**Program of Study**

**CORE COURSE REQUIREMENTS (12-credit hours)**

All Master of Engineering students must take [ENGR 5100](http://tnstate.catalog.acalog.com/preview_program.php?catoid=7&poid=1014&returnto=339#tt6306) **AND**[ENGR 5500](http://tnstate.catalog.acalog.com/preview_program.php?catoid=7&poid=1014&returnto=339#tt1153).

* [ENGR 5100 - Methods of Applied Mathematics for Engineering 1 (3)](http://tnstate.catalog.acalog.com/preview_program.php?catoid=7&poid=1014&returnto=339)**CIP:**
* [ENGR 5500 - Special Problems (3)](http://tnstate.catalog.acalog.com/preview_program.php?catoid=7&poid=1014&returnto=339)**CIP:**

**ALL CONCENTRATIONS**

All Master of Engineering Concentrations **have an option** to take either [ENGR 5150](http://tnstate.catalog.acalog.com/preview_program.php?catoid=7&poid=1014&returnto=339#tt1366) **OR**[ENGR 5020](http://tnstate.catalog.acalog.com/preview_program.php?catoid=7&poid=1014&returnto=339#tt1950). For the remaining three credit hours, each concentration offers options.

* [ENGR 5150 - Numerical Methods in Engineering (3)](http://tnstate.catalog.acalog.com/preview_program.php?catoid=7&poid=1014&returnto=339)**CIP:**

**OR**

* [ENGR 5020 - Optimization Methods for Engineers (3)](http://tnstate.catalog.acalog.com/preview_program.php?catoid=7&poid=1014&returnto=339)**CIP:**

**CORE COURSE OPTIONS BY CONCENTRATION**

Select one 3-credit hour course.

**Manufacturing Engineering**

* [MEEN 5610 - Computer-Aided Design and Manufacturing (3)](http://tnstate.catalog.acalog.com/preview_program.php?catoid=7&poid=1014&returnto=339)**CIP:**

**OR**

* [MEEN 5780 - Finite Element Analysis (3)](http://tnstate.catalog.acalog.com/preview_program.php?catoid=7&poid=1014&returnto=339)**CIP:**

**Mechanical Engineering**

* [MEEN 5610 - Computer-Aided Design and Manufacturing (3)](http://tnstate.catalog.acalog.com/preview_program.php?catoid=7&poid=1014&returnto=339)**CIP:**

**OR**

* [MEEN 5780 - Finite Element Analysis (3)](http://tnstate.catalog.acalog.com/preview_program.php?catoid=7&poid=1014&returnto=339)**CIP:**

**Concentration VI: Mechanical Engineering**

**Muhammad Akbar, Ph.D., Interim Department Chair and Professor
Office: Torrence Hall, Room  ET-136
Phone: 615-963-5392****makbar@tnstate.edu**

**Areas of Specialization**

**A. Thermal Sciences**

**Core Courses - 15 hours from courses listed below:**

* [ENGR 5020 - Optimization Methods for Engineers (3)](http://tnstate.catalog.acalog.com/preview_program.php?catoid=7&poid=1014&returnto=339)**CIP:**
* [ENGR 5600 - Special Topics (3)](http://tnstate.catalog.acalog.com/preview_program.php?catoid=7&poid=1014&returnto=339)**CIP:**
* [MEEN 5030 - Artificial Neural Networks (3)](http://tnstate.catalog.acalog.com/preview_program.php?catoid=7&poid=1014&returnto=339)**CIP:**
* [MEEN 5050 - Energy Conservation Systems (3)](http://tnstate.catalog.acalog.com/preview_program.php?catoid=7&poid=1014&returnto=339)**CIP:**
* [MEEN 5310 - Dynamics and Thermodynamics of Compressible Fluid Flow (3)](http://tnstate.catalog.acalog.com/preview_program.php?catoid=7&poid=1014&returnto=339)**CIP:**
* [MEEN 5400 - Conduction and Radiation Heat Transfer (3)](http://tnstate.catalog.acalog.com/preview_program.php?catoid=7&poid=1014&returnto=339)**CIP:**
* [MEEN 5410 - Convection Heat Transfer (3)](http://tnstate.catalog.acalog.com/preview_program.php?catoid=7&poid=1014&returnto=339)**CIP:**
* [MEEN 5420 - Advanced Thermodynamics (3)](http://tnstate.catalog.acalog.com/preview_program.php?catoid=7&poid=1014&returnto=339)**CIP:**
* [MEEN 5430 - Introduction to Computational Fluid Dynamics (3)](http://tnstate.catalog.acalog.com/preview_program.php?catoid=7&poid=1014&returnto=339)**CIP:**
* [MEEN 5780 - Finite Element Analysis (3)](http://tnstate.catalog.acalog.com/preview_program.php?catoid=7&poid=1014&returnto=339)**CIP:**
* [MEEN 5820 - Principles of Design (3)](http://tnstate.catalog.acalog.com/preview_program.php?catoid=7&poid=1014&returnto=339)**CIP:**

