

## SPECIFIC PROVISIONS REGARDING THE ORGANISATION OF THE INTERDISCIPLINARY CONTEST PROSOFT@NT

### I. GENERAL PRESENTATION

**The Interdisciplinary Contest PROSOFT@NT** is a national competition organised according to the provisions of *The Methodology of School Contest Organisation, approved through the Minister's order No. 4203/30.07.2018*

The Interdisciplinary Contest PROSOFT@NT is a competition which has been organised by the National College of Computer Science in Piatra Neamț since 2004.

This contest addresses IX-XII grade high school students.

The participation in the Interdisciplinary Contest PROSOFT@NT can be *individual* (for the contests of programming, mathematics and educational software/ web page design) and *in teams* (for the interdisciplinary contest).

**The Interdisciplinary Contest PROSOFT@NT** has the following structure:

- *interdisciplinary (mathematics + computer science);*
- *programming;*
- *mathematics;*
- *educational software / web page design.*

The agenda of the competition includes the international methodological and scientific communication session “VASILE ȚIFUI MEMORIAL” organised in partnership with Romanian universities and IT companies, which is dedicated to high-school students, pre-university and university teachers, specialists at the Ministry of Education and software trainers.

### II. THE SELECTION OF STUDENTS

For **the national phase** of the Interdisciplinary Contest PROSOFT@NT the speciality inspectors (mathematics and computer science) make the selection according to the results obtained by students in the phases of the current school year Olympiads, prior to the contest PROSOFT@NT. The students with the best results in each sub-section will be selected to represent their county at the national phase of the contest PROSOFT@NT.

### III. THE NUMBER OF CANDIDATES AND THE CRITERIA FOR SELECTING THEM

a. The number of vacant places allotted to each county school inspectorate and to the Bucharest Municipality School Inspectorate, for the national phase is established according to the provisions of *The Methodology of School Contest Organisation*. Each county school inspectorate can choose a maximum number of 5 candidates (2 for the programming section - one IX or X grade candidate and one XI or XII grade candidate- 2 for the mathematics section- one IX or X grade candidate and one XI or XII grade candidate and 1 for educational software/ web page design).

b. For the interdisciplinary contest, the teams will include the participants in the individual programming and mathematics sections. No additional candidates are allowed to participate, except those specified in paragraph (a) of this chapter.



c. According to the provisions of *the Methodology of School Contest Organisation, approved through the Minister's order No.4203/30.07.2018*, the speciality inspectors will decide, after evaluation, the 5 members of the lot who will represent the county at the national phase of the Interdisciplinary Contest PROSOFT@NT. The speciality inspectors are free to decide the membership of each lot so that the representatives of each county should have the chance to get the best results at the national phase of the Interdisciplinary Contest PROSOFT@NT.

d. The Ministry of National Education does not approve the supplementation of the number of participants allotted to each county/ Bucharest Municipality annually.

#### IV. THE STRUCTURE OF THE CONTEST SECTIONS

a. The national phase of the Interdisciplinary Contest PROSOFT@NT takes place in two days and consists of an interdisciplinary team competition, an individual COMPUTER SCIENCE/MATHEMATICS competition (according to students' years of study) and an educational software/web-page design competition.

b. At the national phase of the Interdisciplinary Contest PROSOFT@NT, the individual competitions last 3 hours, while the interdisciplinary team competition lasts 2 hours.

c. The team competition consists in solving 2 mathematics problems and 1 computer science problem. Each mathematics problem is awarded 50 points and the computer science problem receives 100 points.

d. The individual programming competition consists in solving two problems, for each grade level, each of them being awarded 100 points.

e. The mathematics competition consists in solving 4 problems, for each grade level, each of them being awarded 25 points.

f. The educational software/web-page design competition consists in designing and presenting a project with a given theme.

#### V. THE STRUCTURE AND RESPONSIBILITIES OF COMMITTEES

The Neamț School Inspectorate decides upon the membership of the Organising Committee of the Interdisciplinary Contest PROSOFT@NT according to the provisions of *the Methodology of School Contest Organisation, approved through the Minister's order No. 4203/30.07.2018*.

The membership of this committee is the following:

a) Chairperson – the general school inspector/ the deputy general school inspector of Neamț County

b) Vice-Chairpersons – speciality school inspectors of Neamț County

c) Secretary – computer technician or teacher of computer science at the National College of Computer Science;

d) Members – headmaster, deputy headmaster, teachers, computer technicians of the National College of Computer Science in Piatra Neamț.

e) Technical team: teachers and auxiliary staff of National College of Computer Science in Piatra Neamț.

