

# Study plan

## Name of study plan: TRELPASO nav.prez.14/15

Faculty/Institute/Others:

Department:

Branch of study guaranteed by the department: Welcome page

Garantor of the study branch:

Program of study: Technology in Transportation and Telecommunications

Type of study: Follow-up master full-time

Required credits: 50

Elective courses credits: 0

Sum of credits in the plan: 50

Note on the plan:

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Name of the block: Semestrální projekt

Minimal number of credits of the block: 16

The role of the block: ZP

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Code of the group: XNTR1 DP 1.S. 11/12

Name of the group: Dipl.práce ELPASO 1.sem.od 11/12

Requirement credits in the group: In this group you have to gain 6 credits

Requirement courses in the group: In this group you have to complete 1 course

Credits in the group: 6

Note on the group:

| Code   | Name of the course / Name of the group of courses<br>(in case of groups of courses the list of codes of their members)<br>Tutors, <b>authors</b> and guarantors (gar.) | Completion | Credits | Scope | Semester | Role |
|--------|--|------------|---------|-------|----------|------|
| 17XNT1 | CTU Thesis 1   | Z          | 6       | 0+6   | Z        | ZP   |

Characteristics of the courses of this group of Study Plan: Code=XNTR1 DP 1.S. 11/12 Name=Dipl.práce ELPASO 1.sem.od 11/12

|        |              |  |  |  |   |   |
|--------|--------------|--|--|--|---|---|
| 17XNT1 | CTU Thesis 1 |  |  |  | Z | 6 |
|--------|--------------|--|--|--|---|---|

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Code of the group: XNTR2 DP 2.S. 11/12

Name of the group: Dipl.práce ELPASO 2.sem.od 11/12

Requirement credits in the group: In this group you have to gain 10 credits

Requirement courses in the group: In this group you have to complete 1 course

Credits in the group: 10

Note on the group:

| Code   | Name of the course / Name of the group of courses<br>(in case of groups of courses the list of codes of their members)<br>Tutors, <b>authors</b> and guarantors (gar.) | Completion | Credits | Scope | Semester | Role |
|--------|--|------------|---------|-------|----------|------|
| 17XNT2 | CTU Thesis 2   | Z          | 10      | 0+10  | L        | ZP   |

Characteristics of the courses of this group of Study Plan: Code=XNTR2 DP 2.S. 11/12 Name=Dipl.práce ELPASO 2.sem.od 11/12

|        |              |  |  |  |   |    |
|--------|--------------|--|--|--|---|----|
| 17XNT2 | CTU Thesis 2 |  |  |  | Z | 10 |
|--------|--------------|--|--|--|---|----|

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Name of the block: Compulsory courses in the program

Minimal number of credits of the block: 34

The role of the block: P

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Code of the group: 1.S.NPTREL PASO 11/12

Name of the group: 1.sem.nav.prez.TR ELPASO od 11/12

Requirement credits in the group: In this group you have to gain 19 credits

Requirement courses in the group: In this group you have to complete 6 courses

Credits in the group: 19

Note on the group:

| Code  | Name of the course / Name of the group of courses<br>(in case of groups of courses the list of codes of their members)<br><i>Tutors, authors and guarantors (gar.)</i> | Completion | Credits | Scope | Semester | Role |
|-------|--|------------|---------|-------|----------|------|
| 12TDP | <b>Traffic Flow Theory</b><br><i>Vladimir Faltus</i>   | Z,ZK       | 3       | 2P+1C | Z        | P    |
| 17ILO | <b>Information Technology in Logistics</b>   | Z,ZK       | 4       | 2+2   | Z        | P    |
| 17LGY | <b>Logistics Systems</b>   | Z,ZK       | 6       | 3+2   | Z        | P    |
| 17PJM | <b>Project Management</b>  | ZK         | 2       | 2+0   | Z        | P    |
| 11MME | <b>Mathematical Models in Economics</b>  | KZ         | 2       | 1+1   | Z        | P    |
| 12DZP | <b>Transport and Environment</b>   | Z          | 2       | 2P+0C | Z        | P    |

