

**GTSU2033 SOCIETY, ECONOMY AND ENVIRONMENT IN THE AGE OF GLOBALISATION**

**(3 units)**

**Pre-requisite(s):** None

**Course Description:** This course leads students to develop an informed and intellectually disciplined understanding of globalization. It provides students with concepts in which globalization is conceptualized and discussed; introduces them into associated debates and controversies; and demonstrates the use of relevant facts about the economic, social and political context. Ultimately, students will be able to formulate their own perspective on globalized societies in a theoretically informed manner, critically, and in connection with existing scholarship.

**GTSU2043 CLIMATE CHANGE AND SOCIETY: CURRENT STATUS AND A LOOK INTO THE FUTURE**

**(3 units)**

**Pre-requisite(s):** None

**Course Description:** This course aims at providing students the basic understanding of the causes of modern climate change, and enables students to comprehend the impacts of modern climate change on those important aspects of our society. Upon completion of this course, students are expected to be able to face the challenges caused by climate change and engage themselves in new daily life practices that may lead to mitigating climate change and achieving a sustainable world in the future

**GTSU2053 FOOD SECURITY AND SUSTAINABILITY**

**(3 units)**

**Pre-requisite(s):** None

**Course Description:** Upon completion of the course, the students enrolled in the course should be able to: 1) learn the challenges of global food production and its impacts on natural ecosystems, economic, human health, policies, and peaceful world; 2) explain the economic, social, and environmental dimensions of current food production systems; 3) analyze the problems and relevant applications at local, regional, national, and global levels; 4) solve problems using interdisciplinary thinking and explain relevant applications and synergistic benefits of interdisciplinary thinking; and 5) Develop teamwork skills by interacting with other disciplines.

**GTSU2063 HOW TO BUILD A GREEN CITY? CHALLENGES AND SOLUTIONS**

**(3 units)**

**Pre-requisite(s):** None

**Course Description:** This interdisciplinary course is designed to enable students to apprehend the intricate relationships between economic growth, pollution and health problems and ultimately, their effects on human well being. This course also aims to broaden the students' perspectives on how economics, cultures, educations, and environmental policies and ethics contribute to green city development. Upon finishing the course, students should be able to comprehend the importance of sustainable development and engage in innovative thinking on current environmental issues in preparing them to face future environmental challenges

**MAD1003 STUDIO ART PRACTICES: DRAWING FUNDAMENTALS**

**(3 units)**

**Pre-requisite(s):** None

**Course Description:** This course is aimed at teaching drawing as a skill that can be applied across a wide variety of disciplines in the art and design field. The course focus will be on developing perceptual skills to produce drawings of merit from direct observation while gaining proficiency using the materials and tools of dry-media. Students will be taught the process of seeing, hand-eye coordination and the technical skills of handling the medium. In addition, the terminology of drawing will be introduced and utilized during discussions and critiques. Students will gain an understanding of how drawing fits into the Media Arts profession as a fundamental skill. Students will be expected to view their work critically through class critiques and discussions.

**MAD2003 DESIGN FUNDAMENTALS**

**(3 units)**

**Pre-requisite(s):** None

**Course Description:** This course is aimed at introducing the conceptual, aesthetic and technical skills of design through experiential studio practice. The focus is on design principles and fundamentals as they apply to static media, time-based media, interactive media and relevant software.

**MAD2013 ART MEDIA FUNDAMENTALS**

**(3 units)**

**Pre-requisite(s):** None

**Course Description:** The technical aspects of various traditional media are introduced and practiced in this course through studio application. Within individual mediums, various techniques will be demonstrated and explained. Through the experience of viewing and creating art work in different mediums, students will be made aware of the intrinsic advantages and disadvantages of individual media on a technical and communicative level. Students will also gain an awareness of the inherent meaning certain mediums possess. Another defining goal of the course is to encourage the integration of traditional and digital media.

