

## Brief Introduction of Henan University of Technology

Founded in 1956, Henan University of Technology (HAUT) is one of the key universities in Henan Province under the dual administration of State Ministry of Grain of China and Henan Provincial Government. Now HAUT has developed into an important education and research base for the industry of grain, plant oil and food of China.

Located in the High-Tech Development Zone of Zhengzhou, Henan Province, HAUT campus covers an area of 185 hectares. The University provides 68 bachelor degree programs, 108 master degree programs and 3 PHD programs, covering 6 main major academic categories such as engineering, agriculture etc. HAUT has 20 colleges, with an enrollment of more 30000 full-time students. There are 15 scientific research centers and technique promotion platforms of the national and the provincial levels, and 25 key disciplines of Henan Province. HAUT, as the main collaborative partner of "Henan Grain Crops Innovation Center", has been enrolled into "2011 Plan" of the first national collaborative innovation center. In 2012, it won the title of National Top 50 Universities for employment.

As a university with distinctive features in research and education on grain, plant oil and food technology, in super-hard materials development and other related fields, HAUT gathers a high level faculty with strong research capability. With a solid technology development and research foundation in the aspects of the grain storage, agriculture products processing, abrasives and grinder, HAUT exerts a strong influence on above fields domestically and even internationally.

HAUT upholds the open-up strategy and positively develops a sound international cooperation via making full use of qualified international education resources. In its long history, HAUT has been keeping a very close research relationship with many international

research institutes such as the Food and Agricultural Organization of the UN, International Association for Cereal Science and Technology, US Wheat Association, Canadian Bureau of Wheat, France Export Cereals and Australian International Agricultural Development Center. From 2008, the university has been granted as the only undertaking organization of the Chinese National Project of Human Resources Development for Foreign Aid in Henan Province and has successfully trained more than 981 grain-relevant officials and technicians from over 103 developing countries globally.

### **Introduction of International Students Education**

Henan University of Technology has since 2004 started education for international students. So far the university has enrolled almost one thousand international students from more than 30 countries and regions from Europe, Asia, Africa, and the America. In addition, the university has also undertaken the foreign-aid training programs of Chinese central government from 2008 and has accomplished training 981 officials and technicians from over 103 developing countries.

In recent years, the international education of Henan University of Technology has been highly recognized by the Ministry of Education of China's central government and Henan provincial government. In 2014 the university was accepted by Henan Provincial Government for providing Henan Provincial scholarship for international students and in 2015 by the China Scholarship Council for providing Chinese Government scholarship and the Silk Road Scholarship for the international students. Now the number of the international students at our university ranks the third among Henan Province Universities.

Henan University of Technology, besides providing Chinese language training, focuses more on the education for degree programs, especially

in the engineering disciplines such as food science and technology, mechanics, civil engineering and architecture, computer science and engineering, etc.. Now the university has hundreds of international students for PhD, Master degrees and bachelor degrees.

## **Introduction of Scholarship Program**

In order to improve the quality level of International academic students in HAUT and improve the Internationalization level of Education, HAUT provides Chinese Government Scholarship and the University-level Scholarship of Henan University of Technology for doctoral students. Chinese Government Scholarships are full or partial scholarships provided by the Ministry of Education of China in accordance with educational cooperation and exchange agreements or Memorandum of Understanding signed with relevant governments, institutions, schools and international organizations; The University-level Scholarship of Henan University of Technology provides tuition, accommodation and living expenses for International students applying for doctoral programs. There are three major disciplines for Doctoral candidates, namely Food Science and Engineering, Civil Engineering and Mechanical Engineering. All majors are taught in English with 3-4 years educational system.