**Characteristics of the courses of this group of Study Plan: Code=1.S.NPTRELPASO 11/12 Name=1.sem.nav.prez.TR ELPASO od 11/12**

|       |                                     |      |   |  |  |  |
|-------|-------------------------------------|------|---|--|--|--|
| 12TDP | Traffic Flow Theory                 | Z,ZK | 3 | Mobility and associated human problems. Basic traffic parameters and their measurement. Estimation of quality of services. Theoretical fundamentals and applications of mathematical models. Macroscopic, statistical and microscopic models. Theory of shock waves, queuing theory and special theory of traffic phenomena. Relation between traffic models and traffic flow management.  |  |  |
| 17ILO | Information Technology in Logistics | Z,ZK | 4 | Basics of bar code technology. Basics of radiofrequency identification. Product numbering systems for intensive distribution. Packaging hierarchy and identification models in supply chain. Identification of trading partners in the supply chain. Basics of data communication in logistics. National and global multidisciplinary standards for electronic data interchange. ERP Systems used in retail and fast moving consumer goods.                    |  |  |
| 17LGY | Logistics Systems                   | Z,ZK | 6 | Transport in logistics, intermodal transport, electronic toll systems in road transport, supply chain management, logistics partnership and alliances, logistic service of territory, dangerous goods in logistics, management and marketing in logistics, identification systems in logistics, IT in logistic systems and transportation.   |  |  |
| 17PJM | Project Management                  | ZK   | 2 | Project and planning, project content, management and project task organization. Technical and economical assessment criterions. Criterion function and its components. Organization and management of the project run.  |  |  |
| 11MME | Mathematical Models in Economics    | KZ   | 2 | Stochastic processes and their classification, Poisson process, birth and death process, queueing models and their classification, graph and related terminology, cycles in a graph and their detection, the shortest and longest way through a graph, critical path through a graph, extreme of a function of many arguments, free and constrained extremum, Lagrange multipliers, numerical methods in optimization, linear programming and its application. |  |  |
| 12DZP | Transport and Environment           | Z    | 2 | This course aims the impact of transport on environment. The accent is put mainly on noise and vibration, emission, barrier effect and energy demands. The noise measury is part and parcel of this course.  |  |  |

Code of the group: 2.S.NPTRELPASO 11/12

Name of the group: 2.sem.nav.prez.TR ELPASO od 11/12

Requirement credits in the group: In this group you have to gain 15 credits

Requirement courses in the group: In this group you have to complete at least 4 courses

Credits in the group: 15

Note on the group:

| Code  | Name of the course / Name of the group of courses<br>(in case of groups of courses the list of codes of their members)<br><i>Tutors, authors and guarantors (gar.)</i> | Completion | Credits | Scope | Semester | Role |
|-------|--|------------|---------|-------|----------|------|
| 17INV | <b>Investments and Financing in Transport</b>  | Z,ZK       | 4       | 3+1   | L        | P    |
| 20STL | <b>Satellite Technologies and Logistics</b>  | Z,ZK       | 4       | 2+2   | L        | P    |
| 16TAJ | <b>Technological Aspects of Quality</b>  | Z          | 2       | 2P+0C | L        | P    |
| 17TTH | <b>Transport Theory</b>  | Z,ZK       | 5       | 2+2   | L        | P    |

**Characteristics of the courses of this group of Study Plan: Code=2.S.NPTRELPASO 11/12 Name=2.sem.nav.prez.TR ELPASO od 11/12**

|       |  |      |   |  |  |  |
|-------|--|------|---|--|--|--|
| 17INV | Investments and Financing in Transport | Z,ZK | 4 | Projects and project planning, project financing, financing models, PPP financing, selection procedure, EIA study, project assessment and its criterions, NPV, IRR. Optimal variant selection. Zone planning and decision making.  |  |  |
| 20STL | Satellite Technologies and Logistics   | Z,ZK | 4 | Basic topics: GPS and Galileo navigation systems and their use for positioning the rail, air, sea, road and urban transport; GIS technology as a powerful tool for solving problems in logistics, appropriate telecommunication technologies and technologies for the identification and monitoring of goods; life cycle of satellite systems, satellite as the carrier of satellite systems functionalities and its technology. |  |  |
| 16TAJ | Technological Aspects of Quality       | Z    | 2 | Certification and accreditation, quality management, standards of quality management and its application, quality system creation, tools and methods of quality improvement, conformity assurance, environmental certification, workplace certification, QMS integration, classification, certification of products and producers.   |  |  |
| 17TTH | Transport Theory                       | Z,ZK | 5 | Elements of theory of graphs. Minimum spanning tree, trees in graphs. Paths and cycles. Arc routing problems. Vehicle routing problems. Network flows. Location problems. Transportation elements. Transportation flows. Theory of displacement quality. Multicriterial decision making in transport processes.  |  |  |

