INTO PROGRAMMING
(Programming Competition)

OBJECTIVES

1. Encourage students to enhance their problem solving and computer programming skills;
2. Identify and recognize students who exhibit exemplary problem solving and computer programming skills;
3. Foster creativity, teamwork, and innovation; and
4. Promote greater interest and appreciation of the computer courses.

THE COMPETITION

INTO Programming is a programming competition participated in by teams of students with exemplary competence in problem solving and computer programming. It is an event where students are expected to display their ingenuity, analytical ability and programming prowess.

Competing teams are given five (5) machine problems to solve within four (4) hours. The given problems are not dependent on detailed knowledge of a particular application area or contest language.

THE COMPETING TEAM

Each school is entitled to send one team composed of three (3) entrants per division. A school’s line up may include at most two (2) substitutes per team.

The competing teams may join the Senior or Junior division depending on the program they are enrolled in. Senior division is only for teams whose members are enrolled in any CHED (3-5 year) program while the Junior division is only for teams whose members are enrolled in any TESDA (1-3 year) program.

The school must assign an STI faculty member as a coach per team. The coach is also the team’s official representative and the only authorized person to file a protest in behalf of the entrants.

THE COMPUTING ENVIRONMENT

The programming languages of the competition are C/C++ and Java. Given problems may be solved in any of the specified programming languages. Turbo C++ will be used in programming using C/C++ language while JCreator and at least Java
2 Platform, Standard Edition (J2SE) 5.0 will be used in programming using the Java language.

Each team will use a single workstation. The Event Coordinator is responsible for determining that teams have the same hardware and software requirements.

THE BOARD OF JUDGES (BOJ)

The Board of Judges shall be composed of three (3) members who will convene to resolve any issue that may arise during the conduct of the competition. Members of the BOJ must be professionals or experts in information and communications technology.

MECHANICS

1. Each team is provided with a computer unit installed with Microsoft Windows XP Operating System, Turbo C++, JCreator LE Version 4, and at least Java 5. Prior to the competition, the coaches and entrants will be given thirty (30) minutes to check and certify that the computer unit assigned to them is free from any potential problem which could affect the team’s chances of winning the competition (see Attachment D - Certificate of Functionality).

2. Upon certification, the competing teams are instructed to create a folder in their respective computers named after the team (e.g. Team1) with sub-folders for the five (5) problems, namely: Problem1, Problem2, Problem3, Problem4, and Problem5. Equivalent folders for each team will be created in the BOJ’s computers.

3. Each team, coaches, and members of the BOJ will be given copies of the machine problems. Soft copies of external files required by certain machine problems will be pre-stored on the desktop of each competing team.

4. The Event Coordinator shall signal the start of the competition. An automated timer, placed in an area visible to all teams and coaches, will be used.

5. While the contest is scheduled for a particular time length of four (4) hours, the Event Coordinator in consultation with the BOJ has the authority to alter the length of the contest in the event of unforeseen difficulties. Should the contest duration be altered, all teams should be notified in a timely and uniform manner.

6. The teams are not allowed to bring resource materials such as books, manuals, and program listings. They are not likewise allowed to bring any machine-readable versions of software or data.

7. Entrants are not allowed to converse with anyone except members of their team and personnel designated by the Event Coordinator.

8. Break time is not allowed. Only for “necessities” (e.g. going to the washroom or other emergency cases) may an entrant be allowed to leave the competition room and must be escorted by a member of the competition committee.
9. A team may be disqualified by the BOJ for any action that jeopardizes the contest such as but not limited to dislodging extension cords, unauthorized modification of contest materials or distracting behavior.

10. A team may submit a claim for ambiguity or error in a problem statement by submitting a clarification request to the BOJ. If the BOJ agree that an ambiguity or error exists, a clarification will be issued to all teams.