## Scholarship Coverage and Criteria

类别 Category	学科 Subject	学费 Tuition	住宿费 Accommodation	生活费 Living Expenses	医疗保险 Medical Insurance	总额 Total	资助期限 Duration
中国政府 奖学金 Chinese Government Scholarship	理工科 Science and Engineering	38000	12000	42000	800	92800	3-4 年
河南工业大 学奖学金 University - level Scholarship	理工科 Science and Engineering	38000	12000	42000	800	92800	3-4 年

### Eligibility

1. The applicant must be a non-chinese national holding a valid foreign passport. Applicants should abide by the laws and regulations of the Chinese government and the rules and regulations of the university.
2. The requirements for applicants' degree and age are that applicants must be a bachelor's degree holder and master's degree holder who majoring in food science and engineering, civil engineering, mechanical engineering, etc under the age of 40 when applying for the doctoral programs.
3. The applicant is in good health and meets the physical examination standards of Chinese institutions of higher Education.
4. Applicants who are already studying in China are not allowed to apply for this program.
5. Applicants are not allowed to apply for two or more schools at the same time.

6. Applicants should submit the following application materials:

● Highest diploma; Prospective diploma recipients must submit official document issued by your current school to prove your current student status or expected graduation date. Documents in languages other than Chinese or English must be attached with notarized Chinese or English translations.

● Academic transcripts (written in Chinese or English); Transcripts in languages other than Chinese or English must be attached with notarized Chinese or English translations.

● A Study Plan or Research Proposal (written in Chinese or English, 2000 words minimum, include the background, the objectives and the methodology or approach you propose to take in studying the subject matter).

● Two Recommendation Letters (written in Chinese or English); Applicants must submit two recommendation letters signed by a professor or an associate professor, (Original, with contact information)

● The copy of valid HSK or IELTS Certificate (if available).

● Foreigner Physical Examination Form

● Copy of Passport. (Pages with photo and address).

● The Certificate of Non-criminal Record (Valid only for six months) .

## **Application Procedure**

1. Please log in Chinese Government Scholarship Information System portal:  
<https://studyinchina.csc.edu.cn>;

2. After logging in, please upload relevant application materials;

3. After reviewing the application materials, the university will select the excellent students;

4. The accepting institution shall prepare the Admission Notice and Visa Application Form for Chinese Government Scholarship Students (Form JW201) to the admitted students.

## **Admission Profile for Doctoral candidates of Food Science and Engineering**

### **1. Introduction**

The subject of food science and engineering in Henan University of Technology is a multidisciplinary that had traditional cereal science as its core and food science as its foundation. With the development of three characteristic research field (food engineering, oil engineering and grain and oil storage), the subject is becoming one of the most important New-rising subject. The subject construction has distinct characteristics, prominent advantages, solid foundation and practical competitiveness in the discipline field.

Undergraduate education was carried out in 1959, then in 1981 the beginning of national first master`s degree that recruit postgraduate student for grain storage subject kicked off the postgraduate education phase for the department.

Till 1995, the department already have three secondary discipline master`s degree authorization centers (food science, agricultural products processing and storage engineering as well as grain, oil and vegetable protein engineering). In 2005, the department were granted the first-level subject authorization of master`s degree. In 2012, the department was approved to recruit doctoral candidate to under the

national special needs doctoral personnel training project. In 2014, the department was officially approved to "Food Science and Engineering" post-doctorate Research & Development base.

In 2015, the discipline group of "postpartum food safety and processing" was granted as the characteristic discipline (category A) in the first phase of Henan provincial characteristic & preponderant discipline construction project. Till 2016, 34 doctoral candidates have been enrolled in four consecutive sessions.

This discipline has become the largest and the most complete domestic subject in the field of grain, oil and food. With distinctive professional characteristics, it has strong scientific and technological strength. Now the department has the National Engineering Laboratory for Deep Processing of Wheat and Corn, the National Engineering Laboratory for Grain Storage and Transportation, and the Innovation Platform for Grain Storage and Processing Technology of Henan Food Crop Co-Innovation Center ( part of national '2011 Plan').

The department were also officially approved as food science experiment teaching center (national experimental teaching demonstration center), engineering technology research center. Besides, the grain conversion and utilization centre were set to the department by national bureau of grain food and Henan province government. Including provincial green grain and oil processing equipment engineering laboratory, 8 provincial key laboratories, engineering technology research center or engineering laboratory were assigned to the department.

