Bachelor of Science in Multimedia Technology – Courses at a Glance

Level 1 Courses

MTD105e DIGITAL PHOTOGRAPHY TECHNOLOGY

Digital photography enables still images to be stored without deterioration, compressed for saving storage speed, electronically transferred to another viewer at long distance and to be manipulated to give more enhanced images. This course covers the theoretical aspects of digital photography so that the students understand the scientific aspects of digital photography. Students are to bring a digital camera to class (compact point-and-shoot or digital single lens reflex; not mobile phone camera) to gain hands on experience on how to use the camera.

MTH107e DIGITAL PHOTOGRAPHY TECHNIQUES

This hands-on course is a follow up from Digital Photography Technology. In Digital Photography Techniques, students are being taught the various techniques of photo taking using a digital camera as an art and skill.

MTD111 CREATIVE DESIGN FUNDAMENTALS

MTD111e Creative Design Fundamentals aims to provide students with the knowledge of fundamental design components and skills to create designs for the commercial market. Students will learn all essential design concepts and basic graphical treatments which will lead them to the exciting and dynamic world of design.

MTD113 HISTORY OF MEDIA

MTD113 History of Media is designed to provide students with comprehensive knowledge of media development - its history and significant applications to today’s social environment. Students will understand the theories and applications of media as a tool of communication.

MTH101e DISCRETE MATHEMATICS

MTH101e is part of a foundation suit of level 1 courses designed to provide students with a broad foundational set of mathematical skills and techniques. The course will prepare students for both higher level mathematical studies as well as the study of other and related subjects that contains mathematical content.
MTH102e TRANSFORMATION AND MATRICES

MTH102e is part of a foundation suit of level 1 courses designed to provide students with a broad foundational set of mathematical skills and techniques. The course will prepare students for both higher level mathematical studies as well as the study of other and related subjects that contains mathematical content.

SST101e PRINCIPLES OF PROJECT MANAGEMENT

SST101e Principles of Project Management will provide both theoretical and practical insights on the management of projects. Students will be taught the characteristics of different industries, and how project management skills apply in them. These give undergraduates a solid foundation in the appreciation and application of project management. It prepares them for an in-depth understanding of project management in science and technology.

SST102e HUMAN FACTORS AND SYSTEMS DESIGN

Human factors is about understanding human strengths and limitations and designing systems that fit them. SST102e Human Factors and Systems Design gives students an overview of the underlying philosophy, aims and approaches of human centered systems design. Students are introduced to the human sensory and physiological systems and cognitive processes. They are exposed to basic principles of designing and evaluating workplaces and interfaces. Issues on accidents, human error and designing for safety are also covered in this course.

Level 2 Courses

MTD201e FUNDAMENTALS OF GRAPHICS DESIGN

This course introduces students both the theoretical and practical aspects of 3D modelling using the Open Source software Blender. The course is lab-based and students will have ample opportunity to learn graphics design through hands-on practice. At the end of the course, students will possess the fundamental skills in using Blender to design graphics.

MTD203e ADVANCED GRAPHICS DESIGN

MTD203e Advanced Graphics Design introduces students the mathematics and optics for computer graphics. At the end of the course, students will possess basic knowledge in geometry and optics for computer graphics, so that they can describe the detailed mechanism of ray tracing. In this course, the basic geometry includes vectors, matrices, transformation, and line-object intersection. The basic optics includes lighting, reflection model, shading, and reflection/refraction vectors.
MTD205 AUDIO TECHNOLOGY

This course provides the theoretical foundation on the operation of audio systems as components used in multimedia production, distribution and reproduction. Students will be given a broad perspective on how transforms, signal theory, discrete mathematics, information theory, electronics and physics all come together in audio applications.

MTD207 VIDEO TECHNOLOGY

This course introduces to the students the principles of video technology, and its application in multimedia productions and broadcasting. Students will also learn the methods and techniques used to capture, encode and decode video signals and television images.

MTD215 APPLICATION OF C++ IN MULTIMEDIA

The course provides greater programming exposure to multimedia students who have completed ICT131, as an alternative to MTD213. The course briefly covers the basics of the C++ language and focuses on the application of C++ for animation and games design. Students will learn to create objects and to animate them using C++. In addition they will acquire the skills required to refine existing C++ codes in order to modify existing animation and games software.

MTD219 INTERNET TECHNOLOGIES

MTD219 Internet Technologies introduces and prepares students for the growing emphasis on internet, social media and mobile content. Students will learn and apply current web technologies such as HTML, CSS, Javascript to develop applications that are suitable for a wide array of devices. Students will also learn and understand how to take advantage of useful and powerful web technologies libraries in their development.

SST201e SUSTAINABLE SOCIETY THROUGH INNOVATIVE TECHNOLOGY

SST201e Sustainable Society Through Innovative Technology introduces students to sustainability and explores how today’s human societies can prevail in the face of global change, ecosystem degradation and resource limitations. It will focus on key knowledge areas of sustainability theory such as population growth, climate change energy, agriculture, water and food production. In each Unit, students will learn how technological innovation can solve the different types of resource limitations and pollution problems to create a sustainable ecosystem on Earth.
Level 3 Courses

MTD312e APPLICATIONS OF MULTIMEDIA NETWORKS

MTD312e introduces students to the fundamentals of the network carrying requirements for typical standard multimedia applications. It reviews mechanisms of coding methods for audio and video technological applications taught in the courses MTD205e Audio Technology and MTD207e Video Technology. The next section of the course explains the required standard network protocols to carry multimedia content and examines the interrelationship between multimedia applications and the performance aspects of a network carrying the high quality applications data. Finally, through the usage of case studies, insights into existing network carrying solutions for high quality multimedia data in the commercial market place are modelled.

