Course Outline

Course Name: Engineering, Technology and Society

Department Head/Coordinator: Andy Sellwood

Effective Date: September 2015

School or Centre: School of Arts and Science

Department: University Transfer- Science

Course History:

Revised Course: 1st Year Post-secondary

Name of Replacing Course:

(if applicable): SCIE 1100

Course Number: SCIE 1100

Number of Credits: 3.0

Course Pre-requisites (if applicable):

Pre-calculus 12 or VCC MATH 1020 or VCC MATH 0983/0993 or VCC Math Pre-calculus Assessment Test with at least a 72%; Physics 12 (or equivalent), Chemistry 12 (or equivalent) or Biology 12 (or equivalent) with a C+.

Course Co-requisites (if applicable):

SCIE 1110

PLAR (Prior Learning Assessment & Recognition) ☑ No ☐ Yes (details below):

Course Description:

This course introduces students to the practice of engineering, surveying its history and its current state. The social and political aspects of engineering decisions will be illustrated by a number of case studies. The course also includes examples related to the field of computer science.

**Instructional Strategies:**
Lectures, guest speakers, group work, video and YouTube presentations.

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**Course Learning Outcomes:**
Upon successful completion of this course students will be able to:

- Solve an open-ended complex problem and design an appropriate method of evaluating the solution.
- Apply appropriate engineering knowledge, judgment, and tools to create and analyze design solutions.
- Assume responsibility for their own work and participate equitably in team projects.
- Initiate and contribute to team goal-setting.
- Demonstrate the capacity for initiative and technical or team leadership while respecting other’s roles and strengths.
- Communicate effectively, recognizing the diversity of learning and communication styles on the team.
- Analyze complex problems; including organizing team members into sub-groups to develop solutions and testing criteria for sub-problems; lead integration and verification of components within the solution.
- Read, understand, and interpret technical and non-technical information and instructions.
- Produce clear, concise, coherent, and well-organized engineering documents.
- Deliver well-organized and effective oral presentations to technical and non-technical audiences.
- Incorporate sustainability considerations (societal, ecological, and economic) in decision-making, recognizing the potential impact both short-term and long-term.
- Describe the relationship between human activity and earth systems and demonstrates the ability to identify and choose alternatives to mitigate the impact of human activity.
- Describe ethical issues and apply ethical reasoning to determine their affect on the individual/company/public.

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**Program Learning Outcomes:**
If this course is taken as a requirement or an elective in the following first year, University Transfer Certificate program, the learning outcomes are found in the relevant Program Content Guides available at the Counselling and Advising Service areas.

University Transfer Engineering Certificate
University Transfer Computing Science and Software Systems Certificate
### Evaluation/Grading System

(Click on drop down box arrows to see list of options)

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<thead>
<tr>
<th>Grading System</th>
<th>Specify if ‘Other’:</th>
<th>Specify Passing Grade:</th>
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<td>Letter Grades</td>
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### Components and Weighting of the Assessment/Evaluation Plan:

(Click on drop down box arrows to see list of options)

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<tr>
<th>Type</th>
<th>Percentage</th>
<th>Evaluation Plan</th>
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<tbody>
<tr>
<td>Other</td>
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<td>Research Paper</td>
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<tr>
<td>Project</td>
<td>20</td>
<td>Group project (includes poster, oral presentation and report)</td>
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<td>Participation</td>
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<td>Quizzes/Tests</td>
<td>30</td>
<td>3 In-class quizzes</td>
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### Learning Environment/Type

(Select all that are used within the course)

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### Resource Material(s):  

Resources are items in addition to tuition that the student is responsible for purchasing. Course resource information will be supplied by the department/instructor.
Course Topics and Sequence Covered:

- History of Engineering
- Public Perception of Engineers and Engineering (1 lecture)
- Survey of some interesting areas of engineering, depending on the preferences and skill set of the instructor; may make use of guest speakers. Suitable topics might include: Engineering Modelling; Information Theory; Telecommunications; Introductory Thermodynamics; Chaos Theory; Artificial Intelligence; Nanotechnology; Spaceflight.
- Engineering and the Environment
- Engineering and International Development
- Engineering Management and Economics
- Ethical Questions in Engineering (Engineering Disasters and Engineering for Military Applications)

VCC Education and Education Support Policies

There are a number of Education and Education Support policies that govern your educational experience at VCC, please familiarize yourself with them.

The policies are located on the VCC web site at:

http://www.vcc.ca/about/governance--policies/policies/

To find out how this course transfers, visit the BC Transfer Guide at www.bctransferguide.ca.

FOR COMMITTEE USE ONLY

| Date Approved by Education Council: | Date Approved by VCC Board (if applicable): |