

**Department of Mechanical Engineering and Engineering Mechanics
Design and Dynamic Systems - Faculty Expertise**

October 2016

Students seeking detailed advice on technical elective, graduate school or career opportunities in specific disciplines are encouraged to talk to appropriate faculty listed below.

Faculty	Technical Electives Taught	Expertise
O. Abdelkhalik Rm. 1013, 487-3503 ooabdelk@mtu.edu	MEEM 5200, MEEM 4720/5720, MEEM 5701, MEEM 5715, MEEM 5990 (Wave Energy)	Space mechanics, optimization, spacecraft dynamics and control, space mission analysis, Ocean Wave Energy
A.R. Barnard Rm. 930, 487-2412 arbarnar@mtu.edu	MEEM 4704, MEEM 5900, MEEM 4701, MEEM 5702, MEEM 5703	Signal processing, modal analysis, acoustics, noise control, vibrations
J.E. Beard Rm. 929, 487-3110 jebeard@mtu.edu	MEEM 4295, MEEM 4404, MEEM 4450/5450	Design and kinematics, biomedical, hybrid vehicle design
J.R. Blough Rm. 1020A, 487-1020 jrblough@mtu.edu	MEEM 4701, MEEM 5700, MEEM 5703	Digital signal processing, rotating machinery, vibrations, noise control
B. Chen Rm. 824, 487-3537 bochen@mtu.edu	MEEM 4990/5990 (Mechatronics Informatics & Embedded Computing), MEEM4700, MEEM/EE 4750, MEEM/EE 5750	Mechatronics and embedded systems, control systems, hybrid electric vehicles, smart grid
J. De Clerck Rm. 906, 487-2246 jdeclerck@mtu.edu	MEEM 5702, MEEM 5703	Analytical and experimental model analysis, signal processing, design process, model validation
A. Gauchia Rm. 831, 487-2513 antonio@mtu.edu	MEEM 4450, MEEM 4675, MEEM 4295, MEEM 4160/5160, MEEM 4404	Vehicle dynamics, finite element analysis, multibody kinematics and dynamics, hybrid electric vehicles and design of material handling systems.
L. Gauchia Rm. 911/EERC Rm. 612, 487-3382 gauchia@mtu.edu	MEEM 5990, EE 4222	Energy storage systems: batteries, ultracapacitors, fuel cells, vehicle and grid applications
N. Mahmoudian Rm. 1009, 487-3084 ninam@mtu.edu		Control systems, dynamics, cooperative control, autonomous vehicles
D. Robinette Rm. 933, 487-2764 dlrobine@mtu.edu		Powertrain system dynamics and controls, signal processing, rotating machinery, torsional vibration
G.G. Parker Rm. 803, 487-1850 ggparker@mtu.edu	MEEM 4705, MEEM 5701, MEEM 5715, MEEM 6702	Control systems, dynamics, robotics
M. Rastgaar Aagaah Rm. 820, 487-1416 rastgaar@mtu.edu	MEEM5705	Dynamics, controls, mechatronic, robotics, biomechanics
R. D. Robinett III Rm. 903, 487-1493 rdrobine@mtu.edu	MEEM5700	Control systems, dynamics, robotics, aerospace vehicles
Ye (Sarah) Sun Rm 926, 487-2249 yes@mtu.edu	MEEM 57115, Human Factors	Dynamic Systems, control, sensor and measurement
E.H. Trinklein Rm. 307, 487-1741 ehtrinkl@mtu.edu		Controls, robotics, dynamic simulation, mechatronics microgrids
C.D. Van Karsen Rm. 915A, 487-2159 cdvankar@mtu.edu	MEEM 4701, MEEM 5700, MEEM 5703	Modal analysis, experimental vibrations, signal processing

