



Quebec Engineering Competition

Rules of the Competition Updated January 10, 2020

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1 Eligibility

1.1 Qualification

1.1.1 In order to be allowed to represent their University, all participants, teams and projects must first qualify in a competition or selection process deemed appropriate by the QCESO member society representing this University.

1.1.2 The eligibility of all participants, teams and projects is determined by the Vice-President Competitions based on the directives contained in this document.

1.2 Participants

1.2.1 All participants must be enrolled in an engineering program that is accredited (or in the process of being accredited) as leading to a recognized engineering license (Bachelor's) from an engineering society that is a member of QCESO at the time of registration, except in the following situation:

1.2.1.b For the Graduate Research Project category, participants must be pursuing a Masters or Doctorate degree at the time of registration.

1.2.2 Participants cannot be registered in more than one competition category.

1.3 Project

1.3.1 Only original projects which belong to the participants can be presented during the competition. An original project is one which has not been previously presented to the AEC (Atlantic Engineering Competition), the QEC (Quebec Engineering Competition), OEC (Ontario Engineering Competition), the WEC (Western Engineering Competition) or the CEC (Canadian Engineering Competition) and which does not have a common or obvious approach, solution or application.

1.3.2 Work completed with a company can be admitted provided a letter of authorization from the employer is given, explicitly approving its use in the competition. This letter must be issued within thirty (30) days of the beginning of the competition.

1.4 Substitution

1.4.1 In the event that a participant is unable to be present at the competition for medical, personal (i.e. death in the family) or other reasons considered legitimate by the Vice- President Competitions, a substitute can be named.

1.4.2 All substitutes must be from the same school as the original team.

1.4.3 All substitutes must be eligible participants as per sections 1.1 and 1.2.

1.4.4 If an entire team is unable to attend the competition for medical or personal (i.e. death in the family) or other reasons considered legitimate by the Vice-President Competitions, the QCESO member society of that team can appoint a new team for the competition.

2 Judging

2.1 Judging structure

2.1.1 Judges are selected by the organizing committee based on their training and experience.

2.1.2 For each competition, there shall be at least three (3) judges, including one who will be appointed Head Judge by the Vice-President Competitions.

2.1.3 The Head Judge will represent the judges and will participate in a selection committee to choose the winners of special prizes (when applicable).

2.2 Prizes

2.2.1 In each competition, the teams in the top three positions as well as the winners of special categories will be given a prize by the judges. These prizes will be based on the judging criteria of each competition or special category.

2.2.2 Each competition's judging criteria are made to evaluate participants' skills and knowledge.

2.2.3 Prior to the start of the competition, the category's rules will be explained to the judges for them to be aware of judging criteria and techniques required.

2.2.4 Judges must judge all participants fairly, equitably and consistently.

2.2.5 In the event of a tie, judges will deliberate to split the tied groups. After deliberating, if the judges were unable to reach a consensus, the winner will be decided by a simple majority vote. If the vote is tied, the Head Judge's vote will carry.

2.2.6 All judges' decisions are final.

2.3 Special Prizes

2.3.1 Special prizes will be handed out by the judges according to predefined criteria for the various categories.

2.3.2 The criteria and the various categories of the special prizes are determined by

the organizing committee.

2.3.3 Prior to the start of the competition, be it at the very least 30 days prior to the opening of the QEC, the special awards will be announced.

2.4 Language

2.4.1 Any presentation, presentation materials, documents or work submitted may be made in English or French but must remain consistent throughout a team's work in their respective competition.

2.5 School Anonymity

2.5.1 No information in a team's presentation may refer to the team's identity or respective school. If the identity of a team is revealed to the judges at any time through the competitors' presentation, the first offense will result in a ten (10)-point penalization, and the second will result in disqualification. In the case of Extemporaneous Debate, revealing the team's identity or respective school will result in the loss of the current round at the moderator's discretion.

2.5.2 Presenters and debaters are also forbidden from wearing any apparel bearing the name, crest, colors, or other identifying symbols of their respective schools. Failure to follow this rule will result in immediate disqualification.

2.5.3 When submitting deliverable files (such as presentations or reports), the file content and filename must not disclose the name of the team's school. If the identity of a team is disclosed in the presentation slides or filename, the presenting team will be penalized with a loss of ten (10) points. Instead, each team shall name its files using the team name assigned to the team and the case subject as below:

Correct: TEAM_1_CONSULTING.ppt

Incorrect: CONCORDIA_ENGINEERING.ppt.

2.5.4 Delegates and audience members associated with competing schools are forbidden from revealing - explicitly or implicitly - a school's identity in any of the presentation rooms at any time. This ban includes but is not limited to apparel, signage or any other material that bears the name, crests, colors or other identifying symbols of a competing university. This is in place to avoid any prejudice or favoritism towards a given team by the judges. The team associated with an individual who breaks this rule is subject to a loss of ten (10) points.

3 Logistics

3.1 Competition Directors

3.1.1 The Vice-President Competitions must appoint a director for each competition who will be responsible for preparing and properly carrying out their category.

3.2 Time

3.2.1 Any specific time limits will be given in the description of each competition.

3.2.2 Participants shall be made aware of time remaining during presentation and question periods.

3.2.3 In the event that participants encounter technical difficulties during their presentation (i.e. burned projector light bulb, power shortage, etc.), the category director shall allow additional time to resolve the issue, unless it is determined that the issue is due to a lack of preparation on behalf of the participants.

