

Internal Memorandum

To: M. Catherine Bolton, Vice-Provost, Teaching and Learning
From: Amir Asif, Dean, Faculty of Engineering and Computer Science
Date: May 16, 2015
Re: Implementation Plan for Department of Computer Science and Software Engineering

Dear Dr. Bolton,

Please find enclosed the finalized Implementation Plan for the Department of Computer Science and Software Engineering (CSSE) as part of the academic appraisal process in the Faculty of Engineering and Computer Science. This Plan was duly discussed with the Department Chair, Prof. Sudhir Mudur.

As mentioned in the Concordia University Academic Program Appraisals Manual, 5th edition revised, the Faculty and Department will follow-up on this Plan in two years when prompted by your office.

Sincerely,



Amir Asif
Dean
Faculty of Engineering and Science

cc. Prof. Sudhir Mudur, Chair, Department of Computer Science and Software Engineering

Dean's Implementation Plan: Department of Computer Science and Software Engineering

Submitted April 16, 2015

Recommendation	Prioritized timeline for completion	Responsibility (specify if possible)	Resources required?	Dean's additional comments
1. Reduce the tutorial size to 30 students and less	Already implemented	Dean/CSSE	Additional TA hours	CSSE has already requested the reduction of the tutorial size in certain courses to a maximum of 30 students and the Faculty has agreed to reduce tutorial size for a limited number of courses.
1a. To enhance the efficacy of the tutorials, CSSE should ensure that the participation of students in tutorials is strong.	ongoing	CSSE	none	
1b. The tutorials should cover remedial topics in 200 level courses where the students have deficiencies.	ongoing	CSSE Course coordinators	none	
2. CSSE should ensure that 300- and 400-level courses are based on project based learning, wherever it is feasible.	ongoing	CSSE Curriculum Committee	none	High-achieving students could be challenged with more ambitious projects.
3. CSSE has an Honours program (Calendar section 71.70.4) for the B.Comp.Sci that could be used more widely.	implemented/ongoing	CSSE Curriculum Committee	none	If there are enough enrolments in the Honours program then specific course sections for multisection courses could be reserved for honours students, which present course material at a higher level and include more challenging homework assignments and projects.
3a. Along the same lines, CSSE can explore proposing an Honours program for the B.Eng. in Software Engineering as well.	Fall 2016	CSSE Curriculum Committee	Research project course sections	CSSE will explore the possibility of offering an honours program in software engineering, and seek feedback from the CEAB concerning implications for accreditation.
4. Work with AITS in responding to CSSE's specific needs in providing additional technical support to meet CSSE's growing IT needs in teaching and research.	Ongoing, started Winter 2015	AITS and CSSE	Additional technical support hours from AITS that ENCS will support	ENCS understands the increased technical needs of CSSE for teaching and research. A number of steps have recently been taken to meet these specific needs.
				1. ENCS AITS group has assigned two technical staff members to liaise closely with CSSE to maintain the computing infrastructure within the teaching labs and also to liaise with the CSSE faculty members for developing lab infrastructure based on the curricula needs.
				2. A specialized lab-test environment for assessing student programming skills is being designed by AITS. CSSE is developing the requirements document for the lab-test environment.
5. Prepare a proposal for a new "Engineer in Residence" position to provide general support to students; the proposal must include a strategy for addressing changes in the field.	Fall 2016	CSSE and ENCS with support from the Provost's Office	An additional technical support position will be needed.	As in other ENCS departments, CSSE has been asked to explore the possibility of proposing a new "Engineer in Residence" position to provide general support to students outside the classrooms especially in project courses. Having said that, there is a risk in hiring a permanent Engineer in Residence because programming skills rapidly become outdated as technology changes, and also due to the emergence of new programming paradigms and languages. The proposal must include a strategy for addressing this problem. Some other departments have re-structured their technical staff to report to an "engineer-in-residence", who focuses on maintaining the department's teaching labs, and is deeply involved in administering the department's project courses. The CSSE department is invited to make a case for an "engineer-in-residence" position in CSSE.