**MAD2023 APPRECIATION OF THE ARTS**

**(3 units)**

**Pre-requisite(s):** None

**Course Description:** The primary objective of this course is to expose students to a wide variety of visual art and design from multiple perspectives to build a comprehensive knowledge for lifelong learning. This includes but is not limited to cultural and historical perspectives and the various functions art and design has had and has as part of a universal human experience. By the end of the course students should be able to clearly define art by medium, origin in time and place and have an emerging ability to analyse a piece of art as well as distinguish the difference between types of artistic production. Students' pre-existing ideas of how art is defined should be challenged by being confronted with alternative viewpoints of various peoples, cultures and time eras. The institutions that surround the preservation, business and transmission of artistic and creative work will also be introduced with the idea of exposing students to art and design as a profession.

**MAD2033 HISTORY OF MEDIA ARTS AND DESIGN**

**(3 units)**

**Pre-requisite(s):** None

**Course Description:** This course is aimed at instilling in students a comprehensive knowledge of the history of the Media Arts as an influential force in human history. Students should gain an understanding how media and individual mediums have developed and evolved into their present form as a way to transmit information and communicate. This knowledge base should offer students a framework to place their own future practice in. As the Media Arts have always developed alongside technological developments, the history of related technology will be one focus of the course alongside the analysis of how information has been communicated and transmitted in terms of content, aesthetics and cultural geographies over time.

**MAD2043 CONCEPT DEVELOPMENT FOR TIME-BASED MEDIA**

**(3 units)**

**Pre-requisite(s):** None

**Course Description:** The course will explore the use of composition and frame, introduce directing methodologies, and explain editing principles and sound elements. Students will be required to create a number of methods for developing and communicating concepts in time-based media, such as creating treatments, make inspirational sketches, design characters and objects, and develop storyboards. By studying animation principles and techniques in contemporary fields of graphic design, students will explore terminology used in animation, including (but not limited to) cell and computer animation, stop-motion, and frame-by-frame animation. In addition, students will learn how to use a sequence of images to communicate their ideas or tell their stories. They will come to an understanding of how content meaning is created or changed when the structure or sequence changes, and how viewers respond emotionally. In the last instance, students will be able to create motion graphics for use on television or in online media. Students will be equipped with this knowledge in a series of lectures, readings, exercises, and projects and demonstrations. Evaluations of students will be based on in-class contribution and participation, ability to critique, develop concepts, and demonstrate proficiency with various media.

**MAD3003 PHOTOGRAPHY**

**(3 units)**

**Pre-requisite(s):** None

**Course Description:** The course in photography seeks to develop the keen understanding needed to read and understand photographic images. This is a key skill required by all artists. Students in this course will be exposed to the gamut of photographic tools ranging from the traditional to current imaging technologies available. Using the 35 mm single lens reflex (SLR) camera, and understanding manual exposure, lighting and film density is a major point of focus in this course. However, the concept of what “camera” is will be expanded by gaining familiarity with different imaging tools such as cell phones, scanners, digital cameras and even video cameras and their role in creating photographic images. The course will provide students with an in-depth overview of the history as well as contemporary practice of photography.

**MAD3013 INTERACTIVE ARTS AND DESIGN**

**(3 units)**

**Pre-requisite(s):** None

**Course Description:** By introducing programming skills and explaining the relationship between code and visual elements, this course aims to expand the visual literacy of students while simultaneously allowing them to apply creative ideas from static media to interactive media. A deep understanding of the general principles of programming and the design principles guiding interactivity are indispensable when harnessing the full potential of interactive media. The purpose of this course, however, is not to train students to become programmers. It will rather arm them with sufficient knowledge of dynamic media to enable them to develop and exploit these media in their creative endeavours. Students will learn how manipulation, creation, and transformation of visual elements are done through programming codes. In addition, they will explore and become familiar with the domain of generative visual arts and design by gaining an understanding of how concepts such as iterations, recursion, random function, and the L-system have evolved as concepts in computing. Upon completing the course, students should be able to develop visual applications in a range of creative and media productions.

