Digital Media Technology

(Class of 2022)

Course code: 080906

I. Cultivation Objectives

1. General cultivation objective

This program insists on making moral education a fundamental task and cultivates high quality application-oriented talents in Digital Media Engineering Technology who are comprehensively developed in moral, intellectual, physical and aesthetic aspects, abide by professional ethics, have engineering literacy and innovation spirit, systematically master the basic theories, knowledge, skills and methods of Digital Media Technology, have good technical ability and certain artistic quality, and can work in the fields of film, television, animation, virtual reality and game development in Digital Media industry..

2. Objective of value guidance

This program takes the spirit of model workers and craftsmanship as its value orientation, cultivates craftsmanship, nurtures people with this spirit and spreads positive energy. In the process of education and teaching, the spirit of craftsmanship is used to educate students on the values of engineers and engineering ethics, and to cultivate in them a rigorous, meticulous and responsible work attitude and a philosophy of perfection and improving their digital media works, as well as a high level of digital media technology skills and artistic expression, so as to promote the development of digital media technology in China, especially in the fields of digital film and television, virtual reality and games by improving their quality, speed, quality and efficiency.

3. Five years after graduation, students in this program should achieve the following objectives:

(1) Have a sense of social responsibility and good professional ethics, and the ability to integrate legal, environmental, social, cultural and sustainable development impacts into engineering practice.

(2) Be physically and mentally healthy and a team player with good communication, coordination, cooperation, competition and engineering project management skills.

(3) Be able to use a foreign language to communicate internationally with international counterparts. Be able to proactively adapt to changing domestic and international scientific and technological developments, develop the habit of independent and lifelong learning, and continuously increase knowledge base and enhance abilities.

(4) Master the relevant standards, specifications and protocols in the field of Digital Media Technology engineering, be able to follow the cutting-edge technology in the field, have the ability to innovate in theory and engineering, and to apply the new technology to engineering practice.

(5) Have rich professional and technical work experience, be able to apply the basic knowledge of engineering mathematics and science and professional knowledge in the field of Digital Media Technology to solve complex engineering problems in the fields of film and animation, virtual reality and games, and grow into the core player of the industry and high-level talents.

II. Graduation requirements

Students in this program will study the basic knowledge of natural sciences and humanities and social sciences, learn the basic theory and fundamental knowledge of Digital Media Technology, receive basic training in the practice of Digital Media Technology and project organization, and have advanced technical application skills in the design, acquisition, production and development of film, television show, animation, virtual reality and games.

3. Five years after graduation, students in this program should achieve the following objectives:

1. Engineering knowledge: Have the ability to apply mathematical, natural science and engineering fundamentals and professional knowledge to the design, acquisition, production and development.

1-1: Be able to apply the mathematical, natural science, and engineering fundamentals and professional knowledge necessary for the Digital Media Technology program to design Digital Media Technology projects.

1-2: Be able to apply relevant scientific, artistic and design thinking to Digital Media Technology to analyse and optimize Digital Media project solutions.

2. Analysis of the Problem: Have the ability to apply principles, tools, and methods for problem analysis and to apply basic principles of mathematics, natural and engineering sciences to identify, represent, and analyze Digital Media Technology projects through literature research in order to obtain effective design solutions.

2-1: Be able to apply basic principles of mathematics, natural science, and engineering mathematics to identify and determine the key problems to be solved by a Digital Media Technology project proposal.

2-2: Be able to combine mathematical and engineering science perspectives with literature research to find solutions to Digital Media Technology projects, analyse the influencing factors of the process and obtain valid conclusions.

3. Design/develop of solutions: Have the ability to design, capture, collect, produce and develop Digital Media Technology projects using Digital Media Technology equipment, software and materials. Have the ability to design solutions for Digital Media Technology projects, design technical routes or production processes for platforms that meet specific needs, and demonstrate a sense of innovation in the design process. Have experience of working on actual Digital Media Technology projects and the ability to design and develop film, animation, virtual reality and game applications using appropriate Digital Media Technology equipment, software and materials, with the professional skills required for engineering practice in Digital Media Technology projects.

3-1: Be able to conduct Digital Media Technology project research and complete requirements analysis based on practical context. Have the ability to design, acquire, collect material, produce and develop, test and validate for specific requirements.

3-2: Understand the social, health, safety, legal, cultural and environmental impacts of Digital Media Technology and complete the design, acquisition, material collection, production and development of Digital Media Technology projects.

