Competency Catalog 2024

LabTrans

Laboratório de Transportes e Logística

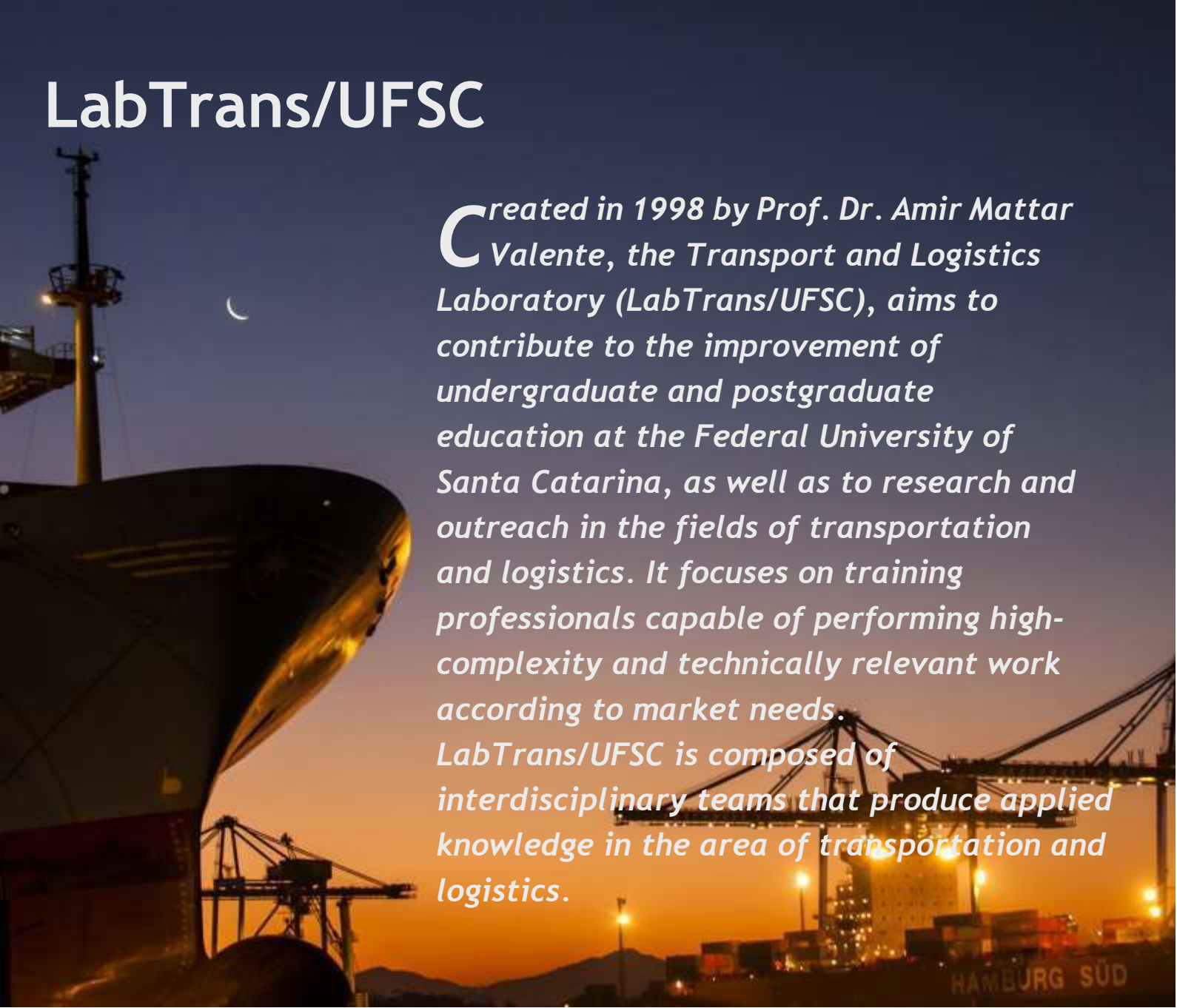
UNIVERSIDADE FEDERAL DE SANTA CATARINA

labtrans.ufsc.br

The Federal University of Santa Catarina

- More than 30,000 students
- 2,500 professors
- 5,600 staff members
- 108 on-campus undergraduate programs
- 14 distance learning programs
- 63 academic master's programs
- 15 professional master's programs
- 55 doctoral programs

LabTrans/UFSC



Created in 1998 by Prof. Dr. Amir Mattar Valente, the Transport and Logistics Laboratory (LabTrans/UFSC), aims to contribute to the improvement of undergraduate and postgraduate education at the Federal University of Santa Catarina, as well as to research and outreach in the fields of transportation and logistics. It focuses on training professionals capable of performing high-complexity and technically relevant work according to market needs.