3.3 Equipment and Facilities

3.3.1 In the event that participants must provide their own equipment, all competitors will be informed at least 14 full days (336 hours) before the beginning of the competition.

3.3.2 In the event that a team does not have access to this equipment, the organizing committee shall supply it, provided a request for such equipment was made at least 7 days (168 hours) before the competition.

3.4 Starting Time of the Competition

3.4.1 The Quebec Engineering Competition officially begins at 18:00 (6PM) EST, on the first day of the event. All time delays for the committee or for the participants are relative to that time.

3.5 Bilingualism

3.5.1 All written communications shall be provided to delegations at the same time in English and French. Any additional elements that are essential to the Competition must be explained in both English and French. The Director of each Competition must also ensure that each team understands each other before the start of the Competition. The written translation must be professional or of equivalent quality.

3.5.2 In case of a difference of interpretation between the English and French versions, the original version will prevail.

4 Decision

4.1 Disputes

4.1.1 Decisions made by the Vice-President Competitions can be contested.

4.1.2 Contested decisions will be brought to the attention of the organizing committee for reevaluation.

4.1.3 The organizing committee's decision cannot be appealed.

5 Competitions

5.1 Consulting Engineering

5.1.1 In this competition, participants must, with limited time, develop a solution to a problem they have been given. The problem can pertain to Engineering or the role of Engineers in society. Participants will have to make use of their technical knowledge or the understanding they have acquired over the course of their education of the impact of Engineering on society, the environment, culture, or the economy. Participants' communication skills will also be evaluated.

5.1.2 Registration criteria

5.1.2.a The team is composed of up to four (4) eligible participants.

5.1.3 Pre-competition

5.1.3.a Seven days (168 hours) before the competition, each competitor will receive an email revealing the main themes of the competition.

5.1.3.b These documents will also be published on the event's official web site.

5.1.3.c It is the responsibility of the competitors to ensure that they have received this information.

5.1.4 Design period

5.1.4.a The time allotted for the design phase varies between four (4) and eight (8) hours (depending on the organizers' decision).

5.1.4.b A presentation of the problem will first be given to the participants and judges. This will be followed by a question period where participants can ask questions about the problem.

5.1.4.c Participants must then develop a solution to the problem and prepare a presentation which they must then present. They must also present a written report in the language of their choosing (English or French).

5.1.4.d During the design period, participants are permitted to ask questions to the competition director. Questions and answers are then made available to all teams, as well as to the competition's judges.

5.1.4.e At the end of the design period, participants must submit copies of the presentation and the report to the competition director.

5.1.4.f The organizing committee is responsible for translating, if need be, participants' reports so that they may be understandable for the competition's judges.

5.1.4.g All members of a team must be physically present during the competition. It is forbidden to work remotely.

5.1.4.h It is strictly forbidden to communicate with the outside world, even if it is to receive information pertaining to the project. Participants may only communicate with members of the organizing committee.

5.1.5 Presentation of the solution

5.1.5.a The time allotted for presentations varies from 15 to 20 minutes (depending on the organizers' decision). Judges may ask questions during the presentation, but there will be no question period at the end of the presentation.

5.1.5.b Teams must explain their solution to the judges.

5.1.5.c The order of the presentations will be determined randomly.

5.1.5.d The order of the presentations will be announced half an hour before the beginning of the presentations.

5.1.5.e All teams must be present when this announcement is made.

5.1.5.f It is forbidden for teams to change their place in the order of presentations.

5.1.5.g Following the presentations, the three teams with the most accumulated points according to the evaluation matrix, will be called for a 15 minute question period to separate the winner(s).

5.1.6 Equipment provided by the organizers

5.1.6.a The following equipment is made available to the competitors during the design period:

- 1 A private design room with at least one table
- 2 Paper and pens/pencils
- 3 Wireless internet access

5.1.6.b The following equipment is made available to the competitors during the presentation

- 1 A digital projector
- 2 A computer containing the team's presentation

5.1.7 Equipment that must be supplied by the competitors

- 1 The results of the team's research before the competition.
- 2 All books, notes taken during classes or any other reference document.
- 3 Laptop computers (up to one (1) per participant).

5.1.8 Evaluation grid

Evaluation Criteria	Points
Solution	/50
Report	/15
Presentation	/20
Innovation	/15
Penalty for non-compliance with intellectual property rights	-50
Penalty for non-delivery in time	-50
Total	100

5.2 Scientific Communication

5.2.1 The participants must describe the operation of a device or a complex technical process in clear terms that the general public can understand. Presentations will be evaluated on the quality of their research, participants' ability to explain complex concepts, the interest raised in the audience, and the use of audiovisual equipment.

5.2.2 Registration criteria

5.2.2.a The team is composed of up to two (2) eligible participants.

5.2.3 Pre-competition

5.2.3.a The team must submit its presentation project when registering for the event.

- 1 This presentation project will be reviewed by the Vice-President Competitions to determine its eligibility.
- 2 The project must contain an abstract describing the topic of the presentation that does not exceed 200 words.

5.2.3.b The team must submit a summary that does not exceed 200 words at most 3 days (72 hours) before the competition. It will be evaluated.

5.2.3.c The visual presentation file (PowerPoint or others) must be given to the Vice- President Competitions 72 hours before the beginning of the event.

- 1 It is the participants' responsibility to ensure that the format of their presentation is compatible with the available computer.

5.2.3.d An overview of the competition will first be presented in front of the participants and the judges. This will be followed by a question period where participants can ask questions about the competition.

