



北京交通大学

Beijing Jiaotong University SCHOOL OF TRAFFIC AND TRANSPORTATION



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01 History of the School

1909

Beijing Railway Management School, the predecessor of Beijing Jiaotong University, started the Railway Management Class, which is the beginning of the establishment of the School of Traffic and Transportation and is the cradle of the modern traffic and transportation education in China.

1956

Railway Transportation Department supported Tangshan Railway School (now Southwest Jiaotong University), Changsha Railway School (now Central South University Railway Campus), Lanzhou Railway School (now Lanzhou Jiaotong University) in re-structuring or establishing their own railway transportation departments.

1986

The State Council Academic Degrees Committee approved the doctor's degree conferral right to Transportation Management Engineering Major, making it one of the first batch of disciplines authorized to confer doctoral degree in China.

2002

The School of Traffic and Transportation was restructured to include Department of Transportation Management Engineering, Department of Traffic Engineering, Department of Traffic Information Management Engineering, Institute of Systems Engineering and Control, Institute of Systems Science and "Traffic Transportation System Simulation" Ministry of Railway Open Lab.

2008

The Department of Urban Rail Transit was established.

2014

Traffic Transportation National Virtual Simulation Experiment Center project was approved.

1921

Three branches in Beijing, Shanghai and Tangshan were combined and named National Jiaotong University. Later, Beijing branch was named National Jiaotong University Beijing School, with a Railway Transportation Management Department.

1972

According to the agreement of State Aid Plan for Tazara railway, the Department began to cultivate overseas students in railway transportation management.

1981

State Council Academic Degrees Committee approved the master's degree conferral right to Transportation Management Engineering Major, making it one of the first batch of disciplines authorized to confer master's degree in China.

1996

Transportation Management Engineering Department, Management Science Research Institution, Pragmatic System Analysis Research Institution, Transportation System Simulation Center, and Automatic System Research Institution etc. constituted the School of Traffic and Transportation.

2006

"Rail Traffic Control and Security National Key Lab" was approved by Ministry of Science and Technology, and our School was one of two construction institutions.

2012

Our School participated in the construction of "Rail Traffic Security Collaborative Innovation Center" (2011 plan). Traffic Engineering Major was listed into "Outstanding Engineer Training Program" of Education Ministry. The Department of Logistics Engineering was established.

2016

The foreign aid academic degree education program of Ministry of Commerce - Master's degree program in English in Traffic and Transportation Engineering (Railway Operations and Management) was launched.

2020

With the approval of the Ministry of Transport, the Transport Equipment Center (Museum of Transportation Science) was listed among the first batch of "National Transportation Science Popularization Bases" and the "National Railway Popular Science Education Base" of China Railway Society; the first batch of "Key Laboratory of Railway Industry of Proactive Safety and Risk Control" of the National Railway Administration was added; and the Department of Civil Aviation Transportation was established.

2023

The Institute of Systems Science was established separately, and the Department of Transport Intelligent Systems and Safety was set up during the reorganization of the National Key Lab.

2017

The key laboratory of transport industry of big data application technologies for comprehensive transport was approved by the Ministry of Transport. The Sino-foreign cooperative education program in Traffic and Transportation (Beijing Jiaotong University and Delft University of Technology in the Netherlands) and the major in civil aviation transportation began its first enrollment of students respectively.

2022

The School was approved as a Key Laboratory of Transport Industry of Comprehensive Transportation Theory by the Ministry of Transport; Museum of Transportation Science was recognized as a "National Popular Science Education Base" by China Association for Science and Technology, and listed into the first batch of Special Practice Teaching Bases on the Spirit of Science launched by the Ministry of Education and the Ministry of Science and Technology.

02 Organizations and Staffing of the School

The School of Traffic and Transportation has set up 7 departments. It also has Academic Committee, Discipline Construction and Academic Degree Evaluation Committee, Talent Team Development Committee, Teaching Guidance Committee of Ministry of Education and Committee on Scientific and Technological Work and Academic Morality in charge of teaching and researching affairs of the School.