LabTrans/UFSC is composed of interdisciplinary teams that produce applied knowledge in the area of transportation and logistics.

Areas of expertise

1 - Courses and Training

1.1 - Qualification in Port Management.

1.2 - Qualification in Port Operation.

1.3 - Courses and Training in company on operational research techniques for company logistic managers.

1.4 - Development of virtual learning environments.

1.5 - Product development for Remote Education.

1.6 - Geoprocessing training.

1.7 - Systems training.

2 - Traffic Engineering

2.1 - Traffic Simulation.

2.2 - Georeferenced cartography and database of urban road infrastructure.

2.3 - Roads service capacity study.

3 - Geoprocessing

3.1 - Multi-criteria spatial analysis.

3.2 - General cartography and themes.

3.3 - Development of terrain digital model and surface digital model.

3.4 - Development of spatial analysis methods.

3.5 - Geocodification.

3.6 - Geodesign.

3.7 - Geomarketing.

3.8 - Geotechnologies for decision making.

3.9 - Spatial metadata management.

3.10 - Modelling and development of geographical database.

3.11 - Digital processing of images.

3.12 - Geospatial data production and treatment.

3.13 - As-built restitution of road transportation project.

4 - Intermodality and Multimodality

4.1 - Multimodal routes study through Big Data.

4.2 - Georeferenced cartography and databases of multimodal network.

5 - Logistics

5.1 - Transportation and logistic infrastructure georeferenced inventory.

5.2 - Georeferenced cartography and databases of multimodal network.

5.3 - Study on logistic support areas.

5.4 - Studies on logistic chains.

5.5 - Studies on demand considering multimodal competition.

5.6 - Freight transportation studies (capacity, infrastructure, processes, benchmarking).

5.7 - Logistic simulator.

5.8 - Studies related to *Hyperloop* technology for transport of conteiners.

6- Environment

6.1 - Socio-environmental studies for port areas.

6.2 - Studies on the relation between ports and cities.

6.3 - Socio-environmental studies for airport areas.

6.4 - Georeferenced environmental inventory.

6.5 - Mapping and georeferencing on the use of soil and the dynamics of its evolution.

7 - Urban Mobility and Passenger Transport

7.1 - Studies on urban mobility using Big Data through telecom.

7.2 - Assessment of transportation systems operation.

7.3 - Georeferenced cartography and database of urban road network.

7.4 - Studies on neighborhood impact

7.5 - Studies on Regulatory Framework for urban and interurban transport of passengers

7.6 - Studies on Technical, Economic, Finance, Social, Environmental, and Legal Feasibility (EVTSAL).

7.7 - Technical Inspection.

7.8 - Transportation systems planning.

7.9 - Planning on sustainable urban mobility.

7.10 - Transportation Policies.

7.11 - Tariff policy and cost calculations.

7.12 - Tendering on passenger public transportation.

8- Operations Research and Market Intelligence

8.1 - Fleet and crew allocation in urban passenger transport companies.

8.2 - Competitive analysis between companies in oligopolistic markets.

8.3 - Analysis of customer service and optimized sizing of service stations.

8.4 - Analysis and design of road networks.

8.5 - Support to decision-making on deployment or decomissioning of factories and/or distribution centers.

8.6 - Business Intelligence (BI).

8.7 - Deployment of distribution centers, factories and terminals related to supply chains.

8.8 - Optimized deployment of vehicles and stations for emergency care.

8.9 - Optimization of the physical distribution of fleet sizing.

8.10 - Optimization of the physical distribution of products.

8.11 - Planning of expansion of production capacity of factories in competitive markets.

8.12 - Planning of e-commerce operations in delivery logistics. Routing of vessels.

