Course Descriptions

❒ Graduate Course

Mandatory Major Courses

GCT501 Introduction to Culture Technology
This course discusses the basics of culture technology(CT). While culture technology refers to the technology for digital contents such as games, animation and movies, we extend its scope to the technology for various cultural artifacts, even to the technology for our everyday cultural activities. We shall also discuss how the traditional 'analog' cultural problems may find their effective solutions by incorporating the 'digital' approach.

Elective Course (Interdisciplinary Basic Courses)

GCT502 Aesthetics in the Digital Age
This course deals with major aesthetical and technical issues to understand the art and culture in the 21st century. We cover the history and traditional concepts of aesthetics, review the latest trends in digital technology, and analyze the reaction to (or re-action on) the "desire" of current culture through multidisciplinary discussions including philosophy, psychoanalysis, arts, and digital technology.

GCT504 Cyberpsychology
Cyberpsychology is the study of the human mind and behavior in the context of human-technology interaction. It encompasses all psychological and social phenomena that are associated with or affected by emerging technologies, including the internet, mobile phones, online game, virtual world, digital media and any other technology, which has demonstrated an ability to alter human behaviors, lifestyles, and social changes. This course aims to provide with an in-depth understanding of how humans experience and interact with culture technology based on user's psychological and social experience centered perspective.

GCT505 Human-Computer Interaction
The overall process of analysis, design, and implementation of human-computer interaction is covered. Topics include reflecting cultural context and user needs, analyzing tasks, designing user interface, evaluating performances, and the recent research trends.

GCT508 Corporate Strategic New Product Development
This course aims to approach the design process from a broader business perspective. Beyond the traditional role of industrial design and designers, this project attempts to include developing business strategy as a design problem. By investigating and analyzing the market, company structure and business model, students engage in managerial decision-making process to develop business strategies.

GCT604 Cultural Archetype & Contents
The Cultural Archetype is to find out the common and universal elements such as cultural images and symbols in the basic patterns, ways and styles of the Culture and Civilization. We are going to make an analysis of how the images and symbols come to create the Cultural Archetype reflected on Myth, Legend, History, Society, Arts, Politics and Religion. In this course the students have to focus on getting the visions, perspectives and insights to analyze the Culture through images and symbols. Furthermore, the students will learn how to use culture archetype knowledges to develop digital contents, such as smart media, games and etc.

GCT606 Digital Performance
This course provides theoretical knowledge and practical skills to plan, produce and stage a digital performance project. The course draws on theories and methods from performance studies, film and media studies, and human computer interaction to gain insights into various approaches to filming choreographed shots for performance, designing computer mediated interactions, and capturing human movements in live performance.

Elective Courses (Digital Art & Entertainment Track)

GCT522 Computer Graphics Theory and Application
This course is designed to study theories, techniques and application methods of Computer Graphics. It covers the general overview, the history, and the fundamental concepts of Computer Graphics. The students will have an opportunity to learn graphics programming based on Maya API, Python Scripting, and Mel. Maya is the most widely used 3D commercial software. Industry professionals from leading CG companies will be invited to explain how the Computer Graphics technology is applied to produce most recent movies or animated films.

GCT525 Motion Graphics
This course deals with representing, analyzing, and creating motions of virtual objects for computer animation, game, VR, and other interactive media. Students will learn computational theories and algorithms for modeling and animating particles, solid, fluid, and characters through course studies and projects.

GCT533 Sound Design and Programming
This course is concerned with the basis of sound control and synthesis. MaxMSP is a graphical programming language created for use by sound designers, musicians and artists. Particularly useful is the real-time flexibility of audio processes and the ability to control the computer using midi instruments, sensors, networks and so on.

GCT544 Game Studies (Ludology)
Game studies (Ludology) are the discipline of studying games, players, their design and their roles in society and culture. These fields consist of multi- and inter-disciplinary research areas including computer science, psychology, sociology, anthropology, arts & literature, media studies, communication, theology and more. Introductory phase will be focused on basic overview of game studies such as history of games, changes of industry, basic concepts and theories that can form the basis for game field. In the deep understanding phase, based on diverse theoretical & case analysis approaches to the game areas, current trends and future directions of games can be considered.

GCT574 Story Design
Nowadays Storytelling is adapted to PC game, web content, advertizement, marketing as well as traditional story art such as novel, drama and movie. There are many stories in our time, but good stories are so rare. This course offers theories and techniques of good story well told.