The Central Committee of the Interdisciplinary Contest PROSOFT@NT is established according to the provisions of *the Methodology of School Contest Organisation*.



The Central Committee of the Interdisciplinary Contest PROSOFT@NT is made up of sub-committees for each section of the competition.

The attributions of the Central Committee of the Interdisciplinary Contest PROSOFT@NT and of *the Organising Committee* of the Interdisciplinary Contest PROSOFT@NT are assigned through *the Methodology of School Contest Organisation*.

## VI. THE INTERDISCIPLINARY CONTEST PROSOFT@NT

### A. SPECIFICATIONS REGARDING THE INTERDISCIPLINARY TEAM SECTION

1. In the Interdisciplinary Contest PROSOFT@NT, the interdisciplinary team contest will take place according to the competition schedule established by the Central Committee of the Interdisciplinary Contest PROSOFT@NT.

2. Each team is formed of 2-3 students who will represent the two contest subjects (mathematics and computer science), and will have a representative name. The organising committee validates the names of the enlisted teams and may request a change of name to avoid confusion (if there are more teams with the same name, for instance). A team cannot be formed only of contestants in the same year of study. The members of a team may come from different counties. One of the students is appointed team leader and will ensure the registration of the team in the contest at the secretariat of the Organising Committee of the Interdisciplinary Contest PROSOFT@NT., within the time limit established at the first technical meeting and will also facilitate the communication between the members of the team as well as between the team and the board of examiners.

3. The contest unfolds as follows:

- the first hour of the contest is devoted to finding solutions for the 2 mathematics problems. At the end of the first hour, each team leader will submit the solutions for the mathematics problems to the evaluation sub-committee.

- the second hour of the contest is allocated to the programming problem

The programming language that will be used is C/C++ and the programming environment is Code::Blocks in the operating system Microsoft Windows 10.

At the end of the test, each team leader submits the file containing the solution of the problem to the assistant teachers. The assessment is performed by means of an automatic evaluation system (a system of programs which compiles the source of the team, applies the solution for each set of input data prepared by the committee for evaluation, checks if the output data provided by the program of the team is correct and establishes a score for each set of data).

4. The team that gets the highest score in the evaluation is declared winner. The final score is obtained by adding the mathematics and computer science points. The hierarchy is established in descending order of scores. The maximum score that can be obtained by a team is 200 points, and the minimum score is 0 points.

5. For this section of the contest, no appeal for re-evaluation is admitted.

### B. SPECIFICATIONS REGARDING THE INDIVIDUAL PROGRAMMING CONTEST

1. The individual programming contest for each year of study consists in solving two problems using the C/C++ programming language.



The problems suggested for the contest will require the creative use of students' knowledge as well as their abilities to analyse, synthesise, find solutions and apply the knowledge they have gained throughout their years of study. The problems will be designed according to the syllabus for the county phase of the Computer Science Olympiad for each year of study.

In order to solve the problems, participants will have to capitalize on their innovative spirit and creativity.

2. When applying for the contest every participant receives a numerical ID.

3. The contest takes place in the computer science laboratories according to the schedule posted on the site of the contest. The competitors must be present in the room half an hour before the beginning of the contest. The assistant teachers instruct the participants in the contest about their attributions and expected behaviour during the competition.

4. For 60 minutes after the contestants receive the subjects, they are allowed to ask the committee questions about the statements of the problems. The questions will be written on a sheet of paper, accompanied by the number of the problem, the ID of the competitors and the room in which they work. The way in which the questions are asked must allow the committee to answer YES or NO. In case the question is ambiguous, its answer can be found in the statement of the problem or it requests information about the way of solving that problem, the answer will be NO COMMENT.

5. The reading of input data will be made from the input file specified in the statement of the problem, and the results will be displayed in the output file. You must follow strictly the name and extension of the file (written in small letters) and the format of data specified in the statement. Any line in the output file must end with the marking (Enter).

The working time is written on the subject paper.

6. After the contest ends, no modifications of the competitors' sources are allowed.

7. The assessment of the solutions is performed by means of an automatic evaluation system, without the presence of the participants. Each problem of the contest will be awarded a score ranging between 0 and 100 points.

The automatic evaluation system requires the strict obedience of the provisions specified in this set of regulations and in the statement of each problem.

