

工业工程

一、培养目标

培养具有科学、工程、管理和人文素养,具备工业工程基础知识、研究应用能力、工程实践能力、组织协调能力、创新意识和国际视野,能在工业工程和相关交叉领域从事分析、规划、设计、管理和运作等方面工作的技术与管理并重的高级复合型人才。

二、基本规格要求

本专业毕业生要求具备以下十二项核心能力:

1. 工程知识:能够综合运用数学、自然科学、管理科学、工程基础和专业知识分析和解决生产(服务)系统的效率、质量、成本及环境友好等管理与工程综合性的复杂问题。
2. 问题分析:具备系统工程思想,能够综合应用数学、自然科学、管理学、经济学及专业相关知识,并通过文献研究对专业相关复杂问题进行识别和提炼、定义和表达、分析和实证,以获得有效结论。
3. 设计/开发解决方案:在适当考虑安全与健康、法律法规与相关标准以及经济、环境、文化、社会等制约因素的前提下,具有针对生产(服务)系统中复杂问题进行分析、规划、设计、管理和运作的的能力。
4. 研究:具有应用相关科学原理并采用合适科学方法针对复杂工业工程问题进行研究的能力,包括设计与实施实验、分析与解释实验数据并通过信息综合得到合理有效的结论。
5. 使用现代工具:能够在工业工程实践中开发、选择与使用恰当的技术、资源、现代工程工具和信息技术工具,并了解其局限性。
6. 工程与社会:能够基于工程相关背景知识进行合理分析,评价工业工程实践对社会、健康、安全、法律以及文化的影响,并理解应承担的责任。
7. 环境和可持续发展:能够理解和评价工程实践对环境、社会可持续发展的影响。
8. 职业规范:具有人文社会科学素养、社会责任感和职业道德。
9. 个人和团队:具有在多学科团队中发挥作用的能力。
10. 沟通:能够就工程问题与业界同行及社会公众进行有效沟通和交流,包括撰写报告和设计文稿、陈述发言、清晰表达或回应指令。并具备一定的国际视野,能够在跨文化背景下进行沟通和交流。
11. 项目管理:理解并掌握工程管理原理与经济决策方法,并能在多学科环境中应用。
12. 终身学习:具有自主学习和终身学习的意识,有不断学习和适应发展的能力。

三、培养特色

工业工程专业是一门综合性、实践性很强的学科。本培养方案注重理论授课与实践训练的结合,强化实践教学环节,着重培养学生应用定性 with 定量相结合的系统思想及方法解决实际工程问题的能力,构建学生实践能力培养体系,大力倡导研究性学习和实践创新。

四、学制、毕业基本要求及学位授予

1. 本科基本学制 4 年,弹性学习年限 3—6 年,按照学分管理制度管理。

2. 工业工程专业学生毕业最低学分数为 165 学分，其中各类别课程及环节要求学分数如下表：

课程类别	通识必修	学门核心	学类核心	专业核心	专业选修	通识选修	集中实践	合计
学分数	27	26	29	20	20	8	35	165

3. 学生修满培养方案规定的必修课、选修课及有关环节，达到规定的最低毕业学分数，并修完规定必修但不记学分的所有课程和环节，德、智、体合格，即可毕业。满足学位授予相关文件要求的，授予工学学位。

五、课程设置及学分分布

(一) 通识教育课程〔必修 27 + (6) 学分 + 选修 8 学分〕

通识教育课程包括必修和选修两部分。通识选修课程按《湖南大学通识选修（文化素质教育）课程方案》实施，通识必修课程如下：

编码	课程名称	学分	备注
GE01101	毛泽东思想和中国特色社会主义理论体系概论	3+ (3)	
GE01039	思想道德修养与法律基础	1.5+ (1.5)	
GE01100	形势与政策	0.5+ (1.5)	
GE01102	中国近现代史纲要	2	
GE01103	马克思主义基本原理（上）	2	
GE01104	马克思主义基本原理（下）	2	
GE01012（-15）	大学英语	8	
GE01088	计算机基本能力测试	0.5	
GE01095	计算机导论与程序设计	2.5	
GE01107（-13）	心理素质与生涯发展	1	
GE01089（-92）	体育	4	

