NEW GRADUATE COURSE FOR
FACULTY OF ENGINEERING AND APPLIED SCIENCE GRADUATE COUNCIL
APPROVAL

GRADUATE DEPARTMENT NAME: Civil Engineering

For EACH new course, please complete the entire form.

Insert the proposed Calendar description of the new course in the box below, and delete the example provided.

EXAMPLE:

<table>
<thead>
<tr>
<th>(1a)</th>
<th>(2)</th>
<th>(1b)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIVL 891/3.0</td>
<td>Water Quality and Discolouration in Drinking Water Distribution Systems</td>
<td></td>
</tr>
</tbody>
</table>

This course presents approaches to analyze and model drinking water quality and discolouration in distribution systems. The course covers approaches in aquatic chemistry for the testing of drinking water. Transport processes and advanced topics in discolouration of drinking water are examined with emphasis on the measurement and modelling of the growth and mobilization of cohesive layers in pipes.

1. Course number (1a) and title (1b): The number chosen for this course should not have been used in the past 5 years.

   NB. Course titles on Queen’s transcripts will be truncated if longer than 30 characters.

2. Weight (e.g. 3.0 credit units [term-length course], 6.0 credit units [full course]): The course weight must be consistent with the course content. Note: the course weight will be equivalent to that of a term-length course although components of the course may be offered and/or completed over more than one term.

3. Calendar description: This is the description that will appear in the School of Graduate Studies Calendar. The maximum length for a Calendar description is 350 characters (3a). Remember to include any ancillary fees that will be borne by the student (3b). If none, omit.

4. Prerequisites: Please list prerequisites; if none, omit.

5. Exclusions: List courses with sufficient content overlap, not only in your program, but also in other programs. It is the responsibility of the program creating a new course to contact other programs that may offer courses with similar content in order to make this assessment. If none, omit.

Provide the following detailed information for each new course:

6. Expanded Course Description: Attach a detailed course description, expanding on course content. Include potential readings, texts, instructional methods (i.e. lectures, seminars, etc.) and marking scheme. Explain how this course will fit into the Program’s overall program requirements. Is this course intended as a requirement, an option or an elective?
The discolouration of drinking water has been linked to poor water quality and customer complaints in distribution systems. The source of drinking water discolouration is often from accumulated material on pipe walls that is disturbed during high-flow events in a distribution system.

This graduate-level course presents approaches to analyze and model drinking water quality and discolouration events in distribution systems. The course first covers approaches in aquatic chemistry that apply to drinking water. Water quality testing of drinking water in distribution systems is discussed in detail. The course briefly reviews hydraulic modelling principles that are pertinent to the transport of chemical constituents in distribution systems. Physical transport processes in closed-conduits is examined and the governing equations of constituent transport in pressurized pipe networks are developed from first principles. The course covers advanced topics in discolouration of drinking water in distribution systems with emphasis on: i) the origin and composition of cohesive layers along pipe walls, and ii) the growth and mobilization of cohesive layers in pipes. Various models that characterize the strength of cohesive layers, their growth rate along the walls of pipes, and the risk of discolouration potential in water mains are presented and discussed.

The course will be offered as a technical graduate elective to graduate students within the Department of Civil Engineering and graduate units within the Faculty of Engineering and Applied Science. The course content will be delivered in lectures and short student seminars. Course readings will rely on select texts in aquatic chemistry, water quality modelling in distribution systems, and select research papers in that cover the analysis of discolouration of drinking water. Student evaluations will include a research paper on a selected topic, a graduate seminar presentation on a selected topic, and a final exam.

7. Impact (if any) on other programs: If the new course will have any impact on programs offered by other Programs, please indicate which programs may be affected by this new course, i.e., the course could be included in another concentration or the course content might overlap with courses offered by another program. Please indicate which Graduate Program(s) have been contacted.

This course will not affect other Programs.

8. Schedule: Will this course be offered regularly? Annually? In alternate years? When will it first be offered?

The course will offered in alternate years. The course will first be offered in January 2017.

9. Staffing: Provide faculty/staff information for the coming year and foreseeable future.

The course will be taught by Dr. Yves Filion (tenured professor) in the Department of Civil Engineering at Queen’s University.
10. Resources: Provide details of specific resource requirements in terms of rooms, equipment, computers, etc.

The course will require the normal resources for a 12-week lecture-based graduate course at Queen’s University. A small seminar room with electronic projector, internet connection, and whiteboards/blackboards will be required for this course.

11. Enrolment: Indicate the anticipated enrolment in this course.

Expected enrollment will be 5-15 students for when the course is offered.

