



## Invitation to Course

# Computational Complexity (Half Module Computer Science)

Instructors: Krishnendu Chatterjee & Krzysztof Pietrzak

**Course Description:** Computational Complexity: Complexity theory is a field on the border of mathematics and computer science with a remarkable list of celebrated achievements as well as vibrant present research activity. Complexity theory is the basic foundation of computer science, and it is concerned with classifying computational problems according to the resource (such as computation time and space) that are needed to solve them.

This course is aimed at exposing students to the basic models of computation and the basic results and notion of complexity theory. Possible topics of the course are:

1. Automata theory and regular languages.
2. Turing machine model of computation.
3. Diagonalization and undecidability.
4. Non-determinism in computation, and the class of NP problems.
5. Reductions and completeness..

**Coursework:** Grades will be based on classroom participation, solutions to class questions, and performance in a final exam.

**Course schedule:** 2 weekly 75 min lectures Mondays and Wednesdays, 1 weekly 50 min recitation

**Course Academic Credits:** 3 ECTS

**Course Website:** <http://pub.ist.ac.at/courses/2012/computationalcomplexity>

**Courses start Monday, February 27, 2012 (1:45 – 3:00 pm)**  
**Seminar Room Mondi 3, IST Austria Central Building, 1st floor**



**Please register for the course a week in advance with Academic Affairs (Marie.Trapp@ist.ac.at)**

This invitation is valid as a ticket for the IST Shuttle from and to Heiligenstadt Station. Please find a schedule of the IST Shuttle on our webpage (note that the IST Shuttle times are highlighted in dark green):  
[http://www.ist.ac.at/fileadmin/user\\_upload/pdfs/IST\\_shuttle\\_2011.pdf](http://www.ist.ac.at/fileadmin/user_upload/pdfs/IST_shuttle_2011.pdf)  
The IST Shuttle bus is marked IST Shuttle (# 242) and has the Institute Logo printed on the side.