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6. ENCS understands the need of offering separate research focused courses for PhD students. CSSE is encouraged to increase the frequency of such course offerings by maintaining an appropriate balance between undergraduate elective courses and research-related graduate courses.	Ongoing (Number of research based courses will depend on the faculty members hired).	CSSE	Additional course sections	As new faculty members are added to the department, it may be possible to increase the offerings of research-oriented graduate courses.
7. The department may wish to re-structure thesis programs to require that students take more of their courses at an advanced level, rather than taking cross-listed entry-level courses.	Completed	CSSE Graduate Program Director and Curriculum Committee	none	Combined with item 6, this could create a demand for high-level courses that ensures that such courses will have sufficient enrolment to be run, and not cancelled.
8. ENCS supports the department's proposal to institute a Software Skills qualifying exam for incoming masters students.	Fall 2016	CSSE Graduate Program Director and AITS	Support from AITS if the qualifying exam is computer based.	The exam will identify incoming students with weak programming skills. Students failing the qualifying exam will be directed into a qualifying program of diploma courses to bring their skills to a suitable level for graduate study.
9. ENCS strongly supports further hiring in both the Computer Science program and the Software Engineering program. A student to faculty ratio between 25:1 and 30:1 is ideal for accreditation purposes for both CIPS and CEAB.	Prior to CEAB Accreditation of the CSSE program.	CSSE, ENCS, and Provost Office.	ENCS will recommend additional faculty positions to the Provost's Office.	ENCS strongly supports further hiring in both the Computer Science program and the Software Engineering program. A student to faculty ratio of between 25:1 to 30:1 is ideal for accreditation purposes for both CIPS and CEAB. The strong growth in enrolments in both Computer Science and Software Engineering justifies further hires in these areas. CSSE will be given equal priority with other departments with comparable student to faculty ratio in hiring to approach the desired target over the next several years.
10. Current faculty members will continue to be encouraged to become registered professional engineers.	Ongoing	CSSE	ENCS covers the annual professional engineering registration fees.	New hires in CSSE will be required to become registered within five years of joining the department, prior to being considered for tenure.
11. CSSE can interview students applying for TA positions and make the selection of the best qualified individuals to be either tutors, lab demonstrators, or programmers-on-duty, to improve quality.	Ongoing	CSSE	None	The CSSE department itself can bundle a "tutor" contract with a "POD marker" contract so that the same individual instructs a group of students and also grades their work. Other distributions of TA responsibilities are also possible.
12. CSSE is encouraged to continue to apply for CURC and CRC positions as they become available.	Ongoing	CSSE	None	Currently the CSSE department is recruiting a CRC Tier 2 in Big Data in the 2014/15 cycle. A CRC Tier 1 in Software Engineering has been awarded in the 2015/16 cycle. The Faculty Research Committee ranks recommendations from the various departments in the Faculty for submission to the University Research Committee, which in turn allocates the available positions across the university.
13. ENCS will be forming a committee for possible revision of the Graduate Student Support Program so that it is simpler and funds are used where they are most needed.	In progress	ENCS with support from CSSE Graduate Director	Allocation of additional funds to support the GSSP	The faculty is currently discussing a revision to the GSSP. To increase the funds allocated to the GSSP, additional funding may be requested from the Offices of Provost and VP Research to support an increasing number of MASc and PhD students.

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14. On the topic of retreat, annual departmental retreats focused on strategic planning for the department are encouraged. A retreat could focus on research directions, both the consolidation of existing strengths and adding new topical research areas.	Annually	CSSE/ENCS/Office of the Provost	If needed, the Provost Office and ENCS can supplement the departmental funds needed for annual retreats.	Regular annual retreats provide a forum for such strategic planning.
14a. A retreat could focus on the undergraduate programs, including revision of the existing options and the addition of new options as computer science evolves as a discipline.		CSSE		CSSE has been holding "mini" or half-day retreats on specific topics. CSSE has made a consistent effort to collaborate with the Faculty of Fine Arts in the area of Computer Games, Entertainment, Animation, and Virtual Worlds. ENCS encourages CSSE to further strengthen collaboration with Fine Arts and propose joint teaching and research initiatives.
14b. Other retreats could discuss the graduate programs, including a professional doctorate and multidisciplinary programs.		CSSE		CSSE is also encouraged to explore opportunities for collaboration with Arts and Science given that computing is such a fundamental tool in these areas. Along the same lines, CSSE and ECE should explore the possibility of shared teaching, common courses, and increasing collaboration between the two departments.
15. On the possibility of establishing additional CSSE research centers, for example, the Centre for Software Innovation and Best Practice, CSSE is encouraged to apply to the Faculty Research Centre program.	completed/ongoing	CSSE	None	A policy for establishing Faculty Research Centre has just been established and approved by ENCS.
16. ENCS encourages CSSE to apply for large research grants such as NSERC Create grants, CRD grants and NCE grants.	ongoing	CSSE faculty members	ENCS can provide support to faculty for drafting the research proposal	This would also allow for additional sources of funding to be available for graduate student support.
17. ENCS is currently proposing to completely replace the aging filer system with a new, up-to-date system over the next two years.	In progress	IITS/AITS	Capital funds made available by the University	With support from the University, ENCS is investing \$1.4M into the computing infrastructure of the Faculty. This includes back-end servers or "filers", disk storage, and general-purpose computers for students. The current storage space offered to faculty members is 300 GB, which can be increased to support an individual research need. Once the new filers are installed, ENCS will explore the possibility of increasing the storage space for each ENCS faculty member. The amount of disc space provided to undergraduate students has recently been increased substantially to comply with the recommendation of the CIPS accreditation team in the winter of 2014. The faculty maintains about 900 desktop computers to support general computing needs of undergraduate students, and these computers continue to be replaced on a four-year cycle.
17a. At the same time, ENCS encourages professors in CSSE to seek grants and other external funding to support specialized computer resources for specific research projects.	ongoing	CSSE's faculty members	none	

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18. ENCS encourages CSSE to seek/strengthen partnerships with other units within Concordia, including Electrical and Computer Engineering, the Faculty of Fine Arts, and the Faculty of Arts and Science.	ongoing	CSSE	none	CSSE and ECE should explore the possibility of shared teaching, common courses, and increasing collaboration between the two departments.
19. ENCS will propose a new PhD in Software Engineering to complement its undergraduate program in Software Engineering.	ongoing	CSSE, ENCS, and Provost Office.	none	Two faculty appointments (one regular and one CRC Tier I) have already been approved in the area of Software Engineering. Additional appointments may be considered depending on enrolment.