Department of Mechanical Engineering and Engineering Mechanics Energy/ThermoFluids - Faculty Expertise		October 2016
Faculty	Technical Electives Taught	Expertise
J. Allen Rm. 905, 487-2349 jstallen@mtu.edu	MEEM4200/5290/5999/6999	Capillary flow, interfacial transport phenomena, fuel cells, phase-change heat transfer, microgravity fluid physics, near-field optical diagnostics, porous media
Bar-Ziv, Ezra Rm. 1012, 487-3151 ebarziv@mtu.edu	MEEM 4240	clean coal combustion, biomass torrefaction, thermal treatment of carbonaceous materials for clean energy
S. Bigham Rm. 823, 487-2747 sbigham@mtu.edu		Phase-change heat transfer, transport phenomena, multiphase flows, thermal management, energy systems, micro- and nano-fabrication techniques, micro- and nano-engineered materials
C. Cai Rm. 923, 487-3286 ccai@mtu.edu	MEEM5210, 5240	Computational fluid dynamics, fluid dynamics, non-equilibrium and rarefied gas flows, plasma flow simulations, gaskinetic theory
C. K. Choi Rm. 832, 487-1463 cchoi@mtu.edu		Micro-fluidics, cellular sensing, micro and nano fabrication, micron & sub-micron optical visualization, microscale heat and mass transfer
J.E. Johnson Rm. 817, 487-3433 jenesbit@mtu.edu	MEEM 5990 (IC Engines 1 – MEEM 4220)	Sprays and combustion, Thermodynamics, Optical diagnostics, IC Engines, Alternative Fuels
L.B. King Rm. 1014, 487-2683 lbking@mtu.edu	MEEM5210, MEEM5990 (Plasma Dynamics)	Fluid mechanics, plasma physics, space system design, space simulation, laser diagnostics, space propulsion
U. Korde Rm. 805 uakorde@mtu.edu	<i>Spring 2017 Start</i>	Wave energy conversion, floating bodies, vibrations, dynamics, control, flexible structures, ocean waves, ocean measurements
V.C. Komaravolu Rm. 830, 487-1173 kvcrao@mtu.edu	MEEM 4403, MEEM 4250	PACE coordinator, heat transfer in rotating machinery, thermo fluids, CAD, Design
S.-Y. Lee Rm. 927, 487-2559 sylee@mtu.edu	MEEM 5270	Thermodynamics, sprays and combustion, chemical kinetics, air-breathing propulsion, laser diagnostics, CFD combustion model
E. Medici Rm. 506 efmedici@mtu.edu		Numerical modeling and experimental analysis of flow in porous media. Modeling mass transport limitation in PEM fuel cells. Analog shock tube modeling of violent volcanic eruptions, shock waves propagation on complex structures, and dusty supersonic jets expansion
S. Miers Rm. 924, 487-2709 samiers@mtu.edu	MEEM 4220, MEEM5200	Thermodynamics, internal combustion engines, alternative & renewable transportation fuels, heat transfer, regulated and unregulated emissions, wireless telemetry
C. Morgan Rm. 913/APS, 487-1213 cjmorgan@mtu.edu	MEEM 4296, MEEM 5296	Hybrid electric vehicles, vehicle control systems, advanced powertrain concepts, engines, transmissions, energy conservation
J.D. Naber Rm. 1011, 487-1938 jnaber@mtu.edu	MEEM4220, MEEM 5250, MEEM4295/5295, MEEM4296/5296	Sprays and combustion, internal combustion engines, after-treatment, powertrain systems, hybrid vehicles
A. Narain Rm. 804, 487-2555 narain@mtu.edu	MEEM 5210, MEEM 5230	Integration of innovative condensers and boilers in advanced thermal and power systems, computational simulations, fluid mechanics, heat transfer, condensing and boiling phase change flows, high-performance heat-exchangers, sensors and flow control
A. Narendranath Rm. 917, 487-3019 dnaneet@mtu.edu	MEEM4210/5215	Mathematical modeling of thermal transport, evaporative phase change phenomenon, applied partial differential equations
F. Ponta Rm. 936, 487-3563 flponta@mtu.edu	MEEM 4210/5215	Theoretical and computational fluid mechanics, vortex dynamics, fluid-structure interaction, wind-turbine aerodynamics, renewable-energy sources, energy systems
Y. Ra Rm. 907, 487-2385 yra@mtu.edu	MEEM 4240/5270	Combustion, chemical kinetics, internal combustion engine, CFD, spray modeling, alternative fuels