### List of courses of this pass:

| Code   | Name of the course   | Completion | Credits |
|--------|--|------------|---------|
| 11MME  | Mathematical Models in Economics<br>Stochastic processes and their classification, Poisson process, birth and death process, queueing models and their classification, graph and related terminology, cycles in a graph and their detection, the shortest and longest way through a graph, critical path through a graph, extreme of a function of many arguments, free and constrained extremum, Lagrange multipliers, numerical methods in optimization, linear programming and its application. | KZ         | 2       |
| 12DZP  | Transport and Environment<br>This course aims the impact of transport on environment. The accent is put mainly on noise and vibration, emission, barrier effect and energy demands. The noise measure is part and parcel of this course.   | Z          | 2       |
| 12TDP  | Traffic Flow Theory<br>Mobility and associated human problems. Basic traffic parameters and their measurement. Estimation of quality of services. Theoretical fundamentals and applications of mathematical models. Macroscopic, statistical and microscopic models. Theory of shock waves, queueing theory and special theory of traffic phenomena. Relation between traffic models and traffic flow management.  | Z,ZK       | 3       |
| 16TAJ  | Technological Aspects of Quality<br>Certification and accreditation, quality management, standards of quality management and its application, quality system creation, tools and methods of quality improvement, conformity assurance, environmental certification, workplace certification, QMS integration, classification, certification of products and producers.   | Z          | 2       |
| 17ILO  | Information Technology in Logistics<br>Basics of bar code technology. Basics of radiofrequency identification. Product numbering systems for intensive distribution. Packaging hierarchy and identification models in supply chain. Identification of trading partners in the supply chain. Basics of data communication in logistics. National and global multidisciplinary standards for electronic data interchange. ERP Systems used in retail and fast moving consumer goods.                 | Z,ZK       | 4       |
| 17INV  | Investments and Financing in Transport<br>Projects and project planning, project financing, financing models, PPP financing, selection procedure, EIA study, project assessment and its criterions, NPV, IRR. Optimal variant selection. Zone planning and decision making.  | Z,ZK       | 4       |
| 17LGY  | Logistics Systems<br>Transport in logistics, intermodal transport, electronic toll systems in road transport, supply chain management, logistics partnership and alliances, logistic service of territory, dangerous goods in logistics, management and marketing in logistics, identification systems in logistics, IT in logistic systems and transportation.  | Z,ZK       | 6       |
| 17PJM  | Project Management<br>Project and planning, project content, management and project task organization. Technical and economical assessment criterions. Criterion function and its components. Organization and management of the project run.  | ZK         | 2       |
| 17TTH  | Transport Theory<br>Elements of theory of graphs. Minimum spanning tree, trees in graphs. Paths and cycles. Arc routing problems. Vehicle routing problems. Network flows. Location problems. Transportation elements. Transportation flows. Theory of displacement quality. Multicriterial decision making in transport processes.  | Z,ZK       | 5       |
| 17XNT1 | CTU Thesis 1   | Z          | 6       |
| 17XNT2 | CTU Thesis 2   | Z          | 10      |
| 20STL  | Satellite Technologies and Logistics<br>Basic topics: GPS and Galileo navigation systems and their use for positioning the rail, air, sea, road and urban transport; GIS technology as a powerful tool for solving problems in logistics, appropriate telecommunication technologies and technologies for the identification and monitoring of goods; life cycle of satellite systems, satellite as the carrier of satellite systems functionalities and its technology.                           | Z,ZK       | 4       |

For updated information see <http://bilakniha.cvut.cz/en/FF.html>

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