbody>
</table>

| Endowed Chair Holders | 1 |
| Endowed Professorship Holders | 4 |
| Distinguished Professors | 1 |
| National Academy of Engineering Members | 1 |

Centers and Laboratories

- Brain Networks Laboratory
- Center for the Study of Digital Libraries (TEES)
- Electronic Design Automation Laboratory
- Embedded Systems and Codesign Group
- Geometry and Graphics Group
- High Performance Computing Laboratory
- Human-Autonomous Robot Design and Systems (HARD Systems) Laboratory
- Hypermedia Research Laboratory
- Interface Ecology Laboratory
- Internet Research Laboratory
- Laboratory for Software Research
- Parasol Laboratory
- Pattern Recognition and Intelligent Sensor Machines (PRISM) Laboratory
- Real-Time Distributed Systems
- Real-Time Systems Group
- Software Process Improvement Laboratory
- Sketch Recognition Laboratory
- Training Systems Science and Technology Center
- Virtual Network Engineering Laboratory

Research Areas

Core Research Areas
- Foundations of Computing
- Human-Centered Systems
- Information
- Intelligent Systems and Robotics
- Software
- Software Engineering
- Systems

Multidisciplinary Systems
- Bioinformatics
- Brain Networks
- Computational Science
- Humanities Informatics
- Security
ELECTRICAL and COMPUTER ENGINEERING

Enrollment Fall 2011
Texas A&M Office of Institutional Studies and Planning

Undergraduate Students 987
Graduate Students 534

<table>
<thead>
<tr>
<th>Course</th>
<th>Undergraduates</th>
<th>Graduate Students</th>
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<tbody>
<tr>
<td>Computer Engineering</td>
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<tr>
<td>Electrical Engineering</td>
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<td>13</td>
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<tr>
<td>Computer Networks and Internet</td>
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<tr>
<td>Biomedical Imaging and Genomic Signal Processing</td>
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<tr>
<td>Data Converters</td>
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<tr>
<td>High-Speed Electronic Systems</td>
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<tr>
<td>Integrated Circuit Design</td>
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<tr>
<td>Low-Noise Front-End Electronics</td>
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<tr>
<td>Low-Voltage Low-Power Electronics</td>
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<tr>
<td>Millimeter-Wave Integrated System Design</td>
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<td>Power Management</td>
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<td></td>
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<tr>
<td>RF IC and System Design</td>
<td>11</td>
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Centers and Laboratories

Analog and Mixed-Signal Center (TEES)
Control Engineering Laboratory
Digital Signal Processing Laboratory
Downed Conductor Test Facility
Electric Machines and Power Laboratory
Electromagnetics and Microwave Laboratory
Electronics Laboratory
Electro-optics Laboratory
Fuel Cell Power Systems Laboratory
Functional Thin Film Laboratory
Genomic Signal Processing Laboratory
Magnetic Resonance Systems Laboratory
Multimedia Laboratory
Multimedia Communication and Networking Laboratory
NanoBio Systems Laboratory
Nanofabrication Cleanroom Facility
Power Electronics Laboratory
Power Electronics and Motor Drives Laboratory
Power Engineering Laboratory
Power Quality Laboratory
Power System Automation Laboratory
Power System Control and Protection Laboratory
Semiconductor Laboratory Sensing, Imaging and Communications Systems Laboratory
Sensing, Imaging and Communication Systems Laboratory
Smoke Detector Test Facility
Ultrasound Imaging Laboratory
VLSI Laboratory
Wireless Communications Laboratory

Research Areas

Analog and Mixed Signals
- Active and Passive Filter Design
- Biomedical Applications
- Broadband Communications
- Data Converters
- High-Speed Electronic Systems
- Integrated Circuit Design
- Low-Noise Front-End Electronics
- Low-Voltage Low-Power Electronics
- Millimeter-Wave Integrated System Design
- Power Management
- RF IC and System Design

Biomedical Imaging and Genomic Signal Processing
- Biomechanics and Computational Biology
- BioMEMs and Lab-on-a Chip
- Biosensing and Bioanalysis Systems
- Dynamic Imaging, Thermal Imaging and Magnetic Resonance Microscopy
- Genomic Signal Processing
- Image Analysis Techniques and Algorithms
- Magnetic Resonance Imaging and Spectroscopy
- Morphological Analysis
- Optical Tomographic Imaging Techniques
- Sensor Arrays in Medical Imaging
- Ultrasound and Elasticity Imaging

