

TOPIC:**THE AUTOMOTIVE ENGINEERING MASTERS PROGRAM OVERVIEW:****1- Automotive Engineering Master Degree Requirements**

Credit Hrs:	42 credit hours
Program Duration:	24 Months (4 semesters = 3 on campus semesters + 1 internship semester)
Course Requirements:	12 Courses (36 credit hours)
Internship:	A six-month (6 cr hrs of AuE 890) approved internship/project is required; the 6 cr hrs don't have to be continuous & can be taken with other courses, However a student can't receive more than an equivalent of 1 cr (AuE 890) per month of study
Additional Requirements:	A foreign language proficiency (other than English) is considered a graduation requirement, evaluated by one of following: (I) Passing three language classes (101, 102, and 201) with B or better. OR (II) Passing an approved placement test with Intermediate score (consult your advisor for list of approved tests), OR (III) For students with international internship, their advisor can testify to their proficiency through official communication

2- Automotive Engineering Master Degree Stems:

Two automotive master degree options are available: System and Function Stems

1. Function Stem Objective:	To meet primarily the needs of the automotive tier 1 and tier 2 suppliers for individuals with knowledge and skills to integrate two or more technical areas
2. System Stem Objective:	To meet primarily needs of automotive OEMs for individuals having knowledge & skills to manage & integrate people, technologies, and suppliers at different stages of the vehicle development/production process chain.
Please Note:	System stem courses are also considered technical AuE courses from the different tracks

3- Common Course Requirements

Required For the Two MS AuE Program Stems = 6 core courses (18 hrs) + 2 minors (6 hrs)

6 Core Courses (18 credit hours)	AuE 880 - Design/Manufacture Project Management AuE 881 - Automotive Systems- an integrated overview AuE 882 - Systems Integration Concepts and Methods AuE 883 - Applied Systems Integration	AuE 833 - Automotive Manufacturing Process Development AuE 835 - Vehicle Electronics Integration
2 Dedicated Minor Courses (6 credit hours)	Minor 1 – Graduate level class outside the college of engineering to cover: Organizational, Human, or Accounting management, Minor 2 – Graduate level class outside the college of engineering to cover: Policy, Globalization, or Business Administration	
Objectives of Core Courses	To provide the students with the foundations in automotive systems, project management, and systems integration methods, tools. And applications.	
Objectives of Minor Courses	To provide the students with the foundations of business, economics, policies etc. as pertinent to the automotive industry.	

4- Other MS AuE Systems Stem Courses:

Objectives of Systems-stem Courses	AuE 831 - New Vehicle Conception, Market and Technology Identification, Concept Validation (C6) AuE 832 - Vehicle Development and Integration Processes, Methods and Tools (C1) AuE 833 - Automotive Manufacturing Process Development, Methods and Tools (C2) AuE 834 - Automotive Production Preparation, Management and Launch (C3) AuE 835 - Vehicle Electronics Integration – A Process Chain Prospective (C4) To provide the students with a more detailed knowledge and experiences as related to various stages in the vehicle development/production process chain.
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5- Remaining Course Requirements for the Two MS AuE Program Stems

Function Stem	4 courses (12 credit ours) from 6 tracks listed below
System Stem Objective	4 courses (12 credit ours) from 6 tracks listed below To provide the students with depth in two-to-three technical areas
Constraints	<input type="checkbox"/> At least 3 courses must have the AuE designation <input type="checkbox"/> The courses must be taken from no less than 2 and no more than 3 tracks to ensure a depth/breadth balance. <input type="checkbox"/> At least two courses must come from one track and at least two courses must come from another track
Tracks - Technical Areas	T1 Vehicle Materials and Structures Mechanics T2 Vehicle Electronics, Mechatronics and Computer Systems T3 Vehicle Design and Integration, Methods and Tools T4 Vehicle Manufacturing and Production T5 Vehicle Performance (Vehicle Physics) T6 Vehicle Power Systems and Transmission

