



# Faculty of Technology

The Institute of Technology and Business in České Budějovice

Thematic Areas for State Final Examination

Follow-Up Master's Degree – Study Programme: **Logistics**

Applicable to the Following Recommended Study Plans: DP\_LOG\_P\_č.1, DP\_LOG\_K\_č.1

State Final Examination in: **Production Logistics**

## Thematic Areas for State Final Examination

**Study programme:**

Logistics

**State Final Examination in:**

Production Logistics  
(*Specialisation II.*)

**Prerequisites for State Final Examination:**

Production Logistics  
Warehouses and Storage  
Management of Supply Systems

<b>Approved by the Programme Guarantor:</b>	doc. Ing. Rudolf Kampf, Ph.D.	<b>Signature:</b>	
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<b>Valid until:</b>	Revocation

## **Thematic Areas**

1. Logistics. Production Logistics. Logistics Chain. Logistics Product. The Position of Logistics and Production Logistics in Company Management System. Logistics Company Model.
2. Production Logistics. Production Process (PP). Relationship between PP and Products. Product Strategy. Product Life Cycle. PP and Organisational Structure of Companies.
3. Management of Production Processes (MPP). Time Stages of MPP. Uncertainty of MPP. Time Aspect of MPP. Approaches to MPP. Organisation of MPP (production cycle, production capacity).
4. Production Planning and Control (PPC) System. Development of PPC. PPC Tasks. Expectations Related to PPC Introduction. Selection and Implementation of PPC.
5. Development Trends in Production Logistics. Concepts in Company Logistics Chain (JIT, Kanban, MRP system). Re-Engineering in Production Logistics. Optimized Production Technology (OPT). Lean Production.
6. Principles of Material Flow (MF) Design in Production Logistics. MF Analysis, Types of MF, Basic Activities Related to MF. MF Design Principles and Procedure. MF Representation Methods (sequential methods, graphical methods, matrix of transport relations, triangular table of mutual relations).
7. Logistics Controlling of Production Processes. Performance Measurement. Classical Approaches to Performance Measurement. Modern Methods of Performance Measurement. Controlling and its Use in Manufacturing Companies. Logistics Controlling Indicators.
8. Warehouses and Storage (importance of storage and warehousing, position of warehouses in logistics, functions - basic, supplementary and other functions - production support, combination of products, deconsolidation of products into smaller shipments, consolidation of shipments; classification of warehouses).
9. Handling Equipment in Warehouse Logistics (cyclically operating, periodically operating, continuously operating; calculation of hourly transport performance, calculation of operational needs, design of basic parameters).
10. Storage Equipment (handling units – their division; crates; storage boxes; pallets – their division, standardization, marking, principles of creating pallet units, pallet communities, one-way pallets; rolltainers).
11. Warehouse Equipment (storage of piece goods without equipment; division of equipment; racks – basic division, construction, use; rack stackers; receiving and dispensing equipment, possibilities of storage automation).
12. Warehouse Systems (technical systems – basic division, characteristics; technological systems - basic characteristics; warehouse processes - general characteristics; basic conditions for storing goods in warehouses).
13. Packaging Technology (meaning and functions of packaging; characteristics of products intended for packaging; types of packaging; protective systems; marking on transport packaging - handling marks; stresses on packaging units, packaging tests).
14. Automatic Identification (barcode technology - division of codes, standardization of codes, construction of codes, reading devices; RFID - principle, advantages, disadvantages; EDI; GS1 system - meaning, objectives, identification keys, types of standard data carriers).
15. Supply Chains in Organizational Structure of Companies, Processes, Functions of Company Departments.
16. Integrated Material and Information Flows of Supply Chains - system structures and elements.
17. Supply Chain Analyses, Model Resources, Simulation Systems.
18. Structures of Procurement, Production and Distribution Logistics.

19. Supply Chain Planning, Implementation of Theory Principles in Supply Systems.
20. Material Handling in Supply Chain, Characteristics, Selection Criteria and Sizing of Handling Equipment and Systems.

## **Recommended Literature**

BARTODZIEJ, C. J. The concept industry 4.0: an empirical analysis of technologies and applications in production logistics. Springer Gabler (Wiesbaden), 2017. 150p. ISBN 978-3-658-16501-7.

CHOPRA, S. Supply Chain Management: Strategy, Planning and Operation. 7th ed. Pearson Education Limited, 2019. 514 p. ISBN 978-0-13-473188-9.

GLEISSNER, H. and FEMERLING, J. C. Logistics: Basics – Exercises – Case Studies. Springer International Publishing Switzerland, 2013. ISBN 978-3-319-01768-6. DOI 10.1007/978-3-319-01769-3.

HUGOS, M. H. Essentials of Supply Chain Management. 3rd Ed. Wiley, 2011. 348 p. ISBN 978-0-470-94218-5.

LAMBERT, D. M. Supply Chain Management: Processes, Partnerships, Performance. 2nd ed. Supply Chain Management Institute, 2005. 344 p. ISBN 978-0-9759949-1-7.

LIŽBETIN, J. Sklady a skladování. 1. ed. České Budějovice: VŠTE, Czech Republic, 2022. 187 p. ISBN 978-80-7468-186-8.

NYHUIS, P. and WIENDAHL, H. P. Fundamentals of Production Logistics: Theory, Tools and Applications. Springer Berlin, Heidelberg, 2014. 312 p. ISBN 978-3-642-42412-0. DOI: 10.1007/978-3-540-34211-3.

OZCEYLAN, E. and GUPTA, S. M. Sustainable Production and Logistics: Modeling and Analysis. CRC Press (Taylor and Francis Group), 2021. 418 p. ISBN 9780367431303.

SOUTHERN, R. N. Transportation and Logistics Basics. Northwestern University: Continental Traffic Publishing Company, 1997. 375 p. A Handbook for Transportation and Logistics Professionals and Students. ISBN 978-0-9655014-0-8.