Computer Engineering
- Computer Networks and Internet
- Computer Systems
- Digital VLSI Design and Test
- Electronic Design Automation

Electric Power and Power Electronics
- Alternative Energy Systems
- Condition Monitoring and Fault Diagnostics of Electric Machines
- DSP-Based Power Electronic Systems
- Dynamic Analysis
- Electric Ship Power and Power Electronics Systems
- Electromechanical Energy Storage Systems
- Monitoring, Control and Protection
- Novel Electric Motors and Generators for Special Applications
- Power Converters for Windmills and Hybrid Vehicles
- Power Electronics and Motor Drives
- Reliability Evaluation
- Substation Automation
- Switching Power Supplies

Electromagnetics and Microwaves
- Antennas
- CMOS RFIC and Systems
- Electromagnetic Theory
- Electromagnetic Wave Propagation

Guided-Wave Structures
- Microstrip Antennas
- Microwave Solid-state Circuits and Devices
- Microwave Systems
- Millimeter-Wave Circuits
- Sensing and Imaging
- Surface Penetrating Radar

Solid-state Electronics Photonics and Nano-Engineering
- Fiber Optics Devices
- Functional Thin Film Processing
- Integrated Optics
- Micro Electromechanical System (MEMS)
- Nanolithography
- Nanotechnology
- Noise in Electronic Systems
- Optical Communication
- Optical Filters
- Quantum Optics

Telecommunications and Signal Processing
- Advanced Channel Coding Techniques
- Data Compression
- Digital Communications Systems
- Digital Signal Processing
- Estimation and Detection Theory
- Information Security
- Information Theory
- Multirate Signal Processing
- Sensor Networks
- Time-frequency Analysis
- Wireless Networks
- Wireless Systems

Quality Indicators

<table>
<thead>
<tr>
<th>Category</th>
<th>Undergraduates</th>
<th>Graduate Students</th>
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<td>Total Faculty</td>
<td>70</td>
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<tr>
<td>Professors</td>
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U.S. News & World Report Rankings

Rankings Among Public Institutions

- Computer Engineering 11
- Electrical Engineering 13

Endowed Chair Holders 7
Endowed Professorship Holders 10
Distinguished Professors 1
National Academy of Engineering Members 3

Enrollment

Fall 2011
Texas A&M Office of Institutional Studies and Planning

Graduate Students

Undergraduate Students

Graduate

Master's 279
Ph.D. 254

Endowed Chair Holders 7
Endowed Professorship Holders 10
Distinguished Professors 1
National Academy of Engineering Members 3
# Engineering Technology and Industrial Distribution

## Enrollment
Fall 2011
Texas A&M Office of Institutional Studies and Planning

<table>
<thead>
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## Quality Indicators

<table>
<thead>
<tr>
<th>Category</th>
<th>Count</th>
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<tbody>
<tr>
<td>Total Faculty</td>
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<td>Non-tenured/Non-tenure Track</td>
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<td>Endowed Chair Holders</td>
<td>2</td>
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<tr>
<td>Endowed Professorship Holders</td>
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</tbody>
</table>

## Centers and Laboratories

- Center for Telecommunications Technology Management
- Computer-Integrated Manufacturing Laboratory
- DXP Pump Laboratory
- Embedded Systems Laboratory
- Fluid Power Laboratory
- Freescale Digital Systems Laboratory
- Local and Metropolitan Area Networks Laboratory
- Micro and Nano Manufacturing Laboratory
- Mobile Integrated Solutions Laboratory
- Monterrey Global Research Center
- Non-Destructive Testing and Evaluation Laboratory
- Radiation Hardness Testing Laboratory
- Radio Frequency Identification in Distribution Laboratory
- R.C. Womack Fluid Power Laboratory
- RFID/Sensor Laboratory
- Rockwell Automation Laboratory
- Supply Chain Systems Laboratory
- Thomas and Joan Read Center for Distribution Research and Education (TEES)
- TI Mixed-Signal Test Laboratory
- Virtual Instrumentation and Measurement Systems Laboratory

