

Doctoral Programmes for Overseas Students at Jiangsu University

PhD Degree Programme in Mechanical Engineering for Overseas Students

First Grade Discipline Code: 0802

This programme, which mainly covers the research areas in Mechanical Manufacturing and Automation, Mechatronic Engineering, Mechanical Design and Theory, and Vehicle Engineering, etc., is designed and carried out by the School of Mechanical Engineering (Jiangsu University), primarily aiming to improve the international PhD students' innovative and creative abilities for their scientific researches.

Admission Requirements

- A Master's degree in mechanical engineering
- Good oral and written English
- Research or work experience in mechanical engineering and/or its related areas

Objectives

The overseas PhD students will benefit their future research and career through successfully completing this programme, and they are expected to:

- pursue this programme at a multinational environment to strengthen their ability for international academic and social communications;
- systematically strengthen their professional knowledge and research ability in the area of mechanical engineering;
- know the latest advances and future trend/development in the field of mechanical engineering;
- carry out high-quality research work under the supervision of the knowledgeable PhD supervisors in mechanical engineering;
- have the ability to individually carry out their research and teaching work;
- have and further strengthen their innovation ability for science and technology;
- achieve original and/or novel research outcomes and even breakthroughs in the area of mechanical engineering;
- be proficient in reading professional literatures and writing research papers;
- be physically and mentally healthy;
- have good personalities, rigorous style of study, strong creative aspiration, and strong ability for collaboration and career development, etc.

Research Areas

- Photonic Manufacturing Science and Technology
- Research on Advance Automotive Technology
- Laser, Precision Machining and Forming Technology
- Micro-nano Manufacturing and Electromechanical System Integration Technology
- Modern Mechanical Design and Theory

Programme Duration and Academic Credit Requirements

- Prospective students enrolled in this program are normally expected to spend 3 academic years in completing their PhD study at the Jiangsu University. The students, who cannot complete their PhD programme within 3 years, can apply for an extension normally within one years.
- The duration for PhD course study is around one academic year.
- All the students enrolled in this programme must get at least 22 academic credits (at least 14 credits for degree subjects) to obtain their PhD degrees, and they are also required to attend at least 20 academic/research-based activities including the seminars, workshops, discussions, and/or communications, etc.

Programme Courses

Course Type		Course Name	Credit	Term	Department	Remark
Degree Courses	Compulsory Courses	Chinese (II)	4	1, 2	OEC	Required
		Overview of China (II)	3	1	OEC	
	Basic Theoretical Courses	Advanced Continuum Mechanics	2	1	FCEM	Minimum 2 Courses Needed
		Functional Analysis: Theories and Applications	2	1	FS	
		Computational Geometry	2	1	SCSCE	
		Chaotic Dynamics	2	1	FS	
		Theory of Stochastic Processes	2	1	FS	
	Specialized Courses	Contemporary Integrated Manufacturing Technology (Naifei REN, Shutao LI, Yuan WANG)	2	2	SME	Minimum 2 Courses Needed
		Modern Control Engineering (Guanggui CHENG)	2	2	SME	

		Finite Element Method: Theory and Applications in Mechanical Engineering (Wei CHEN, Yuqin GUO, Zhixian YANG)	2	2	SME	
		Theory of strain gradient plasticity (Xiaojing XU, Xiaohui YU)	2	2	SME	
		Micro-/Nano-Technology (Quan WANG, Guanggui CHENG)	2	2	SME	
		Non-Traditional Micromachining and Microfabrication Technologies (Jianzhong ZHOU, Zhaoyang ZHANG)	2	2	SME	
		Ultra-Precision Machining and Its Applications (Shulin WANG, Zhi WANG)	2	2	SME	
		Fundamentals of Automotive Control Theory (Haobin JIANG, Xing XU)	2	2	SATE	
		Advanced Vehicle Dynamics (Zhongxing LI, Gongyu PAN, Xiang GAO)	2	2	SATE	
		Modeling and Simulation of Vehicle System (Guolin WANG, Kunshan CHEN)	2	2	SATE	
		Automotive Electronic Technology (Shi LUO)	2	2	SATE	
Elective Courses		The frontier of mechanical engineering (Xudong Ren)	2	1	SME	Required
		Material Strengthening & Quality Evaluation (Xudong Ren)	2	2	SME	
		Photoacoustic and Photothermal Detection Techniques and Their Applications (Hongbing YAO)	2	2	SME	
		Novel Optical Technologies for Nanofabrication (Naifei REN, Houxiao WANG)	2	2	SME	