4. Research:Understand the core concepts, knowledge structure, typical technical routes of Digital Media Technology. Have basic problem-solving skills in Digital Media Technology, the ability to

research and design Digital Media Technology projects based on scientific principles and using scientific methods, and through synthesis to obtain reasonable and effective design solutions and technical routes, to complete the acquisition, material collection, production and development.

4-1: Be able to analyse design solutions and technical routes for complex engineering in the field of Digital Media Technology based on scientific principles and using the scientific method.

4-2: Be able to apply relevant principles and knowledge to design experimental solutions and implement them rationally for complex engineering problems in Digital Media Technology. Be able to derive design solutions and technical routes for specific situations.

5. Use of modern tools: Have the ability to use modern Digital Media Technology equipment, software and materials, and to develop, select and use appropriate equipment, software and material resources for Digital Media Technology issues, and to understand their limitations.

5-1: Be able to select and use appropriate equipment, software and material resources, and use software to complete production and development according to the design plan and technical route of a Digital Media Technology project.

5-2: Be able to select the appropriate platform and development tools for the development of Digital Media Technology projects.

6. Engineering and Society: Have the ability to use Digital Media Technology projects to serve society, to make sound analyses based on background knowledge of Digital Media Technology, to evaluate the social, health, safety, legal and cultural impacts of professional Digital Media Technology practices and design solutions and technical approaches, and to understand the responsibilities involved. Have a basic knowledge of humanities and social sciences, and have good humanities and social science literacy, professional ethics and psychological quality, as well as an understanding of important laws, regulations, guidelines and policies related to the profession and industry of Digital Media Technology.

6-1: Be able to reasonably analyse technical standards, intellectual property rights, industrial policies and laws and regulations in the field of Digital Media Technology.

6-2: Be able to analyse and evaluate the social, health, safety, legal and cultural impacts of Digital Media Technology practices and meet the relevant requirements above in practice.

7. Environment and Sustainable Development: Have the ability to adapt to the environment and sustainable development in the field of Digital Media Technology and to understand and evaluate the environmental and social sustainability impacts of professional engineering practice for Digital Media Technology projects.

7-1: Be able to understand and evaluate the dialectical relationship between Digital Media Technology project design solutions, technical routes and environmental and social sustainability.

7-2: Be able to take full account of harmonious sustainability with the environment and society in Digital Media Technology project solutions.

8. Professional Codes:Meet the Digital Media Technology professional code, have humanities and social science literacy, social responsibility, and the ability to understand and comply with engineering ethics and codes of practice and responsibilities in the practice of Digital Media Technology.

8-1: Have humanities and social sciences literacy, the ability to consider economic, environmental, legal and ethical constraints in the course of engineering practice in the field of Digital Media Technology.

8-2: Have a sense of social responsibility and an understanding of the ethics and codes of practice relevant to the field of Digital Media Technology, and be conscious of responsibilities in the practice of engineering.

9. Individual and team: develop the ability to work as an individual and as a member of a team and as a leader in a multidisciplinary context.

9-1: Be a team player with the ability to communicate positively and effectively with other team members.

9-2: Be able to perform the role of individual, team member and leader in a multidisciplinary context.

10. Communication: Develop the ability to communicate effectively with industry peers and the public about complex Digital Media Technology, including writing reports and design briefs, presenting statements, and articulating or responding to them. Have an international perspective and be able to communicate and interact in a cross-cultural context. Have the ability to use foreign languages, read foreign language literature in the field, and have a certain international perspective and the ability to communicate, compete and cooperate across cultures. Fully understand the importance of teamwork and have the ability to work individually and in a team. Have interpersonal and communication skills as well as certain organizational and management skills.

10-1: Be able to write reports and design texts, present correctly, and articulate or respond to instructions on Digital Media Technology projects. Have the ability to communicate effectively with industry peers and the public about Digital Media Technology projects.

10-2: Have knowledge of at least one foreign language and a preliminary understanding of the frontiers of international research in Digital Media Technology, and the ability to communicate and interact in an intercultural context.

11. Project Management: Have basic Digital Media Technology project management skills, understanding and knowledge of engineering management principles and economic decision-making methods, and their application in a multidisciplinary environment.Have a good understanding and knowledge of engineering management principles and economic decision-making methods and their application in a multidisciplinary environment.

11-1: Be able to understand and master the principles of project management and economic decision-making methods.

11-2: Be able to apply engineering management and economic decision-making methods in the design and development of information technology solutions in a multidisciplinary environment.

