



# 2024 Master's Degree Program in Transportation Engineering

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**Central South University**

2024

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## **Part I Program Introduction**

### **I、 Program Introduction**

#### **1) Program Description**

##### **Brief Introduction**

Academic Education Programs sponsored by the Ministry of Commerce of People's Republic of China started from 2008. It is designed to foster high-end business officials and managerial personnel for the recipient countries, offering one-year and two-year master programs as well as three-year doctoral programs for the purpose of educating high-end and inter-disciplinary talent working in the applied fields of government, trade, foreign affairs, agriculture, technology, education, culture and health, building intellectual capacity and facilitating the economic and social development of the recipient countries. These programs provide assistance to governmental officials, research fellows, and senior managerial personnel on their master and doctor education in China, which are fully conducted in English. Admission requirements include a bachelor's degree, relevant working experiences, and decent physical conditions, essential for the high-compact curriculum needed for the degrees. The program plays an increasingly significant role in the economic development cooperation between China and students' home countries, and is highly valued by the government of students' home countries.

As for the positive effects and good results brought by these programs in strengthening economic ties and friendship between China and the recipient countries, the Ministry of Commerce of People's Republic of China will continuously intensify its efforts in enlarging the enrollment scale and improving the quality of education. We believe that by attending the programs and achieving the degrees, you will embrace a successful career and brighter future.

##### **Prospective Students**

Our prospective students are mid-to-senior level officials or managers from the government, the media, and other public sectors, who have demonstrated superior performance, both academically and in their work. By the time of matriculation, each must have obtained an undergraduate bachelor's degree in the case of our master program.

##### **Program Objective**

To prepare policy makers and practitioners for developing countries

##### **Enrollment Plan**

In 2024 we have planned to enroll up to 25 students in master program, with a concentration on national development.

##### **Financial Aid**

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- a. Students are exempt from tuition fee, teaching materials fees, culture visit and tour fee;
- b. University will provide free accommodation;
- c. The living expense being 3000 RMB/month will be deposited to students account by the university;
- d. The settlement allowance being 3000 RMB/person will be given to students account by the university;
- e. University will buy comprehensive medical insurance for students;
- f. One round-trip international air tickets for students first come to China and back home after graduation will be provided. During 2 years,another one round-trip international air tickets will be provided during the summer or winter vocation;(In case of major events, this policy will be flexibly adjusted or cancelled.)
- g. Students are required to take part in the Annual Evaluation. Those who meet the criteria can continue to enjoy full scholarship in the following year.
- h. The Ministry of Commerce subsidizes the university related expenses for its teaching and managing. Only the settlement allowance and the living expenses should be granted to the students, and other fees will be managed by Ministry of Commerce or by the university, not to be granted to the students.

The Ministry of Commerce only provides students with financial support during the school system (two-years for master students). The students who postponed their graduation will not receive the continuing support.

## 2)、 Central South University

### Brief Introduction

Central South University (CSU), a national key university under the direct administration of the Ministry of Education of China, has a highly regarded reputation as being a member of both Project 211 and Project 985, two national key construction projects to support the development of high –quality universities, a vice-minister-level university recognized in



2003 and one of the initiative leading universities selected in 2013 for China's Synergy Innovation Project 2011. Covering an area of 392.4 hectares (including area of 2.76 million square meters) with campuses located across Xiangjiang River at the foot of the majestic Yuelu Mountain, CSU is an ideal university for study and research with restful environment and picturesque view.

## School of Traffic & Transportation Engineering

School of Traffic & Transportation Engineering of Central South University, being one of the predecessors of Central South University, was founded on the original dominant specialties of Traffic and Transportation, Locomotive and Vehicle Engineering, Rail Transit Engineering etc. and the Research Center of High-speed Trains, aiming at establishing a world-known and domestic first-class discipline on the basis of Traffic and transportation engineering subject.

The school administers 3 departments, 1 research center, 1 experimental center and 8 research institutes, with a team of 127 faculty members and among them 106 full time teachers, 49 professors, 44 associate professors, 41 doctoral supervisors, 16 visiting scholars; one “Yangtse River Scholars Program” professor, and six outstanding talents of “The Ministry of Education Program for New Century Excellent Talents”. In addition, the school leads one Yangtse River scholars and innovation team of the ministry of education "Rail Transit Safety Key Technology", one teaching team of Hunan province" Rail Transit Innovation Training” and one “Advanced Group of Professionals Nationwide”.

