BCIT – Computer Systems Bachelor of Technology

COMP8045/8046 - Major Project Guidelines

Please read thoroughly prior to project proposal submission

MAJOR PROJECTS GUIDELINES

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Contents

OBJECTIVE

All Computer Systems Bachelor of Technology (CST BTech) Degree students must complete at least one 9-credit major project course (COMP 8045 – Major Project 1) prior to graduation. The objective of the major project is to allow the student to apply their specialty knowledge in a real life project, study or applied research project under the supervision of a Supervisory Committee. The major project should contain some elements, which are deemed to be innovative, experimental or exploratory in nature.

SUPERVISORY COMMITTEE

The Supervisory Committee is made up of the Major Projects Review Committee, the Project Supervisor, and, if applicable, an Industry Sponsor. The description and qualification of the Supervisory Committee are as follows:

- The Major Projects Review Committee reviews proposals to ensure the projects are suitable for the project courses and then review the final reports, with its supporting documentation, to ensure the project is completed according to the approved proposal. Members of the Major Projects Review Committee consists of the CST BTech Major Project Coordinator, and at least three (3) senior faculty members of the Computing Department. Among these senior faculty members, at least one (1) of the members' expertise is outside the domain of the major project.
- An Industry Sponsor, if applicable, who will endorse or provide support to the major project and may benefit from the result of the major project. The Industry Sponsor may be a person or an organization able to validate the value of the proposed major project. This is usually the work manager or supervisor of the student, or even a client for whom the project is developed for.
- The Project Supervisor, who can provide technical assistance, supervises the student and certifies the standard and quality of the work. This is usually a BCIT faculty who has teaching responsibility in the program. As a general rule, the Project Supervisor should have a relevant advanced degree plus substantial related technical experience. The Project Supervisor is also responsible for approval of all changes made to a project after its proposal has been approved by the Major Projects Review Committee.[1]

Members of the Supervisory Committee are subject to approval by BCIT. Upon approval of the major project proposal, a Project Supervisor[2] will be assigned to the student.

PREREQUISITES

Departmental approval is required for registration for the major project courses. Prior to registering into the major project course(s), students are required to have successfully completed the following courses:

- LIBS 7001 – Critical Reading and Writing
- COMP 7036 – Applied Research Methods
- COMP 7081 – Technical Issues in Software Development
- COMP 8081 – Management Issues in Software Development
- Specialty courses[3]

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[1] Students are to include the written approvals in their final report.
[2] If students have already been working with an instructor, please indicate that in the proposal.
[3] Subject to the approval of the Major Project Coordinator, the student may be allowed to undertake the major project course(s) when the student is concurrently enrolled in the last specialty course.

DESCRIPTION

The major project can be structured as:

a. one 18-credit project (COMP 8045 and COMP 8046 – Major Project 2 concurrently); or
b. two 9-credit projects (COMP 8045 and then COMP 8046 in a subsequent term); or
c. one 9-credit project with an additional 9 credits of technical degree courses, of which, 6 credits must be at the COMP 8000 level (COMP 8045, COMP 7xxx, COMP 8xxx and COMP 8xxx).

Each credit of a project should amount to approximately 45 hours of work:

- a 9-credit project should amount to approximately 405 hours of work;
- an 18-credit project should amount to approximately 810 hours of work.

REGISTRATION

In addition to the above prerequisites, students enrolled in the part-time programs are required to have their proposals approved prior to registration of COMP 8045 and/or COMP 8046. Once approved, students have up to one (1) month to register into their approved part-time major project course(s). Students are charged with a tuition based on the number of credits to be earned from the major project.[4]

It is important to note that the course's end date as listed on the course webpages may or may not coincide with the student's project due date. Students are expected to complete a 9-credit major project within twelve (12) months after they have been approved to register for COMP 8045 or COMP 8046, and twenty four (24) months for an 18-credit major project.

MAJOR PROJECT PROPOSAL

It is the student's responsibility to choose the topic of the major project. The student is required to submit a proposal using the Proposal Template[5], which will:

- include a cover page stating the student's name, student number, the major project course number and title of the project;
- include a summary of the student's education, work experience and area of specialization;
- give a description of the major project;
- provide extensive background to the problem;[6]
- highlight the complexity of the problem to be solved;
- define the scope and the depth of the major project;
- include a detailed test plan;[7]
- describe the methodology, approach, and technologies to be used;
- include a system/software architecture diagram, if applicable;
- highlight the innovative components, as the major project should contain some elements, which are deemed to be innovative, experimental or exploratory in nature;[8]

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[4] Tuition is subject to the fee-cap policy, if applicable.
[5] Attached is the Proposal template (Microsoft Word). To download the template, open the guidelines document in Adobe Reader.
[6] An extended background of the problem, the nature and complexity of the problem to be solved should be included. It is recommended that the same depth of information which would be included in the final report be included in the proposal.
[7] A detailed test plan may include the procedures, methodology, tools used, verification, pass/fail criteria, or examples of test cases.
[8] It is strongly recommended that new leading edge technologies, even experimental, be considered. Even if these technologies are not required by the industry sponsor or client, or practically feasible, research on these areas should be included as part of the proposal.