**MAD3023 DIGITAL IMAGING AND DESIGN**

**(3 units)**

**Pre-requisite(s):** None

**Course Description:** This course will introduce students to the fundamental practices in digital (computer) graphic design in both the art and design worlds through serial lectures, demonstrations, and workshops. Workshops, specifically, will focus on creating computer-generated images. A combination of theoretical and practical perspectives is adopted, and the course will address aesthetic as well as technical issues. Aesthetics will include issues such as composition, appreciation and the historical context, while technical topics will revolve around imaging (raster and vector), scanning, retouching, animated graphics, among others. Adopting the theoretical and practical perspective, the course is delivered by way of ensuring that students will experience digital graphics design in a very hands-on way. They will be exposed to discussions structured as seminars, and maximum participation of each student in critiquing and discussing the work of other students. For this reason, class attendance is not only regarded as mandatory, but participation in classroom discussions will be considered when grades are calculated.

**MAD3033 3D DESIGN FUNDAMENTALS**

**(3 units)**

**Pre-requisite(s):** None

**Course Description:** This course aims to give students a fundamental knowledge of three-dimensional (3D) design that applies across many disciplines. This includes an understanding of the basic elements and principles of 3D design, a working knowledge of the physical characteristics and inherent meaning of materials, the relationship between form and function, structural principles and an introduction to digital modelling technologies. Students will be introduced to a range of materials and be required to think of design as a process resulting in a product with functional goals and aesthetic concerns. Instruction on personal safety and environmental responsibility will be given in regards to each project.

**MAD3043 DIGITAL DRAWING AND PAINTING**

**(3 units)**

**Pre-requisite(s):** None

**Course Description:** This course will introduce students to both the hardware and software that is used in digital painting. Students will use digital painting software in conjunction with a graphic drawing tablet and/or Cintiq, a large capacitive screen where you can draw and paint directly on the display, to produce illustration and art. Entrepreneurial thinking will be encouraged, as New Media has created business models in which an illustrator or artist can produce, advertise, and distribute products through a variety of web-based platforms.

**MAD3053 COLOUR CONCEPTS, THEORY AND PLANNING**

**(3 units)**

**Pre-requisite(s):** MAD2043 CONCEPT DEVELOPMENT FOR TIME-BASED MEDIA

**Course Description:** This course is designed to give students an applied knowledge of the theoretical, natural, psychological, cultural and aesthetic meanings colour has across all media. In addition, students will be encouraged to think of colour as a perceptual and scientific phenomenon. Students will be exposed to colour perception as part of a holistic sensory experience, particularly audio-visual. The Munsell Colour System and 3D model/chart will be used to demonstrate and explain the nature of colour which is perceivable by humans.

**MAD3063 ANIMATION**

**(3 units)**

**Pre-requisite(s):** None

**Course Description:** This course introduces the history, language, principles, aesthetics and digital tools used in the creation of animation within the context of art and design. The class will focus on understanding the development of animation, the mechanism of animation, and the techniques of animation sufficient to produce projects of merit. Through different styles of animation, the class will explore the foundations of animation history and its characteristics. In addition, through the use of the software, this course will teach students how to complete basic digital animation.

**MAD3073 LANGUAGE FOR AUDIO-VISUAL DESIGN**

**(3 units)**

**Pre-requisite(s):** MAD2043 CONCEPT DEVELOPMENT FOR TIME-BASED MEDIA

**Course Description:** The main objective of this course is to enhance awareness of the aesthetic choices made in audio-visual media production and to explore how the tools and techniques used in its creation can be joined to generate a variety of meanings and messages. The course will involve practicing detailed analysis of the aesthetic choices made in different forms of audio-visual media, with broad emphasis given to a variety of audio-visual creations. Some practical exercises will also be given to deepen understanding of audio-visual design principles.

