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 economic 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.

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* 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.

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