5.2.4 Presentation

1 Teams must give a presentation that is between fifteen (15) and twenty (20) minutes in duration, which is followed by up to ten (10) minutes of questions from the judges.

2 The order of the presentations will be determined randomly.

3 The order of the presentations will be announced half an hour before the beginning of the presentations.

4 All teams must be present when this announcement is made.

5 It is forbidden for teams to change their place in the order of presentations.

5.2.5 Equipment provided by the organizers

- 1 A digital projector
- 2 A computer

5.2.6 Equipment that must be supplied by the competitors

- 1 Any material needed for the presentation, namely photos, schematic, models and prototypes.

5.2.7 Evaluation grid

Evaluation Grid	Points
Introduction of subject	/10
Clear presentation of the subject and the topics	5
Interest and intrigue of subject	5
Critical Analysis	/40
Accuracy of the content	10
Clarity and simplification of complex information / vulgarization	15
Analysis of external factors (environment, social, economic, etc.)	15
Presentation	/40
Visual aids; utilisation and pertinence	15
Voice, articulation and communication	10
Eloquence, charisma and interest in presenters	10
Appropriate level of communication	5
Written Resume	/10
Motivation for the choice of presentation topic and introduction	3
Interest and complexity of the subject	3
Important aspects addressed	4
Penalties*	Maximum -10
Total	100

*Penalties:

- 1 point for every 3 different spelling or grammar errors in the presentation or abstract.
- 1 point for every 10 extra words in the abstract. The built-in Microsoft Word counter will be used.
- 2 points for each day of late submission.
- 1 point for every minute that the presentation is overdue up to a maximum of 5 points.

5.3 Innovative Design

5.3.1 In this competition, participants design a marketable product, service or process

that is not currently available. Projects are evaluated based on their originality, market analysis, economic feasibility, profitability and presentation.

5.3.2 Registration criteria

5.3.2.a The team is composed of up to six (6) eligible participants.

5.3.3 Pre-competition

5.3.3.a The team must submit its presentation project at the time of registration (in draft form). The team must submit a summary of their design at least three days (72 hours) before the competition.

1 This presentation project will be reviewed by the director of the competition to determine its eligibility. It is possible to contact him or her for information on the project's eligibility.

2 The presentation project and the summary must contain an abstract describing the topic of the presentation that does not exceed 200 words.

5.3.3.b The team must prepare an exhibition or a kiosk for the presentation to the general public.

5.3.3.c The team has one hour to complete the installation of the booth during the first day of presentations.

5.3.3.d If a team requires a table larger than 0.75m x 1.5m, they must inform the competition director at least 14 days (336 hours) before the beginning of the competition.

5.3.4 Exposition period

5.3.4.a The exposition or kiosk will be set up for the entire duration of the competition (according to the schedule set by the organizing committee).

5.3.4.b At least one member of the team must be present while the presentation is open to the public.

5.3.5 Presentation

5.3.5.a Evaluations will consist of a twenty (20) minute presentation followed by a ten (10) minute question period.

5.3.5.b The presentation should cover the following points: commercialization, efficiency, technical feasibility, fabrication, economic aspects, and applications

exceeding the design's original intention.

5.3.5.c The order of the presentations will be determined randomly.

5.3.5.d The order of the presentations will be announced fifteen (15) minutes before the beginning of the presentations.

5.3.5.e All teams must be present when this announcement is made.

5.3.5.f It is forbidden for teams to change their place in the order of presentations, unless otherwise stated by the competition director.

5.3.6 Equipment supplied by the organizers

1 A 0.75m x 1.5m table (30" x 60").

2 A single 110V power supply for each team.

5.3.7 If a team wishes for the organizers to provide additional material, they may make a request to the competition director up until 14 days (336 hours) before the beginning of the competition. The competition director will determine whether or not the material can be provided.

5.3.8 Equipment that must be supplied by the competitors

1 Competitors can bring whatever resources they deem necessary to the competition.

2 In the event that a team wishes to bring dangerous chemical products (flammable, under pressure, corrosive, etc.) or dangerous material (sharp objects, high voltage, etc.), a detailed list must be provided with the design abstract (see 5.3.3.a).

5.3.9 Evaluation grid

Evaluation Criteria	Points
Project	/70
Design justification	15
Environmental and Social Impacts	10
Economic feasibility	10
Technical feasibility	10
Innovation	25
Presentation	/25
Visual aids	10
Voice and articulation	7.5
Time Management	7.5
Written summary	/5
Total	100

Penalty - 40% (maximum)

- 4 points for each additional minute during the presentation (maximum 20 points)
- 2 points for spelling or grammar errors on the poster or in the presentation (maximum of 20 points)
- A score of zero will be assigned to any late-filed written abstract submitted in accordance with the submission procedures outlined in Section 5.3.3a.

5.4 Graduate Research Project

5.4.1 In this competition, graduate participants present a project of master's or Doctorate level. This competition consists of two parts: a public poster presentation followed by an oral presentation in front of a panel of judges. Presentations and projects are judged on their ability to simplify complex topics, their innovation, the clarity of the presentation as well as their technical feasibility. The clarity of any visual aids is also evaluated.

5.4.2 Registration criteria

5.4.2.a The team is composed of up to two (2) eligible participants.

5.4.2.b Participants must be pursuing a master's or Doctorate degree in an Engineering school in Quebec.

5.4.3 Pre-competition

5.4.3.a The team must submit its presentation project at registration.

