

## Department of Multimedia Engineering

### ► General Introduction

Department of Multimedia engineering aims to foster experts with humanity practicing the catholic spirit of the search of truth, love, service.

### ► Education Objectives

1. To love human and nature and to have positive and progressive humanity.
2. To have both theoretical and practical ability by investigating every subjects related to computer and multimedia engineering and to have the ability to utilize them in the field.
3. To develop continuously creativity and intellectual curiosity and to prepare the communication ability and adaptability in the rapidly changing IT world, based on the theory and practical business.
4. To promote capability as a leader to contribute the development of local society besides the individual growth as an expert.

### ► Course Descriptions

Category	Seme-ster	Years	Code	Courses	Credit	Hours		Note
						theory	practice	
Basic courses	1	Freshmen	02912	Introduction to Multimedia	3	3		
			02495	Introduction to Programming	3	3		
Basic courses	2	Freshmen	02913	Introduction to Graphic	3	3		
			01693	Computer Programming	3	3		double major
Required courses	1	Sophomore	01680	Data Structures	3	3		double major
			01628	Advanced Programming	3	3		double major
			02126	Digital System	3	3		double major
Elective courses	1	Sophomore	02915	Applied Mathematics for Multimedia	3	3		
			02916	2D Graphic I	3	3		double major
			02919	Sounds for Computer	3	3		
			01670	Web Programming	3	3		
Required courses	2	Sophomore	02914	Applied Physics for Multimedia	3	3		
			01691	Computer System Architecture	3	3		
			01640	Data Communication	3	3		
Elective courses	2	Sophomore	02917	2D Graphic II	3	3		
			02705	Video Picturing & Practice	3	2	2	
			02664	Object Oriented Programming	3	3		
			01664	Algorithms	3	3		

Required courses	1	Junior	01668	Operating Systems	3	3		
			01692	Computer Network	3	3		
			01638	Database	3	3		
Elective courses	1	Junior	02920	3D Graphic I	3	3		double major
			01610	Multimedia Authoring Tools	3	3		
			01671	Window Programming	3	3		
			02922	Java Programming	3	3		
Required courses	2	Junior	01562	Network Programming	3	3		
			02141	Introduction to Image Processing	3	3		
Elective courses	2	Junior	01561	Electronic Commerce System	3	3		
			02921	3D Graphic II	3	3		
			02144	Application of Window Programming	3	3		
			02154	Application of Web Programming	3	3		
			02135	Application of DataBase	3	3		
Elective Courses	1	Senior	02833	Embedded System	3	3		
			02923	Ubiquitous System	3	3		
			02924	Graphic Portfolio	3	3		
			02834	Mobile Programming	3	3		
			02421	Computer Game Programming I	3	3		double major
			02925	Application of Web Products	3	3		
Required Courses	2	Senior	02412	Practical Project	3	3		
Elective Courses	2	Senior	01695	Field Practice	3		6	
			01547	Computer Graphics	3	3		
			02926	Digital Broadcasting	3	3		
			02413	Computer Game Programming II	3	3		

► **02912 Introduction to Multimedia**

This course introduces the basic knowledge for digital content development and multimedia system construction by learning skill of multimedia basic, type, development methodology and all kinds of multimedia data, multimedia's feature, and creation method.

► **02495 Introduction to Programming**

This course introduces the overview of programming languages to learn basic grammars and program development

methodology.

▶ **02913 Introduction to Graphic**

This course learns the basic principles and practice of color application by examining processes of an actual project.

▶ **01693 Computer Programming**

This course is the programming course for freshmen. Topics include C Programming, basic structure, data types, control flow, arrays, etc.

▶ **01680 Data Structures**

This course studies the basic structures of data and algorithms. In particular, this class points out the importance of the notion of data abstraction in designing the data structures. Through this class, the basic concepts of array, structure, stack, queue, linked list, tree, graph, sorting, searching, and hashing will be understood.

▶ **01628 Advanced Programming**

This course focuses on Advanced programming skills to develop various applications.

▶ **02126 Digital System**

This course learns number systems, binary arithmetic and codes.

Binary state terminology, basic logic functions, reading and construction of logic circuits, Boolean algebra. Design and application of multiplexers, decoders, encoders, code converters, comparators parity circuits, and shifters. Sequential logic circuits, flip-flops, registers, and counters.

▶ **02915 Applied mathematics for Multimedia**

This course studies the differentiation, integration, vector, and matrix which are basic subjects for computer multimedia.

▶ **02916 2D Graphic I**

This course studies the basic capability to design 2D graphics by using specific graphic production tool.

▶ **02919 Sounds for Computer**

This course studies the nature about sound, music, and basic features of game music and conducts the development of new game music design, by analyzing legacy music of games and movies and studying the reproduction process,

▶ **01670 Web Programming**

This course introduces ASP, object model of active server page, server object, scripting object, server component, connection with database.

