

Rules and conditions of participation of the Lëtzebuerger Informatiksolympiad (LIO) 2023

1. The Lëtzebuerger Informatiksolympiad (LIO) is a national school programming competition that is organized annually by the non-profit association (a.s.b.l.) of the same name, with the public support of the Service de Coordination de la Recherche et de l'Innovation Pédagogiques et Technologiques (SCRIPT) of the Ministère de l'Éducation Nationale, de l'Enfance et de Jeunesse as well as the Centre de Gestion Informatique de l'Éducation (CGIE). Financial support is provided by private sponsors (Proximus/Telindus, Chamber of Commerce, Chamber of Employees), logistical support is provided by the Lycée Classique de Diekirch and the Lycée Technique de Bonnevoie.
2. The Lëtzebuerger Informatiksolympiad is the new version of the former Concours Informatique Luxembourgeois (CIL), organized since 1991 by the SCRIPT respectively the Centre de Technologie de l'Education (CTE). In 2023, the competition is already organized for the 32st time.
3. The LIO 2023 is officially launched on Sunday, January 1, 2023.
4. The competition aims to identify young students with special skills in solving problems on computers, designing algorithms and implementing programs using a programming language.
5. In order to participate in the LIO 2023, the participant must be enrolled during the school year 2022/2023 in a public, private or international high school in the Grand Duchy of Luxembourg. A school certificate may be requested by the LIO organizers.
6. There is no age limit to participate in the LIO, however there is an age limit for the participation in international contests (IOI, EGOI and WEOI - see below).
7. The registration for the competition is done by means of an online registration form. The deadline for submitting the online registration form is Sunday, February 19, 2023 (midnight) at the latest.
8. All communication between the participants and the organizers will take place via e-mail.
9. By registering for the competition, participants agree to abide by these rules and to comply with all instructions of the organizers. Legal recourse is excluded.
10. The LIO 2023 is held in 4 rounds:
 - Round I - qualification;
 - Round II - semi-finals;
 - Round III - programming and algorithmic training;
 - Round IV - finals.
11. The LIO a.s.b.l. collects and processes the personal data of the participants provided to it on the registration form in accordance with the applicable legislation, in an adequate and limited manner with respect to what is necessary for the intended purpose. The processing of personal data is the responsibility of LIO a.s.b.l.,

which undertakes not to share such data with third parties. Personal data are stored in Luxembourg and are anonymized after 2 years.

- 12.** The qualification consists of 4 algorithmic problems of varying degrees of difficulty that must be solved at home. All 4 problems are rated out of 100 points. The statements of the problems are formulated in a task description in English, available online. The programming languages accepted for the qualification are the current versions of C/C++ and Java as well as Python 3.
- 13.** In order to participate in the competition, at least one problem must be solved.
- 14.** The participants with the highest scores in the qualification are admitted to the semi-finals.
- 15.** The semi-finals consists of a practical test in which the participants must individually solve 3 problems of varying degrees of difficulty within a given time. The participants have 4 hours to design solutions to the algorithmic problems and to implement the corresponding programs. All 3 problems are scored out of 100 points. The task descriptions are formulated in English, the use of Google Translate is allowed. The programming languages admitted for the semi-finals are the current versions of C/C++ and Java as well as Python 3.
- 16.** The semi-finals will take place on Thursday, March 23, 2023 from 3:00 p.m. to 7:00 p.m. in a computer room at a public high school.
- 17.** The semi-finals will select no more than 15 participants, who will be admitted to the programming and algorithmic training (round III).
- 18.** The programming and algorithmic training allows the selected participants to deepen their knowledge of programming, to acquire algorithmic methods and to learn - if necessary - the C++ programming language required in the finals. It is a direct preparation for the finals. The training, which can be organized in several face-to-face sessions in a computer room of a high school or carried out online, takes place during the months of March and April 2023.
- 19.** In principle, all participants who have taken part in the programming and algorithmic training are eligible for the finals. Participants who have already participated in an international contest in informatics are exempt from this training.
- 20.** The finals consists of a practical test in which the participants must individually solve 2 problems of varying degrees of difficulty within a given time. The participants have 4 hours to design solutions to the algorithmic problems and to implement the corresponding programs. The 2 problems are scored out of 100 points. The task descriptions statements are formulated in English, the use of Google Translate is allowed. The problems require the implementation of algorithmic methods covered in the programming and algorithmic training. The accepted programming language for the finals is exclusively the current version of C/C++.
- 21.** The finals will take place on Thursday, April 27, 2023 from 3:00 p.m. to 7:00 p.m. in a computer room at a public high school.
- 22.** The finals selects 4 winners who are the best participants of the finals.
- 23.** If a participant is absent from the semi-finals or finals, no repechage will be organized.