Suggested Automotive Engineering MS Specific Specialities List

Semester			
Num.	Name	Course	Instructor
General Automotive Engineering Stream			
<i>Please, Refer to the Graduate Student Manual</i>			
Manufacturing Systems Engineering			
1st	Fall 2009	AuE 880 Design/Manufacture Project Management, 3cr. (3,0) AuE 881 Automotive Systems- an integrated overview, 3cr. (2,1) AuE 833 Automotive manufacturing Overview, 3 cr. (3,0) AuE 835 Vehicle Electronics Integration - A Process Chain Perspective C4	I. Haque/S. Hung P. Venhovens M. Omar T. Hubing
2nd	Spring 2010	AuE 882 - Systems Integration Concepts and Methods Minor 1, 3 cr. (3,0) AuE 868 Vehicle Manufacturing Processes II, 3 cr. (3,0) AuE 867 Vehicle Manufacturing processes I, 3 cr. (3,0)	S. Hung M. Omar L. Mears
3rd	Fall 2010	AuE 883 Applied Systems Integration, 3 cr. (3,0) AuE 866 Advanced Materials for Auto. AuE 893 Automation Minor 2, 3 cr. (3,0)	Hung/Venhovens Mears/Kurfess/Omar L. Mears
4th	Spring 2011	Internship / Deep Orange	
Performance Vehicles Specialization			
1st	Fall 2009	AuE 880 Design/Manufacture Project Management, 3cr. (3,0) AuE 881 Automotive Systems- an integrated overview, 3cr. (2,1) AuE 833 Automotive manufacturing Overview, 3 cr. (3,0) AuE 835 Vehicle Electronics Integration - A Process Chain Perspective C4	I. Haque/S. Hung P. Venhovens M. Omar T. Hubing
2nd	Spring 2010	AuE 882 Systems Integration Concepts and Methods AuE 846 Tire Behavior and its influence on Vehicle Performance, 3cr. (3,0) Minor 1, 3 (3,0) AuE 850 Automotive stability and safety systems, AuE 887 Methods for Vehicles	S. Hung T. Ryne B. Ayalew
3rd	Fall 2010	AuE 883 Applied Systems Integration, 3 cr. (3,0) AuE 827 Control systems AuE 828 Driveline & Powertrain, AuE 847 Vehicle Suspension Minor 2, 3 cr. (3,0)	Hung/Venhovens B. Ayalew/J. Ziegert I. Haque/J. Ziegert
4th	Spring 2011	Internship / Deep Orange	
Vehicular Electronics			
1st	Fall 2009	AuE 880 Design/Manufacture Project Management, 3cr. (3,0) AuE 881 Automotive Systems- an integrated overview, 3cr. (2,1) AuE 833 Automotive manufacturing Overview, 3 cr. (3,0) AuE 835 Vehicle Electronics Integration 3 cr (3,0)	I. Haque/S. Hung P. Venhovens M. Omar T. Hubing
2nd	Spring 2010	AuE 882 Systems Integration Concepts and Methods AuE 893 Automotive Signal Processing AuE 827 Control Systems Minor 1, 3cr. (3,0)	S. Hung T. Hubing/T. Kurfess B. Ayalew
3rd	Fall 2010	AuE 883 Applied Systems Integration, 3 cr. (3,0) AuE 893/ECE 693 Grounding and Shielding ECE 646 Antennas and Propagation, 3 cr. (3,0) or ECE 668 Embedded Computing 3cr. (3,0) Minor 2, 3 cr. (3,0)	Hung/Venhovens T. Hubing Martin Anthony Q H. Adam
4th	Spring 2011	Internship / Deep Orange	
Powertrain			
1st	Fall 2009	AuE 880 Design/Manufacture Project Management, 3cr. (3,0) AuE 881 Automotive Systems- an integrated overview, 3cr. (2,1) AuE 833 Automotive manufacturing Overview, 3 cr. (3,0) AuE 835 Vehicle Electronics Integration 3 cr (3,0)	I. Haque/S. Hung P. Venhovens M. Omar T. Hubing
2nd	Spring 2010	AuE 882 - Systems Integration Concepts and Methods Minor 1 3cr. (3,0) AuE 816 Combusion & Emission 3 cr (3,0) AuE 817 Alternative Energy Sources 3 cr (3,0)	S. Hung R. Prucka P. Pisu
3rd	Fall 2010	AuE 883 Applied Systems Integration, 3 cr. (3,0) AuE 893 Advanced Engine Combusion and Emission 3 cr (3,0) AuE 828 Fundamentals of Vehicle Drivelines and Powertrain Integration, 3cr. (3,0) Minor 2, 3 cr. (3,0)	Hung/Venhovens Prucka I. Haque
4th	Spring 2011	Internship / Deep Orange	

Class offerings subject to change

Last Updated:

August 12th, 2009

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