## Research Areas

### Automation
- Automation, Robotics and System Integration
- Engineering Education and Cognition
- Hybrid Imaging and Thermal Profiling for Product/Process Characterization
- Nanotechnology
- Smart Design Environments for Reconfigurable Manufacturing Systems

### Electronics
- Control Systems
- Embedded Computer Systems
- Medical Instrumentation and Robotics
- Product Design and Prototyping
- Radiation Hardness Testing
- Real-Time Software Systems
- RFID/Sensor Integration and Networks
- Semiconductor Manufacturing Equipment Testing
- Semiconductor Device Testing
- Smart Vehicles
- Software Defined Radio
- Software Development
- Virtual Instrumentation

### Industrial Distribution
- Competitive Advantage
- Customer Relationship Management
- Distribution Forecasting
- Distributor Profitability
- Distributor Information Management

### Manufacturing Processes and Materials
- Advanced Materials
- Asset Management
- Design and Development of Advanced Materials Processing Technologies
- Distribution Best Practices
- Enterprise Performance Management
- K-12 Outreach
- Materials Joining
- Materials Selection and Economics
- Metallurgical Effects of Manufacturing Processes
- Micro/Nano Manufacturing
- Non-Destructive Testing and Evaluation
- Warehouse Design and Optimization

### Manufacturing Systems
- Cost Modeling and Analysis
- Globalization
- Manufacturing Systems Cast Modeling and Analysis
- Manufacturing Systems Optimization
- Optimization Under Partial Information-Sharing

### Structural Analysis
- Assessment of In-Situ Structural Systems Using Field Measurements

### Telecommunications
- Data Communications
- Equipment Application
- Internet Telephony
- Networking
- Policy and Regulations
- Quality of Service
- Rural Communications and Telemedicine
- Transmission and Switching
- Wireless Communications

### Thermal Sciences
- Electrochemistry
- Energy Conservation
- Heat Transfer
- Thermal System Design
INDUSTRIAL and SYSTEMS ENGINEERING

Enrollment Fall 2011
Texas A&M Office of Institutional Studies and Planning

<table>
<thead>
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<th>Undergraduate Students</th>
<th>Graduate Students</th>
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<td>646</td>
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Quality Indicators

Total Faculty 28
Professors 8
Associate Professors 7
Assistant Professors 5
Non-tenured/Non-tenure Track 8

U.S. News & World Report Rankings

Rankings Among Public Institutions

Undergraduate 6
Graduate 8

Endowed Professorship Holder 1

Centers and Laboratories

Advanced Metrology Laboratory
Computer Integrated Manufacturing Laboratory
Decision Analysis Systems Laboratory
Institute for Manufacturing Systems (TEES)
Logistics and Networked Systems Research Laboratory
Manufacturing Automation Laboratory
Modeling and Simulation Laboratory
RFID and Supply Chain Systems Laboratory
Systems Modeling and Computational Optimization (SyMCo) Laboratory
Virtual Reality and Visualization Laboratory

Research Areas

Communications Systems

• Network Design and Configuration
• Survivability and Quality of Service Modeling
• Teletraffic Engineering

Enterprise Systems

• Capacity Planning
• Disruption Management
• Enterprise Risk Profiling

Homeland Security

• Robotics Applications to Search and Rescue
• Sensor Surveillance System Design
• Situational Awareness Modeling
• Test and Evaluation of First Responder Equipment
• Visualization and Virtual Environments

Human/Systems Interface

• Cognition
• Human/Computer Interaction
• Knowledge Acquisition
• Virtual Environments

Logistics and Supply Chain Management

• Closed Loop Supply Chain
• Coordination of Inventory, Scheduling and Transportation
• Multi-Commodity Flow Distribution Network Design
• Radio Frequency Identification
• Supply Chain Risk and Uncertainty
• Vendor Managed Inventory
• Warehousing, Transportation and Supply Contracting

Management and Decision Analysis

• Decision Making Under Uncertainty
• Engineering and Project Management
• Individual and Corporate Risk Preference and Analysis
• Modeling of Probabilistic Dependence
• Probability Assessment
• Teams

Modeling and Analysis of Biological Systems

• Forest Biomass Utilization
• Forest Fire Spread Modeling
• Population Modeling for Pest Management Control

