Ontario Engineering Competition 2025

Rulebook

Contents

1. General Rules

1.1. Definitions

1.1.1. “Engineering Student Societies’ Council of Ontario” henceforth referred to as ESSCO, refers to the provincial association of undergraduate engineering student societies in Ontario.

1.1.2. “Ontario Engineering Competition” henceforth referred to as OEC, is the annual ESSCO activity comprising an undergraduate engineering competition outlined in this document.

1.1.3. “Internal Qualifier(s)” refers to the competitions held by ESSCO member schools which are eligible to send competitors to the OEC.

1.1.4. “Chair(s)” refers to the person(s) in the role of overall coordinator of the OEC.

1.1.5. “Organizing Committee”, henceforth referred to as the OC, refers to the team who oversees and organizes the competition as a whole.

1.1.6. “OEC Advisory Board”, henceforth referred to as the OEC-AB, refers to the body that provides advice, guidance, and support to the OEC OC and is the final ruling authority on issues that will affect more than one OEC.

1.1.7. “Vice President of Competitions” henceforth referred to as VP Competitions, or equivalent position refers to the role that oversees all the Competition Lead(s) and all overarching responsibilities related to the competitions.

1.1.8. “Competition Lead(s)” refers to the role responsible for the specific competition within a competition section of the rulebook. The Competition Lead(s) are appointed or chosen by a process set forth by the Chair(s). The Competition Lead(s) are the primary means of contact for competitors, judges and a liaison between the OC.

1.1.9. “Rules Violation Appeals Committee” is a committee to which competitors can appeal a decision regarding (a) rule violation(s) and is defined in Section 1.8 (Violation of Competition Rules).

1.1.10. “Competition Team”, henceforth referred to as “team”, refers to the team competing at OEC, as qualified through an Internal Qualifier

1.1.11. “Competitor” refers to an individual on a CompetitionTeam competing at OEC, as qualified through an Internal Qualifier.

1.1.12. “Competition Booklet” refers to the specific information that Competitors are given for their respective competition.

1.2. Eligibility

1.2.1. The VP Competitions or Chair(s) determines the eligibility of all competitors, teams, and projects according to the following guidelines set out in this rulebook.

1.3. Competitor Qualification

1.3.1. All Competitors and Competition Teams must have qualified during an Internal Qualifier, hosted by an active member school of ESSCO.

1.3.2. The qualifying teams must be composed of members from the same ESSCO member school that hosted the Internal Qualifier.

1.3.3. First place teams from an Internal Qualifier are eligible to compete.

1.3.4. The team appearing at OEC must comprise the original team as it competed at its Internal Qualifier.

1.3.4.1. Innovative Design and Engineering Communications teams must present the same project as their Internal Qualifier.

1.3.5. If a competitor cannot attend OEC, the team may compete in their absence as a reduced team or may find a suitable replacement. This may only be done in cases of teams with three or more members, and at the discretion of the VP Competitions.

1.3.6. If a first-place team cannot attend OEC or meet this criteria, the next runner-up from the same Internal Qualifier may attend OEC, at the discretion of the VP Competitions.

1.4. Enrolment Eligibility

1.4.1. All competitors must be ESSCO members at the time of the competition with the following exceptions:

1.4.1.1. In the cases of Innovative Design and Engineering Communications, competitors may have graduated within a year prior to the competition provided the project entered was completed before graduation. A letter will be required from the supervising professor confirming that no changes have been made to the project since the competitor's graduation. This letter must be dated no more than 30 days prior to the competition and be submitted to the VP Competitions or Chair(s).

1.4.1.2. Competitors not presently enrolled in classes or on co-op are still eligible provided they are considered an enrolled/active student by their institution.

1.5. Regulation Amendments

1.5.1. These general regulations shall be considered the official regulations of OEC. These regulations can only be amended with the approval of the OEC-AB.

1.5.2. The layout and formatting of this document may be altered by the OC without approval of the OEC-AB.

1.6. Violation of Competition Rules

1.6.1. The following process will ensure that the issue comes to a fair result if a competitor is believed to have violated:

- A rule in this rulebook,
- A rule included in the Competition Booklet, or
- A clarification to a rule provided by the Competition Lead(s) during the question period

1.6.2. The Competition Lead(s) will determine if a competitor is in violation of the rules.

1.6.3. If a competitor is found guilty of a violation during the design phase they will be notified immediately, although they are allowed to continue the competition and work on their solution.

1.6.4. Competitors will be provided in writing the alleged violation of the rules following the design phase.

1.6.5. This communication of a rule violation shall be reported to the team by the Competition Lead(s) to ensure the competitor(s) are immediately made aware of the situation. This communication of a rule violation shall not be an email or text message to ensure the competitor(s) are immediately made aware of the situation.

1.6.6. If competitor(s) are found guilty of a violation following the conclusion of the design phase, competitors have one (1) hour to appeal the Competition Lead(s) decision to the Rule Violation Committee (RVC). The appeal must be written and clearly explain why the competitors believe they followed the rules of the competition. Appeals shall be limited to one page with size 12 font single spaced.

1.6.7. If the competitor is not found to be in violation of any rules, then the competition will continue as normal.

1.6.8. The RVC shall comprise the VP Competitions and 3 other executive members. (One executive member will act as non-voting chair.) It is preferred that the Chair(s) of the Ontario Engineering Competition are among the voting members of the RVC. The RVC will have one (1) hour to review the appeal and vote to dismiss or hold the decision of the Competition Lead(s).

