

PROGRAM FOR DOCTORAL EXAM
PROFESSIONAL FIELD 3.8. ECONOMICS
MICROECONOMICS * **

1. ***Production technologies and factors of production*** (1,18)
 - Factors of production and production function. Isoquant.
 - Production technologies. Examples of technology. Graphic representation.
 - Properties of technology. The marginal product and the technical rate of substitution. Diminishing marginal productivity.
 - The production function in the short and long run. Returns to scale.

2. ***Costs*** (1,20), (1,21)
 - Short-run and long-run costs: average and marginal costs, variable and fixed costs.
 - Short-run and long-run cost function.
 - Cost curves. Analytical and graphical representation.
 - Cost minimization. Isocost. Returns to scale and the cost function.

3. ***Profits*** (1,19)
 - Profit, opportunity costs and rental rent.
 - Short-run profit maximization. Isoprofit lines. Comparative statics of firm behaviour.
 - Profit maximization in the long run. Factor demand curves and inverse factor demand curve.
 - Profit maximization, returns to scale and cost minimization.

4. ***Consumer behaviour*** (1,2), (1,3), (1,4)
 - The budget constraint. Properties of the budget set. The budget line changes.
 - Consumer preferences. Axioms and assumptions about preferences.
 - Indifference curves. Examples of preferences. The marginal rate of substitution. Economic interpretation.
 - Utility. Cardinal and ordinal utility. Examples of utility functions. Marginal utility.

5. ***Choice*** (1,5), (1,6)
 - Optimal choice.
 - Consumer demand. Examples.
 - Normal and inferior goods. Income offer curves and Engel curves. Examples.
 - Ordinary goods and Giffen's goods. The price offer curve and the demand curve.

* The PhD students who have successfully passed a Microeconomics III exam at the Department of Statistics and Econometrics do not take an additional doctoral exam on Microeconomics under this program.

** The attendance of the courses in Microeconomics and Microeconomics II at the Faculty of Economics and Business Administration will support the preparation for the PhD exam.

6. Market equilibrium (1,15), (1,16)

- Individual and market demand.
- Price elasticity of demand and income elasticity. Properties.
- Supply. Market equilibrium. Special cases.
- Taxes. The deadweight loss of a tax.

7. Market behaviour under pure competition (1,22), (1,23)

- Pure competition. Assumptions.
- Firm behaviour in short and long run. The inverse supply function.
- Industry supply in short and long run. Some examples.
- Profit and economic rent. Effects of taxation and price controls under pure competition.

8. Monopoly and monopoly behaviour (1,24), (1,26)

- Monopoly behaviour. Natural monopoly. Causes for monopolies.
- Maximizing profits. Linear demand curve and monopoly. Mark-up pricing.
- Inefficiency of monopoly. Deadweight loss of monopoly.
- Monopoly in the output market. Monopsony.

9. Price discrimination and monopolistic competition (1,25)

- Price discrimination. Economic interpretation.
- Degrees of price discrimination. Examples and special cases.
- Monopolistic competition. Monopolistically competitive equilibrium.
- The product differentiation.

10. Game theory (1,28)

- The payoff matrix of a game. The Prisoner's dilemma.
- Economic modelling of strategic choices.
- The Nash equilibrium. Interpretation. Examples.
- Types of strategies. Economic interpretation.

11. Oligopoly (1,27)

- Choosing a strategy. The Stackelberg model. The reaction curve.
- The Cournot model. The Cournot equilibrium.
- Price leadership. The Bertrand model.
- Collusion. Punishment strategies.

12. Pure exchange (1,31)

- The Edgeworth Box. Trade.
- Pareto efficient allocations. Conditions.
- The Walras's Law. The existence of equilibrium. Economic efficiency.
- First and second welfare theorems. Implications.

13. The Robinson Crusoe Economy (1,32)

- Assumptions. The firm behaviour.
- Maximization problem and returns to scale. Different technologies.
- Pareto efficiency and welfare theorems. Economic implications.
- Comparative advantages and decentralized resource allocation.

14. Externalities and asymmetric information (1,34), (1,37)

- Consumption and production externalities. Examples.
- Market signals. The tragedy of the commons.
- Asymmetric information. Adverse selection.
- Moral hazard. Signalling and incentives. Examples.

15. Public goods (1,36), (1,33)

- Specific features. Comparison to private goods.
- Public goods provision. The free rider problem.
- The paradox of voting.
- Social welfare functions. Welfare maximization.

REFERENCE:

1. Varian, H. (2010), *Intermediate Microeconomics /A Modern Approach/*, Eight Edition, W.W. Norton&Company, New York

Note: The numbers in brackets after each topic indicate the chapter(s) from the reference that is/are recommended for exam preparation. The reference can be found in the Library of the Faculty of Economics and Business Administration.

January 2019

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