	Theory and Mechanics for Sheet Forming (Wei CHEN)	2	2	SME	Minimum 2 Courses Needed
	MEMS Mechanical Sensors (Quan WANG)	2	2	SME	
	Manufacturing Technologies for Advanced Materials (Xiaojing XU)	2	2	SME	
	Mechanical and electrical engineering innovation (Ping YANG)	2	2	SME	
	Acoustics and Noise Control (Yanyan ZUO, Falin ZENG)	2	2	SATE	
	Vehicle Safety Theory (Ruhai GE, Zhiqiang LIU)	2	2	SATE	
	Basis of Vehicle Aerodynamics (Maotao ZHU, Xiaoming XU)	2	2	SATE	
	Automobile Strength (Long CHEN, Maotao ZHU)	2	2	SATE	
	Automotive Environment Engineering (Jun LIU)	2	2	SATE	
	CFD in fluid machinery (Franco Magagnato, Jinfeng ZHANG)	2	2	RCFMET	
	Flow in pumps (G ́ard BOIS, Qiaorui SI)	2	2	RCFMET	
	Computational Fluid Mechanics II(Siva Parameswaran, Ruijie ZHAO)	2	2	RCFMET	
	Design and optimization of pumps(Prof. Giorgio Pavesi, Dr. Ji PEI)	2	2	RCFMET	
	Advanced Fluid Engineering Theory and Measuring Technology(Xikun WANG, Yin LUO)	2	2	RCFMET	
Auxiliary Courses					

					Specialty or with an Equivalent Education Level
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Note: 1. Minimum 2 corresponding specialized courses are firstly required for each overseas PhD student, and then the other courses can be selected according to Appendix (v) by each student.

2. The capital letters in the Department column in this Form are the abbreviations for their corresponding Colleges or Schools, i.e., Overseas Education College (OEC), School of Mechanical Engineering (SME), Faculty of Civil Engineering and Mechanics (FCEM), Faculty of Science (FS), School of Computer Science and Communications Engineering (SCSCE), School of Material Science & Engineering (SMSE), School of Automotive and Traffic Engineering (SATE), and Research Center of Fluid Machinery Engineering and Technology(RCFMET).

Course Contents

General Objective....

Period Objective....

Content Summary....

Assessment Method....

Supervision Panel and Supervision Method

The PhD student should be supervised by the supervision panel which consists of his/her supervisor and the corresponding experts in the area. The supervision panel will supervise the whole process for the PhD student's study, including the course selection to meet the requirements for academic credits, the thesis proposal for qualification examination to confirm his/her PhD candidature, the reading report regarding the related references, the periodical reports for the thesis, thesis writing, and thesis examination, etc.

Requirements for Publications

Before thesis submission, the PhD students must have a few published or accepted publications in their corresponding fields to demonstrate their good academic/research performance for their graduation and doctoral degree conferment, and their publications must meet one of the following requirements:

- As the first author, the PhD student get his original thesis work published in a high-quality international journal and indexed by SCI(E) in the related area, whose JCR impact factor ranks the first-class in the area which is identified by the University.
- As the first author or the second author (his/her supervisor is the first author), the PhD student have at least two SCI(E) publications related to his/her thesis work in

the related area, among which, as the first author, the applicant must concurrently have at least one journal paper indexed by SCI(E) before his/her thesis submission.

- As the first author or the second author (his/her supervisor is the first author), the PhD student have at least three publications related to his/her thesis work in the relevant journals identified by the School, among which the applicant must also have at least one journal paper where he/she is the first author, and he/she must concurrently have at least one journal paper indexed by SCI(E) before his/her thesis submission.

Scholarships and Financial Support

The overseas PhD students can apply for all the scholarships sponsored by the Chinese Government or Jiangsu University (e.g., Chinese Government Scholarship, and CSC Scholarship, etc.), which can completely or partially support their PhD programme at the Jiangsu University. The detailed info for these scholarships can be found through the website of the Overseas Education College (OEC) of the Jiangsu University (<http://oec.ujs.edu.cn/pub/eng/Scholarship/GS/>).

Except the above-mentioned scholarships, each overseas PhD student enrolled in the School of Mechanical Engineering (Jiangsu University) will get his/her living allowance from his/her supervisor's supervision funding. Besides, as the encouragement and reward, the supervisor can also provide the research allowance for the excellent overseas PhD student who demonstrates excellent academic and research performance for his/her research work, which is subject to the supervisor's assessment and judgment.