**MAD3083 STUDIO ART PRACTICES: PAINTING FUNDAMENTALS**

**(3 units)**

**Pre-requisite(s):** None

**Course Description:** This course aims to give students an introduction to the medium. The materials and tools of painting, technical knowledge, formal issues and safety will be taught. Both water based and oil based paint will be introduced. The course focus will be on developing skills in handling the medium and painting from perception by direct observation of 3-dimensional forms in space.

**MAD3093 WEB DESIGN AND HYPERMEDIA**

**(3 units)**

**Pre-requisite(s):** None

**Course Description:** This course aims to empower students with the ability to create and edit websites for both computer and mobile device applications. Students will approach design from the perspective of usability to create content in a non-linear format. Web content will be created using HTML4, HTML5 and CSS (cascading style sheets) 2 and 3 with Adobe Dreamweaver software. Students will learn the basics of HTML coding for a range of applications.

**MAD3103 COMPUTER GAME DESIGN**

**(3 units)**

**Pre-requisite(s):** None

**Course Description:** Like a number of courses in Media Arts and Design, this one is also based on skills, and intends to provide a strong foundation of computational concepts that can be found supporting user interfaces and games in different platforms. This will allow students to apply these techniques when developing new interfaces and games. Contemporary media, such as smartphones and tablets use these interfaces as the windows and face of intelligent games. As such, no matter how sophisticated and engaging visual interface and interaction becomes, they are still driven by intricate computational concepts and the meticulous application of those concepts. The course content takes students way beyond simple interfaces and will explore a number of input modalities (including webcams and microphones). Special topics will be introduced from time to time so that students can expand their skills in areas such as path-finding, cellular automata, and cellular and generic algorithms.

**MAD3113 VIDEO ARTS**

**(3 units)**

**Pre-requisite(s):** MAD2043 CONCEPT DEVELOPMENT FOR TIME-BASED MEDIA

**Course Description:** Video imaging as art forms the core focus of this course. Students will be given a grounding in several technical components such as image production, acquisition and digitization, as well as basic editing and final output. The experimental video art, especially in the latter half of the 20th Century will be discussed as far as its history, theoretical concept, aesthetics and criticism are concerned. Emphasis will be put on practical production of creative works in a studio environment.

**MAD3123 GRAPHIC STORYTELLING**

**(3 units)**

**Pre-requisite(s):** None

**Course Description:** This course seeks to focus the attention of

students on the aesthetics of storytelling by emphasizing practical skills training and an investigation into the language of comic storytelling. By introducing theories of leading scholars and artists, and by examining recent developments in the local independent art movement, students will develop a critical framework enabling them to approach and understand comics with a new point-of-view. This understanding will further enable them to examine and enjoy both local and international works within specific socio-cultural contexts. Furthermore, students will come to an understanding of how abstract concepts and unrelated ideas can be transformed into cohesive messages before being delivered – creatively – to readers. They will consequently be required to research various drawing styles based on accepted storytelling methods. Students will also be exposed to practical training in the processes involved in creating the finished product from idea-germination stage. They will be encouraged to experiment with different styles before finding their own, unique, way of presentation in order to pursue a career in graphic storytelling.

**MAD3133 DIGITAL SOUND PRODUCTION** (3 units)

**Pre-requisite(s):** None  
**Course Description:** Students of this course will be introduced to the essence of digital sound production as it relates to vital aspects of sequential media. They will learn how to distinguish between the unique potential offered by sound media and its limitations, students will understand design fundamentals of discrete media as they relate to aural communication. Ideas will be created and developed in the practical component of this course. The course will provide students with hands-on skills in digital sound production by, inter alia, studying and understanding the aesthetic and theoretical studies of digital video and computer animation artworks. The use of sequential media in digital and computer environments will strengthen the students' multidisciplinary knowledge.