GCT653 Virtual Reality and Virtual Worlds
The subjects of this course is virtual reality (technology) and virtual worlds (culture). This course will cover (1) the core technology and the characteristics of VR, and (2) the socio-humanities subjects on virtual worlds. Case studies on the various virtual worlds and the future perspectives will be discussed.

GCT721 Topics in Computer Graphics
This course deals with the emerging issues in 3D interactive graphics and animation. The primary subjects are rendering, modeling, motion control and 3D interaction techniques.

GCT722 Topics in Virtual Reality
A primary goal of this class is to study fundamental theories, algorithms, recent advances and research issues in "realizing virtual reality in ubiquitous computing environment." This class will cover key issues in the areas of ubiquitous virtual reality, which will be : (i) pervasive sensing, (ii) intelligent signal processing, (iii) multimodal interface/interaction (iv) context-aware information display, and (v) U-VR applications.

Elective Courses (Ambient Communication Track)

GCT572 Computer-mediated Communication
Introduction to the internet, language 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 computer science, linguistics, information technology, and mass media.

GCT576 Social Computing
In this course, we are going to discuss researches of social network services, along with sociological studies of human action. Sociological action theories will help social-computing researchers figure out the substantive meaning of their data analysis. Students will learn how to design a sociological data analysis framework on their own.

Students will learn how to make theoretical interpretations from data on the basis of course reading and discussions.

GCT582 Culture Content Industry
This course deals with cultural content industry field such as film, animation, game, edutainment and digital media, etc, particularly focusing on applying established scholarly tradition theories and discourses to cultural content industries. The purpose and output of this course is for empowering ability to set up and improve your analysis and predictability toward cultural content and its industry. Participants must implement case studies with applicable discourses which is provided for this course.

GCT671 Social-aware Ubiquitous Computing
Through this class, students will learn the concept and issues of the social aware ubiquitous computing, the evolutionary change of social applications including social networks and social media, and the impact on user behaviors in a new collective way.

GCT675 Theory and Applications in Culturoinformatics
Culture-related data being actively archived owing to digital devices and high-throughput communication technology include piece-specific ones such as the color histogram in paintings, the genealogy of styles andschools, and the geographical distribution of monuments. This culturoinformatics class is dedicated to the analysis, visualization, and modelling of such data.

GCT688 Global Cultural Marketing
This course begins with the traditional marketing agenda such as marketing theory, marketing models and promotion management, and proceeds to the issues that arises in global marketing. Focus will be given to the global marketing for cultural artifacts, especially cultural contents.

GCT689 Managerial and Cultural Economics
This course is concerned with the understanding of basic principles in business economics. Business economics considers how individuals, firms, the government, and other organizations make choices. In addition, economic forces are a fundamental determinant of firms' profitability and growth, and economic thinking should be a fundamental influence in nearly every managerial decision. In this course, we will examine the principles of microeconomics, and illustrate how they apply to managerial decision-making. By the end of semester, students should understand the main logical arguments in business economics and be able to use these tools to analyze business and public policy problems.

GCT711 Topics in Digital Socio-Humanities

GCT771 Topics in Social Media Analysis
Data analysis is a critical step in research. This course will cover the fundamentals of statistics with the aim of helping students learn how to read, interpret, and make accurate judgement about data. In addition, students will understand characteristics of network data and relevant methodology to deal with it. The class is best suited for students who are new to conducting their own research and who do not have deep knowledge about statistical methods.

Elective Courses (Interactive Media & Space Track)

GCT535 Sound Technology for Multimedia
This project-based course deals with both theory and practice of digital audio technology. Topics include the basic concepts of sampling, spectrum, sound analysis/synthesis, digital audio effects, psychoacoustics, and data mapping strategies for cross-modal display. Students will learn how to utilize sound to create/ understand information and art.

GCT545 Visual Computing
This course is designed to study basic theories, methods, and cores of visual computing. It covers growing common cores in image processing/analysis, computer graphics, and computer vision. It provides the interested students with the basic knowledge and skills to conduct the further researches in visual computing through team projects.

GCT554 Digital Architecture

Digital architecture is an approach to doing and understanding design that makes use of tools in mathematics, computer science, and linguistics. The digital approach also gives us ways to articulate the definition of the language; describe the designs. The first goal of the course is to develop the fundamentals and digital approaches based on the understanding of the underlying concepts of digital design, which is a new paradigm in the age of knowledge information. Students will learn basic techniques of analysis (understanding designs) and synthesis (making designs), using experimental digital design tools, and discuss the possibilities that affect the plausible applications and constructions. The second goal of the course is to show you the capabilities of computer-aided presentation skills based on the acquired knowledge.