- highlight expected technical challenges, which could include information regarding what will be learned above and beyond what is taught in the classroom while researching for the project;
- provide details about estimated milestones in terms of time and effort;[9]
- detail all deliverables; and
- explain how the major project will further enhance students' expertise in their chosen specialization.

If applicable, the proposal must be approved by the Industry Sponsor prior to submission to the Major Projects Review Committee. Written approval is not required.

SUBMISSION

If a Non-Disclosure Agreement (NDA) is required, students must submit BCIT's Student Practicum Confidentiality Intellectual Property Agreement with their first proposal submission.[10]

Part-time students typically will have their own projects, but if not, they can contact the Major Project Coordinator or their Specialization Option Heads for ideas. When they are ready, students are expected to submit a proposal of their project to the Major Projects Review Committee for approval. Proposals must be submitted in PDF format to cstbtech@bcit.ca by the second (2nd) Thursday of the month at 8:00am.[11] If the proposal is not approved by the Major Projects Review Committee, the student will be provided with comments to revise and resubmit the proposal. It is not uncommon for a proposal to be approved after one or two revisions.

Once the Major Projects Review Committee has approved the proposal, a Project Supervisor[12] will be assigned to the student and an approval email will be sent to the student notifying them of their project due date[13] and approval to register in COMP 8045 and/or COMP 8046. The student will then send their approved proposal to their Project Supervisor for further review.

Upon completion of the project, the student will develop a detailed final report in consultation with the Project Supervisor. Along with the final report, a demonstration of the project should be presented to and approved by the Project Supervisor prior to formal submission to the Major Projects Review Committee for review. If revisions are required, the student will revise and resubmit the final report to the Major Projects Review Committee for review. If no revisions are required, the student will have completed the major project course.

EVALUATION

The proposal will be evaluated according to the:

- feasibility of the proposal within the time and cost constraints;
- value to the employer, Industry Sponsor, client, or other parties;
- use of appropriate software development methodologies;
- novelty or innovation;
- appropriate level of rigor and research methodologies;
- specification of deliverables; and
- clarity of the written proposal.

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[9] Details should include number of hours assigned to each task or milestone identified in the project. Approximately 45 hours of effort for each major project credit (405 hours for 9-credit project & 810 hours for an 18-credit project).
[10] Attached is a copy of BCIT's Student Practicum Confidentiality Intellectual Property Agreement (Microsoft Word). To download the Agreement, open the guidelines document in Adobe Reader.
[11] There are no proposal reviews in the months of June, July, August and December.
[12] If students have already been working with an instructor, please indicate that in the proposal.
[13] The course's end date as listed on the course webpages may or may not coincide with the student's project due date. Students are expected to complete a 9-credit major project within twelve (12) months after they have been approved to register for COMP 8045 or COMP 8046, and twenty four (24) months for an 18-credit major project.

MAJOR PROJECT REPORT

Upon completion of the major project, a final report of the work accomplished using the Final Report template[14] is required for submission as the final step in the completion of this component of the CST BTech program. The objective of the report is to document the project the student was engaged in and highlight the essential technical aspects in the development of the project. The report is a comprehensive and cohesive document describing and explaining the issues behind the entire project. The information contained in the report should be divided into four (4) main sections, followed by a list of references and a change log, if applicable:

1. Introduction
2. Body
3. Conclusion
4. Appendix
5. References
6. Change Log

INTRODUCTION

This section provides:

- student background information regarding their education, work experience, any relevant volunteering experience and area of specialization;
- background on the nature of the project and the essential problems the student is trying to solve; and
- the goals and objectives the student is trying to accomplish through this major project.

BODY

This section details the project itself and may include a number of subsections summarizing/explaining the:

- background of the project, company, etc.;
- project statement within the context of company operations;
- possible alternative solutions to the project;
- chosen solution for this project and the rationale behind choosing this particular solution;
- details of the design and development, including a set of deliverables in the analysis/design/implementation of the project. Subsections are dependent on the method of development chosen;
    - Projects using the traditional structured method in development must include the following subsections:
        1. Feasibility Assessment Report
        2. Analysis Patterns
        3. Entity Relationship Diagram/Analysis
        4. Context Diagram
        5. Dataflow Diagrams
        6. Network Diagrams
        7. Installation Manuals/User Manuals
    - Projects using an object oriented method in development must include the following subsections:
        1. Feasibility Assessment Report
        2. Use Case Diagrams/Analysis
        3. Sequence Diagrams
        4. Class Diagrams

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[14] Attached is the Final Report template (Microsoft Word). To download the template, open the guidelines document in Adobe Reader.