12. spirit and ability of lifelong learning: Have the capacity for lifelong learning, the consciousnesses of independent and lifelong learning, the ability to learn continuously and to adapt to development.

12-1: Have positive perspective on values and a sense of independent and lifelong learning.

12-2: Have good knowledge of learning methods and the ability to explore knowledge and adapt to development.

III. Schooling System

Four years.

IV. Length of Study

Flexible study period, generally four years, the minimum length of flexibility is not less than three years, the longest not more than six years.

V. Requirements for Graduation and Degree Conferring

To graduate, students must complete the minimum number of credits required by the Instructive Cultivation Plan for each category of study and all the content required by the Extracurricular Class, with a total of 164 credits, and a Bachelor's degree in Software Engineering if they meet the requirements for the award of a Bachelor's degree.

VI. Discipline

Computer Science and Technology

VII. Core Courses

Programming Fundamentals, Data Structures, Introduction to Database Systems, Computer Composition Principles, Computer Networks, Film and Video Editing and Compositing, 3D Film and Video Animation Design I, Virtual Reality, 3D Game Animation Design, Integrated Design for Film and Video Production, Integrated Design for Virtual Reality, Integrated Design for 3D Animation

VIII. Course Structure and Course Hours (excluding Extracurricular Class)

Category	Total Credit	%	Total Course Hours	Theory Learning	Practical Training
Public Fundamental Course	57.5	35%	1056	976	80
General Education	10	6%	160	160	0
Engineering Fundamental Course	4	2.5%	64	64	0
Professional Fundamental Course	39	24%	624	491	133
Professional Course	30	18%	480	356	124
Professional Practice	22.5	14.5%	688	0	688
Total	163	100%	3072	2047	1025
Theory: **Practical** (%)	67:33				

IX. teaching schedule (1)

Category	Type	Provided by	Course Code	Course Name	Assessment	Credit	Course Hours	Theory Learning	Practical Training	Recommended semester
Public Fundamental Course	required	School of Marxism	b1080001	Basic Principles of Marxism	test	3	48	42	6	Spring 1
	required	School of Marxism	b1080009	Ethics and the Rule of Law	non-test	3	48	42	6	Spring 1
	required	School of Marxism	b1080006	Outline of Modern Chinese History	non-test	3	48	42	6	Autumn 1
	required	School of Marxism	b1080004	Introduction to Mao Zedong Thought and the Theoretical System of Socialism with Chinese Characteristics I	test	3	48	42	6	Autumn 2
	required	School of Marxism	b1080007	Introduction to Mao Zedong Thought and the Theoretical System of Socialism with Chinese Characteristics II	test	2	32	28	4	Spring 2
	required	School of Marxism	-----	Situation and Policy (Modules 1 to 4)	non-test	2	32	28	4	Autumn 1 to Spring 2
	required	School of Marxism	b1080008	Labour Education A	non-test	0.5	16	16		Autumn 2
	required	College of Arts and Sciences	b1020112	Advanced MathematicsD1	test	5	80	80		Autumn 1
	required	College of Arts and Sciences	b1020113	Advanced MathematicsD2	test	5	80	80		Spring 1
	required	College of Arts and Sciences	b1020108	Linear Algebra	test	3	48	48		Autumn 2
	required	College of Arts and Sciences	b1020114	Probability Theory and Mathematical Statistics	test	3	48	48		Autumn 2
	required	College of Arts and Sciences	b1020018	Academic Chinese	non-test	2	32	32		Autumn 1
	required	College of Arts and Sciences	b1020063	Academic Physics A (Module 2)	test	3	48	48		Spring 1
	required	College of Arts and Sciences	b1020065	Academic Physics B	test	2	32	32		Autumn 2
	required	College of Arts and Sciences	b1020111	Academic Physics C	non-test	2	32	0	32	Autumn 2
	required	College of Physical Education	-----	Physical Education I to VI	non-test	3	160	160		Autumn 1 to Autumn 4
	required	Others	b1110003	Military skills	non-test	0.5	2W			Autumn 1
	required	College of Arts and Sciences	b1110002	Military theory	non-test	0.5	32	32		Autumn 2
	required	Others	b1110004	Mental Health Education for University Students	non-test	2	32	16	16	Spring 1
	★ Academic English (select 1 module for 10 credits)	Module A	b1020003	General English III	test	3	48	48		Autumn 1
			b1020004	General English IV	test	3	48	48		Spring 1
			b1020005	General Academic English A	test	2	32	32		Autumn 2
			---	English Knowledge Expansion	non-test	2	32	32		Spring 2
		Module B	b1020002	General English II	test	3	48	48		Autumn 1
			b1020003	General English III	test	3	48	48		Spring 1
			b1020006	General Academic English B	test	2	32	32		Autumn 2
			---	English Knowledge Expansion	non-test	2	32	32		Spring 2
		Module C	b1020001	General English I	test	4	64	64		Autumn 1
			b1020002	General English II	test	3	48	48		Spring 1
			b1020003	General English III	test	3	48	48		Autumn 2
	★ Academic German	College of Arts and Sciences	b1020040	Academic German I	test	3	48	48		Autumn 1
		College of Arts and Sciences	b1020041	Academic German II	test	3	48	48		Spring 1
		College of Arts and Sciences	b1020042	Academic German III	test	4	64	64		Autumn 2
	★ Academic Japanese	College of Arts and Sciences	b1020077	Academic Japanese I	test	3	48	48		Autumn 1
		College of Arts and Sciences	b1020078	Academic Japanese II	test	3	48	48		Spring 1
		College of Arts and Sciences	b1020079	Academic Japanese III	test	4	64	64		Autumn 2
				Subtotal (Public Fundamental Course)		**57.5**	**1056**	**976**	**80**	
General Education	selective	Art Education Center	b0-----	Aesthetic Education	non-test	2	32	32		Autumn, Spring
	selective	Each College	b0-----	Social Sciences and Humanistic Qualities	non-test	4	64	64		Autumn, Spring
				Natural Sciences and Technology Innovation	non-test	4	64	64		Autumn, Spring
				Subtotal (General Education)		**10**	**160**	**160**	**0**	

