EMCH 441 - Automotive System Fundamentals

Credit hours – 3  Contact hours – 50 minutes MWF or 75 minutes TTh

Instructor – Jeff Morehouse


Specific Course information:
 a. EMCH 441 – Automotive System Fundamentals. (3) Basic automotive engineering systems’ descriptions and associated engineering principles. Past, current and future automotive systems and components are examined
 b. Prerequisites: EMCH 290, EMCH 394
 c. Mechanical Engineering Elective

Course Goals:
 a. Outcomes
   1. The student will understand the basic concepts and terminology of automotive systems.
   2. The student will have a physical understanding of the operation of automotive systems.
   3. The student will comprehend and understand the application of engineering design to specific vehicle systems and components.
 b. Relationship of Course to Program Objectives: The importance of each course objective to meeting the program outcomes is indicated with the following scale: 3 = major importance; 2 = moderate importance; 1 = minimal importance. Blank if not related.

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<tr>
<th>Program Outcomes (see list for complete description)</th>
<th>Course Objectives</th>
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<tr>
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<td>CO 1</td>
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<tr>
<td>1.1. analyze, design and realize</td>
<td>2</td>
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<td>1.2. computation techniques</td>
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<td>1.3. design and interpret experiments</td>
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<td>1.4. apply linear algebra, calculus</td>
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<td>1.5. apply statistical methods</td>
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<td>1.6. understand chemistry and physics</td>
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<td>2.1. engineering economic analyses</td>
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<td>2.2. plan and execute projects</td>
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<td>2.3. oral and written communications</td>
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<td>2.4. professional responsibility</td>
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<td>2.5. multi-disciplinary teams</td>
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<td>2.6. life-long learning</td>
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<tr>
<td>3.1. engineering in modern society</td>
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<td>3.2. literature, arts, humanities.</td>
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<td>3.3. foreign language</td>
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Topics Covered:
1. Overview of automotive design.
2. Wheel-related systems: suspension, steering, brake, tire.
3. Drive systems: engine cycles, engine construction, clutch & gearbox, drive shaft.
4. Engine-related systems: cooling, fuel, exhaust.

Person Who Prepared This Description and Date of Preparation:
Jeffrey H. Morehouse, Course added in Fall 2004
(01/10/2005, Revision: new text)
(02/26/2010, Revision: assessment % and grading scale)
Steve McNeill formatted for ABET 2011 – 2/28/11
Approved Jeffrey H. Morehouse 3/18/11