(二) 学门核心（26 学分）

编码	课程名称	学分	备注
GE03025	高等数学 A（1）	5	
GE03026	高等数学 A（2）	5	
GE03003	线性代数 A	3	
GE03004	概率论与数理统计 A	3	
GE03005	普通物理 A（1）	3	
GE03006	普通物理 A（2）	3	
GE03007（8）	普通物理实验 A	2	
ME03001	工程化学	2	

(三) 学类核心 (29 学分)

编码	课程名称	学分	备注
ME04028	管理学	2	
ME04029	经济学	3	
ME04030	运筹学	3	
ME04017	机械工程图学 (1)	3	
ME04018	机械工程图学 (2)	3	
ME04031	机械设计基础	4	
ME04020	理论力学	4	
ME04021	材料力学	4	
ME04026	电工电子学	3	

(四) 专业核心 (20 学分)

编码	课程名称	学分	备注
ME05042	生产管理学	2	
ME05043	基础工业工程	2	
ME05044	系统工程	2	
ME05045	工程统计学	2	
ME05046	生产系统建模与仿真	2	
ME05047	人因工程	2	
ME05048	质量管理与可靠性	2	
ME05033	机械制造技术	4	
ME05049	管理信息系统	2	

(五) 选修课 (20 学分)

编码	课程名称	学分	备注
ME06128	设施规划与物流分析	2	<p>学生任选 20 学分, 可在全校范围内跨专业选修 10 学分。</p> <p>学生在校期间参加学科竞赛获奖、公开发表学术论文等经学院认定后可以替代专业选修学分, 但最高不超过 4 个学分, 具体实施办法参照学院相关文件</p>
ME07013	物流与供应链管理	2	
ME06078	机械工程导论	1	
ME07008	工程经济学	2	
ME07007	成本控制	2	
ME06081	调度原理算法与系统	2	
ME06046	数据库原理及应用	2	
ME06082	基础会计学	2	
ME04023	热工学基础	3	
ME04019	工程材料	2	
ME05035	互换性与测量技术基础	2	
ME06099	专业英语 A	2	

(六) 集中实践 (35 学分)

编码	课程名称	学分	备注
GE01040	军事训练	0	
GE09003	中文写作实训	1	
GE09011	英文应用写作实训	1	
GE09010	金工实习	4	
GE09021	电工电子实习	2	
ME10012	计算机辅助生产管理课程设计	2	
ME10007	机械设计基础课程设计	2	
ME10034	测绘与工程软件应用实践	1	
ME10040	生产系统建模与仿真课程设计	1.5	
ME10041	设施规划与物流课程设计	2	
ME10035	机械制造技术课程设计	2	
ME10042	工业工程专业综合课程设计	1.5	
ME10043	生产实习	3	
ME10037	毕业设计 (论文)	12	(含毕业实习)

六、课程体系与毕业生核心能力的关联度矩阵

课程类别	课程名称	工程知识	问题分析	设计/开发解决方案	研究	使用现代工具	工程与社会	环境与可持续发展	职业规范	个人和团队	沟通与交流	项目管理	终身学习
通识必修课程	毛泽东思想和中国特色社会主义理论体系概论							H					
	思想道德修养与法律基础						L	H					
	形势与政策							H					
	中国近现代史纲要								H				
	马克思主义基本原理(上)								H			H	
	马克思主义基本原理(下)								H			H	
	大学英语					M					H		
	计算机基本能力测试	M				H							M
	计算机导论与程序设计(C模块)	M				H							M
	心理素质与生涯发展						L				M		H
	体育								M				
通识选修课程	文化素质选修(公选课)								H			M	M
学科核心课程	高等数学 A	H											
	线性代数 A	H	M										
	概率论与数理统计 A	M	H										
	普通物理 A	H											
	普通物理实验 A				H								
	工程化学	H					L	M					