11. Solutions to machine problems should be submitted by saving the necessary files in the previously created subfolders. Submitted solutions are called runs. This should include the source code and all external files required by the machine problem. Otherwise, the BOJ will invalidate the solution.

12. The team then notifies the BOJ by raising the designated colored flag for the problem (e.g. Orange for Problem 1, Blue for Problem 2, Green for Problem 3, Yellow for Problem 4, and White for Problem 5).

13. Each team will be assigned a timekeeper. The timekeeper records the time, number of attempts for the problem, and gives the flag to the BOJ. The team is not allowed to modify the submitted run while it is being tested by the BOJ.

14. Each run is determined as accepted or rejected by the BOJ. Teams are given red flags for accepted runs while the flag corresponding to the problem is given back if the run is rejected.

15. A team may submit any number of runs until such time that a run is accepted provided the competition time has not elapsed.

**SCORING OF THE COMPETITION**

1. Teams are ranked according to the number of problems solved.
2. Teams who solve the same number of problems are ranked by the least total solution time.
3. Solution time for a problem is the time elapsed from the beginning of the contest to the submission of the accepted run plus twenty (20) penalty minutes for each rejected run for that problem regardless of submission time.
4. Teams only accrue Penalty Points for problems which the team has solved; unsolved problems do not affect the scoring in any way.
5. If two or more teams have the same number of solved problems and exactly the same total solution time, ties are broken in favor of the team with the earliest time of the last correct submission (that being the time when the team “finished” the contest).

Sample Computation:

**TEAM 1 - Problem 1**
Run 1 - Submitted Elapsed time - 60 minutes (INCORRECT SOLUTION)
Run 2 - Submitted Elapsed time - 100 minutes (CORRECT SOLUTION)
Solution Time = 100 minutes + 20 minutes (penalty for incorrect run)
       = 120 minutes
TEAM 1 - Problem 2
Run 1 - Submitted Elapsed time - 160 minutes (CORRECT SOLUTION)
Solution Time = 160 minutes

TEAM 2 - Problem 1
Run 1 - Submitted Elapsed time - 155 minutes (CORRECT SOLUTION)
Solution Time = 155 minutes

TEAM 2 - Problem 3
Run 1 - Submitted Elapsed time - 125 minutes (CORRECT SOLUTION)
Solution Time = 125 minutes

TEAM 3 - Problem 1
Run 1 - Submitted Elapsed time - 100 minutes (CORRECT SOLUTION)
Solution Time = 100 minutes

Sample Score tabulation:

<table>
<thead>
<tr>
<th>Team No.</th>
<th>Problem</th>
<th>Attempts /Solved</th>
<th>Elapsed Time From the Start of competition (minutes)</th>
<th>Additional Penalty Points (20min/incorrect run)</th>
<th>Solution Time Sum</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>2/1</td>
<td>100</td>
<td>20</td>
<td>120</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>1/1</td>
<td>160</td>
<td>-</td>
<td>160</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>2/0</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>1/0</td>
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<td>-</td>
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</tr>
<tr>
<td>5</td>
<td>1</td>
<td>1/0</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>1/1</td>
<td>155</td>
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<td>155</td>
<td>280</td>
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<tr>
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<tr>
<td>3</td>
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<td>1/1</td>
<td>125</td>
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<td>125</td>
<td>280</td>
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<tr>
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<td>100</td>
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</table>
### Ranking

<table>
<thead>
<tr>
<th>Rank Number</th>
<th>Team Number</th>
<th>Remarks</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>With the same number of problems solved and total solution time as Team 1 but concluded the contest with the last acceptable solution first at 155 minutes</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td></td>
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</tbody>
</table>

### FILING OF PROTESTS

Only coaches may file protests to the BOJ during the competition. Protests must be based on one or more of the following circumstances: violation of the competition rules, misconduct by the teams, or gross misconduct by contest officials. Controversies and objections will be resolved by the BOJ immediately before the conclusion of the competition. The decision of the BOJ is final and irrevocable.