**MAD3143 MEDIA ARTS AND DESIGN INTERNSHIP** (3 units)

**Pre-requisite(s):** None  
**Course Description:** The aim of the internship is to provide real-world experience that enables students to put knowledge into action. An internship can help student deepen understanding of the organizational operation and gain relevant skills. Thus, the experiences can benefit to students who apply for further study or jobs in the future.

**MAD4013 STUDIO ART PRACTICES: EXPERIMENTAL MEDIA** (3 units)

**Pre-requisite(s):** None  
**Course Description:** This course aims to give students an opportunity to experiment with a variety of 2D media in a creative and experimental manner. Painting, collage, printmaking, drawing and/or multimedia 2D media techniques will be introduced for further experimentation. Students will be expected to make a personal response to the media to create meaningful work by extracting meaning from materials, subject matter and mark making. Instruction on the use of tools and materials in regards to personal and environmental safety will also be a central theme.

**MAD4023 COMPUTER PROGRAMMING FOR DESIGN** (3 units)

**Pre-requisite(s):** None  
**Course Description:** Rather than teaching programming language, this course will focus on teaching students how to use a design method in a practical manner that is based on extant research. Students will understand how good computer programs can help them to channel their creativity in a way that may be programmed in widely-used computer programming languages. Students will learn how to decide what the program should do for them, by learning a set of techniques that will enable them to develop their programming requirements. They will also learn how to produce programs with consistent yet flexible structures, since improvements later will always be required. A key skill learned will be to build tests into the programming process in order to increase the reliability of programs.

**MAD4033 NARRATIVE AND INTERACTIVITY IN MEDIA ARTS** (3 units)

**Pre-requisite(s):** None  
**Course Description:** Students are expected to develop tools critically necessary to analyse contemporary media and its implementation in practice. They will be enabled to develop collaborative projects for both digital and non-digital media when exploring the complex relationship between narrative and interactivity. These projects will be executed in a workshop environment. Successful students will have expanded their understanding of narrative and will have refined their skills in critically analysing interactive formats. This will be done through projects, readings, and analysis.

**MAD4053 DIGITAL IMAGE MANIPULATION** (3 units)

**Pre-requisite(s):** None  
**Course Description:** This course seeks to provide students with a foundation in 2-D digital image processing. In doing so, the emphasis of this course will fall on techniques used in image processing, image filtering design, and the use of applications. Students will be exposed to the theories and methodologies underlying this discipline. Students will be constantly focussed on learning how to create and manipulate graphic and photographic artwork. They will learn how to interpret such artwork in a critical manner, and will also be exposed to these aspects regarding to how artists approach input and output of digital work.

**MAD4063 VISUAL ARTS SINCE 1900** (3 units)

**Pre-requisite(s):** MAD2023 APPRECIATION OF THE ARTS  
**Course Description:** The goal of this course is to provide students with criteria to make an educated and informed critical analysis of art from a cultural, historical, social and theoretical perspective. By learning about how art has developed along these lines, students will be enabled to view art as an ever changing entity.

**MAD4073 SOCIAL DESIGN** (3 units)

**Pre-requisite(s):** None  
**Course Description:** The role of the designer in society, and his/her belief that design can contribute to social change, is the main focus

of this course. Taking part in lectures, participating in discussions, pursuing readings, attending presentations, and critiquing ideas and concepts will enable students to develop the tools, skills and overall awareness to pursue innovation while addressing various aspects of design and its role in society. They will develop the ability to reflect on their own processes when concentrating on research and its importance, reflecting on problem identification, considering the importance of audiences, and realizing the essential role of idea development. They will be exposed to topics such as transforming from publication to participation, decision-making, social design precepts, incentivized participation, gaming theories, choice optimization, transparency and flexibility, and shifting from stories to systems. As a case study-based course, this course will enable students to read, understand, ingest, and interpret case studies and to prepare written solution-driven analyses for in-class presentation.