续表

课程类别	课程名称	工程知识	问题分析	设计/开发解决方案	研究	使用现代工具	工程与社会	环境与可持续发展	职业规范	个人和团队	沟通与交流	项目管理	终身学习
学类核心课程	管理学	H								M		H	
	经济学	H			M	M							
	运筹学	H	H	M	H								
	机械工程图学 (1)、(2)	H				H	L						
	机械设计基础	H		H		H	M		L				
	理论力学	H											
	材料力学	H											
	电工电子学	H											
专业核心课程	生产管理学	H		H			M					M	
	基础工业工程	H		H		M	M						
	系统工程	H	H	M	H	M		L					M
	工程统计学	H		M	M	M							
	生产系统建模与仿真	H		M	M	M							
	人因工程	H		M			M	M					
	质量管理与可靠性	H	M	M			M	M					
	机械制造技术	H		H			M						
	管理信息系统	H				M							
选修课		M									M	M	
集中实践环节	军事训练								H	M			
	中文写作实训										H		
	英文应用写作实训										H		
	金工实习	M					L		L				
	电工电子实习	M					L		L				
	计算机辅助生产管理课程设计			H		H				M		M	L
	机械设计基础课程设计			H		H			L		L		L
	测绘与工程软件应用实践	H				H					L		
	生产系统建模与仿真课程设计			H		H				M		M	L
	设施规划与物流课程设计			H		H				M		M	L
	机械制造技术课程设计			H		H				M		M	L
	工业工程专业综合课程设计			H		H				M			L
	生产实习				H						M	L	
毕业设计 (论文)	H	H	H		H	M	M		L	H	H	H	

注：1) 表中教学活动包括：课程、实践环节、训练等；

2) 课程与毕业生核心能力关联度的高度分别用“H(高)”“M(中)”“L(低)”表示。

七、课程责任教师一览表

序号	姓名	职称	学历学位	专业特长	课程 (专业核心、专业选修、通识选修)
1	邓乾旺	教授	博士	生产系统设计与仿真、产品开发过程管理、系统评价、制造业信息化	系统工程
2	刘 坚	教授	博士	机械系统状态监测与故障诊断、设备维护工程、人因工程	设备维护管理、生产系统建模与仿真
3	宋立军	教授	博士	激光加工系统设计与控制	专业英语
4	范 叶	副教授	在读博士	生产计划与控制、生产成本控制、物流设施与规划、项目管理、汽车技术与产业发展战略	生产管理学、成本控制
5	黄向明	副教授	博士	精密制造工程与制造自动化、物流工程方向	人因工程、设施规划与物流分析
6	李 蓉	副教授	博士	设备维护及管理、物流工程	质量管理及可靠性、物流与供应链管理
7	任莹晖	讲师	博士	切削、磨削技术及其数控装备, 机械制造综合自动化, CAD/CAM, 有限元分析计算	运筹原理与应用、基础工业工程
8	韦海英	讲师	在读博士	工业工程、汽车技术与产业发展战略	工程经济学、工程统计学
9	夏百战	讲师	博士	智能调度	调度原理算法与系统、专业英语
10	钟 波	助理 研究员	硕士	计算机科学与工程	管理信息系统、数据库原理与应用

八、专业责任教授

序号	姓名	职称	学历学位	专业特长	承担授课课程
1	邓乾旺	教授	博士	生产系统设计与仿真、产品开发过程管理、系统评价、制造业信息化	系统工程

Industrial Engineering

I . Educational Objectives

This Program aims at the cultivation of senior interdisciplinary talents in industrial engineering field, who have knowledge of science, engineering, management and humanities, be good at organizing, coordinating and communicating, have awareness of innovation and global vision; and who, with a sound foundation of industrial engineering fundamental knowledge, a strong ability of research, application and engineering practice; are qualified to undertake the work of analysis, planning, design, operation and management in industrial engineering and relative field.

