Introduction to Kunming University

Kunming University is located in the Kunming Area of the China (Yunnan) Pilot Free Trade Zone (Kunming Economic and Technological Development Zone), covering a total area of 2,439.18 mu. It is a full-time public undergraduate university established in May 2004 with approval from the Ministry of Education, formed by integrating high-quality educational resources from the former Kunming University and Kunming Normal College. In 2023, the Yunnan Provincial Department of Education and the Kunming Municipal Government signed a joint development agreement to strongly support the university's development.

The history of this institution can be traced back to the Yunnan Higher School in 1903; in 1906, the school established a Normal Department. Since then, it has undergone several phases, including the Yunnan Provincial 两级 Normal Schools, the Yunnan Provincial Capital Normal School, the Yunnan Provincial First Normal School, the Yunnan Provincial Kunhua Normal School, and the Kunming Normal School, spanning over a century of educational history. Between 1927 and 1930, Nie Er—the composer of the national anthem of the People's Republic of China, "The March of the Volunteers" —studied at the Yunnan Provincial First Normal School and is an outstanding alumnus of Kunming College.

In 2008, the university was granted the authority to confer bachelor's degrees; in 2012, it passed the undergraduate teaching qualification evaluation conducted by the Ministry of Education; in 2018, it passed the undergraduate teaching audit evaluation by the Ministry of Education and became a newly authorized institution for master's degree conferral in the same year; in 2021, it was selected as a doctoral degree conferral institution under the Yunnan Province doctoral degree conferral project. In 2014, it was designated as one of the first batch of pilot universities for comprehensive application-oriented transformation in Yunnan Province; in 2017, it was recognized as an Application-Oriented Demonstration University of Yunnan Province and assumed the role of the inaugural Chair Institution of the Yunnan Application-Oriented Universities Alliance; in 2023, it became the Chair Institution of the Yunnan Higher Education Institutions Industry-Education Integration Development Alliance; in 2023, it was designated as a National Language Promotion Base; in 2015, it was awarded the title of "National Civilized Unit" (4th edition); and in 2025, it was awarded the title of "National Civilized Campus" (3rd edition). Through the hard work and pioneering efforts of generations of Kunming University faculty and staff, the university has evolved into a comprehensive, application-oriented local new undergraduate institution with substantial academic strength.

Faculty Team and Talent Development

The university carries forward the "Nie Er Spirit," adheres to its motto of "Promoting Virtue and Pursuing Ultimate Goodness; Integrating Knowledge with Action to Benefit Society," upholds the socialist orientation in education, implements the fundamental mission of fostering virtue through education, and cultivates talents for both the Party and the nation. It has been recognized as a National Model Collective for Ethnic Unity and Progress; among the first batch of demonstration universities in Yunnan Province dedicated to cultivating socialist core values; one of the first pilot institutions for the comprehensive reform of "Three-Comprehensive Education"; and an educational demonstration school at the provincial level for strengthening the sense of community for the Chinese nation. The university has cultivated a large number of high-quality applied professionals who possess "excellent ideological and moral character, solid theoretical foundations, strong professional competencies, and high overall quality," as well as those who are "quick to adapt, possess sustained growth potential, and are capable of innovation."

The university currently has 1,547 faculty and staff members, among whom 1,115 are full-time teachers; more than 530 hold senior professional titles, accounting for approximately 48% of the total; 444 teachers possess both engineering and industry backgrounds, making them "dual-qualified" teachers, representing 40% of the faculty; 417 individuals serve as master's degree supervisors; a total of 150 individuals are recognized as experts receiving special government allowances from the State Council, special government allowances from the Yunnan Provincial Government, or Yunling Scholars; and there are 36 teams, including the Huang Danian-style Teaching Team, the Curriculum-based Ideological and Political Education Demonstration Teaching Team, and the Provincial First-Class Course Team.