Thesis

The PhD students must complete their dissertations under the supervision of their corresponding supervisors to obtain their PhD degrees. During the first term in the first academic year for this programme, the PhD students can select/determine their interested research projects/topics and research plans/proposals under the supervision of their supervisors. Afterwards, they can continuously carry out their specific research projects until they complete their thesis work, pass the examiner panel's examination, and then successfully defended their dissertations.

Appendix

(i) Format for Thesis and Research Plan

- The thesis title, which summarizes the main research work of the thesis, must be brief, clear, and specific.
- The objectives should be clear, specific, integrated, logically rigorous, and closely coherent.
- The theoretical and academic significance for the research work should be given in the Background of the thesis.
- The literature review should critically review/comment the previous research work and indicate the latest research progress in the area, where the expected research achievements/outcomes should be given or listed.

- The corresponding research plans/proposals with periodically proposed objectives and expected outcomes are required for the PhD students, which should be closely related to the whole objectives of the thesis.
- The institutions/organizations with their corresponding responsibilities or contributions related to or involved in the research work of the thesis should be listed or given in the dissertation.
- The important and latest literatures in the relevant area should be cited using a numbered reference list in the corresponding dissertation.

(ii) English Books for PhD Students' Reference

1. Springer Handbook of Nanotechnology. Bharat Bhushan. Springer, 2004.
2. Hand book of micro nanotribology. Second Edition, Bharat Bhushan. Springer, 2004.
3. CRC Handbook of Chemistry and Physics. Editor-in-Chief. David R. Lid, 1984.
4. The science and engineering of microelectronic fabrication. Stephen A. Campbell. Oxford University Press, 2001.
5. Fundamentals of Machine Elements 2E, Hamrock, Bernard J.; Schmid, Steven R.; Jacobson, Bo O., McGraw-Hill, 2005.
6. Mechanical Design of Microresonators: Modeling and Applications (Nano Series), 1/e, Lobontiu, Nicolae, McGraw-Hill, 2005.
7. Mechanics of Materials, 6th Edition, Riley, William F.; Sturges, Leroy D.; Morris, Don H., John Wiley, 2004.
8. Surface Analysis of Polymers by XPS and Static SIMS, Briggs, D. Cambridge University Press.
9. Materials science. Hosford, William F. Cambridge University Press.
10. Fracture Mechanics. Anderson, Edward. CRC Press Inc., U.S, 1995.
11. Advanced Mechanics of Materials and Applied Elasticity. CRC Press Inc., U.S.
12. Nanotribology and Nanomechanics. Springer-Verlag Berlin and Heidelberg GmbH, 2005.
13. Understanding Materials Science. Springer-Verlag New York Inc.

(iii) International Journals for PhD Students' Reference

1. Journal of Applied Physics
2. Electronic Engineering
3. Journal of Microelectromechanical Systems
4. Journal of Micromechanics and Microengineering
5. Mechanical Systems and Signal Processing
6. Mechanim and Machine Theory
7. Journal of Materials Processing
8. Tribology letter

9. SAE (Transactions of Society of Automotive Engineers)
10. IEEE Instrumentation and Measurement
11. Journal of Dynamic Systems, Measurement & Control
12. Environmental Science & Technology
13. Form Zeitschrift fuer Gestaltung 482E0054 0015-7678 4 Springer-Verlag,
GERMANY
14. Innovation
15. The International Design Magazine
16. Advances in Structural Engineering
17. Automotive News International
18. Journal of Engineering Design
19. Active vehicle
20. Accident Analysis and Prevention
21. Advanced Powder Technology
22. Automotive Design & Production
23. Automotive Engineer
24. Journal of Mechanical Design
25. Journal of Safety Research
26. Journal of Vibration and Acoustics
27. Mechanical Engineering
28. Safety Science
29. Applied Physics Letters
30. Nano Letters
31. Physical Review B
32. Physical Review Letters
33. Physical Review E
34. Journal of Physics D: Applied Physics
35. Small
36. Acta Mechanica Sinica
37. European Journal of Transport and Infrastructure Research
38. IEEE Transactions on Intelligent Transportation Systems
39. IEEE-ASME Transactions on Mechatronics
40. IET Intelligent Transport Systems
41. International Journal of Automotive Technology