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

Mathematical modeling of dynamical systems related to robot locomotion, and the development of control system design methods for efficient motion generation, taking into account their mechanical and dynamical characteristics.

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.

The ability to mathematically describe the motion of multi-degree-of-freedom dynamical systems using matrix differential equations; the ability to analyze non-trivial nonlinear phenomena and complex motions generated by robotic systems; the ability to design control systems for efficient motion generation that effectively utilize the mechanical characteristics of the system; and the ability to objectively understand and explain motion generation mechanisms in humans and animals in the real world, using robotics as a means.

3. 研究指導方針 / Research Guiding Principle

Master's students acquire fundamental knowledge and skills in robot modeling, control system design, and motion analysis, and engage in problem-solving to achieve their objectives. While it is ideal for students to independently set their thesis research topic, if this proves difficult, it will be determined through daily discussions with their supervisor. The graduation requirement is the proposal of a novel methodology or the realization of a system recognized as scientific research. Furthermore, it is strongly recommended that students present their findings at least once at an international conference before graduation.

Doctoral students tackle new problems they have independently defined, building upon their research activities up to the Master's level. They aim to propose novel methods for solving these problems, objectively evaluate the obtained results, and verify them through experiments with actual hardware. Alongside research activities, students must actively engage in academic society activities. Requirements for completion include the continuous submission of papers as first author to flagship conferences in the field of robotics (held twice annually, spring and fall) and the submission and publication of papers as first author in international academic journals.

4. 研究室活動の内容及び方法 / Content and Methods of Laboratory Activities

☐ Daily Activities: Acquisition of specialized knowledge and skills, and advancement of research.
☐ Weekly Activities: Attendance at and presentations in laboratory seminars.
☐ Monthly Activities: Review of research progress and revision of research plans.
☐ Occasional Activities: Submission of papers to domestic and international conferences and presentation of research outcomes, individual meetings, internships, and laboratory retreats.

In this laboratory, no strict rules such as core working hours are imposed on daily research activities. Students are expected to maintain a regular lifestyle in accordance with the academic calendar. When research activities may be affected due to job-hunting or other reasons, students are required to inform their supervisor in advance. If a student's participation in research activities is significantly limited over an extended period, the

expected time of completion may be adjusted after consultation with the principal supervisor, taking the student's research progress into consideration.

Participation in laboratory seminars (in principle, once a week for approximately two hours) is regarded as an essential component of research supervision, and all students are expected to attend. In these seminars, students take turns presenting literature reviews and reports on their research progress. When a student is scheduled to give a presentation either inside or outside the university, the seminar may also be used for rehearsal purposes. In addition, individual meetings are held as needed for each student, depending on the progress and content of their research.

5. 年間スケジュール / Annual Schedule

本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)

Laboratory activities and research supervision are conducted each year based on the following annual schedule. Through these activities, interaction within the laboratory is promoted, and students' understanding of research as well as their research abilities are enhanced.

At the M1 Student Presentation Meeting held every December, first-year master's students present what they have learned and considered since being assigned to the laboratory in a free format. Students in their second year of the master's program and above serve as discussants, providing questions and comments, with the aim of developing students' abilities to engage in research-related discussion.

- Welcome Party for New Students (July)
- Laboratory Retreat for New Students (Autumn)
- M1 Student Presentation Meeting (December)
- Program Completion Celebration (March)
- Presentation of research outcomes at domestic and international conferences (as appropriate)

The timing and content of each activity may be adjusted as appropriate, depending on the progress of research activities and other relevant circumstances.