1.6.9. Competitor(s) will be immediately notified of the RVC decision. The decision of the RVC is final, and not subject to further appeals.

1.6.10. In the event of discovery of a rule violation following the competition, competitor(s) will be immediately notified of the penalty applied by the Competition Lead(s) and have one (1) week to appeal the penalty to the RVC

1.7. School Anonymity

1.7.1. School anonymity is in place to avoid any prejudice or favoritism towards a given team by the judges.

1.7.2. No information in a team's presentation may refer to the team's identity or respective school.

1.7.3. If the team reveals their identity to the judges before the conclusion of the presentation phase, the first offense will result in a ten (10)-point penalization, and the second will result in disqualification.

1.7.4. In the case of Parliamentary Debate, revealing any team's identity or respective school will result in the revealing team's loss of the current round, at the Moderator's discretion.

1.7.5. 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.

1.7.6. When submitting deliverable files, the file content and file name must not disclose the name of the team's school.

1.7.7. If the identity of a team is disclosed in the presentation slides or file name, the presenting team will be penalized with a loss of ten (10) points.

1.7.8. Each team shall use the alias assigned by their Competition Lead(s).

1.7.9. 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.

1.7.10. 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. The team associated with an individual who breaks this rule is subject to a loss of ten (10) points.

1.8. Language

1.8.1. The official language of the OEC is English.

1.8.2. French is recognized as a secondary language that will be accommodated upon request.

1.8.3. At the time of registration, competitors must notify the OC that they choose to compete in French.

1.8.4. The OC will provide all necessary documentation in French and provide live translation to make the competition fair and feasible for the competitor.

1.8.5. All deliverables must be consistent in language

1.8.6. All members of a team must compete in the same language.

2. General Competition Standards

2.1. Competition Team Sizes

2.1.1. The maximum number of individuals for each competition is:

Bioengineering	Consulting	Reengineering	Programming	Junior Design	Senior Design	Communications	Innovative Design	Parliamentary Debate
2	4	2	4	4	4	2	6	2

2.1.2. Junior Design teams must be entirely composed of students who have not yet started their 3rd engineering academic year by the time OEC starts.

2.1.3. Debate teams must consist of two individuals

2.2. Competition Lead(s)

2.2.1. The Competition Lead(s) are responsible for the design and implementation of their respective competition.

2.2.2. The Competition Lead(s) must be present at all of the presentations.

2.2.3. The Competition Lead(s) must present the design problem at the beginning of the competition and answer any questions raised by competitors.

2.2.4. The Competition Lead(s) will be available to competitors and judges during competition hours for questions and requests.

2.3. Official Timekeeper

2.3.1. The Official Timekeeper must be responsible for enforcing time limits during the question period, solution development, and presentations.

2.3.2. This role can be held by the Competition Lead(s), except in Parliamentary Debate.

2.3.3. The responsibilities of the Parliamentary Debate Timekeeper are outlined in Section 11.1.3.

2.4. Judges

2.4.1. All competitions must have a minimum of three (3) judges (and in any excess, an odd number of judges).

2.4.2. Judges are required to assess the problem-solving abilities, proposed solution, and communication skills of the competitors.

2.4.3. Judges in Communications, Parliamentary Debate, and Junior Design are not required to have technical engineering experience. Judges in these categories should come from a variety of backgrounds including communications, sales and technical or consulting engineering experience related to the topic.

2.5. Competition Booklet

2.5.1. Each competitor will be given a Pre-Competition Booklet seven (7) days prior to the competition that will contain any specific information regarding the competition.

2.5.1.1. The Pre-Competition Booklet may be compiled into the Delegate Package.

2.5.2. It is the competitor's responsibility to ensure that they have received the package.

2.5.3. At the competition briefing, each team will receive a package outlining the problem definition, design and presentation requirements, rules, marking scheme, and any other information deemed necessary by the Competition Lead(s).

2.6. Integrity of the Competition

2.6.1. Since the use of the Internet and other external resources is permitted in this competition, all information used by competitors must be referenced very carefully.

2.6.2. Competitors are not permitted to submit work completed by anyone other than the members of their team.

2.6.3. If there is any evidence that competitors are submitting plagiarized work, the entire team will be eliminated from the competition and their home schools will be notified.

2.6.4. Volunteers will monitor each team during the design process to deter teams from cheating.

2.6.5. Generative AI may be allowed at the discretion of the Competition Lead(s). The Competition Booklets will further detail allowable uses of generative AI.

2.6.6. All references must be appropriately cited to avoid plagiarism penalties.

2.7. Facilities and Equipment

2.7.1. The Facilities and Equipment provided for the competitions are:

<table>
<tr><th></th><th>Bioengineering</th><th>Consulting</th><th>Reengineering</th><th>Programming</th><th>Junior Design</th><th>Senior Design</th><th>Communications</th><th>Innovative Design</th><th>Parliamentary Debate</th></tr>
<tr><td rowspan="8">Competition</td><td colspan="6">One (1) large workroom, subdivided with partitions for each team or one (1) separate workroom per team</td><td rowspan="8" colspan="2"></td><td rowspan="8">See section 10.2</td></tr>
<tr><td colspan="6">One (1) table per team</td></tr>
<tr><td colspan="6">One (1) chair per Competitor</td></tr>
<tr><td colspan="6">One (1) of a whiteboard, chart paper or blackboard</td></tr>
<tr><td colspan="6">Paper and pencils/pens for writing</td></tr>
<tr><td colspan="6">Internet connectivity</td></tr>
<tr><td colspan="4">Power source for computers</td><td colspan="2">Power source for computers and any supplied powered tools and materials</td></tr>
</table>

