

SAMPLE
Course descriptor

| | | | |
|--|--|---------------------|-------|
| Title of the course | Mechanism Design | | |
| Title of the Academic Programme | Applied Economics (Bachelor 3rd year), Masters in Economics (2nd year), Masters in Big Data Analysis for Business, Economy, and Society (2nd year) | | |
| Type of Course | Elective; available to foreign students | | |
| Prerequisites | Game Theory | | |
| ECTS workload | 4 | | |
| Total indicative study hours | Directed Study | Self-directed study | Total |
| | 34 | 110 | 144 |
| Course Overview | <p>Mechanism design is a science of how to construct economic mechanisms (rules, environments, institutions) with desirable properties. While the usual microeconomic approach aims at understanding how agents behave in certain environments given certain rules, Mechanism design aims at finding "good" rules, that lead to desirable outcomes. At the same time the rules themselves have to be simple and non-manipulable, i.e. provide incentives to participate sincerely.</p> <p>Mechanism design uses game theory tools and can be considered as its most applied part. The range of applications is very broad: from auctions and internet marketplaces to admission of young students to colleges, voting mechanisms, online dating services, and many others.</p> <p>The course will provide an overview of general methods used to design mechanisms in different areas of life.</p> | | |
| Intended Learning Outcomes (ILO) | <p>Know types of games and solution concepts</p> <p>Understand the main concepts and properties of mechanism design</p> <p>Know standard auction forms and able to find optimal bidding functions</p> <p>Know Revenue Equivalence Theorem, its assumptions and applications</p> <p>Able to define and apply fair division, assignment and matching mechanisms; know properties of these mechanisms</p> <p>Able to identify deficiencies in real-life markets</p> | | |
| Indicative Course Content | Directed Study | | |
| Teaching and Learning Methods | The course consists of lectures (16 hours) and tutorials (18 hours). The tutorials involve solving problems and proving theoretical results. | | |
| Indicative Assessment Methods and Strategy | Students' progress will be measured by students' activities in class (10% of the final grade), 1 test (10%) and 1 homework (20%), final exam will take 2 hours (test, theoretical question, and two problems to solve) and contribute 60% to the final grade. | | |
| Readings / Indicative Learning Resources | <p><u>Mandatory</u></p> <p>S.I. Nikolenko. (2009) <i>Mechanism design theory</i>. Intuit, Moscow</p> <p><u>Optional</u></p> <p>P. Klemperer. (2004) <i>Auctions: theory and practice.</i>, available at: http://www.nuff.ox.ac.uk/users/klemperer/VirtualBook/VirtualBookCoverSheet.asp</p> <p>F. Brandt, V. Conitzer, U. Endriss, J. Lang, A. Procaccia, H. Moulin. (2016) <i>Handbook of Computational Social Choice</i>. Cambridge, available at: http://procaccia.info/the-handbook-of-computational-social-choice-has-been-published/</p> <p>A. Roth, M. Sotomayor. (1992) <i>Two-Sided Matching: A Study in Game-Theoretic Modeling and Analysis</i>, available at:</p> | | |

| | |
|-------------------|--|
| | <p>https://web.stanford.edu/~alroth/papers/92_HGT_Two-SidedMatching.pdf</p> <p>N. Nisan, T. Roughgarden, E. Tardos, V. Vaziran. (2007). <i>Algorithmic Game Theory</i>. Cambridge University Press.</p> |
| Course Instructor | Alexander Nesterov, Fedor Sandomirskiy |