The university currently comprises 20 teaching units and offers 65 undergraduate programs across 11 academic disciplines, including Economics, Education, Literature, History, Science, Engineering, Agriculture, Medicine, Management, and Arts. It has 16 master's degree authorization programs. The doctoral degree authorization programs in Physics and Chinese Language and Literature, as well as the professional doctoral degree authorization program in Agriculture, have been approved for provincial-level development projects. Five modern industry colleges have been established to meet high standards. Among the 23 majors approved for the first batch of "Double Ten Thousand Plan" for national and provincial-level first-class undergraduate program development, five majors —Preschool Education, Physics, Hotel Management, Chinese Language and Literature, and Musicology—have been selected as national-level first-class

undergraduate program development sites; additionally, 18 majors, including Ideological and Political Education, have been designated as provincial-level first-class undergraduate program development sites, ranking among the leading institutions in the province in terms of the number of such selected majors.

The university recruits students from 25 provinces (municipalities directly under the central government and autonomous regions) across China; it currently has over 20,000 full-time students and more than 600 postgraduate students. Over the past three years, an average of more than 15,000 students have participated in various academic competitions, winning over 2,000 awards. The university has received one Second Prize in the National Teaching Achievement Award, five First Prizes, and eight Second Prizes in provincial-level teaching achievement awards. The quality of its graduates has been highly recognized; in recent years, the initial employment rate among graduates has ranked among the highest among peer institutions. The overall satisfaction rate of graduates with their alma mater stands at 98.62%. For 12 consecutive years, the university has won the First Prize in the Yunnan Province Higher Education Institutions Employment and Entrepreneurship Target Responsibility Assessment; in 2023, it was designated as a Model Unit for Employment and Entrepreneurship Work among higher education institutions in Yunnan Province. The quality of its talent cultivation has received unanimous acclaim from both students' parents and employers.

Scientific Research and Serving Society

The university has progressively enhanced its scientific research capabilities and focused on improving the quality of its disciplinary development. Over the past six years, it has secured 71 new national-level research projects and 314 provincial-or ministerial-level research projects, with total research funding reaching 380 million yuan. The university has received 20 provincial-level scientific research awards; in 2022, breakthroughs were achieved in the three major provincial science and technology awards, with 1 first prize and 3 third prizes awarded. Additionally, the university has published 1,859 new academic papers, obtained 630 patents, and completed 46 monographs. Furthermore, the university has been approved for 10 provincial-level platforms, including Yunnan Provincial Key Laboratories and Engineering Technology Research Centers. The "Kunming Municipal River and Lake Ecological Health Assessment and Restoration Field − Academician Zhang Quanxing Workstation" and the "Yunnan (Kunming) Shen Weiming Intelligent Manufacturing Technology Academician Workstation" have become new hubs for collaborative innovation.

The university has continuously strengthened the functions of local higher education institutions and actively carried out social services. It has successively released a series of high-quality policy advisory reports, including "Suggestions on High-Level Promotion of Building a Medical and Health Radiation Center for South Asia and Southeast Asia," "Security Report on the 'China-Pakistan Economic Corridor'," "China's Catering Industry Development Report" (Blue Book), and "China-Laos Railway Development Report 2023." The university successfully completed its targeted assistance tasks for poverty alleviation in designated areas such as Honghe County, Dongchuan District, and Luquan County. The "Poverty Alleviation Starts with Inspiring Willpower; Poverty Alleviation Must Focus on Intellectual Support − Kunming University's 'Children's University' Education Poverty Alleviation Project" was selected as a typical case of educational poverty alleviation nationwide, and the university has completed multiple rural revitalization projects commissioned by the Ministry of Education, the Ministry of Foreign Affairs, Nanjing University, and other authorities. On average each year, it conducts continuing education training programs for more than 8,000 participants. The affiliated kindergarten has become a premium educational resource in the Kunming section of the China (Yunnan) Pilot Free Trade Zone.

International Exchange and External Cooperation

The university has continuously deepened exchanges and cooperation to jointly build a high-quality educational environment. In terms of international exchanges, it actively integrates into the Belt and Road Initiative, establishing a multi-level and broad framework for cultural and educational exchanges and cooperation with South Asia and Southeast Asia through the "China-Shanghai Cooperation Organization Youth Exchange Center" as its platform. The university has established an International College, strengthened the management of international student education, offers multi-level international student programs across 29 countries, actively organizes vocational skills training for international students, and has been awarded the Yunnan Province Vocational Training Brand. In domestic cooperation, the university has signed cooperation agreements with several domestic universities, including Nanjing University, Lanzhou University, University of International Business and Economics, and Changsha Normal University, engaging in collaboration in areas such as talent cultivation, scientific research cooperation, and faculty training. As the alma mater of Nie Er, the composer of the national anthem, the university focuses on telling the stories of Nie Er and the national anthem, inheriting the revolutionary culture, and has founded the Nie Er Music College—a new type of integrated undergraduate and master's degree art