GCT555 3D Interaction Design

This course is designed to study theories, methods and applications of 3D interaction design. It covers the general overview, the history, the fundamental concepts, and main issues of 3D interaction and it applications. It provides the interested students with the basic knowledge and skills to conduct the further researches in 3D Interaction through team projects.

GCT556 Digital Fashion

This course investigates how digital technologies affect fashion in terms of design, production and consumption. The course focuses on the design and construction of virtual garments and wearable computing, while introducing recent trends in technology applications and design methods as well as relevant contextual debates.

GCT573 Cognition and Emotion

Every cultural activities come from the informational representation and expression given by the human-environment interaction. After the establishment of cognitive science, it became increasingly apparent that cognitive structure in the human brain could best explain human behavior and even it could provide the machinery to account for affect and emotion. This course is designed to review aspects of cognition including perception, attention, memory, and problem solving, and to develop a deeper understanding of emotion. With these knowledges, recent advances in computational and quantitative modeling of cognition and emotion will be applied to the understanding and development of cultural activities and artifacts.

GCT583 Museum Technology in Digital Era

Museum management needs to apply highly advanced technologies into divers fields such as collection information management, exhibit making, communication with visitors,..etc. Especially since in contemporary society of knowledge industry the roles and functions of museums are radically expanding, the museum technology field is also being develope. This course is designed for students, on the basis of understanding of contemporary museological issues, to do analysis and research on aspects of museum technology so that they will be ready for newly created professions in the museum.

GCT633 Audio and Multimedia Programming

This course deals with various topics of audio/multimedia programming. We explore the basics of programming tools and environments, software libraries, graphic user interface design, audio plug-in architecture, audiovisual integration, and control/communication over network.

GCT687 New Media and Heritage

New Media Technologies are applied to cultural heritage not only for the preservation and management purpose but also for dissemination of its value and meaning through exhibition and learning. This class will focus on three subjects : information construction, interpretation of its value and meaning as well as dissemination methodology.

GCT753 Topics in Computational Design

This course will cover the introduction, research and state-of-art issues related to computational design. The student will get a comprehensive understanding of all the theories and approaches that have been investigated by related domain researchers such as cogtive psychologists, designers, aestheticians, computer sciencists, human-computer interaction researchers, etc.

Elective Course (Interdisciplinary Advanced Courses)

GCT700 Topics in Culture Technology project planning
This course is designed to develop Culture Technology related project through analyzing and understanding various digital media. Students will participate in real CT projects and they can gain experience and know-how of real CT projects.

GCT742 Topics in Game
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, such as tangible games. During this course, various types of tangible game and serious game design will be assigned.

Other Elective Courses

GCT523 Computing for CT
This course is designed to provide the students with the essential computing knowledge and skill to conduct the research and learning at the Graduate School of Culture Technology. The course covers not only the programming techniques but also the fundamental knowledge on computing. Rather than approaching computing from the algorithmic perspective, we shall begin with designing the services and contents, and then designing the computing architecture, and then prototyping the services and contents.

GCT524 Animation
This course will cover tips and techniques which are needed to make 3D animation films. Students will analyze problems from production pipeline such as layout, character setup, animation and study techniques how to make 3D animation.

GCT531 Theater Music and Design
Throughout the 400 year-long operatic history, there have been representative operatic stage design concepts which reflect the socio-cultural atmosphere of each period or time. This course attempts to examine the cultural and aesthetic foundations for the new performing arts design concepts of the 21st Century.

GCT532 Acoustical Instrument Design and Evaluation
Study acoustics from a variety of perspectives, including physics, mechanical engineering and mathematics, as well as review the history of musical instruments. Design, build, then evaluate the sound value of built instrument using measuring techniques and equipment through various experiments. These processes will give a basic understanding of sound, as well as an understanding of the foundation, motivation and direction of future sound in the 21st century.

GCT534 Performance Planning and Management
Understanding correlations among major factors in public performance such as thematical performance, performer selection, stage management, performer-audience communication, performance marketing and the optimization of cost-efficient planning. The focus of this class will be to experience a variety of performing forms but in orthodox forms while learning the proper skills to manage an actual performance from a practical point of view as planned through the aforementioned process.

GCT542 Game Technology
Whereas Game Design course (GCT543) deals with non-technical aspect of game development, this course deals with various technological aspects in game development, such as computer graphics, AI, physical simulation, networks, and software engineering.