With the first-class experimental conditions and technology development platform in the world, a simulation pilot grain storage warehouse, a grain processing pilot laboratory, a oil processing pilot laboratory, comprehensive utilization pilot laboratory and other pilot

research platforms have been built in the department. The area of the dedicated laboratory is 23056m<sup>2</sup>, and the total value of the advanced instruments and equipment is nearly 100 million RMB. The department is an important base for the education and scientific research as well as training of high-level professional personnel in grain, oil and food specialty

The department has strong faculty team with reasonable and scientific team building. In recent years, by introducing excellent talents from home and abroad and sending scholars for further study, the age, academic background and academic structure of teaching and research teams have been further improved, and a disciplinary team with reasonable structure and obvious talent advantages has been formed.

At present, the department has 76 full-time faculty members, including 39 professors, 18 doctoral supervisors, as well as a batch of famous experts, including the chairman of the international organization for standardization (ISO) food grains and beans branch, chairman of the international technical committee (ICC), chairman of the central plains of grain science and technology association scholar, distinguished professor at the provincial level. The department has eight provincial teaching and scientific research teams, such as "the grain and oil food processing and new technology research of Henan province outstanding innovation team of science and technology". Among them, the percent of senior teachers is 90%, and the percentage of teachers under the age of 45, granted with doctor degree and experienced research more than 10 months abroad is of 58%, 83% and 31% respectively.

## **2. Research Areas**

This subject insists on demand-oriented developments of the national grain and oil food industry and the national health and nutrition industry,

characterized by engineering practice, adheres to the combination of scientific and technological innovation and the promotion of industry development, keeps on constructing the overall goal of grain and oil food science with "characteristic, advantage prominent, domestic first-class, international advanced", and devotes to building the technology research and development center of grain and oil in the field of food science and engineering, academic research center and senior professional talent training center of food science and engineering.

The following disciplines with distinctive characteristics and obvious academic and technological advantages at home and abroad have been established since more than 60 years' construction:

### **2.1 Cereal science and processing technology :**

- (1) cereal chemistry and quality;
- (2) theory and technology of grain processing;
- (3) transformation and utilization of grain resources;
- (4) retention and recombination of nutrient components in grain processing

### **2.2 Theory and technology of grain storage :**

- (1) theory and technology of grain and oil storage;
- (2) theory and technology of pest prevention and control in grain storage;
- (3) processing principles and new technologies of agricultural products;
- (4) Research on physiological properties, storage and transportation technology of fruits and vegetables after harvest;
- (5) theory and technology of quick and non-destructive test of agricultural product quality

### **2.3 Lipid chemistry and deep processing of oil :**

- (1) chemistry and quality of lipid;
- (2) theory and technology of oil processing;
- (3) chemistry and utilization of plant protein;
- (4) deep processing of oil

#### **2.4 Food science :**

- (1) theory and technology of traditional food processing of grain and oil;
- (2) theory and technology of main food industrialization;
- (3) processing principles and quality control of agricultural products;
- (4) preparation and evaluation of functional components of food

#### **2.5 Food safety and nutrition:**

- (1) nutrition and quality control of cereals and oils;
- (2) regulation of nutritive activity factors of cereals, oils and their products;
- (3) detection and control of pollutants in grain, oil and food;
- (4) analysis and regulation of risk and hazard factors in the process of grain, oil and food processing;
- (5) surveillance and control of major hazards in the whole industry chain of grain, oil and food

## **Admission Profile for Doctoral candidate of**

### **Mechanical Engineering**

#### **1. Introduction for Mechanical Engineering of HAUT**

The mechanical engineering discipline originated from the Mechanical Department of Zhengzhou Food University. It started to enroll

undergraduates in 1959. It was granted the right to confer master's degree in 1993. In 2006, it was granted the first-level authorized discipline of master's degree. In 2015, three doctoral postgraduates were enrolled in the doctoral training project to the aim of serving the special needs for the country. In 2017, the undergraduate majors of mechanical design, manufacturing and automation passed China Engineering Education professional Certification.