Through years of construction and development, the school now boasts her high-level scientific dais like the conferring authority of doctoral and master’s degree to the first-grade disciplines of National Leading Academic Disciplines in Traffic & Transportation Engineering, a post-doctoral research station in Traffic & Transportation Engineering, a key laboratory on “rail transit safety” under the Ministry of Education and “rail transit safety” engineering platform in the “985 Project”, and was among the first group of universities concluded in the plan for upgrading the innovative capability of education of higher learning of the country (“2011 Plan” in short.) , bearing remarkable school-running advantages and features.

### Campus Life

Central South University is located in Changsha, capital city of Hunan province. Changsha is located in the northeast of Hunan province. It is a subtropical monsoon humid climate, characterized by mild climate, abundant precipitation, rain and heat in the same period and four seasons. Summer and winter are long, spring and autumn are short. Temperature of Spring is 8°C -15 °C, summer 23 °C -30°C , autumn 20 °C -29 °C, winter 5 °C -12 °C, and annual average temperature is 17.2 degrees Celsius .

Central South University is located at the foot of Yuelu Mountain with natural beauty, including 6 campuses, there are International dormitory in each campus. And the international students in this program will live in railway campus, the dormitory is one rooms one hall share with the washing room, and in each room there are air-condition, network, desk and chest, in each floor there are public kitchen room and refrigerator. The supermarket and student canteen are in the campus.

## II Education Plan

Our master degree program is a two-year full-time program. Students enrolled in this

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program are expected to complete the coursework, conduct research, and write a thesis within two year.

Language of instruction: the language of instruction of the program is English.

### 1) Formal Coursework

Acquiring transportation engineering master degree must finish 8 core courses (compulsory) of 24 credits (in total), engineering practice of 4 credits, a research thesis of 3 credits (including 1 credit of research proposal and 2 credits of academic activity).

No.	Core Course	Credit
1	Locomotive Engineering	3
2	Vehicle Engineering	3
3	EMU Technologies	3
4	Railway Engineering	3
5	Rail Transportation Organization	3
6	Vehicle Strength and Dynamics	3
7	Electrical Traction and Control for Railway Vehicles	3
8	Railway Enterprise Management	3

### 2) Optional Coursework

In the first school year, there is one elective course "primary Chinese and Chinese profile" set up for the students.

No.	Core Course	Credit
1	Elementary Chinese and China Overview	5

### 3) Semesters

Time	Contents
Sep 2024	Registration of Students & Opening Ceremony
Sep 2024– May 2025	Course Study & Selecting Supervisor
Jun 2025	Field Practice
Jul 2025	Selecting Thesis Topic
Sep 2025– Apr 2026	Thesis Research and Writing
May 2026	Thesis Defense

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Jun 2026	Commencement
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### 4) Field Practice

Field trips will be arranged for students to visit Chinese government agencies, special economic zones, business corporations, etc., to gain first-hand knowledge of how governments and markets operate under various changing conditions in the reform and opening-up process of China.

### 5) Thesis

By the end of the first semester, a student shall choose a professor as his/her supervisor, and determine the subject matter on the basis of a real world problem to be solved in his/her own countries. In the second year, students are expected to complete their theses and each pass an oral defense. The thesis writing must be followed by university requirements, and no less than 20,000 words. After thesis writing, with consent of supervisor and review of college, students can apply for thesis evaluation and defense. After passing the evaluation of thesis evaluation, thesis defense can be organized.

Thesis or dissertation shall be written in English.

### 6) Degree-conferring

The master degree will be conferred upon a candidate in the master program after his/her successful completion of required credits and thesis.



## III Profiles of Instructors

### Gao Guangjun (professor and doctoral supervisor)

Visiting scholar at Birmingham University UK, recipient of 2013 Prominent Youth of Hunan Province and Mao Yisheng Special Award on Science and Technology; 1 second-class award for National Scientific and Technological Progress and 5 first-class awards on Scientific and Technological Progress of provincial-ministerial level; having presided over 1 major scientific projects from the National Science Foundation, more than 10 projects of provincial-ministerial level or in cooperation with enterprises; taking up major academic course in Vehicle Engineering, Vehicle Strength and Finite Element Method, Traffic & Transportation Engineering, Vehicle System Dynamics, Fundamentals of High Speed Train etc.

Research area: multi-body coupling crash safety protection technology, rail transit

aerodynamics and road safety.

### **Song Yao (professor, doctoral supervisor)**

Dr. Song Yao received B.E & M.S degrees from Changsha Railway College, a PhD degree from Central South University. Dr Yao has been awarded two research grants from National Natural Science Foundations of China. Also Dr Yao has participated more than 40 national and provincial research projects. He received National Science & Technology Awards twice. Dr Yao has obtained authority of six national invention patents and two computer software copyrights. He was selected into the Program for New Century Excellent Talents in University of MOE in 2012 and Hunan New Century 121 Talent Project in 2010.

