

Curriculum of Six-Week Summer School

Week 1: Basic concepts and developments in logistics

Module 1: Global Logistics Chains

(Logistics basics, Intermodal transport chains, External Transportation, Organizational Good Governance Concepts in Logistics)

Module 2: Infrastructure and modes of transport

(Road Transportation, Rail Transportation, Water-borne Transportation, Air-borne Transportation)

Module 3: Logistics planning

(Factory Planning, Management Game: EuroKran)

Excursion: duisport + logport + Factory Tour (Rhenus, KN, Schenker or Nestle/DANONE) (Duisburg)

Field Study: CargoCap GmbH (Bochum)

Field Study: DST - Development Centre for Ship Technology and Transport Systems (Duisburg)

Week 2: Methodologies in logistics

Module 1: Methods of data analysis

Module 2: Basics of Statistics

Module 3: Logistics Management Strategies

(Lean Logistics, Total Quality Management, Six Sigma, System Dynamics)

Module 4: Computer-aided logistics modeling

(Introduction to simulation in logistics, Computer-aided optimization of material flows)

Exkursion: Thyssen Krupp Eisenbahn und Häfen (Duisburg)

Field Study: t.b.d.

Week 3: Supply Chain Management

Module 1: Design of process chains

(Supply Chain Concepts - Aluminum, Cement, Leather, Water Supply)

Module 2: Supply Chain Planning

Module 3: Distribution concepts

Module 4: Management Game: Supply Chain Management

Exkursion: Air Hub Europe - UPS Deutschland / Flughafen Köln-Bonn (Nachtexkursion) (Köln)

Field Study: DB Regio NRW (Düsseldorf)

Week 4: Warehouse Management and Planning

Module 1: Warehouse Management: warehouses, order picking systems

(Warehousing, Internal Material Flow, Warehouse Management Systems)

Module 2: Warehouse planning / Warehouse system planning

Module 3: Planning of a distribution centre (Teamwork and presentation/discussion)

Excursion: *Journey to Stuttgart (incl. Mercedes-Benz-Museum und Porsche-Museum)*

- Horst Mosolf GmbH (Kirchheim/Teck)
- Mercedes Benz (Germersheim, Sindelfingen)
- Lufapak GmbH (Neuwied)

Field Study: Miele & Cie. KG (Gütersloh) oder

Field Study: DASA (Bundesanstalt für Arbeitsschutz und Arbeitsmedizin) (Dortmund)

Week 5: Information technologies in logistics

Module 1: Information systems in logistics

(Electronic Data Interface, ERP systems, LES/MES systems, APS systems, TMS systems)

Module 2: Simulation in Logistics

(Computer based modeling, network analysis)

Module 3: Technologies for data capturing and analysis

(RFID, concepts of tracking and tracing)

Module 4: Digital Factory

Excursion: DHL Innovation Center (Troisdorf)

Field Study: Metro RFID Innovation Center (Neuss)

Field Study: Fraunhofer IML, Open ID Center (Dortmund)

Week 6: Logistics trends

Module 1: Overview: Sustainability and Green Logistics: Options for the greening of supply chains and energy efficiency

(EffizienzCluster LogistikRuhr, e-mobility, case study: Bio-Energy Supply Chains in the circular economy)

Module 2: CO₂-/ Energy Consumption-Foot printing-Methodologies (incl. certification and labeling), practical calculation of energy consumption and CO₂ emission, (teamwork and presentation/discussion)

Module 3: Management options for Carbon and Energy Consumption Reduction (modal shift concepts, intermodal networks etc.)

Module 4: Consumer Responsibility Strategies and new Logistics Business Potentials (Corporate Responsibility) in supply networks (teamwork and presentations of changed business models)

Exkursion: arvato services (Bertelsmann-Gruppe) (Gütersloh)

Field Study: Fraunhofer IMS, in Haus 2 (Duisburg)