

Course Outline

1. COURSE INFORMATION

Session Offered	FALL 2015	
Course Name	Conceptual Design of Electric and Hybrid Electric Vehicles	
Course Code	AUTO TECH 4AT3	
Program Name	Automotive and Vehicle Technology	
Calendar Description	Automotive manufacture and assembly, automotive testing, research methods and design of experiments, diagnostics, ergonomics, vehicle acoustics, vehicle safety and accident analysis, standards for safety and emissions, environmental assessment.	
Instructor	Dr. Dan Centea	Phone: 905 525 9140 Ext. 20283 E-Mail: Avenue Email Office Hours & Location: by appointment, ETB 121A

2. COURSE SPECIFICS

Course Description	Problem based learning course in which groups of students research, discuss, and implement the design aspects of a conceptual vehicle. The open-ended designs focus on using modern vehicle technologies. The major aspects of each vehicular system are analysed from the system specification phase to the environment assessment and sustainability.		
Instruction Type	Code	Type	Total Hours
	C	Classroom Instruction	39
	L	Laboratory, workshop or fieldwork	
	T	Tutorial	
	DE	Distance Education	
	TOTAL HOURS		39
Resources	ISBN	Textbook Title & Edition	Author & Publisher
	N/A	No textbook	N/A
	Other Supplies		
Prerequisite(s)	AUTOTECH 4AE3, 4EC3, 4MS3		
Corequisite(s)			
Antirequisite(s)			
Course Specific Policies			
Departmental Policies	<p>Students must maintain a 3.5/12 GPA to continue in the program. In order to achieve the required learning objectives, on average, B.Tech. students can expect to do at least 3 hours of "out-of-class" work for every scheduled hour in class. "Out-of-class" work includes reading, research, assignments and preparation for tests and examinations.</p> <p>Where group work is indicated in the course outline, such collaborative work is mandatory.</p> <p>The use of cell phones, iPods, laptops and other personal electronic devices are prohibited from the classroom during the class time, unless the instructor makes an explicit exception.</p> <p>Announcements made in class or placed on Avenue are considered to have been communicated to all students including those individuals that are not in class.</p>		

3. SUB TOPIC(S)		
Week 1	Introduction to problem based learning. Conceptual design	
Week 2	System specification, performances, dynamic behaviour	
Week 3	Market research I	
Week 4	Market research II	
Week 5	Propulsion system and transmission: engine/motor, fuel, control approach	
<i>Mid-term recess</i>		
Week 6	Emissions, environmental assessment, sustainability	
Week 7	Electrical, electronic and control systems	
Week 8	User control systems	
Week 9	Materials, body, and mechanical system: brakes, suspension, steering	
Week 10	Emissions, environmental assessment, sustainability	
Week 11	Project work Project submission	
Week 12	Project presentations	
Week 13	Vehicle testing Aerodynamics	
<p>Note: this structure represents a plan and is subject to adjustment term by term. The instructor and the university reserve the right to modify elements of the course during the term. The university may change the dates and deadlines for any or all courses in extreme circumstances. If either type of modification becomes necessary, reasonable notice and communication with the students will be given with explanation and the opportunity to comment on changes.</p>		
4. ASSESSMENT OF LEARNING		Weight
Problem analysis – presentation (covers the topics discussed in weeks 1...5)		10
Topic briefs		10
Group evaluation		10
Project presentation		20
Project report		20
Final exam		30
TOTAL		100
Percentage grades will be converted to letter grades and grade points per the University calendar.		
5. LEARNING OUTCOMES		
1. Revise automotive engineering knowledge learned in previous courses.		
2. Apply problem based learning strategies		
3. Investigate comprehensive topics related to vehicular design		
4. Analyse design options and select appropriate solutions		
5. Debate and compare various design solution		
6. Generate the conceptual design of a small vehicle		
6. POLICIES		
Anti-Discrimination		
<p>The Faculty of Engineering is concerned with ensuring an environment that is free of all discrimination. If there is a problem, individuals are reminded that they should contact the Department Chair, the Sexual Harassment Officer or the Human Rights Consultant, as soon as possible.</p> <p>http://www.mcmaster.ca/policy/General/HR/Anti-Discrimination%20policy.pdf</p>		
Academic Integrity		
<p>Attention is drawn to the Statement on Academic Ethics and the Senate Resolutions on Academic Dishonesty as found in the Senate Policy Statements distributed at registration and available in the Senate Office. Any student who infringes one of these resolutions will be treated according to the published policy.</p> <p>Academic dishonesty consists of misrepresentation by deception or by other fraudulent means and can result in serious consequences, e.g. the grade of zero on an assignment, loss of credit with a notation on</p>		

the transcript (notation reads: "Grade of F assigned for academic dishonesty"), and/or suspension or expulsion from the university.