- ▶ Department of Transportation Management Engineering
- ▶ Department of Traffic Engineering
- ▶ Department of Traffic Information Management Engineering
- ▶ Department of Urban Rail Transit
- ▶ Department of Logistics Engineering
- ▶ Institute of Systems Engineering and Control
(Department of Civil Aviation Transportation)
- ▶ Department of Transport Intelligent Systems and Safety

203

The School currently has 203 faculty members, consisting of 25 management persons (full-time or part-time), 6 members in Traffic and Transportation Laboratory Center, 172 teachers and researchers, 66 professors, 81 faculty members with associate senior title and 31 lecturers or ones with intermediate title.

20000⁺

Over the past century, the School has cultivated more than 20,000 graduates, including about 1,800 junior college students, more than 12,067 undergraduates and about 7,107 postgraduates (including doctoral, master of engineering, as well as international students).

National Talents

At the School, there are 8 experts enjoying special government allowance, 5 New Century Talents of the Ministry of Education, 8 Teaching Masters of the "Ten Thousand Talents Program", National Candidates of "National Hundred, Thousand, and Ten Thousand Talents Project", Outstanding Youth Science Fund of the National Natural Science Foundation and other national talents, 28 winners of the Baosteel Excellent Teacher Award, Beijing Teaching Masters and other provincial or ministerial level or above.

3129

In 2023, the School has a record of 3,129 students, including 1,540 undergraduates and 1,589 postgraduates (including 419 doctoral students).

03 Departments Introduction



Department of Transportation Management Engineering

- Department of Transportation Management Engineering boasts a long history and strong faculty team. The Department conducts its scientific research at the core of railway transportation organization, railway cargo transportation, railway passenger transportation, railway station and terminal, railway transportation safety, railway informatization, etc. The annual funds for scientific research are about 15 million Yuan. So far, it has achieved abundant research results in the "the Belt and Road", high-speed railway transport organization, railway heavy-duty transportation, multi-modal transportation, railway informatization and railway freight transportation safety and technology.
- The department is responsible for the construction of the undergraduate education programs in railway transportation, high-speed railway passenger transport organization and service, and undertakes the discipline construction and postgraduate education in the fields of traffic and transportation engineering, safety science and engineering, as well as other disciplines.



Department of Traffic Engineering

- Based on urban road traffic, the Department of Traffic Engineering conducts scientific research by taking urban traffic planning, design, management and control as the main line. This Department undertakes the construction of Key Laboratory of Traffic Transportation Industry and 2 national teaching platforms, with an average annual research funding of about 10 million Yuan. So far, it has achieved abundant research results in traffic planning, traffic policy, traffic management and control, urban low-carbon traffic and ITS technology, etc.
- It has established traffic engineering (undergraduate major) dedicated to cultivate graduate students in traffic and transportation planning and management, urban traffic engineering and intelligent traffic engineering. Till now, the Department has brought plenty of senior talents to the transportation industry, especially highway transportation and urban transport.



Department of Traffic Information Management Engineering

- In response to the information-based and intelligent demands in the field of traffic and transportation, the Department of Traffic Information Management Engineering conducts scientific research at the core of E-Commerce, traffic information, intelligent transportation, etc. The annual research funding is up to 10 million yuan. So far, it has achieved abundant research results in E-Commerce, traffic information system, traffic safety system engineering, traffic complex system modeling and control techniques.
- Responsible for the major construction of E-Commerce, the Department undertakes discipline construction and postgraduate education in the fields of E-Commerce, traffic and transportation engineering, safety science and engineering, control science and engineering, logistics engineering and other disciplines. Till now, it has cultivated a large quantity of talents specialized in information management and Internet technology for the transportation industry and Internet industry.



