

Cyprus Olympiad in Informatics



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Cyprus

A small island in the Mediterranean Sea



Cypriot Educational System

- Elementary Education (6 years)
- Secondary Education
 - Gymnasium (3 years)
 - Lyceum (3 years)

Computer Science curriculum:

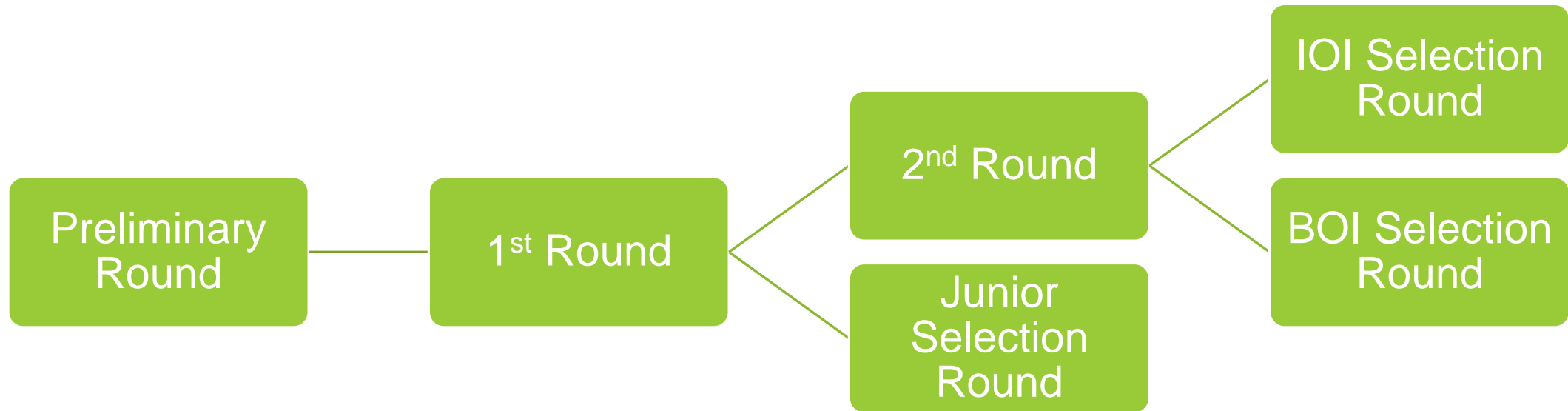
- Scratch (1st grade of Gymnasium)
- Alice, Robomind (2nd grade of Gymnasium)
- Pascal (3rd grade of Gymnasium)
- Pascal (1st grade of Lyceum)
- C++ (2nd-3rd grade of Lyceum).



Cyprus Olympiad in Informatics

- First Participation of Cyprus in IOI and BOI (Balkan):1993
- Cyprus Olympiad in Informatics (COI) was established in 2006 and it is organized annually, in the following format:
 - Five Academies (one in each district) that are responsible for preparing students for international competitions.
 - In each academy, students are taught evening programming lessons, for two hours per week.
 - Responsible for each academy is a Computer Science teacher assigned by the Ministry of Education.
- The top students are chosen to represent our country as members of the Cypriot delegations.

National Selection



National Selection

- **Preliminary Round:** Just before Christmas, four preliminary problems are announced publicly on CMS and students are given two weeks to submit their solutions. Their scores do not count for the first round.
- **First Round** (4 problems – 3 hours): Students that score at least 50% of the points of the first round qualify to the second round.
- **Second Round** (4 problems – 4 hours): The top 16~20 students qualify to the International Selection Rounds.
- **IOI Selection Round** (4 problems – 5 hours): Selection of the IOI team. Only students who have qualified from the second round can participate.
- **BOI Selection Round** (4 problems – 5 hours): Selection of the BOI team. Only students who have qualified from the second round can participate.
- **JBOI/EJOI Round** (4 problems – 4 hours): Selection of the JBOI/EJOI team. Only students who participated in the first round and are eligible from JBOI age standards can participate.

COI Syllabus

- **First Round:**

- Basic Programming
- Strings
- Arrays
- Searching/Sorting

- **Second Round and Junior Round:**

- Functions/Recursion
- STL (Maps, Sets, Pairs, Stacks, Queues)
- Graph Theory (DFS, BFS, Dijkstra, Prim)
- Complete Search
- Greedy Algorithms
- Introduction to Dynamic Programming

- **IOI and BOI Selection Rounds:**

- Advanced Dynamic Programming
- Bitmasks
- Advanced Graph Theory
- Range Queries
- Computational Geometry
- String Searching Algorithms
- Number Theory

Training Camps

- Training camps are held twice a year, during the Christmas and Easter Holidays.
- Two days each.
- Two difficulty levels, Juniors and Seniors.
- Each day has the following format:
 - Two lectures per day for 1.5-hour on advanced topics
 - A 2-hour competition per day based on the day's lectures

Tools and Resources Used

- **Contest Management System (CMS)**

- We currently use CMS 1.4 as our contest environment for all rounds of competitions

- **Michanicos Online Judge**

- Michanicos is a localized online judge build upon CMS and CMSocial
- Currently holds approximately 200 problems in the Greek language.
- Allows for multiple contests to be run simultaneously, completely separated from the CMS platform.

- **Additional resources**

- SPOJ
- Codeforces
- USACO
- CodeChef
- Mendo
- Hackerrank

Statistics

Student participation in COI and Bebras

Contest	2015	2016	2017	2018	2019
Bebras Contest	457	638	825	721	689
First Round	102	112	123	142	158
Second Round	43	52	67	62	44
Third/Fourth Round	12	15	16	20	21
JBOI Selection	17	16	24	14	13

Conclusion

- **Setbacks:** Small selection group, lack of academic support, students participate in other Olympiads.
- **Competitions:** Balkan Olympiad in Informatics in 2016, host of JBOI 2020.
- **From zero to silver in eight years.**
- **Medals:**

Table 1: Cyprus medals in international competitions			
IOI	BOI	JBOI	EJOI
- Silver (2017) - Bronze (1993, 2015, 2016)	- Silver (1993, 2016) - Bronze (1995, 1997, 2001, 2006, 2013, 2014, 2015, 2016)	- Silver (2017) - Bronze (2015 - 2 medals, 2017, 2018)	- Silver (2017) - Bronze (2017, 2018)

Thank you very much