8. After the assessment, the participants are allowed to come back to the contest room and test their own solutions on the test data used for evaluation.

The committee must provide the contestants with the suggested input data as well as the corresponding correct output data. A description of the solution for each problem in the contest will be put on display.

10. If, after having tested their own solutions on the data provided by the committee, competitors notice that there are differences between the final displayed scores and their own results, they may appeal for re-evaluation by completing a written form and submitting it to the committee secretary within the time constraints specified on the displayed results sheet. In this request paper, the competitors shall specify their own ID, the problem for which they require a re-evaluation and the reasons for disagreeing with the final scores.

The board of examiners will re-assess all the solutions of the competitors who appeal for re-evaluation. In exceptional cases, the possibility of re-evaluating the solutions to a certain problem for all the participants could be taken into consideration. The final scores are established after re-evaluation.

11. The hierarchy of competitors is established for each year of study, in the descending order of the final scores obtained in the evaluation process.



### C. PROVISIONS REGARDING THE INDIVIDUAL MATHEMATICS CONTEST

1. The contest syllabus coincides with the one for the county level of the mathematics Olympiad.

2. The subject, for each year of study, contains 4 problems having various degrees of difficulty. The working time is 3 hours. Half an hour is additionally allowed for students to become familiar with the subjects.

3. For a correct solution to a problem, 25 points are awarded. Partial (unfinished) solutions are scored according to the pre-established marking scheme displayed after the contest. Any correct solution, different from that in the marking scheme will be taken into consideration and scored.

4. The maximum number of points that a test can get is 100 and the minimum score is 0.

5. The submission of the appeal for re-evaluation and the assigning of final scores will be done according to the provisions of *The Methodology of School Contest Organisation, approved through the Minister's order No. 4203/30.07.2018*.

6. The hierarchy will be established for each year of study, in the descending order of scores obtained in the evaluation.

### D. SPECIFICATIONS REGARDING THE SOFTWARE/ WEB-PAGE DESIGN CONTEST

The software contest will include the following sections:

- Educational software.
- Web Pages.

The enlisting in the competition will be done by sending the application forms, until the date presented in the invitation.

1. Each participant will make a project using licensed or free software. The computers on which the projects will be presented use the operating system Windows 10 and the following software packages: Microsoft Office 2016, Microsoft Visual Studio Professional 2013/2015; for other software packages (only free) the competitors will announce the organising committee in advance.

2. No matter what section participants choose, the projects shall not promote sex, violence, ethnic or social discrimination. The projects that disregard this condition will be automatically rejected.

3. The project must be done according to the imposed theme and presented by its author. The theme for the software design and educational software design/ web page design contest will be posted each year on the official site of the competition, prior to its date and will be the same for all the participants.

4. The evaluation criteria will be posted on the official site before the beginning of the competition.

5. The whole responsibility for the projects which are presented in the competition lies with the contestants. They have to make sure that their works do not infringe upon anybody's rights to physical or intellectual property, personal image or intimacy. The simple enlisting in the contest involves assuming and accepting any consequences that could ensue as a result of publishing those projects. The organizers do not take any responsibility for such projects and under no circumstances can they be made responsible for any judicial consequences.

6. The contestants who enlist projects in the competition shall be the rightful authors of these works. The competitors must prove that the enlisted projects are designed by



themselves, by presenting the reference sources. Any illegally-appropriated project will be eliminated from the contest.

7. The participants will sign an affidavit through which they confirm the agreement with the present regulation.

8. The projects will be presented by means of a PC and a video projector. The installation of projects on PCs will be performed by every participant in the evening before the contest. The students will have with them all the software that can ensure the good functioning of their projects. The organising committee are not responsible for any errors during the installation process.

9. The informatics projects will be brought in the contest on removable media or online (if it is necessary). Each project will be accompanied by a short technical documentation.

10. Every contestant must present to the committee his project in electronic format (on a CD) containing the demo version of the project accompanied by the afferent data which includes information about the project:

- Title
- Type of work (the section for which it is enlisted);
- Author's surname and first name
- Grade level
- School
- Coordinators' names
- A short description of the work: structure; programming language; applications involved in the design of the project.

11. The presentation of the project must not last longer than 15 minutes.

12. Each project will get a score ranging from 0 to 100. The works will be evaluated according to the assessment criteria pre-established for each phase of the contest.