9 - Software and Technology

9.1 - Road inventory through object-based automatic detection.

9.2 - Network management.

9.3 - Environments for remote education.

9.4 - Systems analysis and development.

9.5 - Mobile apps.

9.6 - Information architecture.

9.7 - Architecture and information systems.

9.8 - Architecture and integration systems.

9.9- Cloud computing - Clouding.

9.10 - Big Data design, project and management.

9.11 - Database design, project and management.

9.12- Data Analytics.

9.13 - Data Mining.

9.14 - Data Science.

9.15 - Sizing of parking lots for cargo vehicles.

9.16 - Development of systems from user experience - UX Design.

9.17 - Data engineering.

9.18 - Enterprise Resource Planning (ERP).

9.19 - Framework in Georeferenced Geographic Information System - GIS.

9.20 - Project management of systems development.

9.21 - Document management of information and knowledge.

9.22 - Infrastructure of Information Technology - TI.

9.23 - Artificial Intelligence.

9.24 - Internet of Things.

9.25 - Computing Math.

9.26 - Process modelling.

9.27 - Data processing.

9.28 - Quality of software.

9.29 - Information Security.

9.30 - WebServices.

9.31 - Web Systems.

9.32 - Computing support for study on road security (iRAP methodology).

10 - Air Transport

10.1 - Human resources analysis for airport areas.

10.2 - Locational analysis applied to air modal.

10.3 - Georeferenced database of air modal.

10.4 - Development of indicators and goals.

10.5 - Preparation of air transportation plans at state level.

10.6 - Preparation of air transportation master plans.

10.7 - Study on property suitability.

10.8 - Study on deployment of new airport grounds.

10.9 - Studies on air transportation demand for passenger and cargo.

10.10 - Studies on market.

10.11 - Studies on operation of cargo terminals.

10.12 - Studies on air traffic.

10.13 - Studies on air transportation management.

10.14 - Studies on air transportation infrastructure.

10.15 - Studies on air transportation operation.

10.16 - Air transportation systems planning.

10.17 - Airfield protection zone Basic Plan.

10.18 - Noise zoning planning.

11 - Waterway Transport

11.1 - Locational analysis applied to port areas.

11.2 - Georeferenced database of waterway modal.

11.3 - Study on Technical, Economic, and Environmental Feasibility – EVTEA

11.4 - Studies on market.

11.5 - Studies on tariffs.

11.6 - Waterway transportation systems planning.

11.7 - Strategic plan.

11.8 - Commercial plan.

11.9 - Port development and zoning (PDZ) plan.

11.10 - Business plan.

11.11 - Ports Master plan.

11.12 - Demand projection.

11.13 - Regulation of port exploitation (REP).

11.14 - Operational simulations.

12 - Rail Transport

12.1 - Georeferenced database of railway modal.

12.2 - Study on railway operation.

12.3 - Study on Technical, Economic, and Environmental Feasibility – EVTEA

12.4 - Studies on tariffs.

12.5 - Railway transportation systems planning.

12.6 - Demand projection.

12.7 - Operational simulations.

12.8 - Railway operation Information Systems.

13 - Road Transport

13.1 - Project analysis of road transportation deployment.

13.2 - Georeferenced database of road transportation modal.

13.3 - Road transportation concessions.

13.4 - Road transportation costs.

13.5 - Study on Technical, Economic, and Environmental Feasibility – EVTEA

13.6 - Traffic supervision.

13.7 - Occupation of the right-of-way.

13.8 - Budgeting (new Sicro).

13.9 - Road transportation planning.

13.10 - Speed electronic control programs.

13.11 - Vehicles weighting programs.

13.12 - Road security.

13.13 - Road transportation operation Information Systems.

13.14 - Finance data processing systems.

13.15 -Traffic violations processing systems.

National partners

MINISTÉRIO DA ECONOMIA

MINISTÉRIO DOS TRANSPORTES

MINISTÉRIO DE MINAS E ENERGIA

MINISTÉRIO DO TURISMO

MINISTÉRIO DA DEFESA

SAC SNTT

International partners

LabTrans

Laboratório de Transportes e Logística

labtrans.ufsc.br
contato@labtrans.ufsc.br
+55 (48) 3721-2107