     5. Object Diagrams
     6. Other UML Diagrams
     7. Installation Manuals/User Manuals
- o Projects that consist of developing a game must include the following subsections:
  1. Player Profile
  2. Prototype
  3. Storyboards
  4. User Testing
  5. Functional Requirement Testing
- details of the tests and results justified with screen shots, data capture and any other relevant evidence;
- implications of the implementation in terms of performance, functionality, etc.;
- research on the use of new technologies applicable to the project;
- future enhancements
- timeline and milestones

CONCLUSION

This section contains the concluding remarks of the project, including:

- how the major project will further enhance students' expertise in their chosen specialization; and
- lessons learned above and beyond what is taught in the classroom during the course of the development of the project.

APPENDIX

This section contains the appendices, including, at least:[15]

- a copy of the approved proposal
- written Project Supervisor approvals for all changes made to the proposal in addition to their approval of the final report;[16] and
- a letter from the Industry Sponsor, if applicable, indicating their experience during this process that speaks to the value of the CST BTech program and the major project.[17]

REFERENCES

This section contains all references used for the project.

CHANGE LOG

This section contains all changes made from previous versions, referencing the page numbers where changes were made.

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[15] Attached is an example of Project Supervisor Approvals (PDF). To view the example, open the guidelines document in Adobe Reader.

[16] Final reports will not be reviewed by the Major Projects Review Committee if the approvals are not included in the report.

[17] If a student's project is self-sponsored, a letter from the Project Supervisor certifying the standard and quality of the work should be included in the final report submission. This information/letter may be part of the Project Supervisor's written approval for formal final report submission to the Major Projects Review Committee.

SUBMISSION

When the Project Supervisor has approved the major project and final report in writing, the student may submit their major project report to the Major Projects Review Committee for evaluation. The student is required to submit their major project report in both hardcopy[18] and electronic copy,[19] including a USB key/DVD/CD containing any supporting documentation for the project. Examples of supporting documentation may include codes, electronic copies of approvals, industry sponsor letters, manuals, design documents, application, etc.

At least one (1) hardcopy of their final report and supporting documentation must be submitted for review. Up to four (4) hardcopies of the final report and its documentation may be submitted for review to expedite the process, as it may take four (4) to six (6) weeks for a project and its report to be reviewed by each of the Major Projects Review Committee members.[20] Students may email cstbtech@bcit.ca to schedule a drop off date and time with the Program Coordinator when submitting hardcopy final reports. Final reports must be submitted to the Major Projects Review Committee for review by November 1st (or the next business day) of the year their graduation deadline falls on if the student wishes to attempt to complete their part-time CST BTech program within their program allotted timeframe.[21]

If required, one (1) extension may be granted by the Major Project Coordinator in extenuating circumstances. Nevertheless, students must abide by the BCIT-wide policy on time limit.[22]

EVALUATION

The major project will be evaluated according to the:

- contribution to the employer, client or others;
- adherence to time and cost budgets;
- adherence to the deliverables in the approved proposal; and
- clarity of written communication in the final report.

The Major Projects Review Committee will use the following grading system:

- S (Satisfactory): An "S" grade means that the major project meets the expected standard and the student will be awarded the appropriate credits towards the CST BTech requirements.
- U (Unsatisfactory): A "U" grade means that the major project does not meet the standard expected by the Major Projects Review Committee or BCIT. In such a case, the student will have to re-register in the major project course in part-time studies. Furthermore, additional course or other remedial work may be required before re-registration in the major project course is allowed.

An oral examination may be required at the discretion of the committee.

Upon completion of the evaluation, students' major project reports are open to the view of the public, serving as sample project reports for future students and external reviewers. Formal written letter/documentation from the client/Industry Sponsor/student must be included in the major project final report if a student does not wish for their report to be made open for public viewing.

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[18] Hardcopies of reports are expected to be submitted bound (glue binding, channel binding, cerlox binding, in a duo tang, binder, etc. printed in colour.

[19] Electronic copies are expected to be submitted in the same USB key/DVD/CD used to supply supporting documentation.

[20] Evaluation of reports are typically slower in the months of June, July, August, September and December, regardless of the number of hardcopies of final reports submitted.

[21] Students must submit their final report and documentation for review by their Project Due Date or Graduation Deadline, whichever comes first.

[22] CST BTech students have up to seven (7) years to complete the graduation requirements for the degree program.

DISCLAIMER

This document is undergoing continual review and modifications. The terms and conditions specified herein are subject to change without notice. Students are advised to obtain the current version of this document at the time they wish to register for the major project courses.