college characterized by being "small yet refined, small yet distinctive, and small yet strong." Additionally, the university has collaborated with the University of International Business and Economics and the Kunming Branch of the China (Yunnan) Pilot Free Trade Zone Management Committee to jointly establish China's first free trade college that admits full-time undergraduate and master's students.

Standing at a new historical starting point, the university will be guided by Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, fully implement the Party's education policy, thoroughly carry out the fundamental task of fostering virtue through education, align closely with the national strategies of revitalizing the country through science and education, strengthening the nation through talent development, and driving development through innovation, adhere to the educational philosophy of being "comprehensive, application-oriented, and distinctive," follow the development approach of "building the university through quality, strengthening it through talent, enriching it through culture, governing it in accordance with the law, and prospering it through distinctive features," emphasize distinctive characteristics to promote development, enhance intrinsic quality to strengthen competitiveness, serve local communities to expand opportunities, innovate mechanisms to optimize governance, base its efforts on Kunming, serve the entire province, face the entire country, extend its influence to South Asia and Southeast Asia, and strive tirelessly toward the goal of building a high-level comprehensive application-oriented university with distinct characteristics.

Construction Plan for the Electrical Engineering and Automation Program at Kunming University (2026–2030)

1、Foundation and Current Status of Program Development

（1）Program Overview: The Electrical Engineering and Automation major at Kunming University (National Standard Code: 080601) is housed within the School of Mechanical and Electrical Engineering. The program began accepting students in 2009 and has been a traditional flagship specialty of the university. The program duration is four years, and upon completion, students are awarded a Bachelor of Engineering degree. The current enrollment size remains stable, and the program has already cultivated over 1,000 applied professionals in the field of electrical engineering for Yunnan Province and surrounding regions.

（2）Current Advantages: A well-balanced faculty structure: there are currently 24 full-time faculty members, among whom 12 hold senior professional titles (accounting for 50%) and 7 hold doctoral degrees (accounting for 29.17%), forming a teaching and research team centered around faculty members with high academic qualifications and senior professional titles. Comprehensive experimental and practical training facilities: the college has established 18 specialized laboratories covering fields such as electrical engineering technology, smart grids, relay protection in power systems, electrical control, and PLC; the on-campus practical training area

exceeds 20,000 square meters; and it maintains 10 stable off-campus practical training bases, fostering deep collaborations with more than 20 enterprises, including Kunshan Intelligent, Yunnei Power, and the Yangzonghai Power Generation Company of the National Energy Group, through its School of Mechanical and Electrical Engineering at Kunming University. Clear talent cultivation orientation: rooted in Yunnan and oriented toward South Asia and Southeast Asia, the school focuses on the fields of power systems, electrical equipment manufacturing, and automated control, aiming to cultivate high-quality applied talents who possess "strong foundational knowledge, emphasize practical experience, and are capable of innovation"; the employment rate of graduates has consistently remained above 95% over the years. Strong disciplinary support is provided through the Mechanical Master's Professional Degree Authorization Program of the School of Mechanical and Electrical Engineering, the Key Laboratory of Intelligent Logistics Equipment and Systems in Yunnan Province, and the Smart Manufacturing Characteristic Scientific Research and Innovation Team, thereby establishing a virtuous cycle of "undergraduate – master's" integrated education and a mechanism where scientific research supports teaching.

(3) Existing Issues:

1) The distinctive features of the program are not sufficiently prominent: While the traditional power engineering track offers clear advantages, the curriculum and practical training system for emerging fields such as new energy grid integration, smart microgrids, and intelligent electrical control in industrial applications still requires further refinement. The faculty structure needs optimization: there is a shortage of nationally and provincially recognized distinguished teachers and leading academic experts; furthermore, young faculty members need to enhance their enterprise engineering practice experience and research innovation capabilities at Kunming University. The integration of industry and education remains insufficiently deep: collaborative education between the university and enterprises largely remains confined to internship and practical training levels, while a long-term mechanism for jointly developing curricula, conducting research projects, and cultivating faculty members has yet to be fully established.