		Materials and tools specific to the design problem	
		One (1) competition testing space	
Presentation	One (1) amphitheater		
	One (1) computer, containing the team's presentation file		
	One (1) digital projector		
	Whiteboard(s) and/or blackboard(s)		
		One (1) table, for displaying prototype	

2.8. External Resources

2.8.1. The competitors are allowed to bring the following equipment with them during the Competition phase:

Bioengineering	Consulting	Reengineering	Programming	Junior Design	Senior Design	Communications	Innovative Design	Parliamentary Debate
Any background research conducted by team members prior to the competition Any textbooks, course notes or other reference material Each team member is allowed one computer						Competitors are required to bring any presentation or display materials which they will use, including pictures or diagrams and models or prototypes. A list of external resources must be provided to the Competition Lead(s) at least seven (7) days		*See Section 10.2*
				Camera				

				prior to the competition.	

2.9. Teams are allowed to bring their own slideshow templates for use in the competition.

2.9.1.1. Templates may contain background images and a basic slide layout.

2.9.1.2. Slides are to have no content.

2.10. Resource Requests

2.10.1. Prior to the competition, the team may submit a resource request. The purpose of this request is if teams require resources outside of those listed in Section 2.6 and Section 2.7. The Competition Lead(s) will review the requests and determine if the request is viable. The team will be informed early in the week before the competition whether their request can be accommodated. This request will follow conventional formatting characteristics (12-point front, 1.5 line spacing, 1” paper margins) and is limited to one (1) page. The request must include, but is not limited to:

- Team Name
- Team Members
- School
- Reason for required resource

2.11. Timeline

2.11.1. Pre-Competition

2.11.1.1. At least seven (7) days prior to the competition, the Rulebook and Pre-Competition Booklet will be provided to the competitors, judges, and public. Assigned team names and exact specifications of equipment available to teams during the competition will also be announced at this time.

2.11.2. Competition Briefing

2.11.2.1. The problem must be presented to all competitors at the beginning of the competition. The Competition Lead(s) must provide detailed explanations of what is expected from the competitors, both orally and in writing. The presentation of the problem will take no longer than fifteen (15) minutes.

2.11.2.2. After the conclusion of the presentation, there will be a period of fifteen (15) minutes for competitors to ask the Competition Lead(s) any questions.

2.11.2.3. The answers will be provided orally and recorded in written form.

2.11.2.4. The Competition Briefing shall be scheduled for no less than thirty (30) minutes.

2.12. Competition Duration

2.12.1. The competitions shall have a set amount of time to develop their solutions, produce all required deliverables, and prepare their presentations.

2.12.2. All deliverables shall be submitted to the Competition Lead before the end of the allotted time. Competitors may finish before the end of the allotted time.

2.12.3. Competitors must be allowed a minimum of one (1) hour to rest before the presentation phase starts.

2.12.4. All team members must be present and participate in the presentation or be penalized by the judges.

2.12.5. In order to ensure that all competitors cease to work on the case solutions once the design time has ended, the competitors cannot include any material in their oral presentation which is not included within their submitted written reports or presentation materials.

	Bioengineering	Consulting	Reengineering	Programming	Junior Design	Senior Design	Communications	Innovative Design	Parliamentary Debate
Competition Duration	six (6) to eight (8) hours	six (6) to eight (8) hours	six (6) to eight (8) hours	six (6) to eight (8) hours	six (6) to eight (8) hours	eight (8) to ten (10) hours			

Presentation Duration	ten (10) minutes	ten (10) minutes	fifteen (15) minutes	ten (10) minutes	ten (10) minutes	ten (10) minutes	twenty (20) minutes	fifteen (15) minutes	
Question Period Duration	five (5) minutes	five (5) minutes	seven (7) minutes	five (5) minutes	five (5) minutes	five (5) minutes	five (5) minutes	five (5) minutes	

2.13. Deliverables

2.13.1. Each team is required to submit, electronically, before the end of the design period, all required presentations and report files.

2.13.2. Any reports will be made available to the judges before each team's presentation

2.13.3. The deliverable requirements will be outlined in the Competition Booklet. They will include:

	Bioengineering	Consulting	Reengineering	Programming	Junior Design	Senior Design	Communications	Innovative Design	Parliamentary Debate
Deliverables	report of less than ten (10) pages (excluding appendices) presentation	report of less than ten (10) pages (excluding appendices) presentation	report of less than one (1) pages (excluding appendices) presentation	code, used to evaluate the team's solution presentation	prototype of design presentation	prototype of design presentation			

2.13.4. In Re-Engineering, the competitors may elect to shorten one of the reports and use the remaining space for their other report provided both reports are written end-to-end in a single document and the document does not exceed two single-sided pages.

2.14. Timekeeping

2.14.1. Design

2.14.1.1. Time for the design period shall start when all the teams have reached their workstations.

2.14.1.2. The remaining time must be announced three (3) hours, one (1) hour, thirty (30) minutes, and ten (10) minutes before the end of the allotted design time.

2.14.2. Presentation

2.14.2.1. Time is halted when a judge asks a question and when a team member answers the question during the presentation.

2.14.2.2. The remaining time must be indicated to the competitors ten (10) minutes, five (5) minutes and one (1) minute before the end of the allotted presentation time.

