

About the Bulgarian experience in organizing National Student Olympiad in Computer Mathematics

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In this paper the experience in organizing, conducting and participating in the National Student Olympiad in Computer Mathematics "Acad. Stefan Dodunekov" (CompMath) in Bulgaria is presented.

CompMath has been running since 2009. The first two olympiads were experimental. Since 2011 it is in the competitions calendar of Bulgarian universities. The idea is to promote the tools of computer algebra software and inspire the academic community to be part of this Olympiad [1].

CompMath is organized annually, it is held by a National Committee (NC) and hosted by a different university every year. A General Assembly of CompMath consists of the team leaders from the participating universities and meets at least once a year. Every university student enrolled in a bachelor or master degree programme at a Bulgarian or foreign university can participate individually. The participants are divided into groups: Group A - Mathematics, Informatics and Computer Science, Group B - Engineering and Natural Science. Those in group B are allowed to compete in Group A. In the last year there was one more group for school mathematics, again experimentally. Ranking is done within each Group. Up to 50 percents of the participants are awarded golden, silver or bronze medals by the NC in an approximate ratio of 1 : 2 : 3. The Organizing Committee issues certificates for the participants and team leaders [2].

Thirty problems from different areas of mathematics (Algebra, Analytic Geometry, Calculus, Differential Equations, Probability theory, etc.) have to be solved within 4 hours. Twenty of the problems can be solved using basic CAS functions, the remaining ten require advanced knowledge and skills.

The participants are free to choose the technology they prefer. They are allowed to use only one CAS, Matlab and also to combine two or more CAS, CAS and Matlab. Some students use only Mathematica, other - MatLab and MuPad, engineering students prefer Maple, Matlab and MuPaD.

Rapid changes in computer and information technology and the large number of mathematical software are prerequisites for gradual changes in the teaching and learning of university mathematics. The CompMath is a step towards these changes at Bulgarian universities.

Keywords: Computer mathematics, Olympiad, Bulgarian experience

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References

- [1] www.compmath.eu/2017/
- [2] www.compmath.eu/2017/docs/regulations_en.pdf

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