SST301e STRATEGIC MANAGEMENT OF TECHNOLOGY

SST301e Strategic Management of Technology introduces the concepts of Systems Thinking to students, and then through their subsequent progression how to infuse Systems Thinking Concepts into their analyses of strategic management case studies. The rest of the course covers the general management perspective on integrating technology and strategy, the design and implementation of technology strategy viewed from an evolutionary perspective, identification of key issues in the development of a company’s innovative capabilities to implement a technology strategy, as well as the creation and implementation of a development strategy. The course concludes with a discussion on generating new ideas through case studies on how to increase a company's capacity for the management of technological innovation.

Electives Courses

MTD301 AUDIO AND VIDEO PRODUCTION TECHNIQUES

This course covers a broad coverage of the audio and video production techniques used in the local Singapore industry, inclusive of strengths, weaknesses and applications, roles of key personnel in the industry and hands-on practice on producing audio and video feature content.

MTD307 COMPUTER MUSIC COMPOSITION TECHNIQUES

This course introduces software that can assist the modern music composer in the process of music composition. Basic music theory and digital piano playing skills will be introduced to absolute beginners who have no prior music background.

MTD309 ADVANCED AUDIO MUSIC TECHNOLOGY

In MTD309, students would explore the state of the art in audio music technologies. They would acquire and then subsequently combine their knowledge of basic music theory and computer
software technologies to generate a computer-generated singing voice to sing an originally composed song, and then create music to complement that computer-generated singing voice.

MTD311 INTERACTIVE DIGITAL ANIMATION

MTD311 reviews the fundamental principles of interactive computer graphics through 3D modelling, special 3D effects and animation. This course is intended to expose students to the craft of creating basic animation using relevant tools through proper understanding of interactive computer graphics and processes, actual hands-on practice, and completion of assignments in the course.

MTD313 COMPUTER GAMES DESIGN

This course covers the computer game design through an understanding of the various computer games genre and the softwares that assist in computer games design.

MTD315 COMPUTER INTERACTIVE DESIGN

This course provides a basic background on geometry and computer graphics for virtual reality systems.

MTD317 VIRTUAL REALITY SYSTEMS

This introductory course covers the principles of virtual reality and its application in multimedia.

MTD358 APPLICATION DEVELOPMENT FOR MOBILE COMPUTING DEVICE (IPHONE)

This course aims to equip participants with fundamental knowledge of developing mobile applications for iphone. The topics covered include most of the introductory to elementary components designed in industry utility applications. Participants will learn to code in Objective C using popular industry development and project optimization tools.

MTD359 VISUAL EFFECTS DESIGN

This course deals with visual design, and how the use of geometry, colour, contrast, brightness and other visual attributes influences the mood of the viewer and affects the communicated message accordingly. The course will train students to understand the functions of visual effects in design; to learn the techniques and methodologies for solving information communication problems; to develop visualisation skills, concepts and techniques; and to understand the relevant concepts in the psychology of perception, cognition and their relation to visual design and layout.

MTD361 MULTI CAMERA PRODUCTION PRINCIPLES
MTD361 Multi Camera Production Principles is designed to provide students with the knowledge and skills of producing television programmes in a studio. Studio production is a large-scale team effort where timing, skill and discipline coincide with creativity to bring entertainment and information to viewers. Students will learn all the theories of what goes into making a television show in a studio.

**MTD362 TELEVISION STUDIO PRODUCTION**

MTD362 Television Studio Production introduces students to the principles, practices and techniques of a studio-based multi camera workflow. Students will gain a working experience of all roles within this mode of television programme production in a studio. Studio production is a large-scale team effort where timing, skill and discipline coincide with creativity to bring entertainment and information to viewers. Students will learn hands-on what goes into making a television show in a studio. They will be reintroduced to single camera production and its uses in a studio production, perform television interviews, on-camera presentation and combine them while operating a live multi-camera recording in a TV studio.

**MTD363e MEDIA PROGRAMMING**

MTD363e Media Programming is designed to provide students with insights into the function of television programming in a television channel. Students will learn the strategies of how television programmes are picked and scheduled throughout a day, week, month and year in a television channel. It will also explore audience ratings systems, research and analysis, audience tastes and their responses to the programmes they watch. In addition, students will also learn the implications of how results are used in another critical activity of a television channel, Advertising Sales.

**MTD364e TELEVISION CONTENT STRATEGY**

MTD364e Television Content Strategy is designed to provide students with insights into the function of television programming in a television channel. Students will be introduced to the strategies used by tradition cable/satellite and free-to-air broadcaster as well as the newer mediums such as the Internet and mobile channels. They will study how these platforms compete with one another as well as the challenges that they face in trying to capture and keep audiences and the concurrent advertising revenue in today’s highly competitive, fickle, and evolving media environment.