5.4.3.b The team must submit a 300-word abstract at most 14 days (336 hours) before the competition.

5.4.3.c This presentation project will be reviewed by the Vice-President Competitions to determine its eligibility.

5.4.3.d Power Point presentations must be transmitted to the competition director before the beginning of the presentations.

5.4.3.e It is the participants' responsibility to ensure that the format of their presentation is compatible with the available computer.

5.4.4 Poster presentation

5.4.4.a The team must perform a public poster presentation.

5.4.4.b The poster must be 90cm wide by 135cm high and must be written in

English or in French.

5.4.4.c The team must describe their project in an interactive oral presentation that is up to five (5) minutes in duration, followed by a three (3) minute question period from the judges.

5.4.4.d Supporting material (simulation, demonstration, pieces, etc.) is optional but recommended.

5.4.4.e The order of the presentations will be determined randomly.

5.4.4.f The order of presentations will be announced individually throughout the presentation day by the competition director.

5.4.4.g At least one member of the team must be present at all times during the competition.

5.4.4.h Equipment provided by the organizers

1 A 0.75m x 1.5m table (30" x 60")

2 A single 110V power supply

3 A poster stand

5.4.5 Presentation in front of judges

5.4.5.a Teams must give a presentation that is a maximum of fifteen (15) minutes in duration, which is followed by up to ten (10) minutes of questions from the judges.

5.4.5.b Judges will not be the same as during the poster presentation.

5.4.5.c The order of the presentations will be determined randomly and will be announced thirty (30) minutes before the beginning of the presentations.

5.4.5.d All teams must be present when this announcement is made.

5.4.5.e It is forbidden for teams to change their place in the order of presentations.

5.4.5.f Equipment provided by the organizers

1 A digital projector

2 A computer

3 A table

5.4.5.g Equipment that must be supplied by the competitors

1 Any electronic document (including the presentation) saved on a mass storage device. It is the competitors' responsibility to ensure that the format of the data is compatible with the computer supplied by the organizers.

2 Any other material needed for the presentation, namely photos, schematic, models and prototypes.

5.4.6 Evaluation grid

Evaluation Criteria	Points
Poster - Project	/10
Poster - Presentation	/10
Presentation before judges - Project	/50
Innovation	15
Control of the problem	10
Quality of the methodology and solution	15
Scientific benefits	5
Precision of objectives and results	5
Presentation before judges - Presentation	/30
Communication (eloquence, flow, extension)	20
Visual presentation	10
Penalty for not respecting the time (-4 pts per extra minute)	Maximum -20
Penalty for spelling or grammar mistakes (-2 pts per mistake)	Maximum -20
Total	100

5.5 Senior Design

5.5.1 In this competition, participants work on a project revealed on the day of the competition. Evaluation criteria are based on an oral presentation, the quality of the report, originality, respect of design constraints, and the effectiveness and feasibility of the system.

5.5.2 Registration criteria

5.5.2.a The team is composed of up to four (4) eligible participants.

5.5.3 Pre-competition

5.5.3.a Seven days (168 hours) before the competition, each competitor will receive an email containing a list of theoretical concepts covered by the problem. These concepts must be understood in order to carry out the project.

5.5.3.b These documents will also be published on the event's official web site.

5.5.3.c It is the responsibility of the competitors to ensure that they have received this information.

5.5.4 Design period

5.5.4.a The time allotted for the design phase varies between eight (8) and twelve (12) hours (depending on the organizers' decision).

5.5.4.b A presentation of the problem will first be given to the participants and judges. This will be followed by a question period where participants can ask questions about the problem.

5.5.4.c Participants must then develop a solution to the problem and prepare a presentation which they must then present.

5.5.4.d At the end of the design period, participants must submit a copy of their presentation as well as their solution to the competition director.

5.5.4.e During the design period, participants are permitted to ask questions to the competition director. Questions and answers are then made available to all teams, as well as to the competition's judges.

5.5.4.f Access to any external resource is forbidden during the design period.

5.5.5 Presentation of the solution

5.5.5.a Ten (10) minutes are allotted for presentations with up to five (5) minutes for the judges' question period.

5.5.5.b The oral presentation must include a description of the design, of the final solution, and of the process used to reach this solution.

5.5.5.c The order of the presentations will be determined randomly.

5.5.5.d The order of the presentations will be announced half an hour before the beginning of the presentations.

5.5.5.e All teams must be present when this announcement is made.

5.5.5.f It is forbidden for teams to change their place in the order of presentations.

5.5.6 Equipment provided by the organizers

5.5.6.a The following equipment will be made available to participants during the design period:

- 1 A design area of at least 2.43 m by 2.43 m (8 feet by 8 feet)

- 2 Paper and pens/pencils
- 3 A power supply for each team
- 4 Tools and other necessary equipment
- 5 Material needed to build the solution

5.5.6.b The following equipment will be made available to participants during the design period:

- 1 Digital projector
- 2 A computer containing the team's presentation
- 3 A table
- 4 The solution designed by the team

5.5.7 Equipment that must be supplied by the competitors

- 1 All books, notes taken during classes or any other reference document.
- 2 Any electronic document (including the presentation) saved on a mass storage device. It is the competitors' responsibility to ensure that the format of the data is compatible with the computer supplied by the organizers.
- 3 One laptop computer in order to write the presentation

5.5.8 Evaluation grid

Evaluation Criteria	Points
Presentation	/35
Trials	/115
Total	150

5.6 Junior Design

5.6.1 In this competition, participants work on a project revealed on the day of the competition. Projects are marked on the originality of their design and their prototype, their team spirit, their presentation and the performance of their prototype.

