

Meet IT International Workshops - Plan

The workshops last two days and will include 4 workshop sessions on two difficulty levels, each one 2.5h long (including some short breaks). Other than that, we will have a few socializing sessions to create bonds between the participants and give the workshops a more social, camp-like feeling.

The topics for the workshops will vary, but we will make sure to include interesting topics on computer science, mathematics and more career-oriented topics. This is also the case with exact leisure/sports/ice-breaking activities, but the general timetable will stay the same in all of the workshops.

Day#1:

Time	Advanced	Intermediate
[20 min] 9:00-9:20	Opening Hello and organisational matters.	
[25 min] 9:30-9:55	Ice Breaking Games A quick session that will create first bonds between the participants and allow them to cooperate better further down the line.	
[2.5 h] 10:00-12:30	Euclidean Algorithm and Diophantine Equations Students will learn how to use the Euclidean algorithm to find a greatest common divisor of two integer numbers. They will further explore how to apply the technique to various number theory problems, including solving linear diophantine equations.	
[1.5h] 12:30-14:00	Food Break + Leisure Activities / Sports	
[2.5h] 14:00-16:30	Unbashing Inequalities Few people find inequalities interesting—partially due to how most people solve them. Bash hard with strong theorems, do some algebraic manipulation, repeat until the inequality cracks. This class is meant to show that you can do it differently—that you can employ intuition and thinking to solve inequality problems. Basic familiarity with inequalities is welcome, but 'hard knowledge' of theorems of techniques isn't needed.	Everything about Hashes To quickly compare two large objects with high probability we can compute hashes and compare them. Students will explore various applications of this technique in problem solving style workshops. Applications range from strings and palindromes to sets, graphs and convex polygons.
[30 min] 16:45-17:15	Career Talk + Short Announcements Chilled out talk with Aleksandra about her path to Cambridge and IMO	
[as long as needed] 17:15-?	Socializing Various activities that are in general regarded as being fun.	

Day#2:

Time	Advanced	Intermediate
[2.5h] 9:00-11:30	<p>Group Theory in Counting Problems</p> <p>Workshop on Burnside's lemma and its application to counting problems with symmetry. There are $3^6=729$ ways to colour 6 faces of a cube with red, green or blue. However, if we allow for rotating the cube, there turns out to be only 57 distinguishable colorings. Students will learn the basics of group theory and apply them to prove the result that will allow them to solve the above question and many others.</p>	<p>Dynamic Programming</p> <p>Some problems are difficult to solve directly, but can be reduced to smaller subproblems. If we find a systematic way of reducing a problem to a set of smaller ones, we can repeat it until we get to a trivial case. Students will learn how to apply this concept to a wide range of computational problems.</p>
[35min] 11:40-12:15	<p>Okay, but What REALLY is Meet IT?</p> <p>A quick talk about our history, where we will introduce our programs and show the opportunities of being part of our Meet IT family.</p>	
[1.5h] 12:15-13:45	<p>Food Break + Leisure Activities / Sports</p>	
[2.5h] 13:45-16:15	<p>Naboj Game</p> <p>The competition lasts 120 minutes during which the teams are trying to solve Mathematical competition designed for teams of 3 to 5 high-school students. as many given problems as possible. At the beginning of the competition each team receives six problems. As soon as the team correctly solves any of the problems, it receives a new one. The solutions of the problems are usually numerical. The team that solves most problems correctly in the given time limit wins. Difficulty of the problems is appropriate both for students inexperienced in mathematical competitions and for students who have already succeeded in the Mathematical Olympiad. This is achieved by arranging the problems in order of their perceived difficulty.</p>	
[20min] 16:25-16:45	<p>Closing presentation</p> <p>Thank you note and closing announcements from the tutors, feedback survey and group photo.</p>	
[as long as needed] 16:45-?	<p>Socialising</p> <p>Various activities that are in general regarded as being fun.</p>	