2.14.2.3. A visual countdown must be given to the presenters during the last thirty (30) seconds of the allotted presentation time.

2.14.2.4. After the allotted presentation time has expired, competitors will have a fifteen (15) second grace period to conclude their presentation before they are cut-off to begin the question period.

2.14.2.5. Teams who are cut-off will be penalized.

2.14.2.6. Time to both ask and answer questions will be counted during question period. The timing of the question period shall be for information purposes only.

2.15. Presentation Order

2.15.1. Presentation order shall be determined randomly.

2.15.2. Presentation order shall be announced thirty (30) minutes before the presentations commence. All teams are required to be present at this announcement.

2.15.3. Teams are not allowed to switch places in the presentation order.

2.15.4. Teams may not be in the audience for presentations of their competition until after they have completed their presentation. Any attempts at entering the presentation room before their allotted time will result in a warning for a first offense, and a ten (10) point penalty for any further offenses.

2.16. Response to Questions

2.16.1. Only the Competition Lead(s) may answer questions during the problem presentation and design phases. Volunteers and judges may not answer questions regarding rules and procedures at any time.

2.16.2. During the presentation of the problem, the Competition Lead(s) shall answer orally and write down the answers provided.

2.16.3. During the design phase, only questions related to deliverable content shall be answered. No answers shall be provided in response to questions about the problem that might lead to the development of a new approach, or which might invalidate a solution

2.16.4. During the design phase, answers to questions shall be provided in writing to all teams at the same time. Fifteen (15) minutes may be allowed to elapse for a significant number of questions accumulated before responses are provided. A copy of the responses must be provided to the judges prior to the presentation.

2.17. Assessment

2.17.1. Judging feedback shall be provided to each Competing Team following the announcement of winners but prior to the end of OEC.

3. Bio-Engineering

In this competition, teams comprehensively solve a bio-engineering problem. Teams are required to identify the issues outlined in the prompt and develop a bio-engineering design process in order to solve the issue in question.

3.1. Topic

It is recommended that the topic incorporate more than one engineering discipline. However, while the topic should challenge competitors' technical knowledge and skills, it should also require competitors to evaluate the economic, environmental, political and social implications of their proposed solutions and address the requirements of the customer. The winning solution will not necessarily be the most technically effective solution, but the solution that has the most real-world applicability and forethought. Therefore, the topic should be one that could exist in the real world. Topics drawn from reality must be fully documented. All necessary documentation must be provided to the competitors when the problem is presented.

3.2. Bio-Engineering Rubric

Solution	Deliverable Compliance with Expectations Addresses Problem Statement Environmental, Biomedical and Economic Consideration Technical Feasibility Innovation Real-world Applicability	**/60**
Report	Clarity Writing Style & Professionalism Design Justification	**/15**
Presentation	Voice Articulation and Timing Visual Aids Response to Questions	**/25**
Penalties	Plagiarism	-50
	Insufficient Citation	-50
	Documents Received After Deadline	-50
	Absent Team Member	-25
	Verbal Disclosure of School During Presentation	-10
	Disclosure of School in Presentation Files/Documents	-10
	Disclosure of School by Supporting Audience Members	-10
Total		**/100**

4. Consulting Engineering

4.1. Purpose

The purpose of the Consulting Engineering competition is to challenge competitors to design a detailed solution to a large-scale engineering problem. The proposal must be made in a way that promotes the solution to the judges, representing a mock client. Competitors must demonstrate resourcefulness while acting with integrity.

4.2. Topic

4.2.1. It is recommended that the topic incorporate more than one engineering discipline.

4.2.2. While the topic should challenge competitors' technical knowledge and skills, it should also require competitors to evaluate the economic, environmental, political and social implications of their proposed solutions and address the requirements of the customer.

4.2.3. The winning solution will not necessarily be the most technically effective solution, but the solution that has the most real-world applicability and forethought.

4.2.4. Topics drawn from reality must be fully documented.

4.2.5. All necessary documentation must be provided to the competitors when the problem is presented.

4.3. Consulting Engineering Rubric

Solution	Addresses Problem Statement Design Feasibility Environmental, Social, and Economic Analysis Risk Analysis	**/60**
Report	Clarity Writing Style and Professionalism Deliverable Compliance with Expectations	**/15**
Presentation	Voice Articulation and Timing Visual Aids Response to Questions	**/25**
Penalties	Plagiarism	-50
	Insufficient Citation	-50
	Documents Received After Deadline	-50
	Absent Team Member	-25
	Verbal Disclosure of School During Presentation	-10
	Disclosure of School in Presentation Files/Documents	-10
	Disclosure of School by Supporting Audience Members	-10
Total		**/100**

5. Re-Engineering

Re-engineering is the act of taking an existing engineering concept, product, technique, or technology and incrementally improving on its design to suit an alternate situation or application. In this competition, students will be required to apply the re-engineering process to an existing gadget or mechanism in order to add new functionality to it or enhance its original functionality. The intent of these improvements will be to extend the use of the device to an alternative situation or use case.

5.1. Topic

5.1.1. It is recommended that the topic incorporate more than one engineering discipline.

5.1.2. While the topic should challenge competitors' technical knowledge and skills, it should also require competitors to evaluate the economic, environmental, political and social implications of their proposed solutions and address the requirements of the customer.

5.1.3. The winning solution will not necessarily be the most technically effective solution, but the solution that has the most real-world applicability and forethought.