5.6.2 Registration criteria

5.6.2.a The team is composed of up to four (4) eligible participants who have completed no more than half the number of credits in their undergraduate Engineering program.

5.6.3 Pre-competition

5.6.3.a Seven days (168 hours) before the competition, each competitor will receive an email containing a list of theoretical concepts covered by the problem. These concepts must be understood in order to carry out the project.

5.6.3.b These documents will also be published on the event's official web site.

5.6.3.c It is the responsibility of the competitors to ensure that they have received this information.

5.6.4 Design period

5.6.4.a The time allotted for the design phase varies between four (4) and eight (8) hours (depending on the organizers' decision).

5.6.4.b A presentation of the problem will first be given to the participants and judges. This will be followed by a question period where participants can ask questions about the problem.

5.6.4.c Participants must then develop a solution to the problem and prepare a presentation which they must then present.

5.6.4.d At the end of the design period, participants must submit a copy of their presentation as well as their solution to the competition director.

5.6.4.e During the design period, participants are permitted to ask questions to the competition director. Questions and answers are then made available to all teams, as well as to the competition's judges.

5.6.4.f Access to any external resource is forbidden during the design period.

5.6.5 Presentation

5.6.5.a The time allotted for presentations varies from five (5) to ten (10) minutes (depending on the organizers' decision), with up to five (5) minutes for the judges' question period.

5.6.5.b The oral presentation must include a description of the design, of the final solution, and of the process used to reach this solution.

5.6.5.c The order of the presentations will be determined randomly.

5.6.5.d The order of the presentations will be announced half an hour before the beginning of the presentations.

5.6.5.e All teams must be present when this announcement is made.

5.6.5.f It is forbidden for teams to change their place in the order of presentations, unless otherwise stated by the competition director.

5.6.6 Equipment provided by the organizers

5.6.6.a The following equipment will be made available to participants during the design period

- 1 A design area of at least 2.43 m by 2.43 m (8 feet by 8 feet)
- 2 Paper and pens/pencils
- 3 One power supply per team
- 4 Tools and other necessary equipment
- 5 Material needed to build the solution

5.6.6.b The following equipment will be made available to participants during the presentation:

- 1 A digital projector
- 2 A computer containing the team's presentation
- 3 A table
- 4 The solution designed by the team

5.6.7 Equipment that must be supplied by the competitors

- 1 Any electronic document (including the presentation) saved on a mass storage device. It is the competitors' responsibility to ensure that the format of the data is compatible with the computer supplied by the organizers.
- 2 One laptop computer in order to write the presentation.

5.6.8 Evaluation grid

Evaluation Criteria	Points
Quality of the presentation	/10
Research and development	/5
Originality and innovation of design	/10
Trials	/50
Total	75

5.7 Reengineering

5.7.1 In this competition, participants work to improve an object of daily life that is revealed on the day of the competition. Projects are evaluated on their originality, team spirit, as well as the presentation and quality of their report.

5.7.2 Registration criteria

5.7.2.a The team is composed of up to two (2) eligible participants.

5.7.3 Design period

5.7.3.a The time allotted for the design phase varies between four (4) and eight (8) hours (depending on the organizers' decision).

5.7.3.b A presentation of the four (4) problems (or cases) will first be given to the participants and judges. This will be followed by a question period where participants can ask questions about the problem.

5.7.3.c Participants must then develop a solution to the problem and prepare a presentation which they must then present. They must also present a written report in the language of their choosing (English or French). The first case is mandatory. Participants must then choose one case among the three remaining cases.

5.7.3.d During the design period, participants are permitted to ask questions to the competition director. Questions and answers are then made available to all teams, as well as to the competition's judges.

5.7.3.e At the end of the design period, participants must submit a copy of their presentation and their report to the competition director.

5.7.3.f The organizing committee is responsible for translating, if need be, participants' reports so that they may be understandable for the competition's judges.

5.7.4 Presentation

5.7.4.a The time allotted for presentations varies from fifteen (15) to twenty (20) minutes (depending on the organizers' decision), with up to fifteen (15) minutes for the judges' question period.

5.7.4.b The oral presentation must include a description of the design, of the final solution, and of the process used to reach this solution.

5.7.4.c The order of the presentations will be determined randomly.

5.7.4.d The order of the presentations will be announced half an hour before the beginning of the presentations.

5.7.4.e All teams must be present when this announcement is made.

5.7.4.f It is forbidden for teams to change their place in the order of presentations.

5.7.5 Equipment provided by the organizers

5.7.5.a The following equipment will be made available during the design period:

- 1 A private design room with at least one table
- 2 Paper and pens/pencils

5.7.5.b The following equipment will be made available during the presentation:

- 1 A digital projector
- 2 A computer containing the team's presentation
- 3 A whiteboard or a large block of paper

5.7.5.c Internet access may or may not be authorized by the Competition Director. The choice of the Competition Director must be announced in the Pre-CQI book.

5.7.6 Equipment that must be supplied by the competitors

5.7.6.a Books and paper documentation necessary to resolve the case.

5.7.6.c Laptop computers (up to one (1) per participant).