- 24.** Any participant of the LIO who is found to be cheating during the semi-finals or finals will be excluded from the competition. Any use of programs or portions of programs that represent plagiarism is considered fraud. Documentation on the use and implementation of the instructions of a programming language is nevertheless permitted.
- 25.** In each of the qualifying, semi-finals and finals, the participants' programs are evaluated in real time in an automated manner by means of a Contest Management System (CMS) and checked by experts. The results of this grading are only visible to the participants and are not made public. The grader uses a series of test cases (test vectors) to verify the correct execution of the programs. These test cases are not made public.
- 26.** Submitted programs that do not respect the layouts and formats requested in the questionnaires are not considered. It is imperative to program console applications.
- 27.** The maximum execution time ("time limit") and the maximum memory usage ("memory limit") of the submitted programs are indicated in the CMS. The quality of the programming code is not taken into account.
- 28.** All finalists present at the finals receive a certificate and a prize which are awarded at a prize-giving ceremony. The top 4 finalists are the winners and receive a first, second, third and fourth prize. The other finalists present at the finals receive incentive prizes.

IOI

- 29.** The 4 winners of the LIO 2023 are automatically selected to participate as contestants in the 35th International Olympiad in Informatics (IOI). This international contest will take place from 28.08.2023 to 04.09.2023 in Szeged (Hungary).
- 30.** As the contestants for the IOI 2023 must not be older than 21 years of age on July 1, 2023 (IOI rules), a contestant who is not allowed to participate in the IOI can be substituted by another contestant. Also, if a contestant renounces participation in the IOI for personal reasons, he/she can be replaced by another contestant.
- 31.** An official delegation of 6 persons will participate in the LIO 2023. The delegation will consist of the 4 contestants and 2 accompanying adults who are members of the Lëtzebuerger Informatikolympiad a.s.b.l..

EGOI

- 32.** At most 4 of the best girls of the LIO 2023 will participate as a contestant in the 3rd European Girls' Olympiad in Informatics (EGOI). This international contest will take place from 15.07.2023 to 21.07.2023 in Lund (Sweden).
- 33.** As the contestants for the EGOI 2023 must not be older than 21 years of age on July 1, 2023 (EGOI rules), a contestant who is not allowed to participate in the EGOI can be substituted by another contestant. Also, if a contestant renounces her participation in the EGOI for personal reasons, she can be replaced by another contestant.

34. An official delegation of up to 6 persons will participate in the EGOI 2023. The delegation will be composed, apart from the maximum of 4 contestants, of 2 accompanying adults, members of the Lëtzebuerger Informatiksolympiad a.s.b.l..

WEOI

35. Up to 6 of the best finalists of the LIO 2023 will participate as contestants in the 1st West European Olympiad in Informatics (WEOI). This international contest will take place from 16.06.2023 to 18.03.2023 in Eindhoven (Netherlands).

36. As the contestants for the WEOI 2023 must not be older than 21 years of age on July 1, 2023 (WEOI rules), a contestant who is not allowed to participate in the WEOI can be substituted by another contestant. Also, if a contestant renounces a participation in the WEOI 2023 for personal reasons, he/she can be replaced by another contestant.

37. An official delegation of up to 8 persons will participate in the WEOI 2023. The delegation will consist of a maximum of 6 contestants and 2 accompanying adults who are members of the Lëtzebuerger Informatiksolympiad a.s.b.l..

38. LIO 2023 participants who are selected to participate in an international contest (LIO, EGOI, WEOI) will receive appropriate training sessions in order to be well prepared for these competitions. These training sessions are organized on different dates in a computer room of a high school or conducted online. Alternatively, the training sessions can be organized as a whole in the form of a camp/workshop that will take place in a hostel (like a youth hostel) in the Grand Duchy of Luxembourg during a weekend.

39. Participants who are selected to participate in an international contest (LIO, EGOI, WEOI) must participate in at least half of the training sessions intended for them and must sign a commitment form.

40. Although the programming languages used in the national competition are C/C++, Java and Python, the official language of the international contests is exclusively C/C++.

41. The travel expenses of the Luxembourg delegation to the international contests will be covered by the LIO a.s.b.l. The expenses of the stay (accommodation, catering, cultural excursions, sports activities etc.) will be taken care of by the organizers of the international competitions. However, a small financial contribution may be requested from the participants (e.g. for insurance or visa costs).

42. The organization of the Luxembourg participation in the international contests will be done exclusively by the organizers of the LIO.

43. The participants of the international contests have to commit themselves to respect the existing rules and the instructions of the 2 accompanying persons.

44. Prior to the start of the international contests, minor contestants (under the age of 18) must present a medical form and an official declaration of authorization in English, signed by a legal representative and issued by the relevant local authority.

- 45.** The regulations of the international contests can be downloaded from the official websites.
- 46.** Participants in the LIO and international contests and the schools they attend must agree to the publication of their names and photos in the local and international press (print and broadcast).
- 47.** The LIO organizers will decide on any matter not covered by these rules and the selection criteria.