Department of Urban Rail Transit

- The Department of Urban Rail Transit conducts scientific research mainly in the field of urban rail transit and comprehensive transportation, with an average annual funds of over 8 million Yuan; it is responsible for undertaking the Academic Publication-Journal of Traffic and Transportation Systems Engineering and Information Technology, ICTTS International Academic Conference and China Transportation High-level Forum. In addition, the Department is responsible for the construction of Traffic and Transportation System Engineering Professional Committee of Systems Engineering Society of China.
- The Department is responsible for cultivating the undergraduates, master and doctoral students orientated to such disciplines as urban rail transit (undergraduate

major) and traffic and transportation planning and management, systems engineering, urban traffic engineering, comprehensive transportation, etc.



Department of Logistics Engineering

- The Department of Logistics Engineering is backed by the characteristic and advantageous disciplines of Traffic and Transportation and Logistics Engineering in our school to conduct research in the fields of logistics development strategy and planning, logistics node planning and design, logistics system analysis and integration, supply chain design and management, railway freight and logistics, multimodal transportation and logistics system optimization, smart logistics and green logistics, express freight transportation organization optimization, etc. The annual research funding is about 10 million yuan. Till now, it has led and participated in the setting and revision of more than 10 national standards and industry standards.
- The department is responsible for the construction of the national first-class undergraduate major of logistics engineering, and undertakes discipline construction and postgraduate education in the fields of logistics engineering and management, traffic and transportation engineering and other disciplines.



Institute of Systems Engineering and Control (Department of Civil Aviation Transportation)

- This Institute carries out scientific research at the core of traffic and transportation systems engineering, civil aviation transportation, traffic intellectual systems, management and logistics system engineering. With an annual research funds of about 10 million Yuan, it has achieved a lot of research results in the fields of comprehensive transportation system planning, intelligent transportation, urban bus operation and dispatch, electric vehicle management, logistics systems engineering, civil aviation transportation.
- This Department is responsible for constructing traffic and transportation (civil aviation transportation) as an undergraduate education program, and also the discipline construction and postgraduates education in the fields of control science and engineering, traffic and transportation engineering, logistics engineering and other disciplines. So far, it has brought a large quantity of talents to the comprehensive transportation and intelligent transportation fields.



Department of Transport Intelligent Systems and Safety

- Established in 2023, the Department of Transport Intelligent Systems and Safety carried out researches on intelligent automation and safety guarantee of traffic and transportation systems. Its achievements have received continuous project support from China and the railway industry. The Department undertakes the construction of intellectual transport engineering major, responsible for the discipline construction and postgraduates education in the fields of traffic and transportation engineering, safety science and engineering, etc.

04 Undergraduate Education

The School currently has five undergraduate majors including traffic and transportation (railway transportation, urban rail transit, high-speed railway operation and management, civil aviation transportation, double degree program in traffic and transportation + information and computational science), traffic engineering, E-commerce, logistics engineering and intellectual transport engineering, of which the traffic and transportation, traffic engineering, logistics engineering and E-Commerce are listed among National First-class Undergraduate Majors.

- 1909 — Traffic and transportation (Railway transportation)
- 1998 — Traffic engineering
- 2001 — E-commerce
- 2008 — Traffic and transportation (Urban rail transit)
- 2010 — Traffic and transportation (Intellectual transport engineering)
- 2012 — Logistics engineering
- 2015 — High-speed railway passenger transport organization and service
- 2017 — Traffic and transportation (Civil aviation transportation)
Traffic and transportation (Sino-foreign collaborative education)
- 2022 — Intellectual transport engineering
- 2023 — Double Degree Program in Traffic and Transportation + Information and Computational Science

Remarkable achievements in construction of courses

There are 3 first prizes and 8 second prizes of national outstanding teaching achievements, 2 special prizes, 12 first prizes and 11 second prizes of Beijing teaching achievements. The courses construction involves 3 national-level video open courses, 9 national-level excellent courses, 10 national first-class courses, 1 national ideological and political demonstration course, 2 national teaching teams and 3 national excellent teaching materials, 22 national planning teaching materials, 1 national excellent teaching material, 4 high-quality undergraduate teaching materials of Beijing, 19 national excellent teaching materials, 4 high-quality undergraduate programs of Beijing, 1 high-quality undergraduate teaching plan of Beijing universities.