Research area: Finite Element Analysis, Train Structure Crashworthiness, Trains Operating Safety Evaluation.

### **Qin Jin (professor, doctoral supervisor)**

A visiting professor at Northwestern University, USA and the economic adviser to the Bi Jie Municipal Government of Guizhou Province. Having been engaged in the teaching and research in traffic & transportation engineering, logistics engineering, member of the editorial board of «Scientific World Journal» of SCI and a SCI and EI Journal contributing reviewer of Part B and Part E of «Transportation Research», «Theory and Practice of System Engineering», «Journal of Central South University» (Natural Science Version), «Journal of Central South University», «Journal of Southwest Jiaotong University», «Science China» etc.

Having presided over and undertaken over 30 various scientific research projects in the recent 5 years, and among them 4 projects under the State Natural Science Foundation (inclusive of 1 key project), 1 planning project under the state scientific and technological support, 2 major projects from the Ministry of Education, 1 post-doctoral fund project; published more than 40 theses on scientific and technology within the last 5 years and over 30 theses collected by SCI, EI and ITSP, as well as 3 monographs and textbooks including a textbook under the national-level plan.

Research area: traffic & transportation planning and Designing, method for optimization of traffic and transportation organization, theory and technology of intelligent transportation, Rail Transit operation & management and Planning & Management of Logistics System.

### **Deng Lianbo (professor, doctoral supervisor)**

Dr. DENG holds a PhD degree of Transportation Planning and Management from Central South University (2007) and worked as a visiting scholar at Newcastle University (2011-2012). Dr. DENG is a reviewer for some SCI/EI-indexed journals including Transportation research, Transport policy, Journal of the China Railway Society, Journal of Southwest Jiaotong University etc.



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Dr. DENG has published about 70 peer-reviewed publications, over 40 SCI-EI-indexed journal articles including some outstanding journal of railway research (Journal of rail and rapid transit, China Railway Science and Journal of the China Railway Society, etc). He has presided over 10 high-profile research projects funded by China National Natural Science Foundation, Ministry of Education, China Railway Corporation, Fok Ying Tong Education Foundation (Hong Kong), Natural Science Foundation of Hunan Province, etc.



Research area: Transportation operation management and information system, High-speed railway organization, optimization of urban rail transit operation

### **Fang Xiaoping (professor)**

An expert of Hunan Provincial Association of Logistics and Purchase, visiting scholar at University of Edinburgh, having published more than 30 theses in the well-known domestic and foreign journals and academic forums and 4 monographs and textbooks, and having sponsored, or as leading participator, in over a dozen of provincial-ministerial level research projects as well as 5 transversal projects.

Research area: management of transportation and logistics enterprises, traffic behavioral study, strategic management of enterprises, Logistics Economy, optimization of logistics system etc.

### **LI Xiongbing (professor, doctoral supervisor)**

Dr. LI holds a PhD degree of Mechanical Manufacturing and Automation from Zhejiang University (2008) and worked as a visiting scholar at the Center for Nondestructive Evaluation of Iowa State University (2012-2013). Dr. LI is a reviewer for some SCI/EI-indexed journals including Acta Armamentarii, Journal of Zhejiang University, NDT&E int' l, etc.

Dr. LI has published about 60 peer-reviewed publications, over 30 SCI-EI-indexed journal articles including some outstanding journals (NDT&E int' l, Nondestructive Testing and Evaluation, Nuclear Inst. and Methods in Physics Research, B, International Journal of Production Research, etc). He has obtained two Invention Patents and a Second Class Prize of Hunan Province Scientific and Technological Progress Award. He has presided several high-profile research projects funded by China National Natural Science Foundation, Ministry of Education and Natural Science Foundation of Hunan Province, etc.

Research area: Ultrasonic nondestructive testing and evaluation, Tool path planning for

high speed milling

**Liu Tanghong (professor, doctoral supervisor)**

Dr. LIU holds a PhD degree of Vehicle Operation Engineering from Central South University and the National Defense University' s joint training. From 2003 to date in Central South University, I have hosted and participated in national and provincial scientific research more than 30 items, and have got 11 items of provincial awards and achievements appraisal. I mainly engaged in the research of train aerodynamics. Up to now, I have carried out a lot of full scale tests, moving model tests, wind tunnel tests and numerical calculations about train aerodynamics and travelling-train safety assessment. Published 47 journal papers, SCI and EI indexed 32. 17 applications for invention patents, and 5 were implemented. Served as the reviewer of national SCI magazine "Engineering Applications of Computational Fluid Mechanics" and so on.

