

# Research on Practice Teaching Mode of Electrical Engineering based on Innovative Talent Cultivation

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**Abstract:** With the rapid development of science and technology, the electrical engineering field has an increasingly urgent need for high-quality talents with innovative spirit. In order to comply with this trend, it is particularly important to build a practical teaching mode of electrical engineering with innovative talent cultivation as the core. The purpose of this paper is to discuss the strategies of improving the innovation ability and practical ability of electrical engineering students by clarifying the teaching objectives, strengthening the combination of theory and practice, innovating the teaching mode, constructing advanced experimental and practical training platforms, deepening the cooperation between schools and enterprises, perfecting the ability assessment and feedback mechanism, constructing a diversified cultivation system, and establishing an effective incentive mechanism.

**Keywords:** Hands-on Teaching; Teaching Mode; Ability to Innovate.

## 1. Orientation of Teaching Objectives

(1) Clear innovation orientation. Cultivating students' innovative consciousness, innovative thinking and innovative ability is regarded as the core of professional teaching. Through curriculum design, selection and optimization of teaching content, students are inspired to take the initiative to explore unknown fields and solve practical problems, thus shaping innovative talents in the field of electrical engineering.

(2) Integration of integrated qualities. On the basis of strengthening professional knowledge and skills, emphasis is placed on cultivating students' comprehensive qualities such as teamwork spirit, communication ability, project management ability and international vision, so as to better adapt to the complex and changing engineering environment and social needs.

## 2. Integration of Theory and Practice

(1) Curriculum reform. Optimize the curriculum, increase the proportion of practical sessions such as experiments, practical training and project design, and ensure that theoretical teaching is closely integrated with practical operation. Deepen students' understanding and application of theoretical knowledge through case study, simulation, on-site teaching and other forms<sup>[1]</sup>.

(2) Deep integration of practical teaching. Teachers are encouraged to introduce real cases in classroom teaching, organize students to participate in scientific research projects, competitions and internships in enterprises, so that students can exercise their practical skills in the process of solving real problems, forming a virtuous circle of "learning by doing, learning by doing".

## 3. Innovations in Teaching Models

(1) Flipped Classroom and Blended Learning. The knowledge transfer is advanced to the front of the class,

making full use of classroom time for in-depth discussions, case analyses and practical operations<sup>[2]</sup>. Combined with online teaching resources, blended learning combining online and offline is realized, which effectively enhances teaching efficiency and student participation.

(2) Project-driven teaching. Students are encouraged to participate in comprehensive interdisciplinary and interdisciplinary projects in a project-oriented manner. Through the design, implementation and evaluation of the projects, students will be able to comprehensively develop their innovative thinking ability, teamwork spirit and ability to solve practical problems.

## 4. Experimental and Practical Training Platform Construction

(1) Advanced laboratory construction. Investment in the construction of high-standard laboratories, equipped with cutting-edge experimental equipment and software systems to fully meet the needs of students in innovative experiments and scientific research training.

(2) Virtual simulation platform. Develop a simulation experimental teaching platform based on virtual reality and augmented reality technology to simulate the real engineering environment, effectively reduce the cost of experiments, and significantly improve the safety and flexibility of experiments.

## 5. School-Enterprise Co-operation

(1) Co-establishment of practical training bases. We work hand in hand with leading enterprises in the industry to establish off-campus training bases to provide students with real work scenarios and practical experience in projects, so as to comprehensively enhance students' professionalism and competitiveness in employment.

(2) Joint Training and Project Co-operation. It actively carries out school-enterprise cooperation programs and invites enterprise experts to participate in lectures; at the same time, it selects and dispatches teachers to enterprises for on-

the-job training, so as to promote exchanges and complementation of talents and technical resources between schools and enterprises.

## 6. Capacity Assessment and Feedback

(1) Diversified Evaluation System. A diversified evaluation system covering process evaluation, project evaluation, self-evaluation and peer evaluation is constructed to comprehensively assess students' knowledge dimension, practical ability and comprehensive quality.

(2) Timely feedback and adjustments. Regularly collect opinions from students, teachers and co-operating enterprises, and timely adjust the teaching content, methods and assessment criteria to ensure the quality of teaching and the effective realization of students' training objectives.

## 7. Diversified Training System

(1) Personalized Development Programme. Based on students' interests, expertise and career plans, personalized cultivation plans are formulated, such as offering elective courses, organizing interest groups and academic lectures, to meet the growth needs of different students.

(2) Interdisciplinary integration. Promote cross-fertilization with other disciplines to expand students' knowledge domains and cultivate innovative talents with multi-disciplinary knowledge backgrounds.

## 8. Establishment of Incentives

(1) Incentive Mechanisms. Measures such as innovation funds, scholarships and competition awards are set up to recognize students who excel in areas such as scientific and

technological innovation, academic research and social practice, and to stimulate their passion for innovation.

(2) Policy support. Actively seek policy support and financial input from the university, government and the community to provide a solid guarantee for the cultivation of innovative talents in the profession.

## 9. Conclusion

In order to cultivate electrical engineering professionals with innovative ability, it is necessary to carry out comprehensive reform and exploration in multiple aspects, such as the positioning of teaching objectives, the combination of theory and practice, the innovation of teaching modes, the construction of experimental and practical training platforms, school-enterprise co-operation, competence assessment and feedback, the diversified cultivation system and the establishment of incentive mechanisms. Through the implementation of these measures, it can effectively enhance the innovation ability and practical ability of students, and deliver more high-quality electrical engineering professionals to the society.

## References

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