5.1.4. The topic should be one that could exist in the real world.

5.1.5. Topics drawn from reality must be fully documented.

5.1.6. All necessary documentation must be provided to the competitors when the problem is presented.

5.2. Cases

5.2.1. The competition will consist of two (2) sets of written cases.

5.2.2. The first case set will be distributed to the competitors seven (7) days in advance of the competition start time.

5.2.3. The second case set will be presented to the competitors during the Competition Briefing

5.2.4. Competitors will be required to propose a solution for the first case, using as much of the advance time as they feel necessary, by the end of the competition design time.

5.2.5. During the week prior to the competition start time, all questions regarding the first case must be answered within forty-eight (48) hours.

5.3. Re-Engineering Rubric

Solution	Addresses Problem Statement Design Feasibility Environmental, Social, and Economic Analysis Risk Analysis	**Case 1** **/40**	**Case 2** **/20**
Report	Clarity Writing Style and Professionalism Deliverable Compliance with Expectations	**/15**	
Presentation	Voice Articulation and Timing Visual Aids Response to Questions	**/25**	
Penalties	Plagiarism	-50	
	Insufficient Citation	-50	
	Documents Received After Deadline	-50	
	Absent Team Member	-50	
	Verbal Disclosure of School During Presentation	-25	
	Disclosure of School in Presentation Files/Documents	-10	
	Disclosure of School by Supporting Audience Members	-10	
Total		**/100**	

6. Programming

The goal of the programming category is to encourage engineering students to produce a piece of readable software. The teams will use their software development skills, their technical writing abilities, and their project management skills to design a solution to a posed problem. This solution will then be presented to judges, representing mock company executives for approval. The winning solution will not necessarily be the most technically correct but the one that has the most real-world application and is most thoroughly thought out.

6.1. Topic

The topic will be a real-life problem found in any professional industry which can be solved through the application of programming. The type of industries can include, but are not limited to, finance, health, transportation, manufacturing and construction. Although not completely needed, a team that is formed of students from more than one engineering discipline is advised, as it would help to develop a complete solution.

6.2. Software Resources

If they decide to recycle their own or someone else's code it must be clearly cited in the presentation. In addition, the competitors also need to clearly explain why and where the recycled code was used in their software. The judges hold the right to ask any team member to describe what a particular section of the code does at any given point during the presentation.

6.3. Programming Rubric

Strategy/ Algorithm	Personalization & Adaptability Deliverable Compliance with Expectations User Experience Innovation & Creativity	**/40**
Code	Readability Efficiency Structure	**/35**
Presentation	Design Process and Justification Voice Articulation and Timing Visual Aids Response to Questions	**/25**
Penalties	Plagiarism	-50
	Insufficient Citation	-50
	Documents Received After Deadline	-50
	Absent Team Member	-25
	Verbal Disclosure of School During Presentation	-10
	Disclosure of School in Presentation Files/Documents	-10
	Disclosure of School by Supporting Audience Members	-10
Total		**/100**

7. Junior Design

This competition challenges junior engineering students to design and build a prototype to address a technical problem. The Junior Team Design category is similar to the Senior Team Design competition, but emphasis is placed on prototype functionality rather than design theory.

7.1. Feasibility

Given that the intention of the competition is to create a practicable, realistic solution to the given problem statement, a penalty of fifty (50) points will be deducted from the final score of any team whose design is based fundamentally upon an impossible concept, and/or makes no realistic attempt to solve the design problem within the constraints of the problem statement.

7.2. Junior Design Rubric

Design Quality	Creativity Scalability Feasibility Versatility	**/40**
Testing		**/30**
Presentation	Design Process Design Justification Voice Articulation and Timing Visual Aids Response to Questions	**/30**
Penalties	Plagiarism	-50
	Documents Received After Deadline	-50
	Absent Team Member	-25
	Verbal Disclosure of School During Presentation	-10
	Disclosure of School in Presentation Files/Documents	-10
	Disclosure of School by Supporting Audience Members	-10
Total		**/100**

8. Senior Design

Students are given a complex engineering problem and are required to design and build a working prototype. The teams will then present their solution and test their prototypes in front of a panel of judges.

8.1. Feasibility

Given that the intention of the competition is to create a practicable, realistic solution to the given problem statement, a penalty of fifty (50) points will be deducted from the final score of any team whose design is based fundamentally upon an impossible concept, and/or makes no realistic attempt to solve the design problem solved within the constraints of the problem statement.

8.2. Senior Design Rubric

Design Quality	Aesthetics Creativity and Innovation Code Overall Design	**/40**
Testing		**/30**
Presentation	Design Process and Justification Articulation and Timing Visual Aids Response to Questions	**/30**
Penalties	Plagiarism	-50
	Insufficient Citation	-50
	Documents Received After Deadline	-50
	Absent Team Member	-25
	Verbal Disclosure of School During Presentation	-10
	Disclosure of School in Presentation Files/Documents	-10
	Disclosure of School by Supporting Audience Members	-10
Total		**/100**

9. Engineering Communications

The goal of this competition is to describe an engineering topic (i.e. process, product, device, issue) in terms that the general public can understand.

9.1. Topic

The topic should fulfill the following criteria:

- The topic must be technical in nature
- The presentation will assess social, environmental, political, and economic impacts of the topic

9.2. Project Eligibility

Work done during employment related to the engineering degree is eligible provided that an authorization letter is obtained from the employer allowing the work to be presented at the competition.

Should the presenting team be a subset of a project team, the remaining members of the project team must sign a letter authorizing presentation of the project in order for it to be eligible for the competition. This letter must be submitted with the competition abstract if applicable.

