Course Descriptions

▣ Mandatory Major Courses

❑ Elective Course

CTP201 ntroduction to Culture Technology   3:0:3(6)
This course introduces the fundamental concepts of culture technology, and deals with the theory and the practice of the "digitization" of our life and culture. Scientific, technical, and industrial aspects of culture technology is also discussed.

CTP303 Scientific Principles of Culture   3:0:3(6)
This course will provide the scientific (physics, wave theory, optics, etc.) and the numerical (data analysis and interpretations, graph theory, algorithms, etc.) principles that serve as the foundation for culture technology that enables the creation, sharing, and appreciation of culture. The students of this course are expected to gain a working knowledge of the scientific principles behind the mechanics of musical instruments, resonance and harmony, and the color spectrum in music and paintings. They are also expected to gain a working knowledge of text analysis and interpretation techniques for extracting storytelling structures in literature and movies, and graph theory and algorithms for understanding and modeling the transmission process of culture.

CTP321 Introduction to Computer Game Technology   3:0:3 (6)
This course covers the theories and practices for representing, generating, and modifying digital visual content such as photographs and 3D graphics content. Students will learn representing and processing digital images through various data structures and data processing techniques, and subsequently study 3D graphics theories and practice them via programming assignments.

CTP371 Contents Planning and Storytelling   3:0:3(6)
This course is designed to study characteristics of the cultural industry and understand the pre-production, production and post-production of cultural contents. Students can understand basic principles of storytelling and practice the planning of cultural contents.

CTP372 Media, Culture & Art   3:0:3(6)
Man has considered Media as an essential tool to communicate his values and emotions living and forming various cultures and Civilizations. With the passage of time Media has been available mediator for cultural expression and power through diverse ways and contents.

CTP403 Art and Science Interaction   1:6:3(6)
'Hybrid' or 'Fusion' is one of the keywords that represent the complex phenomena of modern society, especially of accelerating evolution in science and technology. Among the wide spectrum of fusion 'movements', we would like to focus on the fusion between art and science, as it is regarded as the most fundamental from the academical perspective. This course is concerned with the theory, history and practices of the fusion between art and science. It will open with the historical developments and proceed to the contemporary case studies, thereby establishing the

framework for the fusion. Students – regardless of their background – will learn new ways of thinking, problem solving, and problem formulation throughout this course.

CTP404 Making Things   3:0:3(6)
The goal of the course is to develop the fundamentals, digital and interaction approaches, which is a new era in the age of IoT (Internet of Things). Students will learn basic techniques of analysis and synthesis using experimental digital design tools.

CTP405 Topics in Digital Heritage   3:0:3(6)
Nowadays digital heritage is receiving attention in cultural heritage domain. This course introduces digital heritage and its issues, and explores how digital technologies enhance the preservation of cultural heritage. The course involves introduction to digital heritage, technologies, and applications. It also involves analysis of trends and chosen practices.

CTP431 Music and Audio Computing   3:0:3(6)
This course introduces computer-based music theory, digital audio effects and performance. Using WebAudio, we handle various topics including audio analysis/processing/synthesis, performance, integration with other modalities on web environments. Through this course, students will learn how to create music contents or platforms in a practical manner.

CTP441 Game Design   3:0:3(6)
In order to complete successful games development, collaboration between many different areas is a prerequisite. Well-balanced contribution from various disciplines is such an important factor in the field. Ideas from various fields have infinite potential to trigger innovative thinking for current and future game media. This course will provide innovative ideas and insights from various disciplines for future game media. During this course, various types of game design will be assigned.

CTP442 Visual Information Processing   3:0:3(6)
This course is designed for students to understand the basic principles of visual information processing of the human visual system and learn the ways to overcome the limitations of the current vision algorithms or systems by applying the computational vision model. In particular, it introduces the mechanisms of the visual information processing as comprehensive multi-interdisciplinary knowledge of vision science, neuroscience and visual computing. In addition, it provides basis for students to carry out further research by applying computational approach as a framework of integrated modules handling shapes, color, motion, depth, etc. to mimic the mechanism of human visual system.

CTP443 Human-Computer Interaction for Culture Technology   3:0:3(6)
This course will introduce students to investigate the core concepts of HCI for CT students. Students will be expected to be familiar with the essential contextual design methodologies and representation skills to communicate efficiently through the course project.

CTP445 **Augmented Reality** 3:0:3(6)

This course is designed to study basic theories, methods, and cores of Augmented Reality. It covers cores in image processing/analysis, computer vision, computer graphics, 3D interaction, user experience and evaluation. It provides the interested students with the basic knowledge and skills to conduct the further researches in Augmented Reality through team projects.

CTP452 Digital Performance Planning and Design 3:0:3(6)

This course aims to provide a comprehensive understanding of digitql performance planning and design as well as diverse methods and practical knowledge of performance making while exploring the interconnections between planning and design. Through the writing-up of an actual performance plan and field visits, this course enables students to develop capabilities as performance planners. Furthermore, from the viewpoint of digital scenography, this course attempts to build a systemic understanding of the design of stage, moving image, costume, sound, and lighting as well as choreography and movement composition.

CTP471 Social Networks Analysis 3:0:3(6)

In this course, sociological theories and methodological bases of social networks analysis are discussed. Students review and understand social networks analyses in the fields of sociology, computer science, and physics. Students are expected to design and conduct a social network research for a final team project.

CTP472 Social Media and Culture 3:0:3(6)

This course will investigate social media from a cultural perspective through reviewing seminal literature and conducting hands-on experience with real data. We will focus primarily on digitally-logged propagation events in social media to understand how people, through different cultural contexts, generate and consume information. This class is open to advanced undergraduates and graduate students with either technical or non-technical backgrounds.

HSS322 **Understanding Music and the Brain** 3:0:3(6)

This course provides a broad overview of how various components of music including pitch, harmony, and rhythm are processed in the human brain. By studying the brain mechanism of music listening, students will understand why music emotionally touches us and how the brain changes with musical training.

HSS324 Science Fiction Cinema 3:0:3(6)

This class will introduce students to the importance of science fiction films. Through close analysis of the visual style, themes and subtext of key films from the historical development of the science fiction genre, students will gain an understanding of how film makers use their visions of the future to comment on contemporary society and culture. Students will learn how to study and appreciate films from different national cinemas, and will gain a richer sense of how science and technology have changed film.

HSS337 New Media and Communication   3:0:3(6)

This course provides guidance on introduction to new media and communication in the context of the complex interactions of culture and technology. This course offers both theoretical approaches and case studies of these interactions from diverse domains, including new media, linguistics, information technology etc. This course will help students to understand relationship between new media and communication effectively.