2) Teaching reform needs further deepening: the curriculum content lacks sufficient alignment with emerging industry technologies; the application scope of new teaching models—such as blended online-offline teaching and project-based teaching—is limited; and the innovation and integrative aspects of practical teaching remain

insufficient.

II. Guiding Principles and Overall Objectives

(1) Guiding Principles: Under the guidance of Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, the School of Mechanical and Electrical Engineering at Kunming University shall fulfill the fundamental task of fostering virtue through education, uphold the philosophy of "student-centered, outcome-oriented, and continuous improvement," align with the national "Dual Carbon" goals, the "Made in China 2025" strategy, Yunnan Province's "3815" strategy, and the development needs of green energy and advanced manufacturing; by leveraging engineering education accreditation as a key mechanism, focusing on faculty development as the core priority, adopting industry-education integration as the pathway, and emphasizing reforms in curriculum and practical training systems, the School aims to comprehensively enhance the quality of its academic programs and talent cultivation.

(II) Overall Objectives (2026–2030): The objective is to strive to establish this major as a first-class undergraduate program development site in Yunnan Province within the next five years; to obtain engineering education professional accreditation; to develop a distinctive tripartite focus encompassing "Power System Automation + New Energy Electrical Engineering + Industrial Intelligent Control"; to build a high-level faculty team with a well-balanced structure and outstanding teaching and research capabilities; to establish a new talent cultivation model characterized by deep integration of industry and education, as well as collaborative talent development between universities and enterprises; to cultivate high-quality applied electrical engineers capable of meeting the demands of regional industrial upgrading; and to position this program as a pivotal base for talent cultivation, technological innovation, and social service in the field of electrical engineering across Yunnan and South Asia/Southeast Asia.

(3) Phased Objectives

In the near term (2026–2027): Refine the talent cultivation plan and curriculum

system by adding 2−3 core courses related to new energy and smart grids; recruit and train 3−4 faculty members holding senior professional titles or PhD degrees; establish one provincial-level experimental teaching demonstration center; and initiate 2−3 provincial-level teaching reform projects.

Mid-term period (2028−2029): Apply for designation as a Provincial First-Class Undergraduate Program; establish one provincial-level teaching team; collaborate with enterprises to develop 3−5 core courses and 2 university-enterprise joint laboratories; secure approval for 1−2 provincial-level Teaching Achievement Awards; ensure that the proportion of real-world case studies in practical teaching projects exceeds 60%.

Long-term (2030): Achieve engineering education program accreditation; establish 2−3 distinctive and leading academic specializations within the province; achieve a doctoral degree attainment rate among faculty members of 40% and a proportion of senior professional titles among faculty members of 60%; significantly enhance the employment outcomes for graduates; and maintain industry recognition and professional influence among peer institutions in the province at the forefront.

III. Key Construction Content

(1) Reform of the Talent Cultivation Model: Optimizing the Cultivation Orientation

Building upon Yunnan's pillar industries—including green energy (hydropower, photovoltaics, wind power), intelligent manufacturing, and rail transit — the university has defined three core focus areas: "Power System Operation and Maintenance," "New Energy Electrical Technology," and "Industrial Electrical Automation," while refining the training specifications for interdisciplinary talent development through the framework of "Strong Electricity + Weak Electricity, Theory + Practice, and Technology + Management" (as outlined on the Kunming University Undergraduate Admissions Website). To deepen the integration of industry and education, the university has established a "dual-entity model involving

both the university and enterprises, and a dual-circulation mechanism combining learning with application"; it has jointly founded an "Intelligent Manufacturing Industry College" with leading enterprises such as Yunnan Power Grid, Yunnan Energy Investment Group, and Kunshan Shipbuilding Intelligent; it has implemented a mechanism where "enterprise mentors enter the classroom" and "students participate in enterprise projects"; and it has introduced a "3.5+0.5" collaborative university-enterprise training program (comprising 3.5 years of academic study at the university and 0.5 years of on-the-job internship at an enterprise).

