Motorsports Engineering

EFFECTIVE SESSION: Fall 2009

INSTRUCTIONS: Please check the items below which describe the purpose of this request.

- New course with supporting documents
- Add existing course offered at another campus
- Expiration of a course
- Change in course number
- Change in course title
- Change in course credit type
- Change in course attributes (department head signature only)
- Change in instructional hours
- Change in course description
- Change in course requisites
- Change in semesters offered (department head signature only)
- Transfer from one department to another

PROPOSED:

Subject Abbreviation: MSTE
Course Number: 428
Long Title: Internal Combustion Engines
Short Title: IC Engines

EXISTING:

Subject Abbreviation: 
Course Number: 

TERMS OFFERED:

CAMPUS(ES) INVOLVED:

- Calumet
- Cont Ed
- Ft. Wayne
- N. Central
- Tech Statewide
- W. Lafayette
- Indianapolis

CREDIT TYPE:

1. Fixed Credit: Cr. Hrs.
   - 3
2. Variable Credit Range:
   - Minimum Cr. Hrs
   - (Check One) To Or
   - Maximum Cr. Hrs
3. Equivalent Credit: No
4. Thesis Credit: No

COURSE ATTRIBUTES: Check All That Apply:

1. Pass/Not Pass Only
2. Satisfactory/Unsatisfactory Only
3. Repeatable
4. Credit by Examination
5. Designator Required
6. Special Fees
7. Registration Approval Type
   - Department
   - Instructor
8. Variable Title
9. Remedial
10. Honors
11. Full Time Privilege
12. Off Campus Experience

INSTRUCTIONAL TYPE:

Lecture: 75
Presentation: 
Laboratory: 120
Lab Prep: 
Studio: 
Distance: 
Clinic: 
Experiential: 
Research: 
Ind. Study: 
Pract/Observ: 

PER MIG MEETINGS % OF CREDIT DELIVERY METHOD DELIVERY MEDIUM (Audio, Internet, Live, Text-Based, Video)

- 1
- 1

Cross-Listed Courses

COURSE DESCRIPTION (INCLUDE REQUISITES):

P: ME200 or equivalent or permission of instructor. This course covers the fundamentals of internal combustion engine design and operation, with a focus on high performance.

Calumet Department Head: 
Calumet School Dean: 

Ft. Wayne Department Head: 
Ft. Wayne School Dean: 

Indianapolis Department Head: 
Indianapolis School Dean: 

North Central Department Head: 
North Central Chancellor: 

West Lafayette Department Head: 
West Lafayette College/School Dean: 
West Lafayette Registrar: 

OFFICE OF THE REGISTRAR
New Course Request

Indiana University  Indianapolis  Campus

Check Appropriate Boxes: Undergraduate credit [ ]  Graduate credit [ ]  Professional credit [ ]

1. School/Division  School of Engineering & Technology
2. Academic Subject Code  MSTE

3. Course Number  426
4. Instructor  Peter Hylton

5. Course Title  Internal Combustion Engines

Recommended Abbreviation (Optional)  IC Engines

(Limited to 32 Characters including spaces)

6. First time this course is to be offered (Semester/Year): Fall 2009

7. Credit Hours: Fixed at [ ]  3 [ ]  or Variable from ________ to ________

8. Is this course to be graded S-F (only)? Yes [ ]  No [X]

9. Is variable title approval being requested? Yes [ ]  No [X]

10. Course description (not to exceed 50 words) for Bulletin publication:

P: ME200 or equivalent or permission of instructor. This course covers the fundamentals of internal combustion engine design and operation, with a focus on high performance.

11. Lecture Contact Hours: Fixed at [ ]  3 [ ]  or Variable from ________ to ________

12. Non-Lecture Contact Hours: Fixed at ________  or Variable from ________ to ________

13. Estimated enrollment: [ ]  25 [ ]  of which ________ percent are expected to be graduate students.

14. Frequency of scheduling: [ ]  yearly  Will this course be required for majors? [ ]  yes

15. Justification for new course: Part of the already approved BS in Motorsports Engineering

16. Are the necessary reading materials currently available in the appropriate library? [ ]  yes

17. Please append a complete outline of the proposed course, and indicate instructor (if known), textbooks, and other materials.

18. If this course overlaps with existing courses, please explain why the course is necessary, desirable, or unimportant. May overlap with MET 426. Necessary to allocate credit hours to correct BS Program

19. A copy of every new course proposal must be submitted to departments, schools, or divisions in which there may be overlap of the new course with existing courses or areas of strong concern, with instructions that they send comments directly to the originating Curriculum Committee. Please append a list of departments, schools, or divisions thus consulted.

Submitted by  
Date  2/17/09

Approved by  
Date  3/17/09

Dean of Graduate School (when required)  
Date  

Chancellor-Vice-President  
Date  

University Enrollment Services  
Date  

After School Division approval, forward the last copy (without attachments) to University Enrollment Services for initial processing, and the remaining four copies and attachments to the Campus Chancellor or Vice-President.
MSTE 426 – IC Engines (co-listed with MET 426)

Description: Study of Fundamentals of Internal Combustion Engines
This course will be primarily task and project based rather than exam based. As such, completing weekly assignments, maintaining an accurate engine log, and completion of class projects will constitute most of the grade.

Class Times: Wednesdays 3:00-4:15, ET121
Lab Times: Mondays 4:30-6:20 or as arranged
Prerequisites: MET 220, ME200 or equivalent or permission of instructor
Instructor: Pete Hylton Phone: 317-274-7192 email: phylton@iupui.edu
Text: Engineering Fundamentals of the Internal Combustion Engine, 2nd ed. by Pulkabek

Grading:
- Assignments and projects 200 points
- Team Project 200 points
- Final Exam (individual portion) 60 points
- (team portion) 40 points

Minimum Scale: 90-100 = A, 80-90 = B, 70-80 = C, 60-70 = D, 0-60 = F  
+/- will be given total 500 points

Date | Topic | Reading
--- | --- | ---
8/22 | Engine types and terms, Team Project | Ch 1
8/29 | 2 vs 4 cycle, alternative engines | Ch 2
9/5 | Operating Parameters | Ch 3
9/12 | Cycles | Ch 4
9/19 | Fuel Chemistry | Ch 5
9/26 | Induction & Injection | Ch 6
10/3 | Guest Lecture | Ch 7
10/10 | Guest Lecture | Ch 8
10/17 | Combustion Chamber | Ch 9
10/24 | Combustion | Ch 10
10/31 | Exhaust | Thanksgiving Break
11/7 | Emissions | Ch 11
11/14 | Heat Transfer | Review
11/21 | **Thanksgiving Break** | Ch 12
11/28 | Friction & Lubrication | 1:00-3:00
12/5 | Review | Final Exam
12/14 | **Final Exam** | 1:00-3:00

Course Outcomes:

1. Demonstrate an appropriate mastery of the knowledge, techniques, skills and modern tools needed for design and analysis of engines.
2. Apply current knowledge and adapt to emerging applications in engine development.
3. Conduct, analyze and interpret experiments and apply results to improve processes.
4. Function effectively on teams.
5. Identify, analyze and solve technical problems.
6. Communicate effectively.