The School currently has established National Experiment Teaching Demonstration Center for Traffic and Transportation, National Virtual Simulation Experiment Center and over 20 school-enterprise joint practice teaching bases, including 1 national engineering practice education center and 4 Beijing municipal off-campus talent training demonstration bases. The teaching and experimental platforms are opened to the public. The science popularization bases such as the Transport Equipment Center receive massive domestic and foreign visitors every year.

The School maintains good enrollment quality of undergraduate students.

Top **5%**

Top 5% students rated by provincial college entrance examination accounted for 90% of the total students of the School.

70%

The further study rate

25%

The postgraduate retention rate

15%

the rate of further study abroad

98%

the employment rate

05 Disciplines and Postgraduate Education

At present, the School hosts 2 Postdoctoral Flow Station, 2 Academic-Oriented Doctoral Degree Programs, 2 Professional Doctor's Degree Programs, 3 Academic-Oriented Master Degree Categories and 3 Professional Master's Degree Programs.

Setting of Academic-Oriented Doctoral Degree Programs and Master Degree Programs (At the School of Traffic and Transportation)

S/N	Name of First-level Discipline	Name of Second-level Discipline	Degree	Number of Doctoral/- Master Supervisors
1	Traffic and transportation engineering	Traffic and Transportation Planning and Management	Doctor/ Master	76/192
2	Safety science and engineering	Safety science and engineering	Doctor/ Master	9/32
3	Management science and engineering	E-commerce	Master	11

Setting of Professional Doctoral Degree Programs and Master Degree Programs (At the School of Traffic and Transportation)

S/N	Specialty Name	Degree	Number of Tutors
1	Traffic and Transportation	Doctor/Master	37/197
2	Logistics Engineering and Management	Master	35
3	Artificial Intelligence	Doctor/Master	31/67

SINCE 1909

The first-level discipline - traffic and transportation engineering was established in 1909, known as the earliest transportation discipline in China.

One of the first batch of national key disciplines

The traffic and transportation planning and management, as a second-level discipline, was rated as one of the first batch of national key disciplines, which is the core construction discipline of the national "211 Project" and "985 Project Advantage Discipline Innovation Platform".

National Frontier Science Center

Currently, there are 6 national scientific research platforms such as National Frontier Science Center, National 2011 Collaborative Innovation Center and National Key Laboratory.

International science and technology cooperation bases

2 international science and technology cooperation bases.

National experiment teaching platforms

5 national experiment teaching platforms and 11 provincial and ministerial level platforms.

First in the Global

In the recent five years, it ranked first in the Global Ranking of Academic Subjects in the discipline of traffic and transportation engineering.



600 ↑

In recent years, the enrollment scale and quality have steadily improved. According to the figures, the total annual enrollment of graduate students has exceeded 600.



70% ↑

The proportion of students from double first-class universities has hit over 70%.

**96%↑**

The School keeps innovating the concept of personnel training to enhance the comprehensive quality of students. In the past 3 years, the overall employment rate of graduates has remained above 96%.

**50%↑**

The master graduates engaged in research, traffic and transportation and other related industries took up more than 50%. The graduates from the School received high praise from the society.

06 Scientific Research

The School of Traffic and Transportation has grown into a high-level school with research in the field of railway as advantage and characteristic. At the core of traffic and transportation, it explores expansions to the fields of logistics, E-Commerce, safety science, systems control and others.

100⁺

So far, the School has presided over 100 national research projects, major and key China Railway Projects.

100⁺ million

According to the statistics, the average research funding of the latest 3 years has hit over 100 million Yuan.