9.3. Deliverables

9.3.1. Prior to the competition, the team must submit a presentation abstract at least three (3) days prior. The purpose of this abstract is for the judges and organizers to be prepared. The abstract must be a maximum of two hundred (200) words describing the presentation topic. It must also state the competitor's name(s), and Team Name.

9.3.2. Competitors must supply a soft copy of their presentation to the Competition Lead(s) at least three (3) days prior to the day of the competition. The Competition Lead(s) may assign the due date at their discretion to allow time for testing the presentation and printing hardcopies. These slides will be used to aid the judges in keeping notes and providing feedback when necessary and desired.

9.4. Engineering Communications Rubric

Introduction to Topic	Topic and Background Clearly Presented Appropriate Level of Language Interest Elicited by Topic Accuracy of Explanation	**/25**
Critical Analysis	Environmental Analysis Social Analysis Economic Analysis	**/30**
Written Abstract	Concise and Captivating Introduction of Topic	**/5**
Presentation	Voice Articulation and Timing Visual Aids Response to Questions	**/25**
Penalties	Plagiarism	-50
	Insufficient Citation	-50
	Documents Received After Deadline	-50
	Absent Team Member	-25
	Verbal Disclosure of School During Presentation	-10
	Disclosure of School in Presentation Files/Documents	-10
	Disclosure of School by Supporting Audience Members	-10
Total		**/100**

9.5. Penalties

- For each grammar or spelling mistake in the abstract or presentation, one (1) point deduction
- For each day of late submission for the abstract, five (5) points deduction
- For presentations less than seventeen (17) minutes, five (5) points/minute deduction for every minute under seventeen (17) minutes (e.g. a fifteen
- (15) minute presentation will result in a deduction of ten (10) points

10. Innovative Design

The innovative design competition is prepared entirely outside the realm of the OEC. Competitors choose their own topic, prepare research and develop a design. The designs must be new and innovative and address a void in society.

10.1. Topic

The topic should adhere to the following criteria:

- The project must be technical in nature
- The project must have a design component
- The project must assess social, environmental and economic ramifications of implementation

10.2. Project Eligibility

While the above list provides a guideline to project selection, no projects will be disallowed due to the topic selection. The judging criteria provide a component which analyzes the applicability of the project's topic.

Work done during employment related to the engineering degree is eligible provided that an authorization letter is obtained from the employer allowing the work to be presented at the competition.

Should the presenting team be a subset of a project team, the remaining members of the project team must sign a letter authorizing presentation of the project in order for it to be eligible for the competition. This letter must be submitted with the competition abstract if applicable.

10.3. Public Opening

An exhibition hall is required to allow competitors to set up displays for the general public, and for the voting of the People's Choice Award. This hall should be in a central location and must be open to the public during the competition.

The exhibitions are open for visits from the general public. Competitors must staff their displays for a minimum of two (2) hours. People's Choice Award will be voted on during the Public Opening. A QR code for People's Choice Award voting will be at each display.

10.4. Design Summary

Prior to the competition, the team must submit a design summary. The purpose of this summary is for the judges and organizers to be prepared ahead of time with regard to the topics. This summary will follow conventional formatting characteristics (12-point front, 1.5 line spacing, 1" paper margins) and is limited to one (1) page. The summary must include, but is not limited to:

- Team Name
- Team Members
- Design topics and description

10.5. Innovative Design Rubric

Project	Design Justification Environmental, Social and Economic Feasibility Technical Feasibility/Innovation	**/70**
Written Abstract	Clarity Writing Style and Professionalism Deliverable Compliance with Expectations	**/10**
Presentation	Voice Articulation and Timing Visual Aids Response to Questions	**/20**
Penalties	Plagiarism	-50
	Insufficient Citation	-50
	Documents Received After Deadline	-50
	Absent Team Member	-25
	Verbal Disclosure of School During Presentation	-10
	Disclosure of School in Presentation Files/Documents	-10
	Disclosure of School by Supporting Audience Members	-10
Total		**/100**

10.6. Penalties

- For every minute the presentation exceeds the time limit, two (2) points deduction
- For each day of late submission, five (5) points deduction
- For every three (3) grammar or spelling mistake in the abstract, one (1) point deduction

11. Parliamentary Debate

Parliamentary Debate Competitors must use analytical techniques to present, with minimum preparation, a reasoned point of view of a resolution that has not been disclosed beforehand. The goal is to assess the competitors' abilities to convey ideas and develop arguments. The purpose is not to assess competitor knowledge of parliamentary procedure and formal debating rules. Therefore, the rules normally used in debates have been modified and relaxed to enable students with no formal debate experience to take part.

11.1. Personnel Required

11.1.1. Competition Lead(s)

11.1.1.1. It is recommended that the Competition Lead(s) have previous experience in debates, preferably at the OEC or internal qualifier.

11.1.2. Debate Moderator

11.1.2.1. The Debate Moderator, otherwise known as a Moderator, is the expert in debate procedure and interpretation. The Moderator acts as an impartial judge and ensures that the judges understand the rules of the debate.

11.1.2.2. The Moderator of the debate ensures the rules of the debate are upheld. They grant the right to speak (introduces the debater) and enforce the time limits. Most importantly, the Moderator makes rulings on the “points of procedure” put forward by the debaters. The decisions of the Moderator are final.