M. Shahbakhti Rm. 921, 487-3405 mahdish@mtu.edu		Modeling and control of energy systems, IC engines, hybrid electric powertrain, alternative fuels, combustion, building energy in smart grid
K. Tajiri Rm. 932, 487-2675 ktajiri@mtu.edu	MEEM 4230, MEEM 4260	Transport phenomena in multiscale/multiphase systems, Electrochemical energy conversion devices (fuel cells), Two phase flows in microchannels
J. Worm Rm. 709, 487-2686	MEEM 4296, MEEM 5296, MEEM 5255	IC engines, alternative fuels, combustion, engine development, hybrid vehicles
S.L. Yang Rm. 829, 487-2624 slyang@mtu.edu	MEEM 5240	Computational fluid dynamics, heat transfer, thermodynamics, research and development

**Department of Mechanical Engineering and Engineering Mechanics
Manufacturing/ Industrial - Faculty Expertise**

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Faculty	Technical Electives Taught	Expertise
W. J. Endres Rm. 826, 487-2567 wjendres@mtu.edu	MEEM 4610/5610, MEEM 5990 (Machining Dynamics)	Cutting mechanics, machining dynamics, wood-chipping mechanics, mechanistic modeling techniques, mechanical design, entrepreneurship
C. R. Friedrich Rm. 807, 487-1922 craig@mtu.edu	MEEM 4640/5640	Micromachining, metrology, nano-technology
J. K. Gershenson Rm. 1022, 487-2047 jkgershe@mtu.edu	MEEM 4650/5650, MEEM 5655, MEEM 5453, MEEM 4655	Product design, product modularity and product family design, bicycle design, design for manufacturing, design for the developing world, lean manufacturing
K.M. Johnson Rm. 704, 487-3147 kevinj@mtu.edu		Machine design, manufacturing, CAD, FEA, hydraulics, strain gauge testing
M. H. Miller Rm. 904, 487-3025 mhmill@mtu.edu	MEEM 4625/5625, MEEM 4630	Microelectromechanical systems, precision engineering, machining processes, human factors
R. Tewari Rm. 818, 487-1743 rtewari@mtu.edu	MEEM 4403, MEEM4650, MEEM5670	Micromachining, micro/nano metrology, process/product development and characterization, semiconductor fabrication processes, manufacturing processes, quality engineering
Z. Wang Rm. 802, 487-2786 zequnw@mtu.edu		Design under uncertainty; prognostics and health management; model calibration and validation; reliability

Department of Mechanical Engineering and Engineering Mechanics
Solid Mechanics - Faculty Expertise

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J. De Clerck Rm. 906, 487-2246 jdeclerck@mtu.edu	MEEM 5702, MEEM 5703	Analytical and experimental model analysis, signal processing, design process, model validation
S. Ghosh Rm. 827, 487-2689 susantag@mtu.edu	MEEM 4150, MEEM 4180, MEEM 5170	Non-linear Mechanics, computational mechanics, mechanics of materials
I. Miskioglu Rm. 821, 487-2752 imiski@mtu.edu	MEEM 4150, MEEM 4160/5160, MEEM 4170, MEEM 5150, MEEM 5180	Experimental mechanics, photomechanics, composite materials, nanomechanics
G.M. Odegard Rm. 810, 487-2329 gmodegar@mtu.edu	MEEM 4150, MEEM 4160, MEEM 4170, MEEM 4405, MEEM 4810, MEEM 5110, MEEM 5150, MEEM 5160, MEEM 5170, MEEM 5180	Computational and experimental mechanics, materials science, nanomechanics
W.W. Predebon Rm. 808, 487-2551 wwpredeb@mtu.edu	MEEM 5110, MEEM 5701	Ceramics, stress wave propagation with microstructural effects, impact phenomena
T. Sain Rm. 801, 487-2977 tsain@mtu.edu	MEEM 4170	Computational mechanics, Finite element analysis, design of composite materials
P. van Susante Rm. 925, 487-3253 pjvansus@mtu.edu	MEEM 4403, MEEM 4405	Finite element analysis, structures, design, mechanics of materials