▶ **02914 Applied Physics for Multimedia**

This course introduces the geometrical mathematics theory for making 3D graphic and animation. In addition, set theory, probability theory, linear algebra for computer game programming are studied.

▶ **01691 Computer System Architecture**

This course studies the components of computer hardware system. It investigates design of computer systems and components. Topics include processor design, instruction set design and addressing, control structures and micro-programming, memory management, caches and memory hierarchies; interrupts and I/O structures.

▶ **01640 Data Communication**

This course studies data communications among computers and computer terminals. Topics include theoretical basis for OSI 7 layers, multiplexing, protocol, and standardization process.

▶ **02917 2D Graphic II**

This course studies advanced skills based on 2D graphic I.

▶ **02705 Video Picturing & Practice**

This course learns how to use video camera, production and editing skills of video contents.

▶ **02664 Object Oriented Programming**

This course introduces the basic concept of object-oriented programming. It practices design and implementation software by using object-oriented programming languages such as C++.

▶ **01664 Algorithms**

The course studies the concept of algorithms, problem analysis, development of algorithms, designing efficient algorithms.

▶ **01668 Operating Systems**

This course studies the basic concept and functions of operating system. Topics are the memory management, processor management, I/O control, file system, scheduling, and resource allocation.

▶ **01692 Computer Network**

The course studies the basic concepts and principles of computer networks. Topics are layered network architectures, protocols (TCP/IP protocol suite), routing, network security, network management, applications and local area networks.

▶ **01638 Database**

This course introduces basic database concepts, architectures, data modeling, DBMS, database design, SQL, and query process techniques.

▶ **02920 3D Graphic I**

This course intended to cultivate the sense and ability necessary for practical work using a 3D used most worldwide in the area of movies, animation and image special effect, 3D Max, a special effect tool.

▶ **01610 Multimedia Authoring Tools**

This course learns the production of multimedia contents using multimedia editing tools. It focuses the text, image, sound, graphic, moving picture, animation, and etc.

▶ **01671 Window Programming**

This course learn the basic knowledge to make visual applications for windows.

▶ **02922 Java Programming**

This course learns JAVA language. It focuses the object oriented concept, inheritance, encapsulation, and polymorphism.

▶ **01562 Network Programming**

This course focus on socket programming using TCP/IP protocol based on the basic knowledge of computer network, such as client/server structure, file transfer, chatting, multimedia communication and network management.

▶ **02141 Introduction to Image Processing**

This course introduces the basic theory of signal processing. Topics are processing techniques such as point operation, area operation, frame processing, and etc.

▶ **01561 Electronic Commerce System**

This course learns electronic commerce system such as ERP, Groupware, intra-information system, bar code system, POS system, web system, certificate system, Edi system.

▶ **02921 3D Graphic II**

This course learns the advanced techniques based on 3D graphic I.

▶ **02144 Application of Window Programming**

This course learn the advanced knowledge to make visual applications for windows.

▶ **02154 Application of Web Programming**

This course introduces the development of web system based on Web programming.

▶ **02135 Application of Database**

This course learns the advanced knowledge to make DBMS application.

▶ **02833 Embedded System**

This course studies software and hardware issues related to design of embedded system. Topics are the architecture of embedded systems, the architecture of embedded operating systems, the embedded application design and etc.

▶ **02923 Ubiquitous System**

This course learns to design and develop ubiquitous devices in IT industry.

▶ **02924 Graphic Portfolio**

This course focuses on production of individual portfolio based on all contents which have been created in the prerequisites .

▶ **02834 Mobile Programming**

This course studies fundamental theory on wireless and mobile communications as well as wireless channel

characteristics.

▶ **02421 Computer Game Programming I**

This course focuses on understanding basic theories and techniques for designing computer game softwares. Through the understanding of various software tools and projects, students will absorb the necessary skills for game design.

▶ **02925 Application of Web Products**

This course learns to program various applications based on Web.

▶ **02412 Practical Project**

This course helps student perform real-world projects for graduation by applying what principles, theory, and techniques were learned in computer science.

▶ **01695 Field Practice**

This course provides the opportunity to enhance the theoretical knowledge learned in classes to the practical capability by experiencing the enterprises and research institutes.

▶ **01547 Computer Graphics**

This course learns the display technique, transformation technique, color expression technique, animation, 3-D description, raster graphic and etc.

▶ **02926 Digital Broadcasting**

This course studies the theoretical approach for digital broadcasting and conducts the project and production of broadcast contents. And it learns the process of releasing broadcast programs on the Web.

▶ **02413 Computer Game Programing II**

This course learns to develop the advanced game programming based on game programming I.