



Objective matrix of BME

Training Objectives	Expected Learning outcomes of the curriculum -Knowledge -Skills -Competences	Corresponding module/module goal
Acquire basic knowledge of mathematics, natural sciences, and information technology to provide a solid foundation for subsequent courses, and have the ability to utilize the knowledge gained to solve complex engineering problems.	Knowledge: Acquire basic knowledge in mathematics, natural sciences, information technology, and computer science. Skills: Apply mathematical knowledge to understand and appropriately express engineering problems, build models, and solve practical issues in engineering. Competence: Use mathematical and information-based perspectives to observe, analyze, and solve technical problems, performing continuous analysis, synthesis, calculation, judgment, and reasoning.	Mathematics, Physics, and Chemistry: Advanced Mathematics (I, II), Linear Algebra, Probability and Mathematical Statistics, College Physics A, Normal Anatomy, Pathology Basics, Principles and Applications of Medical Statistics; Informatics: C Programming, Internet and Information Security, Literature Retrieval
Acquire a broad range of basic engineering and professional knowledge to provide a solid foundation for subsequent	Knowledge: Understand basic knowledge in engineering, mechanics, circuits, electronics, signals, and systems. Skills:	Engineering Fundamentals: Circuit Theory Mechanical Drawing Engineering Mechanics



specialized courses.	Capable of analyzing various engineering phenomena in clinical engineering using foundational engineering knowledge. Competence: Apply engineering knowledge, methods, and techniques to solve real-world engineering problems.	Fundamentals of Mechanical Design Analog Electronics Digital Electronics Microcontroller Principles and Applications Introduction to Clinical Engineering Hydraulic and Pneumatic Technology Principles of Medical Imaging Practical Training: Comprehensive Practice of Mechanical Drawing Comprehensive experiment of analog electronics Comprehensive experiment in digital electronics Elective: Matlab Fundamentals and Applications
Expertise in solving complex engineering problems in the field of clinical engineering, particularly in the areas of medical device functionality,	Knowledge: expertise in solving complex engineering problems in the field of clinical engineering technology, particularly in the areas of biomedical sensors, medical instruments and devices, medical instrument electrical safety and medical device regulatory compliance.	Engineering Applications: Medical Electrical Safety Biomedical Materials Medical Therapeutic Device Technology Life support equipment principles and applications



procurement, application, overall system analysis and preventive maintenance, and the ability to investigate, design, develop, and analyze complex engineering problems in related areas and to propose rational solutions to solve specific complex clinical engineering problems.	Skills: ability to analyze and solve various practical problems arising from clinical engineering positions, mainly in key hospital departments such as intensive care units, dialysis units and operating rooms. Skilled in the installation, commissioning, operation, maintenance and repair of common life support equipment such as ventilators, artificial kidneys, artificial heart-lung machines, defibrillators and syringe pumps. Competence: Comprehensive ability to apply theoretical knowledge of clinical engineering techniques in medical equipment procurement evaluation, clinical application, risk assessment, functional development, technical maintenance and technical training. Ability to use engineering background knowledge to rationally analyze and evaluate practical problems and provide valuable solutions.	Biomedical Testing Technology Introduction to Medical Device Regulatory Science Medical Imaging Equipment Technology Special Topics in Clinical Engineering Practical Training: Medical Electrical Safety Practical Training Creative Practice in Clinical Engineering Technology Medical Industry Apprenticeship Degree Thesis: Graduation internship and graduation design
Acquire specialized knowledge and skills in interdisciplinary and cutting-edge fields related to clinical engineering	Knowledge: Acquire specialized knowledge in interdisciplinary, novel and cutting-edge fields related to clinical engineering technology. Skills:	Elective: Medical Imaging Equipment Biomedical Optics Mathematical Modeling



technology. Ability to keep abreast of trends in professionally related fields for further self-development.	the ability to expand professional knowledge, keep abreast of trends in the profession and related fields, and accumulate knowledge for more in-depth learning. Competence: to possess interdisciplinary and comprehensive qualities related to the curriculum; to be able to apply the specialized knowledge acquired in a wide range of areas.	English for Clinical Engineering Technology Introduction to Big Data Intelligent Medical Robot Practical Training: Medical Industry Apprenticeship Degree Thesis: Graduation internship and graduation design
Acquire intercultural and international cooperation and communication skills to adapt to social development and internationalization.	Knowledge: Master a foreign language and pass the national university English level 4 examination, and master the core knowledge of specialized English. Skills: To be able to read English literature related to one's specialty, and to communicate and discuss professional issues with others in English. Competence: To have the comprehensive qualities of an English major, to be able to work in related fields in China, and to be able to conduct cross-cultural communication.	Foreign Languages: College English (I) College English (II) College English (III) College English (IV) Practical Training: Medical Industry Apprenticeship Elective: Clinical Engineering Technology Professional English Bachelor's Degree Thesis: Graduation Internship and Graduation Thesis



		(Reading and translating professional English literature, writing English abstracts for bachelor's degree thesis)
Understand the current social patterns and norms in China, and have good social behavior, team spirit, and humanistic concern. They will develop morally, intellectually, physically, and psychologically in an all-round way.	Knowledge: Knowledge of modern Chinese history, basic principles of Marxism, patriotism, humanism, physical education and military training. Skills: Understanding social phenomena, paying attention to and adapting to social development, having the ability to communicate and cooperate with others, having team spirit, and promoting one's own physical and mental health and self-improvement. Competence: To develop a sound personality and good psychological quality, to have a correct outlook on life, values, morality and law, and to have humanistic qualities and a sense of social responsibility.	General courses: Ethics and the Legal System Outline of Modern Chinese History Basic Principles of Marxism Introduction to Mao Zedong Thought and Theoretical System of Socialism with Chinese Characteristics Introduction to Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era Situation and Policy Military Theory Military Skills Physical Education Mental Health Education for College Students Career Planning and Employment Guidance Medicine and Humanities Labor Education



		Innovation and Entrepreneurship Elective: Medical Ethics
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