(2) Strengthening Innovation and Entrepreneurship: Innovation and entrepreneurship education is integrated throughout the entire talent cultivation process; courses such as "Electrical Innovation Design" and "Smart Grid Innovation and Entrepreneurship Practice" are offered; leveraging the Engineering Innovation Practice Center of the School of Mechanical and Electrical Engineering at Kunming University, student innovation teams are established to participate in competitions such as the "Internet+" initiative and the "Challenge Cup"; annually, 5–8 student innovation and entrepreneurship projects are nurtured.

（3）Curriculum System and Teaching Content Reform: Establishing a Modular Curriculum System

General Education Module: Strengthens ideological and political education courses, foundational mathematics and physics, foreign languages, and computer applications, while integrating engineering ethics and professional competence education.

Core Subject Module: Consolidates core foundational courses such as Circuit Principles, Analog/Digital Electronics, Electric Machinery, and Automatic Control Principles, thereby solidifying the theoretical foundation of the major.

— Kunming University Undergraduate Admissions Website.

Core Professional Modules: The program retains traditional core courses such as Power System Analysis, Power Electronics Technology, Electrical Control and PLC, and Power System Relay Protection; it also introduces cutting-edge courses

including "New Energy Grid Integration Technology," "Smart Microgrids," "Big Data Analysis in Power Systems," and "Electrical Control of Industrial Robots."

Elective Course Modules: The program offers three specializations—Power System Automation, New Energy Electrical Engineering, and Industrial Intelligent Control—and provides specialized elective courses to support students' personalized development.

Practical Teaching Module: Establish a five-tier practical education system comprising "Basic Experiments − Comprehensive Experiments − Course Design − Corporate Internship − Graduation Project," with practical credits accounting for no less than 35% of the total credits. To enhance course quality, efforts will be made to develop 5−8 university-level and provincial-level first-class courses ("Golden Courses"), develop online course resources, and promote blended learning, project-based learning, and case-based learning. Every two years, the course syllabi will undergo comprehensive revision to promptly incorporate new industry standards, technologies, and cases, while phasing out outdated content. The university and enterprises will jointly develop practical courses such as "Field Operation Practices in Power Systems" and "PLC Engineering Applications," utilizing a combination of industry-standard textbooks and self-published specialized textbooks.

（4）Building a Strong Faculty Team through both recruitment and cultivation of talent

Recruitment: Over the next 5 years, we will recruit 4–5 PhD holders or faculty members with senior professional titles in Electrical Engineering; particular emphasis will be placed on recruiting leading experts and young key personnel in the fields of new energy, smart grids, and industrial electrical automation.

Faculty Development: Implementation of the "Young Faculty Growth Program" to support young and mid-career faculty members in pursuing doctoral degrees;

annually, 2−3 faculty members will be selected to undertake temporary posts at enterprises or to participate in academic exchange programs at universities both domestically and abroad.

External Recruitment: Hire 10−15 senior corporate engineers and key technical personnel to serve as part-time faculty members, responsible for delivering practical course instruction and guiding graduation projects at the School of Mechanical and Electrical Engineering, Kunming University. To enhance teaching and research capabilities, the school will regularly organize teaching seminars, demonstration classes, and teaching skills competitions, aiming to cultivate 1−2 provincial-level distinguished teachers and 3−4 university-level distinguished teachers. The school will support faculty members in leading teaching reform and research projects at or above the provincial level, with the goal of securing 8−10 such projects approved within five years, publishing 20−25 papers in core journals, and releasing 3−5 textbooks or monographs at Kunming University. Additionally, the school will establish two university-level teaching and research teams— "Power System Automation" and "New Energy Electrical Technology" —to foster collaborative innovation within these teams at Kunming University.

