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**Course development guide for education about standardization
- National quality infrastructure and its application**

标准化教育课程建设指南 国家质量基础设施（NQI）及应用

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for

standardization work Part

1. Structure and drafting rules for standardization documents" Drafting. Please note that some of the contents of this document may involve patents. The issuing organization of this document does not assume the responsibility for identifying patents. This document was proposed and coordinated by the National Standardization Education Working Group (SAC/SWG 27). This document was drafted by: Shenzhen Metrology and Quality Inspection Institute, Shenzhen University of Technology, Centre Testing International Group Co., Ltd., Shenzhen Tiansuo Metrology and Testing Co., Ltd., Hebei University, Certification and Accreditation Technology Research Center of the State Administration for Market Regulation, South China University of Technology University, Shanghai University, China National Institute of Metrology, China National Institute of Standardization, Anhui Provincial Institute of Quality and Standardization, China Aviation Comprehensive Technology Research Institute, Tianfangbiao (Shenzhen) Testing and Certification Co., Ltd., Donghua University, Shenzhen Polytechnic, Guangzhou Panyu District Inspection Testing Industry Promotion Association, Guangzhou Light Industry Technician College, Guangzhou Technician College, Jingyan Quality Standard Technology (Shenzhen) Co., Ltd., Dongguan, Guangdong Province Municipal Quality and Technical Supervision Standards and Coding Institute, Hunan University, Shanghai University of Engineering Science, China Southern Power Grid Co., Ltd. Ultra-high Voltage Transmission Liuzhou Bureau of the Company, China University of Metrology, China Science and Technology Health Industry Group Co., Ltd., China Quality Standards Publishing and Media Co., Ltd., Wuhu Municipal Institute of Standardization. The main drafters of this document are. Yang Zhimin, Liu Hui, Luo Wei, Qian Xiaoyan, Yang Kejun, Huang Manxue, Deng Jun, Fang Lide, Jia Peng, Huang Lina, Liu Hongwei, Chen Guofen, Wang Yu, Zhao Wuzhou, Yan Yurong, Li Ming, Yu Lianchao, Yi Tingting, Kang Jian, Wu Qian, Wan Shufeng, Huang Kaisheng, Guo Jiping, Chen Huan, Jiang Ting, Chen Weijian, Li Weidong, Zhang Congguang, Ye Youquan, Huang Xuguang, Zhong Xiuping, Mai Wanqing, Li Minggen, Chen Xinxin, Xu Shaokun, Li Baiqiang, Zhong Cailin, Teng Zhaosheng, Xin Binjie, Song Yang, Yan Ying, Zhou Yajie, Li Baozhong, Guo Tianhui, Lu Yating, Du Jiating, Zheng Huizheng, Zeng Lihua, Li Hao.

The German Physical and Technical Institute (PTB) first proposed the concept of a national quality infrastructure in.2002. In.2005, the United Nations Trade Centre (ITC) published the report "Innovation in Export Strategy", which put forward the concept of NQI. In.2006, the United Nations Industrial Development Organization (UNIDO) and the International Organization for Standardization (ISO) proposed that metrology, standards and conformity assessment are the future of economic development. The three pillars of economic and social development; the World Bank (WB) proposed the public intervention theory of building NQI in.2013, believing that the national quality foundation Applicable to all products and services; International Organization for Standardization (ISO), International Organization of Legal Metrology (OIML), International Accreditation Forum (IAF), etc. An international conference was held in.2017 to integrate market surveillance into the NQI

system. NQI has different levels of concepts, including the Global Quality Infrastructure (GQI), National Quality Infrastructure (NQI), Regional Quality Infrastructure (RQI), Industrial Quality Infrastructure (IQI) and Enterprise Quality Infrastructure. The above concepts can also be collectively referred to as quality infrastructure (QI). The connotation of NQI is still being enriched and its extension is still being expanded. Developed countries in the world and relevant international organizations attach great importance to the research and application of NQI. My country attaches great importance to the research and application of NQI. In January 2014, the Chinese Academy of Engineering launched the Industrial Base Strengthening Strategic Research Project. The project listed "Quality Technology Foundation Strategic Research" as a special project topic, marking the official launch of the overall research work of NQI in my country; In April, the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China established a research group on the national quality infrastructure, which for the first time conducted a comprehensive study on the integration of metrology, standards, inspection and testing, and certification and accreditation. In 2016, my country established the first national key R&D program, "Common Technology Research and Development of National Quality Foundation". On September 5, 2017, the CPC Central Committee and the State Council issued the "Notice on Carrying out Quality Improvement". In the Guiding Opinions on the Promotion of NQI, NQI construction was listed as the main goal and overall task in the Guiding Opinions for the first time; on November 13, 2020, The State Administration for Market Regulation issued the Opinions on Vigorously Promoting the "One-Stop" Service of Quality Infrastructure, pointing out that it is necessary to "strengthen the quality infrastructure". Infrastructure construction, providing enterprises, industries and regions with comprehensive services for quality infrastructure throughout the entire chain, in all directions and throughout the entire process"; in 2021, the People's Republic of China The Outline of the 14th Five-Year Plan for National Economic and Social Development of the Republic of China and the Long-Term Goals for 2035 proposes to "improve the national quality infrastructure". The National Standardization Development Outline proposes to "promote the integrated development of standards and national quality infrastructure", and the National Key R&D Program "National On February 6, 2023, the CPC Central Committee and the State Council promulgated the Outline for Building a Quality Power Country, Build a high-level quality infrastructure system. Under the special conditions of rapid development of NQI research and application at home and abroad and large-scale practical application, the cultivation of NQI talents is particularly important. This document is committed to implementing the Outline for Building a Quality Power Country, standardizing the content and methods of NQI and applied education, and improving learners' NQI awareness and practical skills will improve the quality and efficiency of talent training and contribute to high-quality economic development. This document aims to provide specific guidance for the construction of NQI and applied courses in general higher education, clarify the positioning and teaching objectives of the courses, and The standards can also provide a reference for the construction of relevant courses such as vocational education

and continuing education. Guidelines for the Development of Standardized Education Curriculum National Quality Infrastructure (NQI) and its applications

1 Scope

This document gives guidance on building a university course on the national quality infrastructure and its application: metrology, standardization, conformity assessment and accreditation taught as one connected system rather than four separate subjects. NQI is the framework through which a country makes quality demonstrable - measurements that are traceable, standards that are agreed, tests that are accepted and bodies that are recognised. China teaches it explicitly, and at 23 500 words this is the most substantial of the education guides: it has to cover four disciplines and the way they lock together. Issued on 28 March 2025 by SAMR and SAC as a guiding technical document, in force from the same day, under the technical jurisdiction of the Standardization Administration of China.

1.Framework and basic requirements GB /Z 43946-2024 Guidelines for the Construction of Standardization Education Curriculum Basic Knowledge of Standardization

JJF 1001-2011 General metrological terms and definitions

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document. For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to This document.

GB/T 19000-2016 Quality Management System Fundamentals and Vocabulary

GB/T 20000.1-2014 Guidelines for standardization work Part

GB/T 27000-2023 Conformity assessment vocabulary and general principles

GB/T 36642 Information technology learning, education and training online courses

GB/T 42411.1 Information technology learning, education and training online course system Part

3 Terms and definitions, symbols and abbreviations

3.1 Terms and Definitions GB/T 19000-2016, JJF 1001-2011, GB/T 27000-2023,

GB/T 20000.1-2014 and GB /Z 43946- For the purposes of this document, the following terms and definitions are applicable.

3.1.1 National Quality Infrastructure Establish and implement legal and regulatory systems,