Focusing on the basic scientific issues in the fields of mechanical design, manufacturing and automation, this subject focuses on the basic theory and engineering application of digital design, green manufacturing, precision and efficient processing and robotics, and forms four sub-disciplines: precision and efficient grinding tools and technology, digital design and manufacturing, robot theory and technology, grain machinery design theory and technology. Among them, the design theory and technology of grain machinery is based on the strategic demand of national food security, and has traditional characteristics and industry advantages in the research of green, efficient processing and storage and transportation machinery of grain; precision and efficient grinding tools and technology, relying on the advantages of Henan Province in superhard material industry (85% of the national output, 75% of the world output). It has the characteristics of manufacturing in precision and efficient grinders for superhard materials.

There are 61 full-time teachers in mechanical engineering, including 26 professors, 13 doctoral supervisors, 4 provincial and ministerial academic backbone, 72.1% senior title teachers, 83.6% doctoral teachers, 59.0% teachers under 45 years old, and 96.7% teachers with the highest degree not acquired from Henan University of Technology.

This discipline has 13 scientific research platforms at or above the

provincial level, such as the National Engineering Laboratory of Wheat and Maize Deep Processing and the Henan Engineering Laboratory of Ultra-precision Tool Manufacturing Technology, which strongly supports the development of the discipline's characteristics.

The "Research and Development of Key Technologies and Equipment for Bulk Grain Storage and Transportation" undertaken by this discipline won the second prize of the National Science and Technology Progress Award. In the past five years, it has finished over 34 national projects, including 27 projects of the National Natural Science Foundation, 5 projects of the 863 Program and 2 other national projects. It has presided over the formulation of 10 national and industrial standards, with research funds of 43.143 million yuan, and won 17 provincial and ministerial science and technology awards and 9 teaching achievement awards.

Agricultural machinery equipment, high-end CNC machine tools and robotics technology are the main research fields of China-made 2025. The research objects and key points are the important components of these two fields. There are a lot of basic scientific problems and engineering application problems that need to be studied in depth. Henan Province, as a major manufacturing, food and superhard material production province, is face issues of short of high-level specialists and weak doctoral training system, which seriously restricts the development of the industry and industrial upgrading. Relying on the project of training doctoral talents serving the special needs of the country, this discipline has accumulated some experience in training doctoral postgraduates, which lays a necessary foundation for the application of doctoral authorization for the first-level disciplines of this discipline, and for improving the ability and level of serving the national strategy and local economy.

The discipline upholds morality and cultivates people, has a sound monitoring system of educational quality assurance and the selection system of tutors, and has an excellent doctoral dissertation cultivation fund and grants. In the past five years, 96 students have been awarded master degree of engineering, and the employment rate of graduates is 100%. The qualified rate of master's degree dissertation is 100% in the past years' spot check of the degree Office of the State Council.

## **2. Research Areas**

### **2.1 Precision and High Efficiency Grinding Tools and Technology**

Superhard material is an advantageous and characteristic industry in Henan Province. In this direction, the manufacturing of grinding tools and grinding mechanism of superhard materials are studied around precision, high-speed and high-efficiency processing technology. A series of achievements have been made in precision and efficient grinding, precision dressing of grinding wheels, superhard grinding tools with low temperature ceramic bonds and high temperature resin bonds, preparation of large-scale nano-diamond and cubic boron nitride polycrystals, and high-speed grinding technology. In the past five years, it has presided over eight projects of the National Natural Science Foundation of China (including one key project) and formulated three national standards. It participated in the development and application of series of super-hard abrasives for precision cutting of key parts in the optical and electronic industries, which won the first prize of scientific and technological progress in Henan Province in 2015.

### **2.2 Digital Design and Manufacturing**

This area mainly studies the rapid development and manufacturing technology of complex products. A series of achievements have been

achieved in the fields of 3D scanning point cloud data processing and integration of reverse design and forward design, integration of CAD/CAM/CAE/CAPP/PDM, numerical simulation of gas-assisted injection moulding and composite moulding process and design and manufacture of high-end numerical control equipment. It presided over 10 projects of the National Natural Science Foundation, participated in 3 projects of science and technology support plan and major science and technology projects, won 2 provincial and ministerial science and technology awards, and published 53 SCI/EI papers. It has made important contributions to high-end equipment manufacturing industry and local economic development.