（5）Experimental and Practical Training Facilities Development:

Upgrading on-campus laboratories: prioritize the construction of a Comprehensive New Energy Electrical Laboratory, an Intelligent Microgrid Simulation Laboratory, and an Industrial Electrical Intelligent Control Laboratory; procure equipment such as grid-connected photovoltaic and wind power systems, PLC and industrial robot training platforms, and power system digital simulation software. Renovate existing laboratories, replace outdated equipment, and enhance the intelligence and comprehensiveness of experimental facilities to achieve the goals of "standardizing basic experiments, structuring

comprehensive experiments around project-based modules, and opening up innovative experiments." Expanding off-campus training bases: consolidate the existing 10 off-campus training bases and establish additional 5−8 training bases at new new energy enterprises and intelligent manufacturing enterprises. Collaborate with enterprises to establish "University-Enterprise Joint Laboratories" and "Engineering Practice Centers," where enterprises provide real-world projects, equipment, and technical support, while the university provides venues and talent, thereby enabling resource sharing at the School of Mechanical and Electrical Engineering, Kunming University. Optimizing practical teaching management: refine the practical teaching syllabus, guidance manuals, and assessment criteria, and implement a "process-based assessment + outcome-based assessment" model. Develop virtual simulation-based experimental teaching projects to compensate for the limitations of physical experiments and enhance students' practical efficiency and safety.

（6）Enhancing Scientific Research and Social Service Capabilities

Refining Research Directions: The research will focus on four major areas—optimal operation of power systems, grid integration control for renewable energy, smart grid technologies, and industrial electrical automation—while aligning with the technological needs of Yunnan's green energy sector and intelligent manufacturing industry at the School of Mechanical and Electrical Engineering, Kunming University.

Promoting industry-university-research integration: Encouraging faculty members to collaborate with enterprises in applying for research projects and solving technical challenges; within five years, undertaking 15−20 horizontal research projects with cumulative research funding reaching RMB 3−5 million at Kunming University. Strengthening social services: Providing services such as vocational training in the power industry, technical consulting for enterprises, and electrical equipment testing; conducting electrical technology exchanges and

talent training programs targeting South Asia and Southeast Asia, thereby supporting the Belt and Road Initiative through the School of Mechanical and Electrical Engineering at Kunming University.

（7）Teaching Management and Quality Assurance

Enhancing the quality assurance system: Establish a four-tier teaching quality monitoring system spanning "University − College − Major − Course," and implement a comprehensive framework comprising teaching inspections, class observations and evaluations, student teaching evaluations, and supervisory assessments. Promoting continuous improvement: Conduct regular evaluations of talent cultivation quality; based on industry demands, student feedback, and enterprise evaluations, dynamically adjust the training programs, curriculum systems, and instructional content at the School of Mechanical and Electrical Engineering, Kunming University. Strengthening academic ethos development: Refine student management mechanisms; organize professional orientation education, academic lectures, and skill competitions; and foster a positive academic atmosphere characterized by "diligent learning, critical thinking, steadfast practice, and innovation."

4、measure of safeguard

(1) Organizational Support: A Professional Development Leading Group shall be established, headed by the Dean of the College with members comprising the program coordinators, key faculty members, and enterprise representatives; this group shall be responsible for overall planning and coordinating the advancement of the development work, holding regular progress meetings to address issues arising during the development process.

(2) Funding Guarantee: Efforts will be made to secure special construction funds from the university, provincial-level quality improvement projects, and university-enterprise cooperation funds; over a five-year period, a cumulative total of RMB 5−8 million shall be invested in these initiatives, with priority given to faculty development, laboratory construction,

curriculum reform, and university-enterprise cooperation.

(3) Institutional Safeguards: Improve supporting systems for faculty assessment, teaching reform, scientific research awards, and practical teaching management; incorporate the outcomes of program development into faculty performance evaluations, professional title evaluation and appointment processes, as well as criteria for recognizing outstanding achievements, thereby stimulating faculty members' enthusiasm for participating in program development efforts.

(4) Support for School-Enterprise Cooperation: Establish a long-term mechanism for school-enterprise cooperation by signing strategic cooperation agreements that clearly define the rights and obligations of both parties, thereby ensuring the active and deep involvement of enterprises throughout the entire process of talent cultivation, curriculum development, practical teaching, and faculty training at the School of Mechanical and Electrical Engineering, Kunming University.

Rooted in professional practice, aligned with industrial demands, and focused on long-term development, this document serves as the action plan for the future development of the Electrical Engineering and Automation major over the next five years. The comprehensive implementation of the outlined plan will undoubtedly drive a comprehensive improvement in the program's educational standards, the quality of talent cultivation, and its social service capabilities, thereby providing a solid foundation of electrical engineering expertise and technical support for the economic and social development of Yunnan and the broader region.