II . Graduate Outcomes

Students of this degree will require;

1. **Engineering Knowledge:** An ability to apply knowledge of mathematics, natural science, management, engineering fundamentals and engineering specialization to analyze and solve complex engineering problems of the efficiency, quality, cost and environmental friendly management of the production (service) system.
2. **Problem Analysis:** An ability to identify, formulate, analyze and research literature of complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, management, and economics.
3. **Design/Development of solutions:** An ability to design solutions for complex problems of analysis, planning, design, operation and management in production (service) system with appropriate considerations of legal, public health, safety, cultural, societal, and environmental issues.
4. **Investigation:** An ability to investigate complex engineering problems using scientific principles and scientific methods to provide valid conclusions via the process of experiment design, data analysis and interpretation, and information synthesis.
5. **Modern Tool Usage:** An ability to create, select and apply appropriate techniques, resources, and modern engineering and IT tools to industrial engineering practice, with an understanding of the limitations.
6. **The Engineer and Society:** An ability to rationalize and assess societal, health, safety, legal and cultural issues and the consequent responsibilities involving professional engineering practice and solutions to complex engineering problems by contextual knowledge.
7. **Environment and Sustainability:** An ability to understand and evaluate the impact of professional engineering work in the solution of complex engineering problems on sustainability of society and environment.
8. **Ethics:** Knowledge of humanities and social sciences, a sense of social responsibility and professional ethics.
9. **Individual and Team work:** An ability to function effectively in diverse and multi-disciplinary teams.
10. **Communication:** An ability to communicate effectively with the engineering community and

general public on engineering problems, such as being able to comprehend and write effective reports, design documentations, make effective presentations, and give and receive clear instructions, with a global vision, can do communication in the multicultural context.

11. **Project Management:** An ability to understand and apply engineering management principles and economic decision-making to managing projects in a multi-disciplinary team;

12. **Lifelong Learning:** An ability to recognize the need and prepare for independent and life-long learning, and to learn and adjust to development.

III. Program Features

Industrial engineering is a comprehensive, practical discipline. This education scheme focus on the combination of theory teaching and practice training, the establishment of students practical ability training system, vigorously promoting the research-based study and practice innovation, especially pay attention to the practice teaching, which would help students to master the systematic thought and methods, as well as the ability to solve practical engineering problems.

IV. Length of Schooling, Graduation Requirements and Degree Awarded

1. The length of schooling is usually 4 years, but flexibly 3—6 years based on the credit system.
2. The minimum credits for the program are 165, which are distributed as follows:

Category	Credits
General Education Courses	27
Core Courses in General Discipline	26
Core Courses in General Category	29
Core Courses in Specialty	20
Elective Courses in Specialty	20
Elective Courses in General Education	8
Intensive Practicum	35
Total	165

3. The students will graduate when they finish all required courses, elective courses and practice which specified in this program to get the required minimum credits, and complete other required courses without credits, and qualified in virtue, wisdom and health. Those who satisfy the above requirements will be awarded Bachelor of Engineering.

V. Curriculum and Credit Distribution

1. General Education Courses [required 27+(6) + elective 8 credits]

The general education courses consist of required courses and elective courses. General education electives are designed according to the *Curriculum Design of General Education Electives of Hunan University*. Required general education courses are illustrated in the following table.

Code	Course Title	Credit(s)	Remarks
GE01101	Introduction to Maoism and Theoretical System of Socialism with Chinese Characteristics	3+ (3)	
GE01039	Moral Cultivation and Law Basics	1.5+ (1.5)	
GE01100	Current Situation and Policies	0.5+ (1.5)	
GE01102	Outline of Modern Chinese History	2	
GE01103	Fundamentals of Marxism I	2	
GE01104	Fundamentals of Marxism II	2	
GE01012(-15)	College English	8	
GE01088	Computer Proficiency Test	0.5	
GE01095	Introduction to Computer Science and Programming	2.5	
GE01107(-13)	Psychological Health & Career Planning	1	
GE01089(-92)	Physical Education	4	

