New Course Request

Indiana University

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

School/Discipline: School of Engineering & Technology

Academic Subject Code: MSTE

Course Number: 297

(Course must be cleared with University Enrollment Services)

Instructor: Pete Hylton

Course Title: Computer Modeling for Motorsports

Recommended Abbreviation (Optional) ________________________________

(Limited to 32 Characters including spaces)

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

Credit Hours: Fixed at ______ or Variable from _______ to ________

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

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

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

None. This course covers basic computer aided design and 3D modeling of systems as needed for the motorsports industry.

Lecture Contact Hours: Fixed at ______ or Variable from _______ to ________

Non-Lecture Contact Hours: Fixed at ______ or Variable from _______ to ________

Estimated enrollment: 25 of which 0 percent are expected to be graduate students.

Frequency of scheduling: ______ yearly ______ Will this course be required for majors? ______ yes ______

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

Are the necessary reading materials currently available in the appropriate library? ______ yes ______

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

If this course overlaps with existing courses, please explain with which courses it overlaps and whether this overlap is necessary, desirable, or unimportant.

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: 10-29-08

[Signature]

Department Chair, Division Director

Dean of Graduate School (when required)

[Signature]

Date

[Signature]

Chancellor/Executive Vice- President

[Signature]

Date

University Enrollment Services

[Signature]

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.
PURDUE UNIVERSITY
REQUEST FOR ADDITION, EXPIRATION,
OR REVISION OF AN UNDERGRADUATE COURSE
(100-400 LEVEL)

DEPARTMENT: Motorsports Engineering
EFFECTIVE SESSION: Fall 2008

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

- 1. New course with supporting documents
- 2. Add existing course offered at another campus
- 3. Expiration of a course
- 4. Change in course number
- 5. Change in course title
- 6. Change in course credit type
- 7. Change in course attributes (department head signature only)
- 8. Change in instructional hours
- 9. Change in course description
- 10. Change in course requisites
- 11. Change in semesters offered (department head signature only)
- 12. Transfer from one department to another

PROPOSED:

<table>
<thead>
<tr>
<th>Subject Abbreviation</th>
<th>Existing: Subject Abbreviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSME</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Existing: Course Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>207</td>
<td></td>
</tr>
</tbody>
</table>

Long Title: Computer Modeling for Motorsports
Short Title: Computer Modeling for Motorsports

Abbr. title will be entered by the Office of the Registrar if method (22 CHARACTERS ONLY)

CAMPUS(ES) INVOLVED

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

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
- 8. Variable Title
- 9. Remedial
- 10. Honors
- 11. Full-time Privilege
- 12. Off Campus Experience

CROSS-LISTED COURSES

OFFICE OF THE REGISTRAR

Calumet Department Head: [Signature] 10/23/08
Calumet School Dean: [Signature] 10-28-08

Fort Wayne Department Head: [Signature] 10/23/08
Fort Wayne School Dean: [Signature] 10-28-08

Indianapolis Department Head: [Signature] 10/23/08
Indianapolis School Dean: [Signature] 10-28-08

North Central Department Head: [Signature] 10/23/08
North Central Chancellor: [Signature] 10-28-08

West Lafayette Department Head: [Signature] 10/23/08
West Lafayette College/School Dean: [Signature] 10-28-08

West Lafayette Registrar: [Signature] 10-28-08
PURDUE SCHOOL OF ENGINEERING & TECHNOLOGY
OUTCOMES AND ASSESSMENT DATA SHEET

This is an internal document to identify and record expected outcomes and anticipated assessment strategies for all courses taught within the School of Engineering and Technology. Submission of this form, as noted below, is required and must accompany all new course and course change requests. Copies of this form should also be retained within the department and kept on file with the course syllabus for each course.

Course Number: MSTE 297  Course Title: Computer Modeling for Motorsports

Procedure:

First, identify all instructional outcomes expected for this course, and then select all ABET outcomes which are consistent with those anticipated objectives from TABLE 1 below.

<table>
<thead>
<tr>
<th>TABLE 1 - ABET OUTCOMES</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGINEERING - EAC Criteria #3</td>
</tr>
<tr>
<td>An ability to apply knowledge of mathematics, science, and engineering</td>
</tr>
<tr>
<td>An ability to design and construct experiments as well as to analyze and interpret data.</td>
</tr>
<tr>
<td>An ability to design a system, component, or process to meet desired needs.</td>
</tr>
<tr>
<td>An ability to function on multi-disciplinary teams.</td>
</tr>
<tr>
<td>An ability to identify, formulate and solve engineering problems.</td>
</tr>
<tr>
<td>An understanding of professional and ethical responsibility.</td>
</tr>
<tr>
<td>An ability to communicate effectively.</td>
</tr>
<tr>
<td>The broad education necessary to understand the impact of engineering solutions in global societal context.</td>
</tr>
<tr>
<td>A recognition of the need for and ability to engage in life-long learning.</td>
</tr>
<tr>
<td>A knowledge of contemporary issues.</td>
</tr>
<tr>
<td>An ability to use the techniques, skill and modern engineering tools necessary for engineering practice.</td>
</tr>
</tbody>
</table>

Subsets for each of the six IUPUI Principles of Undergraduate Learning (PUL) are given on the reverse side in TABLE 2. Using a number corresponding to each ABET outcome identified from TABLE 1 above to select a column, place a "" or "X" mark in the applicable TABLE 2 row(s) cell for each PUL. Courses will often address multiple ABET outcomes and ABET outcomes frequently will overlap more than one PUL subset. Thus, it is expected completed data sheets may contain marks in several cells thereby indicating the course simultaneously satisfies multiple Principles of Undergraduate Learning while fulfilling its intended ABET objective(s).