Research area: Train aerodynamics; Safe operation technology of train under wind environment.

**Yong Peng (professor, doctoral supervisor)**

Dr. PENG holds a PhD degree from Strasbourg of University, France (2009-2012). Dr. PENG is a journal reviewer for SCI/SSCI-indexed international journals including Accident Analysis & Prevention, Safety Science, Traffic Injury Prevention, International Journal of Crashworthiness, Proc IMechE Part D: Journal of Automobile Engineering, Journal of rail & rapid transit and Computational & Applied Mathematics.

Dr. PENG has published about 30 peer-reviewed publications, over 20 SCI-SSCI-EI-indexed journal articles including some outstanding journal of vehicle and traffic safety technology research (International Journal of Impact Engineering, Safety Science, Traffic Injury Prevention, International Journal of Crashworthiness, International Journal of Automotive Technology, Journal of Clinical Rehabilitative Tissue Engineering Research, Part F: Journal of Rail and Rapid Transit, Journal of Mechanics in Medicine and Biology, etc). He has presided over 10 high-profile research projects funded by China National Natural Science Foundation, Natural Science Foundation of Hunan Province, China Postdoctoral Science Foundation, China Railway Corporation, etc.

Research area: Train collision theory and application, Vehicle and traffic safety technology, Epidemiology of accidents and Injury biomechanics

### **Wang Zhonggang (Professor Doctoral ,supervisor)**

Leading Talent of Technological Innovation of Hunan Province, Distinguished Youth Talent in Hunan Province, Huxiang Youth Talent, Distinguished Young Innovator in Changsha. He specializes in teaching and research in the fields of structural strength and dynamics of railway locomotives and vehicles, impact dynamics, and mechanics of composite materials. He has led over 30 projects including National Key R&D Program projects, National Natural Science Foundation of China (NSFC) Youth/Fundamental Research Projects, National Key R&D Program sub-projects, and major university-enterprise cooperation projects. He has published 60 SCI JCR Q1 papers as first or corresponding author, including 8 highly cited papers, 2 hot papers and 2 Nature index papers. He ranks first in authorizing 2 US patents and 15 Chinese patents. He has won the Second Prize of Scientific and Technological Progress of Hunan Province, the Zhan Tianyou Railway Science and Technology Award for Rail Transit Equipment, the Youth Award of China Innovation in Industry-University-Research Cooperation, and the Youth Award for Technological Innovation of the China Communications and Transportation Association. He was selected as one of the top 2% scientists globally (2021-2023) and recognized as a highly cited researcher in China by Elsevier (2022-2023). Additionally, he serves as an editorial board member for Virtual and Physical Prototyping (JCR Q1 IF10.6), Reviews on Advanced Materials Science, and Biomimetics.

### **IV Financial Aid**

The Chinese Ministry of Commerce will provide "Chinese Government Scholarships" to admitted students from developing countries. These scholarships cover both tuition and living expenses. They also include a round-trip international airfare for all the students, and a maximum of 2 round-trip international airfares for home visits applicable only to doctoral students (one time per year set at the end of an academic year). In terms of living expenses, it is 36000RMB/year for the master program, and 42000RMB/year for the doctoral program. There is also a settlement allowance of 3000RMB/person.

If a student expects to have his/her spouse, children, relatives or friends to visit him/her during the stay in Changsha, the visitor will have to bear all the expenses by him/herself.



## V Application

### 1. Requirement

All applicants must meet the following admission requirements:

- a) Be in compliance with the laws and regulations of the People's Republic of China (PRC) and the university regulations, and respect Chinese customs and habits; Be non-Chinese nationality from developing countries under the age of 45 (born after 1 Sep, 1978) and be healthy;
- b) Be physically and mentally healthy with the Health Certificate or Physical Examination Result issued by local public hospitals. Without diseases classified as “prohibited entry into China” under Chinese laws and regulations and without diseases classified as “prohibition of long-term residency in China”; Without serious Chronic diseases such as hypertension, cardio-cerebral vascular disease, diabetes, cancers etc; Without Psychiatric diseases; Without Infectious diseases which may bring great harm to the public health; Not in the recovery period after a major operation; Not in the acute episode of the acute disease; Not severely disabled. Pregnant women are not allowed to attend this program in China. If you are pregnant during your studies in China, you will be dropped out of school.
- c) Hold a Bachelor's degree or above and with 3 years or more working experience ;
- d) The applicants with profession studying or working background related to the major applied and be on the job are preferred.
- e) To serve as Public officer (section chief or corresponding levels and above) of the government departments of the host country, Or Senior managers of various institutions and enterprises, Or Academic backbone of the universities and scientific research institutions.
- f) Have a good command of English, proficiency in English for academic course (For example IELTS 6.0 or TOEFL 80);
- g) With the potential of career development in this field and with the intention to promote friendly exchanges and cooperation between China and the host country;
- h) The applicants who are studying in China or have been admitted to other programs of Chinese government scholarship are not allowed to apply.