It is your responsibility to understand what constitutes academic dishonesty. For information on the various kinds of academic dishonesty please refer to the Academic Integrity Policy, specifically Appendix 3, located at: <http://www.mcmaster.ca/univsec/policy/AcademicIntegrity.pdf>

Requests for Relief for Missed Academic Term Work (Assignments, Mid-Terms, etc.)

The McMaster Student Absence Form is a self reporting tool for **Undergraduate Students** to report absences that last up to 5 days and provides the ability to request accommodation for any missed academic work. Please note, this tool cannot be used during any final examination period.

You may submit a maximum of 1 Academic Work Missed requests per term. It is YOUR responsibility to follow up with your Instructor immediately regarding the nature of the accommodation.

If you are absent more than 5 days or exceed 1 request per term you MUST visit your Associate Dean's Office (Faculty Office). You may be required to provide supporting documentation.

This form should be filled out immediately when you are about to return to class after your absence.

<http://www.mcmaster.ca/msaf/>

E-Learning Policy

Consistent with the Bachelor of Technology's policy to utilize e-learning as a complement to traditional classroom instruction, students are expected to obtain appropriate passwords and accounts to access Avenue To Learn for this course. Materials will be posted by class for student download. It is expected that students will avail themselves of these materials prior to class. Avenue can be accessed via

<http://avenue.mcmaster.ca>

Communications

It is the student's responsibility to:

- Maintain current contact information with the University, including address, phone numbers, and emergency contact information.
- Use the university provided e-mail address or maintain a valid forwarding e-mail address.
- Regularly check the official University communications channels. Official University communications are considered received if sent by postal mail, by fax, or by e-mail to the student's designated primary e-mail account via their @mcmaster.ca alias.
- Accept that forwarded e-mails may be lost and that e-mail is considered received if sent via the student's @mcmaster.ca alias.
- To check their McMaster/Avenue email and course websites on a regular basis during the term.

Turnitin (Optional)

This course will be using a web-based service (Turnitin.com) to reveal plagiarism. Students will be expected to submit their work electronically to Turnitin.com and in hard copy so that it can be checked for academic dishonesty. Students who do not wish to submit their work to Turnitin.com must still submit a copy to the instructor. No penalty will be assigned to a student who does not submit work to Turnitin.com. All submitted work is subject to normal verification that standards of academic integrity have been upheld (e.g., on-line search, etc.). To see the Turnitin.com Policy, please go to

www.mcmaster.ca/academicintegrity

Protection of Privacy Act (FIPPA)

The Freedom of Privacy of Information and Protection of Privacy Act (FIPPA) applies to universities. Instructors should take care to protect student names, student numbers, grades and all other personal information at all times. For example, the submission and return of assignments and posting of grades must be done in a manner that ensures confidentiality.

<http://www.mcmaster.ca/univsec/fippa/fippa.cfm>

Academic Accommodation of Students with Disabilities Policy

Student Accessibility Services (SAS) is committed to the continuous improvement of accessibility for students with disabilities. Students are encouraged to contact SAS as early as possible before each term starts to become familiar with the services offered and to confirm their accommodations.

Students must forward a copy of the SAS accommodation to the instructor of each course and to the Program Administrator of the B.Tech. Program immediately upon receipt. If a student with a disability chooses NOT to take advantage of a SAS accommodation and chooses to sit for a regular exam, a petition for relief may not be filed after the examination is complete. <http://sas.mcmaster.ca>

Student Code of Conduct

The Student Code of Conduct (SCC) exists to promote the safety and security of all the students in the McMaster community and to encourage respect for others, their property and the laws of the land. McMaster University is a community which values mutual respect for the rights, responsibilities, dignity and well-being of others. The purpose of the Student Code of Conduct is to outline accepted standards of behavior that are harmonious with the goals and the well-being of the University community, and to define the procedures to be followed when students fail to meet the accepted standards of behavior. All students have the responsibility to familiarize themselves with the University regulations and the conduct expected of them while studying at McMaster University.

<http://www.mcmaster.ca/univsec/policy/StudentCode.pdf>