GCT543 Game Design
This course covers the entire of processes of game design - from preliminary concept design to prototyping. The course begins with the essential properties of gaming, and proceeds to the discussion on each game design process. Students will learn the essential knowledge by working on game protptypying

GCT551 Digital Design

This course is designed to study fundamental design theories, principles and visual languages for creating digital media and contents. Through the course, students will acquire skills of developing creative design ideas using various visualization techniques. Students will also experience a basic digital media and contents design practice.

GCT553 Digital Contents Design

This course is designed to investigate theories related to the structure and process of digital contents. Emphasis is given to build creative business models of digital contents based on the characteristics of new media.

GCT559 Computational Design

This course will cover the introduction, research and state-of-art issues related to computational design. The student will get a comprehensive understanding of all the theories and approaches that have been investigated by related domain researchers such as cogtive psychologists, designers, aestheticians, computer sciencists, human-computer interaction researchers, etc.

GCT561 Scientific Concepts and Thinking

This course attempts to introduce and to nurture the essential concepts and knowledges in science and technology so that students develop the scientific minds for understanding, designing and solving various cultural and artistic problems. This course is primarily for the students with various non-science backgrounds.

GCT581 Cultural Economics

The aim of this course is to learn the economic analysis on arts and culture including the public good characteristics of art and culture, the demand for and supply of cultural goods, the concept of cultural capital and its impact on economic development in order to be able to discuss and derive policy implications.

GCT584 Cultural Intellectual Property

This course begins with the historical perspectives on intellectual property, and proceeds to the new development in IP due to the recent technological advances, especially the rise of digital technology. Special attention will be given to the digital contents.

GCT585 Research Methodology for Culture Management

Culture Management Statistics overview of how the cultural industry have been marketed in the Korea. Examines current issues in cultural industry and developments management strategies. Topics will include theories of cultural economics and statistic methods of economic analysis. Students will learn how to solve the problems of cultural industry.

GCT611 Digital Heritage

Digital heritage, or cultural archetype refers to the knowledge and technology concerned with the recovery, reconstruction, preservation and production of cultural heritage with the aid of the digital technology. This course emphasizes how we utilize digital heritage in order to create cultural contents.

GCT622 Digital Creatures

This course will give an overview of major research topics in digital human technology, such as facial animation, motion control, physically-based modeling and animation, modeling emotions and intelligent behaviors. Emphasis is on the computational techniques required to the simulation of human characters.

GCT631 Computer Music

This project-based course deals with both artistic and technical aspects of music generated or composed with the aid of computers. Topics include the historical background of music and technology, algorithmic composition, psychoacoustics, sound synthesis, and various issues on multimedia and networked performances. Students will learn modern composition techniques and utilize them to create their own music.

GCT651 Media Interaction Design

This course is designed to study the interactivity of multi-modalities (visual, sound, olfactory, and tactile), and to experience creative interaction design. Emphasis is given to experience tangible interface design with the state-of-the-art of technology.

GCT662 Human-Robot Interaction

As the robot technology advances rapidly, robots become robust and intelligent ever before. In this course, we shall go beyond the traditional HCI, and shall investigate various technological as well as socio-humanities issues

as robots become one of the integral ingredients of our civilization.

GCT672 Digital Storytelling
The digital technology is prevailing over the science and technology as well as the everyday life. While the digitalization of text (hypertext), video (computer graphics), music (digital music) is being accelerated, the deep structure of storytelling is necessary to investigated in the computational point of view. This course studies the computational approaches of storytelling and applies to the various digital media like internet, computer game, electronic book, computer animation, etc.

GCT674 Knowledge-based System Design & Modeling
This course will examine the nature and principles of knowledge-based systems from performance and methodology perspectives. It will also cover the software engineering modeling concept and basic elements of knowledge-based systems using the specific programming language UML and JESS.

GCT681 Media Marketing
We will unfold the Media Marketing in three steps: First the media specific marketing strategy is introduced followed by the promotion theory based on media sales process. The third step will be the sell side electronic commerce as well as brand development as a pragmatic manifestation of media marketing.

GCT682 Cultural Industry Policy
This course deals with cultural industry policy which is highly valued in developed country since the cultural industry has become the national brand and the main industry field. However cultural industry policy is a kind of combination between industry policy and cultural one, which is not compatible with each different one. In addition, international competition is deepening the contradiction between those two factors. The purpose of this course is to pose and to solve those issues and problems, and then to map and to position it with strategic tools and comparative methodologies which is to be provided with this course.

GCT683 Strategic Management of Innovation in Cultural Industry
This course covers issues related with high-tech industry including marketing strategy. High-tech industry requires concrete understanding of consumers from the stage of ideation of a product till that of marketing strategy setting because of its industry characteristics of high cost and market risk. From this course, students study innovation issues in high-tech industry and related marketing strategy.