140⁺ million

By the end of 2023, the funds for horizontal commercialization of the School's achievements during the "14th Five-year Plan" has reached over 140 million Yuan.

It took the lead in building the key laboratory of transport industry of big data application technologies for comprehensive transport under the Ministry of Transport, Key Laboratory of Transport Industry of Comprehensive Transportation Theory under the Ministry of Transport, and Key Laboratory of Railway Industry of Proactive Safety and Risk Control of the National Railway Administration; assisted in the construction of Frontier Science Center for Smart High-speed Railway System, State Key Laboratory of Advanced Rail Autonomous Operation, as well as other national research platforms.

Over the years, the School of Traffic and Transportation has played a vital role in national major projects and national economic development. The School has hosted and participated the research in high-speed railway, heavy-duty transportation, train operation chart, Qinghai-Tibet railway, railway freight and logistics, urban rail transit and other fields, which has contributed to the development of high-speed, heavy-duty and information technology of rail traffic and the reform of freight organization in China. The research undertaken by the School in the fields of national, regional and urban comprehensive transportation planning, intelligent transportation system, automobile exhaust detection, bus dispatching command, logistics-related planning and policies has provided support and services for the local economic and industrial development.

In recent years, the School has made the symbolic scientific research achievements listed below:

S/N	Name of achievement	Department
1	Optimization Research of Passenger Train Line Plan and Product Design	Department of Transportation Management Engineering
2	Cloud Platform for Train Timetabling on High-speed Railway Lines	Department of Transportation Management Engineering
3	Intelligent Optimization System for Transport Capacity Resource Allocation	Department of Transportation Management Engineering
4	"Station-line-network" Emergency Intelligent Scheduling for High-speed Railway	Department of Transportation Management Engineering
5	Research on Railway Freight Loading and Securement	Department of Transportation Management Engineering
6	Traffic System Planning and Design	Department of Traffic Engineering
7	Traffic Big Data Analytics and Evaluation	Department of Traffic Engineering
8	Traffic Safety & Driving Behavior Simulation	Department of Traffic Engineering
9	Intelligent Transportation System Analysis and Control	Department of Traffic Engineering
10	Low Carbon Traffic Travel Behavior and Emission Detection	Department of Traffic Engineering
11	Track Deformation Analysis System Based on Dynamic Inspection	Department of Traffic Information Management Engineering
12	Railway Infrastructure Management	Department of Traffic Information Management Engineering
13	Railroad Modern Logistics Theory System and Key Technology	Department of Logistics Engineering
14	Intelligent Logistics System Planning and Engineering Design Technology	Department of Logistics Engineering , Institute of Systems Engineering and Control
15	Container Transportation and Multimodal Transportation	Department of Logistics Engineering
16	Transportation Organization of High-speed Railway Express	Department of Logistics Engineering
17	Civil Aviation Transportation Organization Management and System Optimization	Department of Civil Aviation Transportation
18	Railway Transportation Operation Safety and Security Technology	Department of Transport Intelligent Systems and Safety

07 International Exchanges and Cooperation (Hong Kong, Macao and Taiwan)

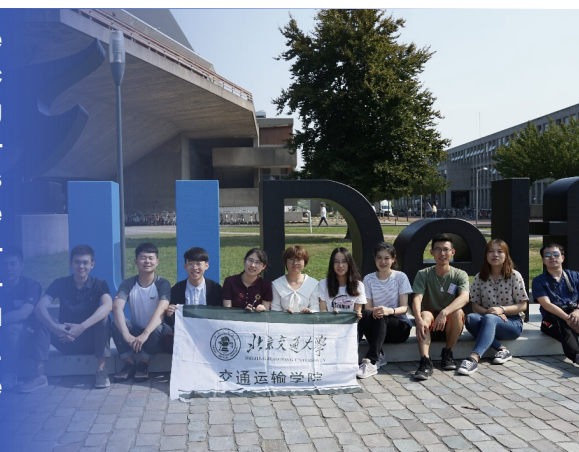
At present, the School of Traffic and Transportation has established cooperation exchange relations in the fields of education and research with universities and research institutes in more than 30 countries and regions including the United States, Britain, Germany, France, the Netherlands, Japan, etc. Every year, nearly 100 teachers and students are sent to overseas universities or scientific research institutions to attend international conferences and carry on academic exchanges



