

# Dynamic Reality Technology

## Associate in Applied Science Degree Plan

### Area I: Written Composition (3)

ENG101 – English Composition I ..... 3

### Area II: Humanities and Fine Arts (12)

ART175 – Digital Photography ..... 3

This course introduces students to digital imaging techniques. Emphasis is placed on the technical application of the camera, digital photographic lighting methods, and overall composition. Upon completion, students should be able to take digital images and understand the technical aspects of producing high quality photos.

ART178 – Audio-Visual Techniques ..... 3

This course is an exploration of the area of linkage between the visual and auditory senses. Emphasis is placed on working with sound and recording equipment, projected images and multimedia hardware and software. Upon completion, students should be able to produce finished multimedia projects.

ART275 – Advanced Digital Photography ..... 3

This course explores various uses of digital photography. Subjects may include studio, portrait, landscape and other areas of photography. Upon completion, the student should be able to apply the techniques necessary to produce professional photographs of a variety of subjects.  
Prerequisite: ART175

ART299C – Art Portfolio..... 3

This course is designed to help the art major in the preparation and presentation of an art portfolio. Emphasis is placed on representing the student’s potential as an artist in order to interest employers, clients or schools. Upon completion, students should be able to make a professional presentation of their design and communication skills.

### Area III: Natural Science and Mathematics (5)

CIS292 – Special Topics (Python Programming) ..... 2

This course allows study of currently relevant computer science topics, with the course being able to be repeated for credit for each different topic covered. Course content will be determined by the instructor and will vary according to the topic being covered. Upon completion, the student will be able to demonstrate comprehension of the specified topics

MTH 110 or MTH 112 – Finite Mathematics or Pre-Cal ..... 3

#### **Area IV: History, Social, and Behavioral Sciences (3)**

Social Science Elective ..... 3

#### **Area V: Technical Concentration, and Electives (49)**

CAP101 – CGI Software Basics ..... 3

This course introduces students to Computer Graphic Imagery workflow in a dedicated software environment. Topics include interface navigation, creation tools, animation basics and rendering. Upon completion, students should be able to create simple CGI objects, animate them and assign visual rendering properties.

CAP103 – Computer Graphics History ..... 3

This course introduces students to Computer Graphic Imagery from a historical and cultural angle. Topics include learning about the 2D and 3D tools evolution, the key players in the industry and major landmark productions. Upon completion, the student should have acquired an extensive vocabulary of the CGI field and have a global view of this industry.

CAP104 – Introduction to Game Design I ..... 3

Course Description: This course is designed to introduce the students to the theory of game design and production using industry software and related technologies. Upon completion students should be able to demonstrate technical and creative aspects of game development.  
Prerequisite: CAP 101

CAP105 – Introduction to Computer Programming for 3D ..... 3

Course Description: This course is designed to introduce fundamental concepts of computer programming as applied to 3D modeling software and game engines. Upon completion students should be able to demonstrate knowledge of industry programming language.

CAP123 – CGI Shading, Lighting and Rendering ..... 3

This course introduces students to the mechanics of how various materials react to light in real life and in a CGI software. Topics include study of various shaders, lighting techniques and rendering parameters. Upon completion the student should be able to reproduce a common object surface and render it efficiently. Prerequisite: CAP101

CAP124 – Game Design II ..... 3

Course Description: The course is designed to enhance students programming skills with 3D assets into creating a virtual world using an industry standard game engine. Upon completion students should be able to use these tools to create a 3D immersive virtual world.  
Prerequisite: CAP 105

CAP201 – Simulation and Particles Effects ..... 3

This course introduces students to the study of physical phenomenon and their simulated counterpart in the CGI world. Topics include particles systems paradigm, forces, modifiers, typical examples and technological limitations. Upon completion the students should be able to reproduce and render a good range of simulated physical effects to enhance their CGI projects.

CAP202 – Live Action and Integration Project ..... 5

This course introduces students to the principles of live action shooting for visual effects. Emphasis is placed on good pre-shoot planning and on how to avoid problematic situations. Topics include the study of camera tracking software and light matching techniques for the 3D

elements. Upon completion the students should be able to shoot a live action plate, recreate a virtual matching camera and add CGI elements seamlessly. Prerequisites: CAP122, CAP123

CAP204 – Advanced Modeling .....	2
This course deepens students’ knowledge of CGI object modeling. Emphasis is placed on study of human anatomy, use of good reference material and realistic proportions. Topics also include animal anatomy and industrial objects. Upon completion, students should be able to recreate complex objects of various anatomy and designs efficiently. Prerequisite: CAP121.	
CAP205 – Dynamic Reality Production .....	3
Course Description: The course is designed to introduce students to virtual reality, augmented reality, and mixed reality. Upon completion students should be to able differentiate the VR /AR/ MR—based training and application of each. Prerequisite: CAP 105	
CAP221 – Final Project .....	6
This course allows the student to create a final project showcasing his strength and abilities under the supervision and counseling of a professional visual effects artist. Upon completion, the students should be able to showcase their talent and be ready to work in a VFX company. Prerequisite: CAP202	
CAP222 – Specialization Field (Animation or Modeling) .....	3
This course furthers the study of a particular field (modeling or animation) chosen by the student. Topics include (for modeling) digital sculpting, further anatomical study, understanding of muscle, fat and bone structure. Topics for animation include, learning of motion capture software, roto-capture and animation projects. Upon completion, the student should be able to showcase a deeper understanding of their chosen field.	
CAP224 – Digital Environment.....	3
This course introduces students to matte painting techniques and specialized CGI environment software. Topics include concepts of 2017 Coastal Alabama Community College 207 art, camera projection, light repainting, atmosphere, and various tools available in virtual environment creation software. Upon completion, the student should be able to create a realistic environment from material coming from various 2D and 3D sources. Prerequisites: CAP201, CAP203	
CAP225 – Applying Andragogy in VR/AR/MR-Based Training Applications and Simulations.....	3
This course provides the theories and practices on the characteristics of adult learners. Through this training and development course, students will learn Knowles’ five assumptions of adult learners and the implications for workplace training. Additionally, instruction will be provided in the application of the five assumptions to adult learning in the workplace focusing on VR/AR/MR-based training applications and simulations. Prerequisite: CAP 205	
CAP226 – Effective Instructional Practices in Workplace Talent Development.....	3
This course provides students with the knowledge and skills to incorporate effective instructional practices and techniques in workplace courses utilizing VR/AR/MR-based training applications. Prerequisite: CAP 225	
<b>Total Hours .....</b>	<b>72</b>