GCT684 Regional Culture Industry Studies
The very notion of culture involves both global-ness and local-ness. This course explores how the region-specific culture can be exploited, and be materialized into cultural outcome. Various strategies will be studied with the field study.

GCT685 Venture Management in Culture Industry
The students will study various issues in creating and managing the venture companies in the cultural industry. The topics to be discussed are: case study, processes and simulation.

GCT686 Exhibition Content Design
Making exhibitions in the digital era cannot treat any more only with artefacts or art works. Exhibition developers, with the analysis on the purpose and intention of the event, should take into consideration the possibilities of digital technologies in planning and designing the exhibit content to meet with the needs for the institution and also for the public. This course will be composed of the basic principles to plan and design the exhibit as well as of pratice experience through projects that students will present at the end of semester.

GCT702 Research Methodology for Culture Technology
This course aims for providing an overview of culture technology research methodologies by introducing and analyzing the recent trends of theories and topics in culture technology research. Students learn how to approach research topics systematically and how to find and conduct a new research project that contributes to the body of knowledge in culture technology research. This course provides a theoretical background and a framework of methodologies for Ph.D. research in culture technology.

GCT703 Topics in Culture Technology
This course is concerned with the emerging issues in the theoretical and practical aspects of culture technology. The course may be offered throughout the entire semester, or may proceed in a relatively short time span, covering the same amount of material. Typical topics include content technologies, cultural management, cultural policies, content design, techno-culture, and scientific communications.

GCT704 Topics in Culture Technology
This course is concerned with the emerging issues in the theoretical and practical aspects of culture technology. The course may be offered throughout the entire semester, or may proceed in a relatively short time span, covering the same amount of material. Typical topics include content technologies, cultural management, cultural policies, content design, techno-culture, and scientific communications.

GCT724 Topics in Animation

GCT731 Topics in Music Technology
This course covers both the theory and the practice of digital instruments and performance. Students will learn how to implement digital interfaces for music and practice various data mappings, design new instruments, and finally conduct a performance using the result.

GCT741 Topics in Human-Computer Interaction

GCT752 Topics in Digital Contents

GCT763 Making Things
If the art object can be thought of as a manifestation of a self-contained world with its own inner logic and expressive language, then Making Things is a studio class that will explore the art-making process through a building and enriching of a fabricated world. Exercises and assignments are designed to isolate and address different facets of media art and its effectiveness in relaying artistic expression. The class will not teach technologies. Instead, the aim of the class is to focus on the art itself, examining projects in depth and fleshing out the conceptual seeds of individual projects. Students will maintain blogs and perform daily writing or sketching exercises in an attempt to develop an artistic discipline and become creatively self-aware. Assignments will consist of a combination of readings, daily exercises, weekly projects, in-class exercises, and regular critiques. Students are expected to complete projects in a timely manner and participate in regular critique sessions. The class will culminate in an art exhibition.

GCT772 Topics in Digital Storytelling
This course concentrates one field of digital storytelling: game storytelling, digital movie storytelling, animation storytelling, development, pre-production, etc.

GCT782 Topics in Cultural Content Marketing

GCT783 Topics in Global Culture
What is globalization? Is it really new? And is it really global? Where did it come from and what are its effects? Globalization is without doubt transforming economically the world. National borders are increasingly becoming irrelevant before the flow of money and goods. But globalizationalso has a great impact on cultures across the globe, as products such as Coca-Cola and Ipod, and even ideas from human rights to ideals of beauty intrude everywhere. This course will focus on how the growing impact of globalization is transforming not only the economies of the world, but also on how culture, and even the meaning of culture, is being fundamentally changed.

GCT787 Topics in Cultural Planning
This course considers how art museums reveal the social and cultural ideologies of those who build, pay for, work in, and visit them. We will study the ways in which art history is (and has been) constructed by museums acquisitions, exhibitions, and installation. We will also consider the ways in which art museums are changing by looking at the world-wide boom in museum architecture, and by examining the relationship between contemporary art and museums. The analysis of some of major art museum examples will give the insignt to the students on the relationship between the cultural contexts of viewer and object, the nture of languages or aesthetic discourse.

Research

GCT960 Master's Thesis
This is an independent research work supervised by the advisor(s), toward the Master's thesis.

GCT966 Seminar, Master's

GCT967 Individual Study, Master's

GCT980 Doctoral Dissertation
This is an independent research work supervised by the advisor(s), toward the Ph.D.'s dissertation.

GCT986 Seminar, Ph.D.'s