With the purpose of building a global academic exchange platform for the rail transit, the School hosts and undertakes important international academic conferences such as RailBeijing, ICRE, ICIRT, COTA, etc. Among them, ICTTS (International Conference on Traffic and Transportation Studies) and ISROR (International Symposium on Railway Operations Research) have been held successively for more than 10 years, becoming the most influential academic conference in the field of traffic & transportation and railway operation in Asia.



In 2017, the Sino-foreign cooperative undergraduate education program in traffic and transportation launched by Beijing Jiaotong University and the Delft University of Technology in the Netherlands was approved and enrolled students in the same year. Concerning the students graduated from this program, the enrollment/employment rate reached more than 80%, and the rate of study abroad was close to 50%. The universities for further study are those listed in top 100 of QS rankings.



In order to broaden students' horizons and cultivate international talents with innovative thinking, the School of Traffic and Transportation organizes annual exchange activities such as Excursion with Dresden University of Technology, Exchange Program at University Level (Beijing-Hong Kong, Macao), Summer Study Tour to Netherlands and Germany (Collaborative Education Program), and the JST Invitation Program "Sakura Science Exchange Program", etc. Further, the School has leveraged the innovation and talent introduction base for "Efficient Operation and Safety Guarantee of High-speed Railway" to introduce overseas academic masters to give lessons in China. Till now, it has organized International Summer School, Golden School and other professional lectures successively for more than 10 years, covering supply chain management, rail transit operation control, travel demand forecast, subway engineering system and operation, railway cycle operation diagram and other professional fields. The School also insists on improving all-English curriculum system to promote the realization of the integrated bachelor-master training target.



08 Social Service

In recent years, the School, catering to the major needs for the development of transportation industry, relies on the "scientific research and teaching platform" and takes the "Government-Industry-University-Research" as the channel to carry out multi-level social services at "international, national, local and industrial" level, and has formed a continuous social service mechanism.

Service International

The School participated in the establishment of Sino-US and Sino-Russian high-speed rail research centers, as well as Alliance of Universities for High-Speed Railway (AUHSR), and Global Alliance of Universities on Sustainable Transport (GAUST); also it participated in the establishment of railway transportation majors of railway universities in Thailand and Mongolia. Since training Tanzania-Zambia railway technicians in 1970s, the School has been actively undertaking the national missions. Entrusted by the Ministry of Commerce and other national government departments, the School has successively completed more than 50 foreign training programs for administrative officials, engineers from relevant units of railway and transportation departments and university teachers from more than 20 countries along "the Belt and Road". As recorded, over 1,300 people attended the training. After the training, the trainees are enabled to fully understand the achievements of China's railway and urban transportation construction development. Such trainings are also a way of sharing China's experience and telling China's Story.



Serving the country and the local community

The School leverages its advantage in talents and platform to serve the national industry development strategy, planning and decision-making. The scientific research team has led and participated in the development of over 20 international, national and industry standards related transportation, making outstanding contributions to serving the construction of Xiong'an New Area and Beijing sub-centers, Beijing Winter Olympics, "rural revitalization" and the research of national comprehensive three-dimensional transportation network.



Service trade

Since 1954 when it undertook the transport training of the first cadre class under the Ministry of Railways, the School has taken up nearly 100 training missions including the training programs for China Railway Group, Hong Kong Railway, Shanghai Shentong Subway, various railway bureau groups. The total number of participants in the training is over 4,000.





Hundreds of years' expertise in transportation
makes **thousands** of miles' access to all destinations.