### **2.3 Robot Theory and Technology**

This area mainly studies the theory and technology of teleoperation robot. Taking advanced robots in unstructured environments as the research background, it has formed certain advantages in the research of space robots, bionic robots, micro-drive of MEMS, medical robots and grain storage robots, and has great influence on the research of teleoperation system hand controller in China. It presided over 10 national 863 projects, 4 sub-projects and 7 projects of the National Natural Science Foundation. It published 34 SCI/EI papers, won 2 provincial and ministerial awards for scientific and technological achievements and 4 invention patents. It provides important technical support for national defense construction and food security.

### **2.4 Grain machinery design theory and technology**

This area mainly studies the design theory and application of grain machinery. Focusing on the green, efficient and loss reduction requirements of national food security for grain machinery and equipment, a series of studies have been carried out on the grinding and grinding

mechanism of grain, the theory of grain screening and grading, and the technology of bulk grain transportation, and good results have been achieved. "Research and Development of Key Technologies and Equipment for Bulk Grain Storage and Transportation" won the second prize of National Science and Technology Progress. In recent years, it has presided over 14 projects at the national and provincial levels, 11 national standards for grain and oil machinery, 6 industry standards, 6 provincial and ministerial science and technology awards and 4 invention patents. It has distinct characteristics and outstanding advantages in the field of grain machinery research.

## **College of Civil Architecture**

### **Professional Introduction of Overseas Doctoral Enrollment**

#### **1. Introduction**

College of Civil Engineering and Architecture was established in 1978 growing out of Faculty of Architectural Engineering in Zhengzhou Engineering Institute, Zhengzhou Institute of Grain Science and Factory and Warehouse of Grain and Oil. Now the college has 4 administrative offices, 4 faculties, 2 centers containing Institute of Design & Research of HAUT.

The college owns 121 qualified faculty members, among whom are 1 academician, 1 Cheung Kong scholar, 3 specially-appointed professors of Henan government, 2 professors specially-appointed by HAUT, 15 scholars rank of full professor, 43 senior engineers, 44 doctors, 7 doctoral

supervisors, 32 master supervisors, 4 experts awarded Government Special Allowance, 2 professors awarded “National Outstanding Mechanical Teacher”, 3 awarded “Henan Provincial Outstanding Teacher”, 1 awarded Advanced Personnel and 1 awarded Provincial Honored Teacher.

The college has developed 10 research laboratories in high university level ranging from Key Laboratory of Architectural Storage, Virtual Simulation Center of Civil Architectural Engineering, Henan Provincial Academician Workstation of Underground Large-scale Structure and Environmental Geotechnics, Zhengzhou Academician Workstation of Structural Simulation and Optimization, Henan Provincial Collaborative Innovation Center for Grain Storage and Security, Open Laboratory of Key Disciplines of Bulk Material Pressure Theory and Granary Structure, Co-construction Laboratory for Modern Granary Construction by Ministry of Finance and Locality, Key Laboratory & Breeding Base of Safety of Granary Construction by Ministry of Education, Granary Construction Research to BIM & Lean Construction Research Center.

The college has 7 related undergraduate programs on civil and architectural engineering, including 3 first-level master programs on civil, architectural and mechanics, 15 second-level master programs on structural engineering, master program on architecture and civil engineering and doctoral program for national specific requirements. Engineering of civil, architecture and mechanics is honored as Henan provincial leading program. In 2015, Engineering of civil and architecture passed the specific assessment by Ministry of Housing and Urban - Rural Development (MOHURD). Civil engineering has been specifically qualified by Washington Accord and architecture engineering has been certificated by Canberra Accord.