12. Departmental Approval: Provide the date that this course was approved at the Departmental level, if applicable: __________________________

13. Grading basis: Indicate if this course is graded (ie assigned a grade) or Pass/Fail.

Graded

14. Course component(s): What component(s) make up this course (enter Y for any that apply):

<table>
<thead>
<tr>
<th>Lecture</th>
<th>Y</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seminar</td>
<td>Y</td>
</tr>
<tr>
<td>Laboratories</td>
<td></td>
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<tr>
<td>Tutorials</td>
<td></td>
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</tbody>
</table>

15. Submission Contact: Name: Dr. Yves Filion

Internal Phone # 613-533-2126

E-mail: yves.filion@queensu.ca

EMAIL the completed form and any attachments to the Graduate Council administrative assistant staffing@appsci.queensu.ca

FOR OFFICE USE ONLY:

Date of approval by Engineering and Applied Science Graduate Council: ____________________

Date of approval at GSEC: ________________________________
CIVL 891 Water Quality and Discolouration in Drinking Water Distribution Systems

Evaluation:

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Percentage</th>
</tr>
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<tbody>
<tr>
<td>Research Paper</td>
<td>30%</td>
</tr>
<tr>
<td>Seminar Presentation</td>
<td>30%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>40%</td>
</tr>
<tr>
<td>GRADE</td>
<td>100%</td>
</tr>
</tbody>
</table>

Assessment Methods:

Research Paper
Students will be required to produce a research paper on an aspect of discolouration in drinking water. Research paper topics can range from a review of the state of the art in discolouration research, the analysis of field data (collected by others) on water quality parameters that relate to discolouration in networks, or the calibration and use of water quality models to characterize the risk of discolouration in actual water distribution networks.

Seminar Presentation
Students will be required to develop and deliver a 50-minute lecture/presentation on a selected research topic in discolouration.

Final Exam
The final exam will evaluate the students’ knowledge and understanding of the topics in water quality and discolouration covered in the course lectures.
Appendix 4

School of Graduate Studies

COURSE DELETION FOR ENGINEERING AND APPLIED SCIENCE GRADUATE
COUNCIL APPROVAL

GRADUATE DEPARTMENT NAME: CHEMICAL ENGINEERING

COURSE CODE/NUMBER:
**For EACH course deletion, please complete the section above AND items 1 through 3.

1. Course number and title: Note that this number may not be reused for five years.
   CHEE 904: Olefin Polymerization Processes

2. Reason for deletion: Provide a detailed rationale for this deletion, e.g. staffing, resources, archaism, replacement by new course(s), etc.
   This graduate module was in the area of expertise of a former Faculty member. There is no present interest in offering this course by any of our staff.

3. Impact: How will this deletion affect the Program? Will this deletion have any impact on programs offered by other Graduate Programs? If so, please indicate which Program(s) have been contacted and include copies of relevant correspondence.
   No impact. Course has been replaced by complementary courses.

Submission Contact Name: Aris Docoslis (CHEE Grad Coordinator)
                        Number: 533-6949
                        E-mail: docoslis@queensu.ca
                        Date: April 8, 2015

Signature of Department Head: ____________________________

Signature of Graduate Coordinator: ________________________

EMAIL the completed form and any attachments to the Engineering and Applied Science Graduate Council administrative assistant: staffing@appsci.queensu.ca

FOR OFFICE USE ONLY:

Date of approval by Engineering and Applied Science Graduate Council: __________________

Date of approval at GSEC: ____________________________
PROPOSED REVISIONS TO SGS REGULATION: Restriction of Thesis

For discussion at Graduate Councils/Committees

Overview: Every graduate student registering in a degree program at Queen's University involving research is required to grant a license of partial copyright to the University and to the Library and Archives Canada (LAC) for any thesis submitted as part of the degree program. As soon as the thesis has been accepted in fulfillment of degree requirements by the School of Graduate Studies, the thesis is also automatically placed in Queen's University digital repository, QSpace; Queen's University's Research and Learning Repository. Materials deposited in QSpace are instantly and permanently accessible worldwide through the Internet which fulfills our obligation as a publically assisted university and compliance with Tri-Council policies to make research accessible. Students may request that their thesis be restricted. Restricted theses are not deposited to QSpace, nor released to LAC, until the restriction expires or is lifted by the student.

In a small number of cases, supervisors have not been consulted on their students' decision to restrict their thesis, which has had unintended consequences such as non-compliance with the sponsors of the research. The School of Graduate Studies proposes revisions to the Restriction of Thesis regulation, to include consultation with and agreement of the student’s supervisor, prior to SGS placing the thesis on restriction.

CURRENT WORDING:

Restriction of Thesis

If, at the time of submitting the thesis for completion of degree requirements, the student elects to protect any rights to commercial publication, or to obtain a patent which may arise from the research, or as a result of any contract made with a third party, or for any other reason, the student must indicate that the thesis is to be restricted as part of the submission process on QSpace. This will restrict the archival copy of the thesis from placement in QSpace, Library and Archives Canada, and Proquest, and will restrict copies of the thesis submitted to the School of Graduate Studies from binding, microfilming or deposit in any library.

The duration of the restriction shall be five (5) years, with immediate and automatic release to QSpace, Library and Archives Canada, and Proquest, at the end of the restriction period. Students may release their thesis from restriction earlier than 5 years by informing the School of Graduate Studies that the restriction may be lifted.