Modeling and Analysis of Probabilistic Systems

• Air Traffic Scheduling
• Control within Fabrication Facilities
• Maintenance Science
• Optimal Replacement Analysis
• Queueing and Fluid-Flow Modeling

Modeling and Analysis of Production and Manufacturing

• Cost Modeling of Process Equipment and Facilities
• Electronics Manufacturing, Assembly, Packaging and Testing
• Facility Design
• Fast Hybrid Analytical Modeling/Simulation Capabilities
• Flow and Queue Analysis of Wafer Fabrication
• Lean Manufacturing Practices
• Material Handling
• Production Planning and Control

Modeling and Analysis of Service Systems

• Healthcare Delivery Systems
• Healthcare Treatment Planning
• Revenue Management
• Workforce Agility

Optimization

• Biological Systems (Bioinformatics)
• Graph Theory
• Intelligent Heuristics
• Linear, Nonlinear and Integer Programming
• Stochastic Optimization

Quality and Reliability Engineering

• Analysis and Design of Distributed Sensor Systems
• Data-Mining Methods
• Multivariate Analysis Methods for Process Monitoring, Diagnostics and Control
• Systems Reliability and Maintainability

Enrollment

Fall 2011

Texas A&M Office of Institutional Studies and Planning

Undergraduate Students 646
Graduate Students 240

Quality Indicators

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Professors 8
Associate Professors 7
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U.S. News & World Report Rankings

Rankings Among Public Institutions

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Graduate 8

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• Workforce Agility

Optimization

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• Stochastic Optimization

Quality and Reliability Engineering

• Analysis and Design of Distributed Sensor Systems
• Data-Mining Methods
• Multivariate Analysis Methods for Process Monitoring, Diagnostics and Control
• Systems Reliability and Maintainability
MECHANICAL ENGINEERING

Enrollment Fall 2011
Texas A&M Office of Institutional Studies and Planning

Undergraduate Students 1,196
Graduate Students 454

<table>
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<th>Total Faculty</th>
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<tr>
<td>Professors</td>
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<td>Assistant Professors</td>
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<td>Non-tenured/Non-tenure Track</td>
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<table>
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<tr>
<th>U.S. News &amp; World Report Rankings</th>
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<tr>
<td>Rankings Among Public Institutions</td>
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<tr>
<td>Undergraduate 10</td>
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<tr>
<td>Graduate 7</td>
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</table>

Quality Indicators

| Endowed Chair Holders | 5 |
| Endowed Professorship Holders | 9 |
| Development Professorship Holders | 3 |
| Distinguished Professors | 3 |

Centers and Laboratories

Advanced Engine Laboratory
Aerosol Technology Laboratory
Boiler Burner and Re-burn Laboratory
Buoyancy Mixture Laboratory
Center for Dynamic Systems and Control (TEES)
Coal and Biomass Combustion Laboratory
Computational Fluids and Heat Transfer Laboratory
Computational Heat Transfer Laboratory
Computational Mechanics Laboratory
Computer Laboratory
Conduction Heat Transfer Laboratory
Convection Heat Transfer Laboratory
Design Center
Electrohydrodynamics Laboratory
Energy Systems Laboratory (TEES)
Equal Channel Angular Extrusion Laboratory
Experimental Mechanics Laboratory
Fiber Performance Laboratory
Fluid Mechanics Laboratory
Fluid Mechanics/Combustion Laboratory
FTIR Spectrometer Laboratory
Fuel Utilization Laboratory
Industrial Assessment Center
Innovation, Design Reasoning, Engineering Education and Methods Laboratory (D-DREEM)
Innovative Impinging Jets Laboratory
Laminar Flow Reactor Laboratory
Laser Diagnostics Laboratory
Mechanics/Advanced Materials Laboratory
Nano Energy Laboratory

Polymer Processing Laboratory
Polymer Research Laboratory
Polymer Technology Center (TEES)
Product Synthesis and Design Laboratory (ProSyn)
Renewable Energy Laboratory
RJR/Combustion Laboratory
Robotics Laboratory
Rotordynamics/Vibration Laboratory
Rotordynamics Laboratory
Turbine Heat Transfer Laboratory
Turbine Performance and Flow Research Laboratory
Turbomachinery Laboratory (TEES)
Two-Phase Heat Transfer Laboratory