### 2. Procedure

#### 1) Application to Central South University

(1) Visit <http://stte.csu.edu.cn/>, filling in the form in the electronic version “Application Form of Master's Degree Program in Transportation Engineering (Rail Transportation Equipments) in Central South University”, printing it and signing it with dates;

(2) Sending electronic copies of all the application materials to School of Traffic & Transportation Engineering of Central South University by Email: [yingll@csu.edu.cn](mailto:yingll@csu.edu.cn);

(3) If accepted, the applicants must submit the hard copies of all the application

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materials to School of Traffic & Transportation Engineering of Central South University in person when they make registration;

### 2) Materials

Documents		Requirements	Original copy	Photocopy
1	CSU Application Form	Please visit <a href="http://ste.csu.edu.cn/">http://ste.csu.edu.cn/</a> , fill in the application form, print it out, sign, date, and post a photo on it.	1	1
2	Chinese Government Scholarship Application Form	Please visit <a href="http://laihua.csc.edu.cn/">http://laihua.csc.edu.cn/</a> , fill in the application form, print it out, sign, date, and post a photo on it.	1	1
3	Degrees	An original copy and a photocopy need to be prepared for each degree.	1	1
4	Official Transcripts	Transcripts must list all courses taken and all scores obtained.	1	1
5	Personal Statement	Personal statement must be written in English and be some 1000 words in length. It shall cover such essential elements as applicant's academic background, work experience, achievements, and future career plans, including a research plan at Peking University.	1	1
6	CV	In English.	1	1
7	Recommendation Letters	Two recommendation letters are required: one by a superior in the institution where the applicant works; the other by a professor who knows the applicant well.	2	2
8	English Language Proficiency Test Results	Applicants who are not native English speakers or whose undergraduate education was not conducted in English shall provide TOEFL or IELTS test scores.	1	1
9	Physical Examination Form	The health form shall be issued within one month before the submission of application, showing that the applicant carries no infectious diseases which may have a serious impact on public health or fall into any of the health situations prohibited by China's Entry-Exit Inspection and Quarantine Laws and Regulations.	1	1
10	Photocopy of a Valid Passport	The passport must be a personal regular passport. All successful candidates must enter China and register with Central South University using the same passport as used for applying for the program.	0	2

### 3) Submission

(1) The applicant can apply for this scholarship program only after you have been approved and recommended by the relevant departments of the government in the host country;

(2) Under the condition that the government of the host country allows the applicant to directly submit the application materials to the Chinese Embassy, and With the proof or recommendation letter concerning permission for the applicant to study in

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China, the applicant should submit all the application materials listed in the above table in both original ones and scanned copy to the **Economic and Commercial Counselor's Office of Chinese Embassy**.

(3) The relevant departments of the government in the host country should submit a written request to **the Economic and Commercial Counselor's Office of Chinese Embassy** for **an official recommendation letter** and clearly state: Whether the applicant is willing to be transferred to the other same or similar programs in the other universities if declined by the university he/she applies. Other special requests if any.

### Reminders:

- a) All the documents to be submitted should be in Chinese or English. Otherwise, a notarized copy in Chinese or English is required.
- b) An original copy of degrees, transcripts and language certificates must be presented for on-site verification. After verification, students themselves should send the documents to the university.
- c) Applicants will get back all the hard-copy materials, both original copies and photocopies from the Economic and Commercial Counsellor's Office. If admitted, they must take the documents to China and submit them to the School of Traffic & Transportation Engineering of CSU during registration in early September.
- d) None of the materials submitted to the School of Traffic & Transportation Engineering of CSU will be returned. For important documents such as degrees and transcripts, a stamped copy issued by the institution where the applicant received his/her degrees will be accepted as a replacement of the original copy. In this case, the original copy must be presented for on-site verification.

### 3. Deadlines

The application deadline for the master program is June 7th, 2024.

## VI Registration

Registration will take place in September 2024. The exact date will be specified in the admission letter.

## **VII Contact**

Contact person: Ms.Lingling Ying

E-mail: [yingll@csu.edu.cn](mailto:yingll@csu.edu.cn)

Telephone: (86-0731) 82655326

Fax: (86-0731) 82655315

Website: <http://stte.csu.edu.cn/>