## VII. THE AWARDING OF PRIZES

After the appeal for re-evaluation, a hierarchy of competitors will be established for each section of the contest and each year of study. The classification of participants is made according to their final score in descending order. For an equal number of points, the distinction is established according to the number of points competitors obtain for each problem in descending order. In case, there are students whose position in the hierarchy cannot be established even after this criterion is applied, the central committee of the contest may establish other criteria of classification which will be announced prior to the awarding of prizes.

For the individual programming and mathematics sections, participants will receive diplomas for each grade level.

The students who rank on the first positions in the general hierarchy will receive prizes and honourable mentions according to the provisions of *The Methodology of School Contest Organisation*.

## VIII. THE CONDUCT OF COMPETITORS

1. During the contest, competitors are forbidden to:



• commit attempts of fraud (including the use of mobile phones or other electronic devices). Any attempt of fraud or sabotage of the correct unfolding of the contest or evaluation shall result in the elimination from the competition of the unruly contestant.

• communicate in a manner that could disturb other participants in the contest or deteriorate the objects that they are provided with;

• be dressed or behave inappropriately and indecently for the circumstances of an international contest or to engage in trivial, rude and ungrounded discussions with other persons involved in the contest. This mention concerns contestants as well as accompanying members of their families.

The students who, during the competitions break the behavioural rules established in the school regulations, in the specific regulations of the school contests or other regulations that are in operation, or prove inappropriate behaviour or language will be expelled from the competitions and will lose the right to take part in school contests according to the art.80 from the *The Methodology of School Contest Organisation* approved with O.M. No. 4203/30.07.2018.

Should there be serious defections, the Central Committee will take measures and send the students home and the parents will be asked to come and accompany him. In case parents cannot come, the student will be accompanied by the teachers. The expenses will be born by the parents of the student according to the art.98 from the *The Methodology of School Contest Organisation* approved with OM. No. 4203/30.07.2018.

2. During the interdisciplinary team section of the contest:

• the members of each team should communicate in a manner that could not disturb other teams. The teams that break this rule shall be excluded from the competition.

• cooperation between members of different teams is forbidden during the contest;

3. The participants in the programming contest are forbidden:

a. in their programs

• to use external libraries. The term External library means any other library which is not a part of the Standard C++ Library (for example: CRT or conio.h subprograms);

• to require the introduction of any data, other than that specified in the statement of the problem. For example, the program shall not finish with `readln`, `readkey`, `getch()`, etc. (which requires the evaluation committee to type characters). If this is the case, the program will wait uselessly for the introduction of this data and will exceed the application time specified in the statement of the program;

• to access the computer network;

• to attack the security of any computer in the network or evaluation system;

• to access other files than those specified in the statement of the problem;

• to exchange rights to file access;

• to use programming techniques in order to block the compilation of the source (for example: instantiations; recursive templates)

• to make system appeals which have no connection with the problems in the competition;

• to use the assembly language;

• to run other programs;

b. during the contest:



- to use the computer network
  - to use disks, CDs, flashes or smart phones;
  - to use other information sources than the Help of the used environment and the data provided by the committee;
  - to interfere with the activity of another competitor;
  - to make any attempt to damage the working environments;
  - to make any attempt to damage the evaluation system;
  - to use any means of communication;
4. During the educational software/ web page design contest, competitors:
- are not allowed to use their personal computer;
  - shall obey the principles of competition ethics, respecting the efforts and preparation of every participant;
  - shall adopt a respectful attitude and language towards any participant in the contest;

#### IX. FINAL PROVISIONS

1. The school inspectors for mathematics and computer science of every county school inspectorate/ Bucharest Municipality School Inspectorate have the obligation to send a report which includes personal data of the students of each county lot/ Bucharest Municipality lot, signed by the general school inspector to the following institutions and persons:

- the ministry of education and scientific research, the general speciality inspector, through e-mail;
- the organising committee of the national phase of the Interdisciplinary Contest PROSOFT@NT, on the e-mail of the school inspectors with coordinating attributions for mathematics and computer science in Neamț county.

These provisions will be sent at least 10 days before the beginning of the national phase and will include the following data: surname and first name of students, grade, school, training teacher, teacher who will accompany the lot at the national phase, contact data.

2. Teams / representatives of other countries may participate in the Interdisciplinary Contest PROSOFT@NT as guests, within the limits of the available budget.

3. The specific regulations of the Interdisciplinary Contest PROSOFT@NT may be changed annually at the request of the General Inspector at MECS, according to the changes that occur in the dynamics of this competition.