5.7.7 Evaluation grid

Evaluation Criteria	Points
Solution	/55
Report	/15
Presentation	/20
Innovation	/10
Total	100

5.8 Extemporaneous Debates

5.8.1 In this competition, participants apply analytical techniques to present a reasoned point of view on a previously undisclosed resolution with minimal preparation. The objective is to evaluate the participants' aptitude to convey ideas and formulate arguments. The rules typically used during debate competitions are modified and relaxed to encourage students with less formal debate experience to participate.

5.8.2 Registration criteria

5.8.2.a The team must be composed of two (2) eligible participants

5.8.3 Competition format

5.8.3.a The debate competition follows a double elimination format. This means that a team would have to lose twice to be eliminated from the competition.

5.8.4 Preparatory elements

5.8.4.a Coin Toss

1 After each team calls heads or tails, a coin is tossed. The winning team can then decide whether to argue for the proposition or against it (the opposition).

5.8.4.b Subject of resolution

- 1 The organizing committee will assign the debate resolutions.
- 2 The resolution will be revealed once the debating sides have been assigned.
- 3 The resolutions will be constructed in such a way that intermediate level engineering students should be able to defend their point, even without preparation.
- 4 The resolutions will not contain truisms (universal truths) and will be devoid of absolute words such as “all”, “everyone” and “always” as much as possible.

5.8.4.c Deliberation

1 Following the revelation of the resolution, teams will be isolated for a period of ten (10) minutes to prepare for the debate.

5.8.5 Debate

5.8.5.a The speaking order and times are as follows:

- 1 First speaker of the proposition: 5 minutes
- 2 First speaker of the opposition: 5 minutes
- 3 Second speaker of the proposition: 5 minutes
- 4 Second speaker of the opposition: 5 minutes
- 5 Rebuttal by the first speaker of the opposition: 2 minutes
- 6 Rebuttal by the first speaker of the proposition: 2 minutes
- 7 Note: Speakers are allowed a fifteen (15) second grace period per speaking turn. To enter the grace period, either the speaker or his teammate must audibly knock on the table for permission. Once asked, the speaker must use the grace period or risk being penalized.

5.8.5.b Proposition

1 Role

- i The proposition will present an initial set of ideas to be defended.

ii The proposition may redefine the resolution so as to focus it on a single major issue. However, the redefinition must not result in a truism, nor alter the original meaning of the resolution. The proposition must also avoid debating on subjects outside of the average engineering student's knowledge.

iii The proposition can follow one of the two strategies outlined hereafter.

iv The proposition carries the burden of the proof and must therefore convince the judges to resolve beyond any reasonable doubt the resolution.

2 Proposition debate strategies

i Principle Case: In a principle case, the proposition presents a principle and a contention. The principle is a general statement which is debatable and based on facts, experience or morality. The contention is the application of the principle in a particular situation relating to the resolution. The contention must discuss a major topic and may be a confirmation of the resolution.

Ex.1: Resolution: « Engineers need to be well rounded.» / Proposed contention: "Engineering students should follow more complementary studies classes."

Ex.2: Resolution: "Canadians abuse the free healthcare system." / Proposed contention: "We should discourage people from going to the doctor unless necessary."

ii Plan Case: In a plan case, the proposition identifies a principle and a contention. A plan is then presented to develop the statement and change the status quo. It should identify the need for change and explain how it will facilitate this change.

The plan case is most effective when the principle and the contention are almost indisputable. In a plan case, it is important that the plan does not become too specific as preparation time is limited and the technical knowledge required to develop the plan is non-existent.

Ex. 1: Resolution: "Engineers need to be well rounded." / Proposed contention: "Students should be required to follow a two year general education program before enrolling into an engineering program."

Ex.2: Resolution: "Canadians abuse the free healthcare system." / Proposed contention: "Individuals should be charged a fee every time they visit a doctor."

Ex.3: Resolution: "Waste management should become more stringent." / Proposed contention: "We propose that any household producing more than a certain quota of waste be severely fined."

3 Speaker roles

i First speaker: The first speaker of the proposition must explain the resolution, clearly state the principle as well as the contention and then clarify any definitions. If a plan case is presented, the whole plan must be outlined in the first speaker's speech. Finally, the first speaker must initiate the argumentation for the contention or the plan.

ii Second speaker: The second speaker of the proposition continues the argumentation of the first speaker and reaffirms concepts which have been attacked by the opposition. New parts of a plan may not be introduced and the terms in the resolution may not be defined. However, new lines of argumentation and new evidence may be introduced.

5.8.5.c Opposition

1 Role

i The opposition's task is to convince the judges that the proposition's opinions are wrong.

ii If the case presented by the proposition is a truism or requires specific knowledge to be debated, the opposition may point this out to the judges with a "Point of Procedure" at the end of the proposition's first speaking turn. If the "Point of Procedure" is accepted, the opposition must redefine the resolution in a debatable manner.

iii If the proposition presented a principle case, the opposition will be left with just the principle to attack.

iv If the proposition presented a plan case, the opposition can attack the principle, the contention or the arguments to the plan. The opposition could also show how the plan would not work or identify any undesirable consequences that would arise from it. Finally, the opposition can propose a counter plan that would be more effective than the original one. The first speaker of the opposition should be the one to introduce the other plans.

5.8.5.d Debate elements

1 Conclusions

i In the rebuttals, the most prevalent elements of the debate must be summarized in a concise and convincing manner. New arguments or facts can no longer be presented unless they are in direct refutation with what has already been discussed.

2 Questions

i Questions are a secondary way of refuting arguments. They can point out deficiencies in ideas as soon as they appear.

