MASTER BDEEM | COURSE SYLLABUS

Theory and Practice of Auctions and Procurement

Auction design, bidding strategies, procurement and market efficiency

PROGRAMME	SEMESTER	CREDITS	CONTACT HOURS
Master 1	Semester 1	3 ECTS	24h Lectures

Course Description

A substantial share of economic transactions is organised through auctions. Governments use auctions to sell treasury bills, foreign exchange, mineral rights and other public assets, while public contracts are commonly awarded through procurement auctions. Firms also rely on auctions when purchasing inputs or subcontracting work.

This course examines the main auction mechanisms used in practice, including oral and sealed-bid formats. It compares their advantages and limitations in terms of expected revenue, procurement costs, efficiency and vulnerability to collusion. The course also considers single-unit, multi-unit, multi-attribute and combinatorial auction environments.

6 hours of this course are shared with Master 2 E-Achat

Learning Outcomes

- Determine optimal bidding strategies in different auction and procurement formats.
- Compare auction mechanisms in terms of expected revenue, cost and efficiency.
- Analyse how auction rules, including reserve prices and ending rules, affect bidder behaviour.
- Design auction and procurement rules for specific market objectives.
- Explain lessons from major practical auction designs, including spectrum auctions.
- Organise multi-attribute and combinatorial procurement auctions.
- Assess how collusion and behavioural biases influence bidding strategies and outcomes.

Indicative Content

1. **Auction fundamentals**: private values, common values and strategic bidding.
2. **Standard formats**: oral, first-price, second-price and sealed-bid auctions.
3. **Procurement auctions**: buyer objectives, supplier competition and optimal bids.
4. **Auction rules**: reserve prices, buy-it-now options and fixed versus extended endings.
5. **Efficiency and revenue**: mechanism comparison and trade-offs.
6. **Collusion and market design**: vulnerability of auction formats and safeguards.
7. **Complex auctions**: multi-unit, multi-attribute and combinatorial procurement.
8. **Applications**: spectrum auctions, public procurement and behavioural effects.

Teaching & Learning Approach

The course combines formal auction models, worked examples, practical procurement cases and discussion of real-world auction design. Particular attention is given to the relationship between auction rules, bidder incentives and market outcomes. Six of the 24 contact hours are shared with Master 2 E-Achat; the remaining 18 hours are dedicated to the BDEEM cohort.

Assessment

Written examination