2. Core Courses in General Discipline (26 credits)

Code	Course	Credit(s)	Remarks
GE03025	Advanced Mathematics A(I)	5	
GE03026	Advanced Mathematics A(II)	5	
GE03003	Linear Algebra A	3	
GE03004	Probability and Mathematics Statistic A	3	
GE03005	Physics A(I)	3	
GE03006	Physics A (II)	3	
GE03007(8)	Physics Experiments A	2	
ME03001	Engineering Chemistry	2	

3. Core Courses in General Category (29 credits)

Code	Course	Credit(s)	Remarks
ME04028	Management	2	
ME04029	Economics	3	
ME04030	Operational Research	3	
ME04017	Mechanical Engineering Graphics I	3	
ME04018	Mechanical Engineering Graphics II	3	
ME04031	Fundamentals of Machine Design	4	
ME04020	Theoretical Mechanics	4	
ME04021	Material Mechanics	4	
ME04026	Electrotechnics and Electronics	3	

4. Core Courses in Specialty (20 credits)

Code	Course	Credit(s)	Remarks
ME05042	Production Management	2	
ME05043	Fundamentals of Industrial Engineering	2	
ME05044	System Engineering	2	
ME05045	Engineering Statistics	2	
ME05046	Modeling and Simulation of Production System	2	
ME05047	Human Factors Engineering	2	
ME05048	Quality Management & Reliability	2	
ME05033	Mechanical Manufacturing Technology	4	
ME05049	Management Information System	2	

5. Elective Courses in specialty (20 credits)

Code	Course	Credit(s)	Remarks
ME06128	Facilities Planning and Logistics Analysis	2	The students are required to select courses to 20 credits, in which 10 credits can be from transdisciplinary studies. The awards in academic competitions and academic paper publications which are recognized by the college, can be used to substitute the credits of elective courses in specialty. The maximum number of substituted credits is four. The measures for the implementations refer to relevant documents of the college.
ME07013	Logistics & Supply Chain Management	2	
ME06078	Introduction to Mechanical Engineering (Industrial)	1	
ME07008	Engineering Economics	2	
ME07007	Cost Control	2	
ME06081	The Principle & Algorithm & System of Scheduling	2	
ME06046	Theory and Application of Database	2	
ME06082	Basic Accounting	2	
ME04023	The Fundamentals of Thermodynamics	3	
ME04019	Engineering Materials	2	
ME05035	Fundamentals of Interchangeability and Measurement Technology	2	
ME06099	Professional English A	2	

6. Intensive Practicum (35 credits)

Code	Course	Credit(s)	Remarks
GE01040	Military Training	0	
GE09003	Chinese Writing Training	1	
GE09011	English Writing Training	1	
GE09010	Metal Working Practice	4	
GE09021	Electrical Engineering Practice	2	
ME10012	Course Design of Computer Aided Design and Production Management	2	
ME10007	Course Design of Mechanical Design	2	
ME10034	Application for Software of Mapping & Engineering	1	
ME10040	Course Design of Production System Modeling and Simulation	1.5	
ME10041	Course Design of Facilities Planning and Logistics Analysis	2	
ME10035	Course Design of Mechanical Manufacturing Technology	2	
ME10042	Course Design of Industrial Engineering Design	1.5	
ME10043	Engineering Internship	3	
ME10037	Graduate Design (Thesis)	12	(1 week of Graduation Internship Included)

VI. Curriculum and professional competency profiles

Category	Course	Engineering Knowledge	Problem Analysis	Design/ Development of Solution	Investigation	Modern Tool Usage	The Engineering and Society	Environment and Sustainability	Ethics	Individual and Team work	Communication	Project Management	Lifelong Learning	
General Education Courses	General Introduction to Mao Zedong Thought and Socialist Theory with Chinese Characteristics							H						
	Morals & Ethics & Fundamentals of Law						L	H						
	Current Affairs and Policy							H						
	Survey of Modern Chinese History								H					
	Basic Theory of Marxism (I)								H			H		
	Basic Theory of Marxism (II)								H			H		
	English										H			
	Basic Computer Skills Test	M					M						M	
	Introduction to Computer Technology and Programming (C module)	M					H						M	
	Psychological Diathesis and Career Development											M		H
	Physical Education									M				
	Electives in Cultural Courses in General Education (common elective courses)									H		M		M