Research Areas

Combustion and Fuels
- Aerosol Measurements
- Alternative and Biofuels
- Coal, Biomass and Animal Waste Combustion
- Energy Engine Emission
- Fuel Cells
- Gasification
- Internal Combustion Engine Performance
- Pollutants Formation (NOx, Hg) and Control
- Thermodynamics and Energy Analysis of Engines

Computational Mechanics
- Fluid Mechanics (Aerosols, Gas Dynamics)
- Heat Transfer
- Solid Mechanics

Energy Systems
- Air-Conditioner Performance Evaluations
- Alternate Refrigerants
- Building Energy Monitoring and Analysis
- Defrost Cycle Improvements
- Energy Analysis and Diagnostic Center (EADC)
- Ground Coupled Heat Pumps
- Heat and Mass Transfer in Attic Systems
- Industrial Energy Assessment
- Industrial Energy Efficiency Improvements
- Infiltration Effect on Energy Use in Buildings
- Solar Ponds
- Thermal Energy Storage Evaluations

Fluid Mechanics
- Aerodynamic Analog Laboratory
- Aerosol Technology Laboratory
- Computational Fluid Mechanics
- Laser Anemometry Laboratory
- Tribology Laboratory

Heat Transfer
- Boiling/Condensation
- Computational Fluids and Combustion
- Conduction Heat Transfer
- Heat and Mass Transfer
- Interferometry
- Turbine Heat Transfer
- Two-phase Heat Transfer

Innovation and Design
- Cad/Computer Related Issues
- Cost Information Tools for Designers
- Design for Manufacturability
- Design Methodology/Cognition Issues

Materials And Mechanics
- Advanced High Temperature Ceramics
- Advanced Multifunctional Composites
- Corrosion of Coated Systems
- Cryogenic Engineering and Applied Superconductivity
- Elastic Properties in Advanced Materials
- Friction and Wear of Materials
- Multilayer Thin Films and Nanomechanics
- Self-Assembled Monolayers
- Severe Plastic Deformation
- Structural and Functional Materials
- Superplasticity and Advanced Machining Techniques
- Thermodynamics and Phase Stability
- Transformational Materials

Mechanical Systems and Controls
- Controls
- Manufacturing
- Robotics
- Vehicle Dynamics
- Vibrations

Polymer Science and Engineering
- Engineering Properties of Polymers and Polymeric Composites
- Materials Synthesis
- Polymer Nanocomposites
- Polymer Processing

Turbomachinery
- Computational Fluid Mechanics
- Heat Transfer
- Performance Research
- Rotordynamics
NUCLEAR ENGINEERING

Enrollment Fall 2011
Texas A&M Office of Institutional Studies and Planning

Undergraduate Students 310
Graduate Students 134
- Master’s 84
- Ph.D. 50

Quality Indicators
- Total Faculty 25
  - Professors 8
  - Associate Professors 7
  - Assistant Professors 2
  - Non-tenured/Non-tenure Track 8

U.S. News & World Report Rankings
- Rankings Among Public Institutions
- 2 Undergraduate
- 3 Graduate

Endowed Professorship Holders 2

Centers and Laboratories
- Accelerator Laboratory
- AGR-201M Nuclear Reactor Laboratory
- Center for Large-scale Scientific Simulations
- Fuel Cycle and Materials Laboratory
- Institute for National Security, Education and Research (INSER)
- Interphase Transport Phenomena Laboratory
- Laser Diagnostics Multiphase Flow Laboratory
- Micro-Beam Cell Irradiation Facility
- NASA Space Power Center (TEES)
- Nuclear Heat Transfer Systems Laboratory
- Nuclear Power Institute (TEES)
- Nuclear Science Center (1MW Triga Reactor) (TEES)
- Nuclear Security Science and Policy Institute
- Radiation Detection Measurement Laboratory
- Tandem Accelerator Laboratory

