

北陸先端科学技術大学院大学研究室教育指針  
Laboratory Education Guideline

研究室教育指針は、学則第30条の3に基づき、研究指導の方法及び内容並びに修了までの研究指導の計画をあらかじめ明示するものです。

Based on the Article 30-3 of the general academic rules, the Laboratory Education Guideline is intended to clearly outline the methods and content of research guidance, as well as the plan for research guidance until completion.

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1. 研究テーマ / Research Theme
For forthcoming research on quantum and wireless advanced networking.
2. 修得が期待される能力 / Competencies expected to be acquired 研究室教育は必修 A 科目（先端）又は研究支援科目（融合）の一部として単位化されており、この欄はそれら科目のシラバス上の達成目標の一部となります。 Laboratory Education is accredited as a part of the Required courses A (Division of Advanced Science and Technology) or Research Support Courses (Division of Transdisciplinary Sciences), and this section constitutes a part of the course goals stated in the syllabus for such subjects.
Through laboratory activities, students are expected to acquire advanced knowledge in quantum information and quantum networking, including quantum entanglement, communication protocols, quantum repeaters, and network architectures, as well as fundamentals of next-generation wireless networks. Students will develop research skills such as problem formulation, modeling, simulation, experimentation, and performance evaluation for complex networking systems. Students will also gain academic communication skills through writing research papers and presenting results. Master's students are expected to apply acquired knowledge to defined research problems, while doctoral students are expected to conduct independent research, create new knowledge, lead projects, and mentor junior students. Collaborative attitudes, research ethics, and professional responsibility are emphasized.
3. 研究指導方針 / Research Guiding Principle
This laboratory aims to advance fundamental and applied research in quantum and wireless advanced networking toward future communication infrastructures. Research is conducted through a balanced approach combining theoretical analysis, system modeling, simulation, and experimental validation. The laboratory encourages originality, critical thinking, and interdisciplinary perspectives to address open research challenges in emerging networking technologies. Emphasis is placed on academic rigor, international collaboration, and ethical research practices. Through close supervision and active discussion, students are guided to become independent researchers capable of contributing to the global research community and leading the development of next-generation networking systems.
4. 研究室活動の内容及び方法 / Content and Methods of Laboratory Activities
This laboratory actively conducts reservation-based and regular-based schedules. In the reservation-based schedule, each student can reserve a time slot in advance for comprehensive research discussion. In the regular-based schedule, this laboratory holds a weekly joint seminar with a collaborated laboratory. This laboratory also holds a weekly research club (WRC) and lunch meeting every week. To efficiently operate the WRC, this laboratory forms groups with 2 or 3 students in each group. The students of each group are reporting their research progress. This laboratory irregularly holds a paper reading club (PRC) to have an intensive discussion among students about the up-to-date paper. During the beginning of semester, this laboratory jointly organizes a lecturing-in-turn to enrich the basic knowledge of new master students with other laboratories. To strengthen the relationship between students, the yearly activities are held as follow; summer camp, cherry blossom festival gathering, international joint seminar, farewell and welcome party.
5. 年間スケジュール / Annual Schedule 大学の全学共通の年間スケジュールは「履修案内」の「学位取得に至るスケジュール」を参照してください。（本学HP参照：ホーム>教育>履修関係>履修案内）

Please refer to the “Degree conferment schedule for the master’s program/doctoral program” in the “Degree Completion Guide” for university-wide common schedule (JAIST website: Home >Education>Taking Courses>Degree Completion Guide)

Students are expected to actively participate in domestic and international Scopus-indexed conferences organized by IEEE, IEICE, and IPSJ. In particular, Master’s students are expected to submit at least one paper to a domestic or international conference before completion, while doctoral students are expected to submit annually at least one domestic conference paper and one international conference paper. In addition, doctoral students are expected not only to participate in international collaborative research meetings and workshops, but also to actively submit manuscripts to leading international journals, such as IEEE Transactions on Quantum Engineering, IEEE Transactions on Communications, IEEE/OSA Journal of Optical Communications and Networking, IEEE Transactions on Wireless Communications, IEEE Journal on Selected Areas in Communications (JSAC), IEEE Network, as well as journals published by Springer, ACM, Nature Portfolio, and Elsevier, including Quantum Science and Technology and Physical Review Applied. Through these activities, students will develop strong research planning, presentation, and publication skills.