

MABE GRADUATE STUDENT APPLICATION

Send the completed form together with three rating forms to:

Department of Mechanical, Aerospace and Biomedical Engineering (MABE)

ATTN: Chair, Graduate Program Committee

414 Dougherty Engineering Building

Knoxville, TN 37996-2210

Telephone: (865) 974-5115; Fax: (865) 974-5274; E-mail: mabeinfo@utk.edu

Major (check one): *Aerospace Engineering* *Biomedical Engineering* *Mechanical Engineering*

Name _____
(Last) (First) (Middle)

Social Security No. (optional) _____ Date of proposed enrollment at UTK _____

Date of Birth _____ Citizenship: _____
(month/date/year)

Mailing Address _____

E-mail: _____ URL: _____

EDUCATION

<u>Institution</u>	<u>Degree/Major Average</u>	<u>Grade Point</u>
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College _____		
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College _____		
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GRE: Verbal _____ Quantitative _____ Analytical _____ **TOEFL** (if required) _____

GRADUATE STUDY – Applicant for (check one): M.S. _____ Ph.D. _____

Review the attached list of current areas of research of the faculty, and clearly indicate your first and second choices of topics for pursuing graduate research.

First Choice: _____ Second Choice: _____

DESIRED FINANCIAL SUPPORT (Please check all that apply)

Graduate Teaching Assistantship/Graduate Assistantship Research Assistantships

**Current Areas of Research
Mechanical, Aerospace and Biomedical Engineering Department**

Automotive Systems

Alternative fuels, emission controls and evaluation, hybrid electric vehicles, dynamometer design and control, vehicle dynamics and control.

Biomechanics and Biomedical Engineering

Tissue engineering, cellular biomechanics, exercise equipment design, human body and hand/arm vibration analysis, trauma biomechanics, biofluid mechanics modeling and rheology.

Computational Mechanics

Computational fluid mechanics, inverse problems, optimal control, casting, quenching, heat treating process simulations, computational structural mechanics, reacting, bio-environmental systems simulations, aerodynamics, diffuse plasmas, and turbulent reacting flows, composite materials, fatigue, and fracture mechanics.

Mechanics of Composite Materials

Small scale structural manufacturing, and mechanical testing, process optimization, non-linear and time-dependent material response, damage mechanics, fracture and fatigue, failure analysis, constitutive modeling of piezoelectric actuation, and smart materials and structures.

Robotics, Automation and Manufacturing

Telerobotic systems for hazardous environments, advanced teleoperations, human-machine systems, redundant manipulator systems and control, sensor-guided manipulation, structural compensation of robot manipulators, human-interactive 3D geometric modeling, advanced mechatronics, and unmanned ground vehicle systems.

Structures and Vibrations

Ductile fracture in metals and polymers, fracture mechanics, dynamic simulation of mechanical and structural systems, modal testing, fluid-structure interaction, structural vibration damping using passive and active control methods, helicopter and wind turbine rotor dynamics.

Thermal/Fluid Systems

Heat transfer in manufacturing processes, inverse solidification design processes, casting simulation and mold design, inverse analysis, computational heat transfer, microgravity fluid flow and heat transfer, two-phase flow, thermoacoustic convection, heat transfer in hypersonic flight, energy analysis, thermoeconomics, and combustion.