**MAD4083 SPECIAL TOPICS IN MEDIA ARTS AND DESIGN SUBJECT** (3 units)

**Pre-requisite(s):** None

**Course Description:** Different subjects are designed to give students a range of current ideas and respond to new interests of the faculty. Some topics include: Digital audiovisual, animation, video, interaction design, etc.

**MAD4093 PHYSICAL COMPUTING ADVANCED INTERACTIVE MEDIA** (3 units)

**Pre-requisite(s):** MAD3013 INTERACTIVE ARTS AND DESIGN

**Course Description:** This course expands the students' knowledge of computational and interactive media with creative, practical applications of physical computing and rapid-prototyping technologies to interactive installation art, performing arts, wearable design, and kinetic sculpture. Exploring microcontrollers, such as Arduino for physical interaction, students will learn the fundamentals of electronics, robotics, and responsive interfaces. Over the course duration, students will develop projects using light, sound, motion, and other analog and digital inputs and outputs while synthesizing their expanded understanding of media art theory, embodiment aesthetics, and interaction design.

**MAD4103 GAME ART AND 3D ANIMATION** (3 units)

**Pre-requisite(s):** MAD3033 3D DESIGN FUNDAMENTALS

**Course Description:** At the core of each video game, there is an intensely creative artistic vision and engaging, interactive visual elements that continuously expand the definition of game art. In this course, game art & animation focuses on the design of modular environments, texturing, 3D animations of characters and props that students learn to create in modeling and game development software and tools. The students acquire complex technical skills while developing their unique artistic vision through a progressive series of practical assignments while mastering the fundamentals of 3D animation, lighting, texturing, and rendering within industry-recognized game engines. In addition to learning effective technical workflows, the students will synthesize their understanding of the artistic principles at the core of 3D video games art, including 3D design, knowledge of color, lighting, shading, anatomy, motion, perspective, and polygonal modeling.

**MAD4113 PRINCIPLES OF PRODUCT DESIGN AND EXHIBITION** (3 units)

**Pre-requisite(s):** None

**Course Description:** Combining art and technology, bringing together ideas and materials, and improving daily lives while protecting the health of society and creating new opportunities for industry is a creative discipline. This course will produce students who come up with imaginative design proposals and creative solutions that may in turn be produced on either small or large scale. Students will attain knowledge in, and understanding of, the use of both common and new materials that can be used for designing new products or objects. It will provide students with an understanding of the basic processes and materials that are used when new products and objects are designed. They will be required to participate in different projects when developing their understanding of the intimate link between the right choice of materials and processes on the one hand, and the look and performance of products on the other. Students wishing to pursue 3-D related courses will in particular benefit from this subject.

**MAD4123 FINAL YEAR PROJECT (MAD)** (6 units)

**Pre-requisite(s):** CTV2033 COMMUNICATION RESEARCH METHODS (for dissertation) or MAD3073 LANGUAGE FOR AUDIO-VISUAL DESIGN (for media arts project)

**Course Description:** This course engages the student in supervised independent research or project work. The course aims to: 1. develop good media arts projects or dissertations under the guidance of a supervisor; 2. ensure students possess the knowledge and skills required to complete a project independently, but with guidance; 3. provide an opportunity to students working as a team to enhance their teamwork abilities; 4. increase creativity and/or research skills by giving students more experience in the processes of creating a work of media arts project or dissertation.

**MATH1003 LINEAR ALGEBRA** (3 units)

**Pre-requisite(s):** None

**Course Description:** This course introduces the basic techniques in matrix algebra, which is the foundation for more advanced mathematics and statistics subjects. Major emphasis will be on the system of linear equations, linearly independence, and eigenvalue problems in finite dimensional vector spaces. Basic ideas and techniques on calculus will be introduced.

**MATH1053 LINEAR ALGEBRA I** (3 units)

**Pre-requisite(s):** None

**Course Description:** This course introduces the basic techniques in matrix algebra, which is the foundation for more advanced mathematics and statistics subjects. Major emphasis will be on the system of linear equations, linearly independence in finite dimensional vector spaces.