(★Note: The first foreign language is 10 credits in total, including 3 languages: Academic English, Academic German and Academic Japanese, choose the appropriate language as required; When Academic English is chosen, please choose the appropriate module in Module A, B, C)

IX. teaching schedule (2)

Category	Type	Provided by	Course Code	Course Name	Assessment	Credit	Course Hours	Theory Learning	Practical Training	Recommended semester
Engineering Fundamental Course	required	College of Arts and Sciences	b2022147	Discrete Mathematics	test	4	64	64	0	Autumn 2
		Subtotal (Engineering Fundamental Course)				**4**	**64**	**64**	**0**	
Professional Fundamental Course	required	School of Computer and Information Engineering	b2012181	Introduction to Digital Media Technology	non-test	1	16	16		Autumn 1
	required	School of Computer and Information Engineering	b2012018	Fundamentals of Programming	test	4	64	48	16	Autumn 1
	required	School of Computer and Information Engineering	b2012231	Data Structures and Algorithms	test	4	64	56	8	Spring 1
	required	School of Computer and Information Engineering	b2012258	Introduction to Database Systems	test	3	48	39	9	Autumn 2
	required	School of Computer and Information Engineering	b2012041	Fundamentals of Painting	test	3	48	36	12	Autumn 2
	required	School of Computer and Information Engineering	b2012290	Principles of Computer Composition	test	4	64	56	8	Spring 2
	required	School of Computer and Information Engineering	b2012045	Computer networks	test	3	48	39	9	Spring 2
	required	School of Computer and Information Engineering	b2012329	Introduction to Artificial Intelligence	test	3	48	33	15	Spring 2
	required	School of Computer and Information Engineering	b2012132	Morphological composition	test	2	32	24	8	Spring 2
	required	School of Computer and Information Engineering	b2012336	Graphic Design	test	3	48	36	12	Spring 2
	required	School of Computer and Information Engineering	b2012078	Basic Photography and Video	test	2	32	24	8	Summer 2
	required	School of Computer and Information Engineering	b2012079	Audiovisual language	test	2	32	24	8	Summer 2
	required	School of Computer and Information Engineering	b2012337	Animation principles	test	2	32	24	8	Autumn 3
	required	School of Computer and Information Engineering	b2012254	Digital engraving	test	3	48	36	12	Spring 3
		Subtotal (Professional Fundamental Course)				**39**	**624**	**491**	**133**	
Professional Course	required	School of Computer and Information Engineering	b2012202	Object Oriented Programming	test	3	48	32	16	Spring 2
	required	School of Computer and Information Engineering	b2012339	3D Game Animation Design	test	4	64	48	16	Spring 2
	required	School of Computer and Information Engineering	b2012142	Film and video editing and compositing	test	4	64	48	16	Autumn 3
	required	School of Computer and Information Engineering	b2012133	Virtual Reality	test	4	64	48	16	Autumn 3
	required	School of Computer and Information Engineering	b2012338	3D Film and Video Animation DesignI	test	4	64	48	16	Autumn 3
		Subtotal (Required Professional Course)				**19**	**304**	**224**	**80**	
	select different courses in different modules for 11 credits	Module A	b2012340	3D Film and Video Animation Design II	test	4	64	48	16	Spring 3
			b2012341	3D Film and Video Effects Design	test	4	64	48	16	Autumn 3
			b2012104	Digital Audio Production	non-test	3	48	36	12	Autumn 4
		Module B	b2012144	Game Artwork	test	3	48	36	12	Autumn 3
			b2012342	Game Design and DevelopmentI	test	3	48	32	16	Spring 3
			b2012343	Game Design and Development II	non-test	2	32	24	8	Summer 3
			b2012257	Mobile Game Development	non-test	3	48	36	12	Autumn 4
		Subtotal (Selective Professional Course)				**11**	**176**	**132**	**44**	
		Subtotal (Professional Course)				**30**	**480**	**356**	**124**	