NOTES

1 The author’s name, thesis title and thesis abstract (also known as the thesis metadata) shall be available for all restricted theses through the usual online databases throughout the duration of the restriction. Under extraordinary circumstances, a student may contact the Dean of the School of Graduate Studies to request restriction of the metadata information for the duration of the thesis restriction.

2 It is recognized that the student has the right to withhold the thesis by deferring the thesis examination.
PROPOSED REVISED WORDING:

Request for Restriction of Thesis

The student may, at the time of submitting the thesis for completion of degree requirements, request that the thesis be restricted. If the restriction request is granted then the archival copy of the thesis will not be submitted to QSpace, Library and Archives Canada, or Proquest, and copies of the thesis held by the School of Graduate Studies will not be bound, microfilmed, or deposited in any library.

A restriction request will be granted where:

(a) the student provides justifiable reasons for the request (such reasons may include the need to protect rights to commercial publication, to apply for a patent arising from the research, or to honour contractual obligations owed to third parties); and

(b) the student’s supervisor\(^1\) confirms in writing that he or she assents to the restriction of the thesis.

In the event that the supervisor does not assent to the restriction of the thesis the restriction request may nonetheless be granted, unless the supervisor provides justifiable reasons for withholding his or her assent.

The decision to grant or deny the restriction request shall be made by the Associate Dean of the School of Graduate Studies.

If the restriction is granted the duration of the restriction shall be five (5) years, with immediate and automatic release to QSpace, Library and Archives Canada, and Proquest, at the end of the restriction period. Students may release their thesis from restriction earlier than 5 years by informing the School of Graduate Studies that the restriction may be lifted.

The author's name, thesis title and thesis abstract (also known as the thesis metadata) shall be available for all restricted theses through the usual online databases throughout the duration of the restriction. Under extraordinary circumstances, a student may contact the Dean of the School of Graduate Studies to request restriction of the metadata information for the duration of the thesis restriction. Confirmation must be received from the student’s supervisor that he/she agrees to the restriction of the metadata information before the School of Graduate Studies will process the metadata information restriction.

\(^1\) The supervisor is the faculty member designated as the supervisor at the time of the oral thesis examination. When a student has more than one supervisor, the supervisor(s) responsible for certifying that any required revisions have been made to the thesis after the oral thesis examination, shall be the supervisor(s) who must confirm agreement to the thesis restriction.
For discussion at GSEC, March 2015:
Revision to Graduate Council/Committee manuals for Advanced Standing for Prior Course Work.

Overview: Currently, the Policies and Procedures “manuals” for all graduate councils and committees contain instructions on how to get approval of “advanced standing” in a graduate degree for relevant courses taken elsewhere. Section B below represents the current wording in each manual. The School of Graduate Studies proposes the addition of Section A below, to specifically cover the consideration of advanced standing in a graduate degree for relevant courses taken in a “laddered” or “stacked” graduate credential.

Advanced Standing for Prior Course Work

A. Coursework completed for a graduate credential that is laddered (or stacked) with a higher graduate credential

Courses that are successfully completed as part of a Queen’s University Senate –approved Graduate Certificate or Graduate Diploma may be counted toward the coursework requirements of an appropriate higher graduate credential, where the Graduate Certificate or Graduate Diploma has been designed and approved to ladder to a higher level graduate credential. The number of courses for which advanced standing and equivalent credit may be granted, and the minimum final grade requirement(s), if applicable, in the course(s) under consideration, must be consistent with the approved structure and inter-relationship of the two graduate credentials.

PROCEDURE: A written request documenting the case is sent by the Graduate Department or Program to the School of Graduate Studies. Documentation should include a rationale for the request, and the department's/programs verification that the course or courses are eligible to be counted towards a higher level graduate credential.

If the request is approved the School of Graduate Studies will inform the Office of the University Registrar. The student’s Queen’s University transcript will be revised to indicate that some or all of the coursework in the Graduate Certificate or Graduate Diploma has been counted towards the higher level graduate credential.

B. Individual course(s)

Some students, after admission, may wish to have related courses of appropriate levels credited to their current programs. All such requests are considered on their individual merits. If requested by the Graduate Department or Program and approved by Council, the coursework requirement for the Queen’s graduate degree may be reduced accordingly. The following working rules have been employed:

2.2.1. The course was not used for another degree or credential.
2.2.2. The course was not used to obtain admission.
2.2.3. The course does not duplicate the content of another course taken by the student.
2.2.4. The course is equivalent in hours and level to a course of the Queen's program for which it is to substitute.

Requests for Advanced Standing should be made prior to admission, but not later than the end of the first term after admission.

PROCEDURE: A written request documenting the case is sent by the Graduate Department or Program to the Chair of Council c/o the School of Graduate Studies. Documentation should
include a rationale for the request, verification that the course or courses are equivalent in depth and breadth to the Queen’s graduate course, and course description and/or outlines of the course or courses in question. If the case is evidently straightforward, it may be approved by the Chair/Associate Chair and then must be submitted for approval and action to SGS and also reported back to Council. Otherwise, the request will be placed on the agenda for decision by Council at its next meeting.