Cont

Category	Course	Engineering Knowledge	Problem Analysis	Design/Development of Solution	Investigation	Modern Tool Usage	The Engineering and Society	Environment and Sustainability	Ethics	Individual and Team work	Communication	Project Management	Lifelong Learning
Core Courses in General Discipline	Advanced Mathematics A	H											
	Linear Algebra A	H	M										
	Probability and Mathematics Statistic A	M	H										
	Physics A	H											
	Physics Experiments A				H								
	Engineering Chemistry	H					L	M					
	Management	H								M		H	
	Economics	H				M	M						
	Operational Research	H	H	M	H								
	Mechanical Engineering Graphics(1)(2)	H					H						
Core Courses in General Category	Fundamentals of Machine Design	H		H		H	M		L				
	Theoretical Mechanics	H											
	Material Mechanics	H											
	Electrotechnics and Electronics	H											
	Production Management	H					M					M	
	Fundamentals of Industrial Engineering	H		H		M	M						
	System Engineering	H	H	M	H	M		L					M
	Engineering Statistics	H		M	M								
	Modeling and Simulation of Production System	H		M	M		M						
	Core Courses in Specialty	Human Factors Engineering	H		M			M	M				
Quality Management & Reliability		H	M	M			M	M					
Mechanical Manufacturing Technology		H		H			M						
Management Information System		H				M							

Cont

Category	Course	Engineering Knowledge	Problem Analysis	Design/ Development of Solution	Investigation	Modern Tool Usage	The Engineering and Society	Environment and Sustainability	Ethics	Individual and Team work	Communication	Project Management	Lifelong Learning
Elective Courses		M										M	M
	Military Training								H	M			
	Chinese Writing Training										H		
	English Writing Training										H		
	Metal Working Practice	M					L		L				
Intensive Practicum	Electrical Engineering Practice	M					L		L				
	Course Design of Computer Aided Design and Production Management			H		H				M		M	L
	Course Design of Mechanical Design			H		H			L		L		L
	Application for Software of Mapping & Engineering	H				H					L		
	Course Design of Production System Modeling and Simulation			H		H				M		M	L
	Course Design of Facilities Planning and Logistics Analysis			H		H				M		M	L
	Course Design of Mechanical Manufacturing Technology			H		H				M		M	L
	Course Design of Industrial Engineering Design			H		H				M			L
	Engineering Internship				H						M	L	
	Graduate Design (Thesis)	H	H	H		H	H	M		L	H	H	H

Note: 1) The teaching activities in this table include: curriculum, practice and training, etc. ;

2) The correlation between curriculum and the professional competence is ranged by "H (high)", "M (medium)" and "L (low)".

VII. Curriculum-responsible Teachers

No.	Name	Title	Academic Degree	Professional Expertise	Course
1	Deng Qianwang	Professor	Doctor	Production System Design and Simulation, Product Development Process Management, System Evaluation, Informatization of Manufacturing Industry	System Engineering
2	Liu Jian	Professor	Doctor	Mechanical System Status Monitoring and Fault Diagnosis, Equipment Maintenance Engineering, Human Factors Engineering	Equipment Maintenance Management, Modeling and Simulation of Production System
3	Song Lijun	Professor	Doctor	Design and Control of Laser Processing System	Professional English
4	Fan Ye	Associate Professor	Ph. D Candidate	Production Planning and Control, Production Cost Control, Logistics Facilities and Planning, Project Management, Automotive Technology and Industrial Development Strategy	Production Management, Cost Control
5	Huang Xiangming	Associate Professor	Doctor	Precision Manufacturing Engineering & Manufacturing Automation, Logistics Engineering	Human Factors Engineering, Facilities Planning and Logistics Analysis
6	Li Rong	Associate Professor	Doctor	Equipment Maintenance and Management, Logistics Engineering	Quality Management & Reliability, Logistics & Supply Chain Management
7	Ren Yinghui	Lecturer	Doctor	Cutting, Grinding Technology and CNC Equipment; Machinery Manufacturing Integrated Automation; CAD / CAM; Finite Element Analysis	Operation Principle & Application, Fundamentals of Industrial Engineering
8	Wei Haiying	Lecturer	Ph. D Candidate	Industrial Engineering, Vehicle Technology and Industrial Development Strategy	Engineering Economics, Engineering Statistics
9	Xia Baizhan	Lecturer	Doctor	Intelligent Scheduling	The Principle & Algorithm & System of Scheduling, Professional English
10	Zhong Bo	Assistant Researcher	Master	Computer Science and Engineering	Management Information System, Theory and Application of Database

