

Descriptions of Courses

KTP501 Computing System Overview 3:0:3

This course offers introductory overview of computing systems, which includes computer architectures, operating systems, current trends and future of computer systems. Relevant technologies are investigated and analyzed in depth from the viewpoint of computing systems. Participating students will develop base knowledge of computing systems required for software engineers.

KTP512 Practical Data Science 3:0:3

This course aims to cover introductory topics in data science. The topics include data visualization, statistical inference, regression, classification, and Bayesian models. This course can also include a data science group project that includes identifying a problem, collecting or finding a dataset, analyzing the dataset with techniques learned in the class, visualizing and interpreting the results.

KTP513 AI Technologies for NLP 3:0:3

This course aims to introduce various AI-based technologies for natural language processing, covering spoken and text language processing, and conversational AI. Both traditional and modern deep learning techniques are covered, with practices for utilizing ML-based language resources.

KTP521 Software Engineering for AI 3:1:3

This graduate-level course introduces software engineering fundamentals for AI, covering the entire development lifecycle. It explores project management, supporting tools, and relevant theories to ensure a comprehensive understanding. Students will gain valuable insights into all aspects of AI software development.

KTP522 Software Architecture for AI 3:0:3

In this course, we explore the foundational knowledge of software architecture, an essential aspect of developing nontrivial software systems, including AI. Students gain a comprehensive understanding of the discipline through critical evaluations of seminal papers and the application of architecture principles to real-world design problems,

KTP533 Computer Vision and Machine Learning 3:0:3

This course provides a comprehensive introduction to low-level computer vision, including the foundations of camera image formation, geometric optics, feature detection, stereo matching, motion estimation, image recognition, scene understanding, etc. This course will help students develop intuitions and mathematics of various computer vision applications.

KTP535 Theory and Practice for Deep Learning 3:0:3

As deep learning has become an essential driver behind AI transformation in many businesses, it is a fundamental skill for advanced software engineers. This course covers recent theories and practices in deep learning on selected topics.

KTP543 Introduction to Cybersecurity 3:0:3

This course provides a comprehensive overview of cybersecurity. The first half covers an introduction to information security, cryptography, network attacks and related security. The second half covers attacks and security on systems and software, privacy and user-centred security.

KTP563 Introduction to Computer Systems 3:0:3

This course delves into computing systems topics like computer architecture, operating systems, and AI-specific systems. Starting with hardware fundamentals and computer architecture, it covers to modern operating system designs, culminating in a review of recent AI-centric hardware and software advancements.

KTP571 AI Engineering & Innovation **3:0:3**

This course aims to educate systematic development of AI-based applications and innovations, namely AI Engineering and AI Innovation. This course is specialized for KT-AI Convergence Education Program and Software Graduate Program.

KTP585 Software Business Strategy **3:0:3**

This course studies the management principles and management strategies necessary for software business management. It analyzes the success and failure cases of SW companies and cultivates the ability to establish systematic management strategies by acquiring the elements required for starting and managing SW companies.

KTP592 Special Topics in AI Convergence **3:0:3**

This course deals with selected special topics in AI convergence fields that are hard to cover the other courses.

KTP601 AI Convergence Group Project **0:9:3**

In the AI Convergence Group Project course, students apply and experience the concepts and principles learned through AI and related subjects to carry out actual projects. Students work on a project as a team. In particular, weekly team meetings are held to discuss choices and decisions made during the project implementation process.

KTP602 AI Convergence Independent Project **0:9:3**

In the AI Convergence Individual Project course, students apply and experience the concepts and principles learned through AI and related subjects to carry out actual projects. Students perform projects independently, and experience and learn independent project management techniques.

KTP965 Independent Study in M.S. **0:9:3**

This course emphasizes the aspects of professional practices and experiments. Students are provided with projects to be performed individually. Consult instructors before taking the course.

KTP966 M.S. Seminar **1:0:1**

In this course, seminars about current trends and future research directions in various software-related areas are offered by invited speakers inside or outside. Students are required to actively participate in the seminars.

KTP998 Internship Program **0:3:1**

During the winter vacation, the M.S. internship aims to take a joint research project with academic institutions or corporations. The students are expected to work for maximum of 2 months while collaborating with their corporation or research institution managers.