IX. teaching schedule (3)

Category	Type	Provided by	Course Code	Course Name	Assessment	Credit	Course Hours	Theory Learning	Practical Training	Recommended semester
Professional Practice	required	School of Computer and Information Engineering	b4012005	Programming and Practice	non-test	2	48		48	Summer 1
	required	School of Computer and Information Engineering	b4012051	Data Structures and Algorithms Course Placement	non-test	3	72		72	Summer 1
	required	School of Computer and Information Engineering	b4012213	Integrated Design for Film and Video Production	non-test	3	72		72	Spring 3
	required	School of Computer and Information Engineering	b4012214	Virtual Reality Integrated Design	non-test	3	72		72	Spring 3
	required	School of Computer and Information Engineering	b4012186	Labour Education B	non-test	0.5	16		16	Spring 3
	required	School of Computer and Information Engineering	b4000015	Digital Media Technology Professional Innovation and Entrepreneurship	non-test	2	48		48	Spring 3
	required	School of Computer and Information Engineering	b4012215	3D animation integrated design	non-test	3	72		72	Summer 3
	required	School of Computer and Information Engineering	b4012131	Digital Media Technology graduation internship and graduation design (thesis)	non-test	6	288		288	Spring 4
Subtotal(Professional Practice)						22.5	688		688	
Extracurricular Class	required	Others	b5110001	Extracurricular Class	non-test	1			0	Autumn, Spring, Summer
Total						164	3072	2047	1025	

Description of Selective Professional Course:

The Selective Professional Course is structured in modules according to different competencies and students must take one of the modules and achieve the required credits for that module.

Module A: Film and Video Animation, i.e. based on film and video design and video capture, focusing on film and video animation and techniques for post-production of special effects with AE and Maya technologies as the core.

Module B: Virtual Reality and Game Development, i.e. based on programming skills and database skills, the focus is on game character and scene design and game development techniques with Unity and 3ds max technologies as the core.

X. Prerequisite for Course Study

No.	Course Name	Prerequisite Course
1	Data Structures and Algorithms	Fundamentals of Programming
2	Programming and Practice	Fundamentals of Programming
3	Morphological composition	Fundamentals of Painting
4	Fundamentals of Photography and Video	Fundamentals of Painting
5	Graphic Design	Fundamentals of drawing, composition of forms
6	Animation principles	Fundamentals of drawing, composition of forms
7	Audiovisual language	Fundamentals of drawing, composition of forms
8	Digital engraving	3D Game Animation Design
9	Game Artwork	3D Game Animation Design
10	3D animation integrated design	3D Game Animation Design
11	Virtual Reality Integrated Design	Virtual Reality
12	Object Oriented Programming	Fundamentals of Programming
13	3D Game Animation Design	Fundamentals of drawing, composition of forms
14	Film and video editing and compositing	Audio-visual language, basic photography and video
15	Virtual Reality	3D game animation design, programming fundamentals
16	3D Film and Video Animation Design II	3D Film and Video Animation DesignI
17	Integrated Design for Film and Video Production	Film and video editing and compositing
18	3D Film and Video Effects Design	Film and video editing and compositing

XI. Credit of Extracurricular Class

Through taking extracurricular classes, students are encouraged to take part in academic lectures, social practice activities, campus cultural and sports activities, innovative and entrepreneurial activities, voluntary activities, etc. to improve their social adaptability and enhance the competitiveness in the job market. Details are specified in Students' Manual.