After completing TABLE 2, briefly define or explain how the course outcomes or objectives will be evaluated within the context of the departmental assessment program in the space below:

Student performance will be evaluated by individual assignments, projects, and exams.

Submitted By: Pete Hylton  Date: 10/3/08
TABLE 2 - MATRIX OF EXPECTED COURSE OUTCOMES

(Suggestion - while completing Table 2, place a copy of the ABET outcomes from Table 1 along side for easy cross referencing.)

<table>
<thead>
<tr>
<th>PRINCIPLES OF UNDERGRADUATE LEARNING - &quot; Require all students to demonstrate an ability to:*&quot;</th>
<th>ENGINEERING OUTCOMES - EAC CRITERIA #3: Items (a) to (k)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1(a) - Express ideas and facts effectively in written format</td>
<td>a b c d e f g h i j k</td>
</tr>
<tr>
<td>1(b) - Comprehend, interpret, and analyze texts</td>
<td>X</td>
</tr>
<tr>
<td>1(c) - Communicate orally in one-on-one and group settings</td>
<td>X</td>
</tr>
<tr>
<td>1(d) - Solve problems that are quantitative in nature</td>
<td>X</td>
</tr>
<tr>
<td>1(e) - Make efficient use of information resources and technology for personal and professional needs</td>
<td>X</td>
</tr>
<tr>
<td>2(a) - Analyze complex issues and make informed decisions</td>
<td>X</td>
</tr>
<tr>
<td>2(b) - Synthesize information in order to arrive at reasoned conclusions</td>
<td>X</td>
</tr>
<tr>
<td>2(c) - Evaluate the logic, validity, and relevance of data</td>
<td>X</td>
</tr>
<tr>
<td>2(d) - Solve challenging problems</td>
<td>X</td>
</tr>
<tr>
<td>2(e) - Use knowledge and understanding to generate and explore new questions</td>
<td>X</td>
</tr>
<tr>
<td>3(a) - Apply knowledge to enhance personal lives</td>
<td>X</td>
</tr>
<tr>
<td>3(b) - Apply knowledge to meet professional standards and competencies</td>
<td>X</td>
</tr>
<tr>
<td>3(c) - Apply knowledge to further the goals of society</td>
<td>X</td>
</tr>
<tr>
<td>4(a) - Demonstrate substantial knowledge and understanding of at least one field of study</td>
<td>X</td>
</tr>
<tr>
<td>4(b) - Compare and contrast approaches to knowledge in different disciplines</td>
<td>X</td>
</tr>
<tr>
<td>4(c) - Modify their approach to an issue or problem based on the contexts and requirements of particular situations</td>
<td>X</td>
</tr>
<tr>
<td>5(a) - Compare and contrast the range of diversity and universality in human history, societies, and ways of life</td>
<td>X</td>
</tr>
<tr>
<td>5(b) - Analyze and understand the interconnectedness of global and local concerns</td>
<td>X</td>
</tr>
<tr>
<td>5(c) - Operate with civility in a complex social world</td>
<td>X</td>
</tr>
<tr>
<td>6(a) - Make informed and principles choices regarding conflicting situations in their personal and public lives and to foresee the consequences of these choices</td>
<td>X</td>
</tr>
<tr>
<td>6(b) - Recognize the importance of aesthetics in their personal lives and to society</td>
<td>X</td>
</tr>
</tbody>
</table>
MSTE 297 – Computer Modeling for Motorsports

Description: An introductory course teaching the ability to visualize and conceptualize a part and translate it between 2D and 3D representations using a Computer Aided Design such as Pro-E.

Class Times: The course will meet once per week, for an hour and forty minutes, for 8 weeks.

Prerequisites: none

Instructor: tbd

Text: tbd

Grading: Projects 100 points  
Homework/ quizzes 100 points  
Exams 100 points  Total 300 points

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

Late work: Late work or make-up exams will require prior warning and approval or verified personal emergency.

Tentative Course Schedule:

<table>
<thead>
<tr>
<th>Meeting Topic</th>
<th>Chapter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1 Introduction</td>
<td></td>
</tr>
<tr>
<td>Week 2 Visualization in 3D</td>
<td></td>
</tr>
<tr>
<td>Week 3 Representations in 2D</td>
<td></td>
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<tr>
<td>Week 4 Modeling techniques</td>
<td></td>
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<tr>
<td>Week 5 Modeling techniques</td>
<td></td>
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<tr>
<td>Week 6 Project</td>
<td></td>
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<tr>
<td>Week 7 Advanced techniques</td>
<td></td>
</tr>
<tr>
<td>Week 8 Exam</td>
<td></td>
</tr>
</tbody>
</table>

Course Outcomes:

1. Apply knowledge of mathematics, science, and engineering to the solution of problems relating to the design of components.

2. Design a systems and components to meet desired needs.

3. Identify, formulate, and solve engineering problems relating to the design of components.

4. Communicate effectively.

5. Use the techniques, skill, and modern engineering tools necessary for engineering practice.