OFFICIAL UNDERGRADUATE COURSE OUTLINE INFORMATION

Students are advised to keep course outlines in personal files for future use.

Shaded headings are subject to change at the discretion of the department – see course syllabus available from instructor

<table>
<thead>
<tr>
<th>COURSE NAME/NUMBER</th>
<th>FACULTY/DEPARTMENT</th>
<th>UFV CREDITS</th>
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<tr>
<td>PHYS 325</td>
<td>Science/Physics</td>
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CALENDAR DESCRIPTION:

Fluid mechanics is an important and yet often under-appreciated and neglected aspect of physics. An understanding of how fluids behave is important in a diversity of subjects from Astrophysics (stars and planetary bodies) to Microbiology (fluid flow into and out of cells). This course will introduce students to the subject of fluid mechanics from the basic principles of Archimedes and Bernoulli, to the more complex aspects of vortices and streamlines. An emphasis will be placed on the vector description of fluid behaviour, which will necessitate a brief introduction to Cartesian tensors.

PREREQUISITES: PHYS 221.
COREQUISITES: PHYS 381 recommended. Note: As of September 2015, pre or corequisites will change to the following: PHYS 381.

SYNONYMOUS COURSE(S):
(a) Replaces: ____________________________
(b) Cross-listed with: ______________________
(c) Cannot take: __________________________ for further credit.

TOTAL HOURS PER TERM: 75

TRAINING DAY-BASED INSTRUCTION:
Length of course: __________________________
Hours per day: __________________________

OTHER:
Maximum enrolment: 24
Expected frequency of course offerings: Every 2-3 years. (every semester, annually, every other year, etc.)

WILL TRANSFER CREDIT BE REQUESTED? (lower-level courses only) Yes □ No □
WILL TRANSFER CREDIT BE REQUESTED? (upper-level requested by department) Yes □ No □
TRANSFER CREDIT EXISTS IN BCCAT TRANSFER GUIDE: Yes □ No □

Course designer(s): Jeff Chizma
Department Head: Derek Harnett Date approved: December 6, 2012
Campus-Wide Consultation (CWC) Date of meeting: May 31, 2013
Curriculum Committee chair: Dave Fenske Date approved: November 15, 2013
Dean/Associate VP: Lucy Lee Date of meeting: December 13, 2013
Undergraduate Education Committee (UEC) approval
LEARNING OUTCOMES:
Upon successful completion of this course, students will be able to:
- Analyse situations involving static fluids (Archimedes principle, gauge and absolute pressure)
- Apply knowledge of the dynamics of vortices to simple situations involving moving fluids
- Describe and explain the principles behind simple fluid flow (Bernoulli)
- Identify the conservation laws at work during the flow of simple fluids
- Explain the major differences between viscous and non-viscous flow

METHODS: (Guest lecturers, presentations, online instruction, field trips, etc.)
This course will be taught using lectures, demonstrations, and accompanying software. Problems will be assigned and marked on regular basis.

METHODS OF OBTAINING PRIOR LEARNING ASSESSMENT RECOGNITION (PLAR):
☑ Examination(s) ☐ Portfolio assessment ☐ Interview(s)
☐ Other (specify):
☐ PLAR cannot be awarded for this course for the following reason(s):

TEXTBOOKS, REFERENCES, MATERIALS:
[Textbook selection varies by instructor. An example of texts for this course might be:]

SUPPLIES / MATERIALS:

STUDENT EVALUATION:
[An example of student evaluation for this course might be:]
Assignments 30%
Midterm Examinations 20%
Final Examinations 40%
Project/Presentation 10%

COURSE CONTENT:
[Course content varies by instructor. An example of course content might be:]

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<th>Topic</th>
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<td>Introduction</td>
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<td>Fundamental Concepts</td>
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<td>Fluid Statics</td>
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<td>5-6</td>
<td>Cartesian Tensors and Vector Calculus Review</td>
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<td>12-13</td>
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