VIII. Program-responsible Professor

No.	Name	Title	Academic Degree	Professional Expertise	Course
1	Deng Qianwang	Professor	Doctor	Production System Design and Simulation, Product Development Process Management, System Evaluation, Informatization of Manufacturing Industry	System Engineering

工程力学

一、培养目标

本专业旨在培养掌握工程结构力学分析基础知识与专业知识、现代力学实验与测试技术,具有科学、工程和人文素养,具备工程结构力学分析和研究应用能力、工程实践和组织协调能力、创新意识和国际视野,能在机械、土木、航空航天和材料等工程领域从事基础研究、工程设计、科技开发、应用研究、运行管理等方面的高级研究型和技术型人才。

二、基本规格要求

本专业毕业学生要求掌握以下十二项核心能力:

1. 工程知识:能够将数学、自然科学、力学基础和专业知用于解决复杂工程结构力学问题。
2. 问题分析:能够应用数学、自然科学基本原理,并通过文献研究,识别、表达、分析工程结构中的相关力学问题,以获得有效结论。
3. 设计/开发解决方案:能够设计解决复杂工程结构相关力学问题的方案,并能够在设计环节中体现创新意识,考虑法律、健康、安全、文化、社会以及环境等因素。
4. 研究:能够基于科学原理并采用科学方法以及现代力学实验与测试技术,对复杂工程结构的力学问题进行研究,包括设计实验、分析与解释数据、并通过信息综合得到合理有效的结论。
5. 使用现代工具:能够在针对复杂工程结构的力学研究中开发、选择与使用恰当的技术、资源、现代工程工具和信息技术工具,并了解其局限性。
6. 工程与社会:能够评价复杂工程结构相关力学问题解决方案对社会、健康、安全、法律以及文化的影响,并理解应承担的责任。
7. 环境和可持续发展:能够理解和评价针对解决复杂工程结构相关力学问题的工程实践对环境、社会可持续发展的影响。
8. 职业规范:具有人文社会科学素养、社会责任感和工程职业道德。
9. 个人和团队:具有在多学科团队中发挥作用的能力。
10. 沟通:能够就工程问题与业界同行及社会公众进行有效沟通和交流,包括撰写报告和设计文稿、陈述发言、清晰表达或回应指令。并具备一定的国际视野,能够在跨文化背景下进行沟通和交流。
11. 项目管理:理解并掌握工程管理原理与经济决策方法,并能在多学科环境中应用。
12. 终身学习:具有自主学习和终身学习的意识,有不断学习和适应发展的能力。

三、培养特色

工程力学专业面向工程,包括机械、土木、航空航天、化工、车辆、船舶、交通、武器、材料、电子通讯设备、智能机械等行业,适应面宽。其专业特色在于,培养扎实的力学理论功底,掌握现代计算技术和实验技术并熟悉其他主要工程专业的核心技术,建立综合运用专业知识以解决实际问题的能力,初步具备在实际工程设计中的创新能力。

四、学制、毕业基本要求及学位授予

1. 本科基本学制 4 年,弹性学习年限 3—6 年,按照学分制度管理。