

# Course Descriptions

## ▣ Undergraduate Course

### ▣ Elective Course

#### **CTP303 Culture Through the Eyes of Science 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.

#### **CTP311 Human Visual Cognition 3:0:3(6)**

The objective of this course is to understand the fundamental principles of how humans process, transform, and experience visual information. It introduces the mechanisms of human visual information processing by combining multidisciplinary knowledge from cognitive psychology, vision science, and neuroscience. In addition, research methods commonly used in human cognitive research will be addressed.

#### **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.

#### **CTP400 Topics in Cultural Technology 3:0:3(6)**

This course is concerned with the emerging issues in the theoretical and practical aspects of culture technology. Typical topics include content technologies, cultural management, cultural policies, content design, techno-culture, scientific communications and architectural space design.

#### **CTP402 Spoken Language and Computers 3:0:3(6)**

This course aims to introduce articulatory and acoustic properties of speech sounds, and explore the mechanisms of speech communication. In addition, this course will introduce automatic speech recognition and speech synthesis techniques and discuss ways in which the understanding of speech communication can enhance speech technology.

**CTP403 Art and Science Interaction** **3:0:3(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 Creative Practice** **1:6:3(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.

**CTP406 Topics in Art 3 credits** **3:0:3(6)**

This course introduces the future of art to the students of all levels. In this course, the status and meaning of today's art is revisited through various fields of studies such as art, philosophy, humanities, science, and technology. 'Topics in Art' answers to the fundamental questions; what we want to achieve through the art, where the art is heading today, and what is the art from a future perspective.

**CTP431 Fundamentals of Computer Music** **3:0:3(6)**

This course introduces theories and practices to make music with computers. Students will learn about sound synthesis, digital audio effect, algorithmic composition, and interactive music systems. Throughout the course, they will gain hands-on experience with audio programming languages and develop a broad understanding of diverse applications.

**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.

**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 digital 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.

**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 introduces students to the social, cultural, and practical significance of science fiction films. Through close analysis of the visual style, themes and subtext of key films (and television series), students will learn how to study and appreciate science fiction from different national cinemas and gain an understanding of how filmmakers use their visions of the future to comment on contemporary society and culture. This class includes guest lectures and interdisciplinary content designed to explore the connections and influences between science fiction and real-world science.

**HSS339 Human Communication and the Internet**

**3:0:3(6)**

This course provides an overview of computer-mediated communication by exploring psychological, interpersonal, social, and cultural aspects of Internet communication and communication technologies. The objectives of the course are to provide a significant understanding of how computer-mediated communication affects human communication process and to enable students to extend this knowledge into contexts of their interest.