11.1.3. Timekeeper

11.1.3.1. The Timekeeper is responsible for ensuring that competitors stay within their allotted time limits. The timekeeper will inform speakers of specific time intervals. The Timekeeper will use hand signals to indicate the number of minutes a speaker has left to conclude their argument. The first and last thirty (30) seconds of a speech will be marked by the Timekeeper banging on the table, with the first bang indicating that Points of Information (POIs) are now permitted and the second bang indicating that POIs are no longer permitted. The Timekeeper will also give a ten (10) seconds final countdown on their hands. If a question is asked in the first or last minute of the speech, the Timekeeper will indicate this to the Moderator so that it can be stopped. If a member of the debater team knocks on the table during the final ten (10) seconds, the Timekeeper will permit an extra and final fifteen (15) seconds of grace.

11.2. Facilities and Equipment

11.2.1. The following facilities and equipment shall be provided for the competition:

11.2.1.1. Two (2) amphitheaters

11.2.1.2. Two (2) rooms for judge’s deliberation

11.2.1.3. Rooms for debater’s preparation

11.2.1.4. Two (2) tables

11.2.1.5. One (1) podium with microphone

11.2.1.6. One (1) display board, projector, chalkboard or whiteboard is required to display the debate topic during the debate

11.2.1.7. Paper and pencils/pens for writing

11.2.1.8. One (1) to three (3) stopwatches (a stopwatch for each speaking team is optional but encouraged)

11.2.1.9. One (1) microphone for each team table and one (1) for judging table, for a total of three (3) microphones

11.2.2. The layout of the room should place the tables and podium at the front of the room. The first row of the room will be reserved for the judges, Moderator, and Timekeeper. During preparation prior to each debate, the Government team will prepare in the room, while the Opposition team will prepare in the hallway located outside the room.

11.2.3. Competitors may bring their own stopwatches or writing pads.

11.2.3.1. Other external resources may be allowed at the discretion of the Competition Lead(s).

11.2.3.2. Props are prohibited.

11.3. Debating Rules and Elements

11.3.1. Teams

11.3.1.1. The debate is between two teams, each with two members. The government will be given the task of arguing for the motion. The opposition will then proceed to clash with the motion. Before the resolution is revealed, a coin toss is held. The team that wins the toss is the government. Teams are always expected to act responsibly. Inappropriate language or offensiveness towards the other team, the officials, or the audience is not acceptable. Teams are expected to direct all their speeches towards the Moderator. Teams may assume the Moderator has general engineering knowledge of a first-year undergraduate engineering student. No facts or statistics that are not common knowledge may be cited during the debate.

11.3.2. Resolutions

11.3.2.1. The resolutions will be developed by the Competition Lead(s). They will be related to an issue that the average engineering student should have a defensible opinion on without any preparation. The resolutions will not be truisms. Absolute words such as "all," "everyone," and "always" will also be avoided (e.g. "Be it resolved that all engineers are good at math" is not a good resolution, since there are always exceptions). Once both teams are informed of the resolution, they are given ten (10) minutes to prepare for the debate.

11.3.3. Time Allotted to Debaters

11.3.3.1. The speaking order and times will be as follows:

- First speaker of the government: five (5) minutes
- First speaker of the opposition: five (5) minutes
- Second speaker of the government: five (5) minutes
- Second speaker of the opposition: five (5) minutes
- Rebuttal by the first speaker of the government: two (2) minutes
- Rebuttal by the first speaker of the opposition: two (2) minutes

11.3.3.2. If a debater is over the time limit, the Moderator will allow a fifteen (15) second grace period. Upon the exhaustion of speaking time, loud pounding on tables will be deemed appropriate.

11.3.3.3. If there is a discrepancy between the Timekeeper's stopwatch and any competitor's stopwatch, the Timekeeper's stopwatch will take precedence.

11.3.4. Types of Motions

11.3.4.1. The motions that competitors may encounter will be of the following types:

Abbreviation	Meaning
THW	This House Would
THBT	This House Believes That
THS	This House Supports
THO	This House Opposes
THP	This House Prefers
THR	This House Regrets

11.3.5. Role of the Government

The government must argue for the resolution presented in the motion. The resolutions must not be squirreled or converted into truisms. Squirreling is the act of redefining the resolution so that it has a meaning different than the one intended by the resolution. The government, if desired, may narrow the scope of the motion and define terms and who the House is, if not already defined in the motion. The government must also avoid specific knowledge debates where the average engineer has no familiarity with the topic. Two examples of different strategies that could be followed in the debate are:

11.3.5.1. The Principle Case (This House Believes That)

In a principle case, the government presents a principle and a contention. The principle is a general statement that is debatable based on facts, experience, or morals. Examples include "Engineers need to be well rounded" and "Canadians abuse the free health-care system." The contention is the application of the principle to a situation relating to the resolution. The contention must be about one major topic and may be a restatement of the resolution. Example contentions for the above principles would be "Engineering students should be required to take more complementary studies classes" and "People should be discouraged from going to a doctor unless necessary."

11.3.5.2. The Plan Case (This House Would)

In a plan case, the government still identifies a principle and a contention. Once this is done, they present a plan for implementing the contention and changing the status quo. They must identify the need for change and how the plan will induce this change. Example plans for the above contentions would be “Students should be required to take two years of general studies before entering an engineering program” and “Individuals should be charged a fee every time they visit a doctor.”