The debater who currently holds the floor has the authority to take or refuse the questions. The opponent who wishes to ask a question indicates their desire by simply standing up.

If the debater does not want to accept the question, they can indicate this by a wave of the hand or simply say "No, thank you." If this occurs, the inquirer must sit back down.

If the current debater wishes to answer the question, the opponent must word it in less than fifteen (15) seconds.

Both members of the team may participate in answering the question. Time is stopped while the question is asked, but the time spent answering the question is at the current speaker's expense.

Each debater has to accept at least one question during their speech if an honest attempt is made by the opponent to ask one. Three attempts at asking a question constitutes an honest attempt. If a speaker has already refused to answer twice, the President of the debate will point out that the current speaker must take the question.

Questions are not allowed in the first and last minute of a speaking turn, or during rebuttals.

3 Heckling

i Often, the speaker will contradict themselves or make an absurd assumption. Heckling at that moment will point out the error and add to the debate.

ii Heckling is acceptable if it is short, to the point and preferably witty. If excess heckling becomes disturbing, the President may intervene.

4 Points of Procedure

i If a team believes that a rule has been violated, they must immediately alert the President of the infraction by standing up and saying "Point of Procedure". The President will then ask for time stoppage and ask the inquirer to explain the point of procedure. The team will then explain how the rules of debate were not followed. Finally, the President will rule on the point by saying: "Point well taken." or "Point not taken." The President's decision is absolute and indisputable.

ii If it seems obvious that the President's decision is wrong, the team should not argue with him but depend on the judges to compensate for the President's mistake. The time required to question and rule on the point is

not part of the speaking time allotted to the team in this debate. The following is a list of offenses that warrant a point of procedure:

a. Truism: Without a doubt, this point of procedure can completely turn the tables on the debate. A case of truism occurs when the proposition is redefined in such a way that it is no longer debatable due to it becoming the statement of a fact or a tautology. To raise this point of procedure, the team must wait until the speaker at fault has finished his speech before informing the President. If the point is well taken, the case of truism gives the alerting team the chance to redefine the proposition and therefore the opportunity to completely invalidate the previously given speech. If the point is not taken, the debate will proceed with the provided redefinition.

b. Specific knowledge (in the redefinition): If an aspect of the definition involves knowledge that an average engineering student would not possess, there is a case of specific knowledge.

To raise this point of procedure, the team must wait until the speaker at fault has finished his speech before informing the President. If the point is well taken, the opposing team will have the chance to redefine the terms of the specific knowledge and therefore the opportunity to invalidate that portion of the redefinition. If the point is not taken, the debate will proceed with the provided redefinition.

c. Specific knowledge (in the argument): If an aspect of the argument involves knowledge that the average engineering student would not possess, there is a case of specific knowledge. To raise this point of procedure, the team must immediately alert the President who will stop the debate. If the point is well taken, the Chair will ask the speaker at fault to withdraw or modify the concerned argument and will ask the judges to disregard it. If the point is not taken, the debate will proceed while taking into account the provided argument.

d. Debaters speaking directly to opposing debaters: All debaters are required to always speak directly to the President. Any debater speaking directly to another debater exhibits a breach of debate decorum. The debater wishing to raise this point does so immediately. The President will then correct the situation if need be.

e. Misquotation: If a debater is incorrectly quoted by another, the point may be raised to the President immediately. If the point is well taken, the President will ask the debater at fault to withdraw or amend the quotation concerned and ask the judges to disregard it. If the point is not taken, the debate will proceed with the provided quotation as is.

f. New arguments in the conclusion: As the spirit of the debate involves an exchange between two teams, it is strictly forbidden to bring forth new arguments on a concept which was not discussed previously during the debate in the conclusion. To raise this point of procedure, the team should immediately report it to the President who will stop the debate. If the point is well taken, the President will ask the speaker at fault to withdraw or modify the concerned argument and will ask the judges to disregard it. If the point is not taken, the debate will proceed with the provided argument.

g. Introduction of parts of a plan by the second speaker: Only the first speaker may bring up an argumentative plan. Thus, a fault would occur if a second speaker were to present an argument topic which had not previously been introduced by the first speaker. To raise this point of procedure, the team must immediately report it to the President who will then stop the debate. If the point is well taken, the President will ask the speaker at fault to withdraw the concerned argument and ask the judges to disregard it. If the point is not taken, the debate will proceed while taking into account the provided argument.

h. Unprofessional conduct or offensive behavior: If a debater exhibits unprofessional conduct by being vulgar, inappropriate or simply lacking in class, there is clearly a breach of debate decorum. In this situation, the President will ask the speaker at fault to rectify the situation. A refusal to do so could bring about the disqualification of their team.

iii If the officials have failed to follow the rules of debate (incorrect speaking order, too much time allocated for speaking, etc.), it can be politely brought to their attention with a point of procedure.

5 Bilingualism

i This is a bilingual competition: participants may debate in either the French or English language. However, a debater must start and end the debate in the same language. Nonetheless, if desired, teammates have the possibility of debating in different languages. It is the responsibility of the organizing committee to prepare a panel of bilingual judges whenever possible.

5.8.6 Equipment provided by the organizers

1 Paper and pencils / pens for writing.

5.8.7 Evaluation

5.8.7.a Officials

1 President

i The President of the debate ensures that the rules of debate are followed. They give the speaking turns (by presenting the speaker) and establish time limits. The President also determines the outcome of “Points of Procedure” raised by the debaters. The decisions of the President are final and absolute. Offensive remarks made against their decisions will not be tolerated.