**Electives with the consent of the advisor - 6 hours**

**B. Machine Design**

**Core Courses - 15 hours from courses listed below:**

* [ENGR 5020 - Optimization Methods for Engineers (3)](http://tnstate.catalog.acalog.com/preview_program.php?catoid=7&poid=1014&returnto=339)**CIP:**
* [ENGR 5200 - Modeling and Simulation of Dynamic Systems (3)](http://tnstate.catalog.acalog.com/preview_program.php?catoid=7&poid=1014&returnto=339)**CIP:**
* [ENGR 5600 - Special Topics (3)](http://tnstate.catalog.acalog.com/preview_program.php?catoid=7&poid=1014&returnto=339)**CIP:**
* [MEEN 5030 - Artificial Neural Networks (3)](http://tnstate.catalog.acalog.com/preview_program.php?catoid=7&poid=1014&returnto=339)**CIP:**
* [MEEN 5040 - Vibrations Analysis (3)](http://tnstate.catalog.acalog.com/preview_program.php?catoid=7&poid=1014&returnto=339)**CIP:**
* [MEEN 5100 - Theory of Elasticity and Applications (3)](http://tnstate.catalog.acalog.com/preview_program.php?catoid=7&poid=1014&returnto=339)**CIP:**
* [MEEN 5110 - Theory of Plasticity and Application (3)](http://tnstate.catalog.acalog.com/preview_program.php?catoid=7&poid=1014&returnto=339)**CIP:**
* [MEEN 5200 - Advanced Dynamics (3)](http://tnstate.catalog.acalog.com/preview_program.php?catoid=7&poid=1014&returnto=339)**CIP:**
* [MEEN 5780 - Finite Element Analysis (3)](http://tnstate.catalog.acalog.com/preview_program.php?catoid=7&poid=1014&returnto=339)**CIP:**
* [MEEN 5820 - Principles of Design (3)](http://tnstate.catalog.acalog.com/preview_program.php?catoid=7&poid=1014&returnto=339)**CIP:**

**Electives with the consent of the advisor - 6 hours**

**Concentration V: Manufacturing Engineering**

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Phone: 615-963-5392****makbar@tnstate.edu**

**Core Courses - 15 hours from courses listed below:**

* [ENGR 5200 - Modeling and Simulation of Dynamic Systems (3)](http://tnstate.catalog.acalog.com/preview_program.php?catoid=7&poid=1015&returnto=339)**CIP:**
* [ENGR 5600 - Special Topics (3)](http://tnstate.catalog.acalog.com/preview_program.php?catoid=7&poid=1015&returnto=339)**CIP:**
* [MEEN 5010 - Introduction to Manufacturing (3)](http://tnstate.catalog.acalog.com/preview_program.php?catoid=7&poid=1015&returnto=339)**CIP:**
* [MEEN 5130 - Flexible Manufacturing Systems (3)](http://tnstate.catalog.acalog.com/preview_program.php?catoid=7&poid=1015&returnto=339)**CIP:**
* [MEEN 5610 - Computer-Aided Design and Manufacturing (3)](http://tnstate.catalog.acalog.com/preview_program.php?catoid=7&poid=1015&returnto=339)**CIP:**
* [MEEN 5620 - Design for Manufacturability (3)](http://tnstate.catalog.acalog.com/preview_program.php?catoid=7&poid=1015&returnto=339)**CIP:**
* [MEEN 5630 - Manufacturing Management and Control (3)](http://tnstate.catalog.acalog.com/preview_program.php?catoid=7&poid=1015&returnto=339)**CIP:**
* [MEEN 5640 - Manufacturing Modeling and Simulation (3)](http://tnstate.catalog.acalog.com/preview_program.php?catoid=7&poid=1015&returnto=339)**CIP:**
* [MEEN 5650 - Predictive and Preventive Maintenance (3)](http://tnstate.catalog.acalog.com/preview_program.php?catoid=7&poid=1015&returnto=339)**CIP:**
* [MEEN 5660 - Concurrent Manufacturing (3)](http://tnstate.catalog.acalog.com/preview_program.php?catoid=7&poid=1015&returnto=339)**CIP:**
* [MGMT 6060 - Operations Management (3)](http://tnstate.catalog.acalog.com/preview_program.php?catoid=7&poid=1015&returnto=339)**CIP:**

**Electives with the consent of the advisor - 6 hours**