The plan case is the most effective when the principle and contention are almost non-debatable. For example, if the resolution is “Be it resolved that waste management should become more stringent,” the contention is almost unquestionable. However, the proposition can intensify the debate by adding, “Thus, we propose that any household that produces more than a certain quota of waste be severely fined.” In a plan case, it is important that the plan does not become too specific since preparation time is limited and the technical knowledge necessary to develop the plan is non-existent.

11.3.6. The First Speaker

The first speaker of the government must explain the interpretation of the resolution, clearly state the principle and contention, and clarify any definitions. If a plan case is introduced, the entire plan must be outlined in the first speaker's speech. Finally, the first speaker must initiate the argumentation for the contention and plan.

11.3.7. The Second Speaker

The second speaker of the government continues the argumentation of the first speaker and reaffirms concepts that have been attacked by the opposition. New parts of a plan may not be introduced and terms in the resolution may not be defined. New lines of argumentation and new evidence, however, may be introduced.

11.3.8. Role of the Opposition

The opposition’s task is to convince the judges that the government’s views are fallacious. If the case presented by the government is a truism or requires specific knowledge to debate, the opposition can point this out in their first speech and will be rewarded accordingly by the judges. If the point is well taken, then the opposition must redefine the resolution in a debatable manner. If the government presents a plan case, the opposition can attack the principle, the contention or the arguments for the plan. The opposition can also show how the plan will not work or identify the undesirable side effects that it will create. Finally, the opposition may propose a counter plan that is more effective than the original plan. The first speaker of the opposition must introduce counter plans and the second speaker of the opposition may not add on to the counterplan.

11.3.9. Rebuttals

In the rebuttals, the most prevalent elements of the debate must be summarized in a concise and convincing manner. Excluding the first rebuttal of the opposition, no new arguments or facts may be presented unless they directly refute what has already been discussed.

11.3.10. Questions (Points of Information)

Questions, also known as Points of Information or POIs, are a secondary means of refuting arguments. They can promptly point out deficiencies in ideas, put speakers on the spot and hog time. The debater who currently holds the floor has the authority to take or ignore questions. The opponent who wishes to ask a question indicates their desire by simply standing up and extending an arm forward. If the debater does not wish to take the question, he or she can indicate by a wave of the hand or a simple "no, thank you". If this occurs, the inquiring party must sit down. If the current debater wishes to entertain the question, it must be stated by the opponent in less than fifteen (15) seconds during which the speaker must yield the floor.

The debater who holds the floor, or their team member, may take part in answering the question. The time used to ask and answer the question comes out of the current debater's allotted time. Each debater must accept one question during their speech, if the opponent is making an honest attempt to ask questions. Three attempts at asking a question in one speech constitutes an honest attempt. Questions will not be allowed in the first or last thirty seconds of a speech, or during rebuttal speeches.

11.3.11. Heckling

Often, the speaker can contradict himself/herself or make an absurd assumption. Heckling at this time will point out the error and add to the debate. Heckling is acceptable if it is short, to the point and preferably witty. If excess heckling becomes disturbing, the Moderator may intervene.

11.3.12. Points of Procedure

If a team believes that one of the rules of the debate have been broken, they must immediately alert the Moderator of the violation by standing and saying, "Point of Procedure." The Moderator will then respond with, "Make your point." The team will then proceed to explain how the debate rules have not been followed. Finally, the Moderator will rule on the point by saying, "Point well taken" or "Point not taken." The time it takes to rise and rule on a point is not included in the speaking time of the team currently debating. The following are violations that warrant a point of procedure:

- Unprofessional behavior
- Offensive behavior
- Misquotations
- Speaking to the opposition instead of the audience
- Presenting new arguments in the rebuttal
- Introduction of parts of a plan by the second speaker

If the government has presented a truism or specific knowledge case, the opposition must wait until the end of the first debater’s speech to point this out. Moreover, if the officials have failed to follow the rules of debate (incorrect speaking order, too much speaking time allowed, etc.), it may be politely pointed out to them with a Point of Procedure. Points of Procedures are commonly seen to detract from a debate when offered incorrectly. Points of Procedure which take away from the flow of a debate unnecessarily will be penalized by the judges.

11.4. Procedure / Timeline

11.4.1. Competition Format

11.4.1.1. The structure of Parliamentary Debate will depend on the number of teams. The format is at the discretion of the Competition Lead(s).

11.4.1.2. Teams may have to debate two (2) or more times in a row, due to the dynamic nature of the format, however the Competition Lead(s) should do their best to ensure teams are given reasonable breaks between debates

11.4.1.3. Possible formats could include:

11.4.1.3.1. Round Robin

11.4.1.3.1.1. The debate competition could follow a round robin style, followed by a knockout bracket.

11.4.1.3.1.2. This will allow all teams to participate in more debates, and to develop a ranking prior to the knockout stage.

11.4.1.3.2. Double Elimination

11.4.1.3.2.1. The debate competition could follow a double elimination format which ensures all teams will get to participate in at least two (2) debates.

11.4.1.3.2.2. If a team proceeds unbeaten until the final round, only to lose to another team, there will not be an additional final debate.

11.5. Assessment and Judging

11.5.1. Judging

The debate is judged based upon the most convincing argument, communication skills, and ability to follow outlined procedures. Each judge will decide individually, and the Moderator will tally the decisions and announce the winner. The winning team will then move to the next round.

Judging feedback shall be provided to each team following the announce of the winner of that round of debate

12. Revision Notes

The official rulebook for the OEC 2025 has seen significant changes in the organization and consolidation of the rules, removing redundancies and inconsistencies with the pre-existing rulebook.