2 Timekeeper

i The timekeeper will use hand signals to provide the debaters time information:

a. When one (1) minute will have elapsed, the timekeeper will raise an open hand to indicate that it is now possible to ask questions.

b. After every minute, the timekeeper will indicate with a number of fingers the number of minutes remaining to the debate.

c. When one (1) minute remains, the timekeeper will raise their fist to indicate the end of the question period.

d. When only ten (10) seconds remain, the timekeeper will form a 90 degree angle with their arms and gradually lower the vertical arm during the ten (10) seconds, so as to bring it to the horizontal arm following the motion of a needle in a dial. If a debater knocks on the table during these ten (10) seconds (also called the “grace period”), the timekeeper will lower their arms and wait until the end of the ten (10) seconds before restarting the countdown for the extra fifteen (15) seconds, this time without any possibility for extension.

ii If a question is asked in the first or last minute of a speech, the timekeeper will notify the president who will then refuse the question as questions may not be asked during these speech periods.

3 Judges

i An odd number of judges is requested for each debate. Without consulting other judges and in silence, each judge will discretely vote for the team they felt deserved the win. The vote will be done on paper, and collected by the President. The team with the most votes wins the debate.

5.8.7.b Evaluation grid

Please refer to the French Version of this rule book for the detailed sheet.

5.9 Reengineering

5.9.1 The objective of the programming category is to encourage engineering students to produce readable software. Teams will use their software development skills, technical writing abilities and project management skills to design a solution to a problem. This solution will then be presented to company executives (jury) for approval. The winning solution will not necessarily be the most technically correct one, but the one that is the most realistic and well thought out.

5.9.2 Registration criteria

5.9.2.a The team is composed of up to two (2) eligible participants.

5.9.3 Pre-competition

5.9.3.a At least seven (7) days prior to the competition, the main theme(s) of the competition will be announced to the competitors, judges and the public. The Competition Director will announce the exact specifications of the equipment made available to the teams during the Competition (computer storage devices, available programs, etc.).

5.9.3.b These documents will also be published on the official website.

5.9.3.c It is important that the competitors ensure that they have received the necessary information.

5.9.4 Design period

5.9.4.a The time allowed for the design of the solution varies from eight (8) to ten (10) hours (depending on the choice of the organizers).

5.9.4.b A presentation of the problem is first made in front of all participants and judges. The judges then have a period of time to ask questions about the problem.

5.9.4.c The participants must design a solution to the problem and prepare a presentation for presentation.

5.9.4.d At the end of the design period, teams must submit their presentation and the completed solution to the Competition Director.

5.9.4.e Participants are allowed to ask questions of the Competition Director during this period; the questions and answers will be made available to all teams and judges.

5.9.4.f It is expected that the teams participating in this Competition will have

adequate knowledge in selecting the best tools to solve the given problem. It is the responsibility of the Competition Director to restrict the tools allowed if he so wishes.

5.9.5 Solution presentation

5.9.5.a The time allotted for the oral presentation is twenty (20) minutes, followed by a maximum of ten (10) minutes for questions from the judges.

5.9.5.b The oral presentation shall include a description of the design, the final solution and the process followed to arrive at it.

5.9.5.c The order of presentations will be determined randomly.

5.9.5.d The order of presentations will be announced one-half hour prior to the start of the presentations.

5.9.5.e Since the use of the Internet and other external resources is permitted in this competition, all information used by competitors must be referenced with great care. Competitors are not permitted to submit work by anyone other than members of their team. If they decide to recycle their own code or someone else's, it must be clearly referenced in the submission. In addition, competitors must also clearly explain why and where the recycled code was used in their software. The judges reserve the right to ask any team member to describe what a particular section of the code does at any point in the presentation. If there is evidence that competitors are submitting plagiarized work, the entire team will be eliminated from the competition and their home schools will be notified. Volunteers will monitor each team during the design process to discourage teams from cheating and to remind them to cite external resources. However, competitors are expected to act in good faith with the spirit of the competition.

5.9.5.f All teams must be present when the order of presentation is announced.

5.9.5.g Teams are not permitted to change positions in the order of presentation.

5.9.6 Provided material

5.9.6.a The following list of material will be at the disposal of the competitors during the design phase:

- 1 A design area
- 2 Paper and pencils/pens for writing
- 3 Electrical outlets for each team

5.9.6.b The following list of equipment will be at the disposal of the competitors

during the design phase:

- 1 Projector
- 2 A computer with the team's presentation
- 3 A Table

5.9.7 Equipment that must be supplied by the competitors

- 1 Books, course notes or other reference material.
- 2 A storage device that the team can keep after the design phase in order to have a copy of their presentation; it is the responsibility of the competitors to check with the organisers that the format of the electronic data is compatible with the available computers.
- 3 A laptop computer to write the presentation and complete the programming.

5.8.7.b Evaluation grid

Evaluation Criteria		Points
Strategy/Algorithm	Simplicity Ingenuity Ability to achieve the desired goals	/40
Code	Structure Readability Effectiveness	/30
Resource management	Efficient use of memory CPU usage of the programme	/10
Presentation	Design process Design Justification Design Criticism Voices Articulation and synchronization Visual aids Answers to questions	/20
Penalties	Plagiarism Insufficient citation Late submissions Absent member from the team	-50 -50 -50 -25
Total		100