Research Areas
- Adaptive Simulations
- Advanced Fuel Cycles and Nuclear Waste Management
- Advanced Reactor Design and Analysis Aerosols
- Aerosol and Particle Application Approaches in Radiation Safety Technology
- Aerosol Measurement Methodology and Analysis
- Aging Effect in Nuclear Systems
- Applications of Radionuclides
- Applied Computational Physics
- Atmospheric Aerosols and Air Chemistry
- Behavior of Nuclear Fuels
- Computational and Experimental Fluid Mechanics and Heat Transfer
- Development and Analysis of Computational Methods
- Direct Energy Conversion Methods and Applications
- Disposition of Weapons-Plutonium
- Dose Assessment from Non-Uniform Exposures
- Elastic Recoil Detection Analysis
- Environmental Sciences
- Exposure Assessment Strategies
- External Dosimetry
- Fast Reactor Technology
- Flow Visualization
- Fuel Cycle Process Development
- Fuel Cycles
- Fuel Cycles Analysis
- Fuel Materials Research
- Heat Pipe Behavior
- High-Fidelity Systems Analysis
- High-Performance Computing
- High-Temperature Gas-Cooled Reactor Technology
- Internal Dosimetry
- Ion-Beam Solid Interactions
- Ion Implantation
- Ionizing Radiation Bio-effects
- Materials Research for Nuclear Systems
- Material Substitution
- Medical Applications for Radionuclides
- Micro-Dosimetry
- Molecular Clusters and Small Particles
- Multiphase Flow
- Multiphysics Computation and Simulation
- Nanoscale Technology
- Non-Proliferation Strategies
- Nuclear Instrumentation
- Nuclear Material Safeguards
- Optimization Methods for Nuclear Energy Systems
- Particle Transport
- Public Information
- Radiation and Cancer Biology
- Radiation Dose and Risk Assessment
- Reactor Experimentation
- Reactor Safety
- Rutherford Backscattering and Channeling Analysis
- Space Power Systems
- Thermal Hydraulics
- Thermoluminescent Dosimetry
- Transmutation Doping
- Two-Phase Flow in Micro-Gravity
- Waste Form Development
Enrollment Fall 2011
Texas A&M Office of Institutional Studies and Planning

<table>
<thead>
<tr>
<th>Undergraduate Students</th>
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<td>Graduate Students</td>
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U.S. News & World Report Rankings

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<th>Rankings Among Public Institutions</th>
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<tbody>
<tr>
<td>1 Undergraduate</td>
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<td>2 Graduate</td>
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Endowed Chair Holders | 6 |
Endowed Professorship Holders | 3 |
Development Professorship Holders | 4 |
National Academy of Engineering Members | 2 |

Centers and Laboratories

- Acid Stimulation Laboratory
- Crisman Institute for Petroleum Research
- Engineering Imaging Laboratory
- Evaluation of Oilfield Chemicals Laboratory
- Fracture Conductivity Laboratory
- Gas Hydrates Laboratory
- Global Petroleum Research Institute (TEES)
- High-Pressure/High-Temperature Fluid Property Measurement Laboratory
- Integrated Reservoir Investigations Laboratory
- Mobil Undergraduate Teaching Laboratory for Core Analysis
- Model Calibration and Efficient Reservoir Imaging (MCERI)
- Oilfield Brine Processing Laboratory
- Productivity Enhancement Laboratory
- Ramey Thermal Recovery Laboratory
- Rheology of Non-Newtonian Fluids
- Riverside Field-Scale Production Test Facility
- Rock Mechanics Laboratory
- Texaco Drilling Fluids Laboratory
- Tommie E. Lohman Fluid Measurement Laboratory

Research Areas

Crisman Institute for Petroleum Research

- Center for Energy, Environment, and Transportation Innovation
  - Energy
  - Environmental and Water Issues
  - Transportation Innovation
- ChevronTexaco Center for Well Construction and Production
  - Advanced Drilling Technology
  - Advanced Production Technology
  - Deep Gas Well Construction
  - Well Construction
  - Well Stimulation
- Halliburton Center for Unconventional Resources
  - Coalbed-Methane Reservoirs
  - Heavy Oil Recovery
  - Natural Gas Hydrate Reservoirs
  - Resource Assessments and Uncertainty
  - Shale Gas
  - Tight Gas
- Schlumberger Center for Reservoir Description and Dynamics
  - Analysis of Reservoir Performance
  - Enhanced Recovery
  - Formation Evaluation
  - Naturally Fractured Reservoirs
  - Reservoir Simulation
  - Reservoir Visualization