We insist on taking our discipline construction as leading program,

talents' cultivation as root and serving society as an aim, to develop scientific research actively. In recent 5 years, we have developed 1 research project of National "12th Five-Year" Technology Support Program, 2 scientific researches on Food Public Sector, 18 National Natural Science Fund, over 40 provincial-level programs. The college also awarded 38 research awards in provincial and ministerial level, containing second prize of National Scientific and Technological Progress in 2009 for the Technical Program by the college. During recent 3 years we have published more than 400 academic dissertations with 19 textbooks for National Standard Code, and have been authorized 9 patents of invention and over 30 patents for utility models. In addition, 3 textbooks for State of "11th Five-Year" and "12th Five-Year" Plan and 2 for Henan Provincial and Ministry of Construction of "12th Five-Year" Plan have been successfully completed.

We always insist on industry-oriented development rooted in Henan Province for both nation and the whole world to make efforts to lead progress of industrial technology and continuously deepen social service. Combining with design, consultancy, surveying & mapping, equipment purchase & installation and engineering project management (EPC), the college affiliated Design Institution in Double Class A level possesses abundant professional works with high technology, which is honored as one of innovative bases of science and technology development in grain industry. The compilation and revision of more than 20 national standards, industry standards & procedures has developed into basic theory for design of basic construction in grain industry. Among the programs, 1 won old Award, over 50 won the Excellent Design Award. In addition, the successful invention of General Map of State Reserve Grain Storage marks a new breakthrough in our grain service industry.

## **2. Research Areas**

### **2.1 Structural Engineering**

Research areas of interest include structural design, innovative structural system, structural control and health monitoring, and durability of concrete structures.

Our group has improved the theory of granular materials pressure, which has been adopted by national and industry standards and codes. Innovative structural systems such as dense rib structure, fabricated structure, tall and flat warehouse, and ecological underground warehouse have been developed and are widely used, improving the grain industry of China.

Principal Investigator (PI) of 13 national-level research projects.

National Science and Technology Progress Award (Second Class, Principal Investigator)

Involved in the compilation of 18 national standards and codes

Awarded 9 Provincial/Ministerial level prizes.

Patents: 24

Primary Contributor to the National Technical Standards System (Structures) for grain and food storage industry of China.

### **2.2 Geotechnical and Foundation Engineering**

Research in geotechnical and foundation engineering focuses on understanding and advancing the state of knowledge on the effects that soils and granular materials have on the structures. Areas of research include investigations of soil and granular material behavior under static and dynamic loads, constitutive modeling of soil and granular material behavior, soil-structure and granular material-structure

interactions.

Our group has proposed innovative theory and method for calculation of structural settlement under complicated load and geological conditions, and improved the theory of granular dilatancy and space pressure.

Principal Investigator (PI) of 6 research projects funded by National Natural Science Foundation (NNSF) of China.

Awarded 5 Provincial/Ministerial level prizes.

Contributed to Shanghai Waigaoqiao Grain Logistics Park, Zhengzhou Huizhan Hotel and Zhengzhou Metro.

### **2.3 Lifeline Engineering and Disaster Prevention and Mitigation Engineering**

Research focuses on seismic reliability of structures, urban planning for earthquake disaster prevention, structural assessment of post-fire buildings, and failure mechanism of silo structure and underground pipe network under seismic loads and/or other complicated loads.

Our group has established a seismic analysis model of group silos and a reliability theory of underground pipe network system. We are the pioneers to apply special hybrid finite element method in the thermodynamic study of materials, and built the theoretic framework for the assessment of fire damaged concrete by using inclusion bursting method.

Principal Investigator (PI) of 8 national-level research projects.

Published 60+ SCI journal papers.

Involved in the compilation of 3 national standards and codes

Specialized in structural assessment, retrofitting and rehabilitation of fire damaged structures.

Specialized in seismic design, post-earthquake damage evaluation and rehabilitation of structures.

#### **2.4 Advanced pavement structure and materials**

It mainly focuses on highway structure and materials for green transportation, high-performance pavement materials and resource and environmental utilization, road traffic safety and disaster prevention. Based on the increasingly prominent technical problems in the construction and maintenance of highway, relying on provincial key laboratories, the following researches are focused on: high-performance asphalt-based composite design, long-life pavement structure and materials, waste recycling and resource application technologies, and regions. Traffic design with the city.