

# COMPUTER TECHNOLOGIES

## SIMULATION & GAME DEVELOPMENT

### Art and Modeling Degree – A25450A and Programming Degree - A25450P

The Simulation and Game Development curriculum provides a broad background in simulation and game development with practical applications in creative arts, visual arts, audio/video technology, creative writing, modeling, design, programming and management.

Students receive hands-on training in design, 3D modeling, animation, level design, software engineering, and programming for the purpose of creating simulations and games.

Graduates could qualify for employment as designers, artists, animators, programmers, quality assurance testers and analysts, engineers and administrators in the entertainment industry, the health care industry, engineering, forensics, education, and government agencies.

### Simulation and Game Development- Art & Modeling Degree - A25450A

-Day and Evening

#### Program Sequence

##### FALL SEMESTER

|         |                               |   |
|---------|-------------------------------|---|
| ACA 111 | College Student Success ..... | 1 |
| ENG 111 | Writing and Inquiry .....     | 3 |
| SGD 111 | Introduction to SGD .....     | 3 |
| SGD 112 | SGD Design .....              | 3 |
| SGD 113 | SGD Programming.....          | 3 |
| SGD 116 | Graphic Design Tools.....     | 3 |

##### SPRING SEMESTER

|         |                       |   |
|---------|-----------------------|---|
| _____   | Math Elective .....   | 3 |
| SGD 114 | 3D Modeling.....      | 3 |
| SGD 117 | Art for Games .....   | 3 |
| SGD 163 | SG Documentation..... | 3 |
| SGD 212 | SGD Design II .....   | 3 |

##### SUMMER SEMESTER

|       |                        |   |
|-------|------------------------|---|
| _____ | English Elective.....  | 3 |
| _____ | HUM / FA Elective..... | 3 |

##### FALL SEMESTER

|         |                               |   |
|---------|-------------------------------|---|
| SGD 166 | SG Physiology / Kinesis ..... | 3 |
| SGD 134 | SG Quality Assurance.....     | 3 |
| SGD 174 | SG Level Design .....         | 3 |
| SGD 214 | 3D Modeling II.....           | 3 |
| SGD 162 | SG 3 D Animation .....        | 3 |

##### SPRING SEMESTER

|         |                                |   |
|---------|--------------------------------|---|
| _____   | Social Science Elective .....  | 3 |
| _____   | Major Elective .....           | 2 |
| SGD 165 | SG Character Development ..... | 3 |
| SGD 158 | SGD Business Management .....  | 3 |
| SGD 164 | SG Audio / Video .....         | 3 |

##### SUMMER SEMESTER

|         |                      |   |
|---------|----------------------|---|
| SGD 289 | SGD Project.....     | 3 |
| _____   | Major Elective ..... | 2 |

Graduation Requirements ..... 71 Credit Hours

#### Math Elective

(Select 3 credit hours from the following courses)

|         |                              |   |
|---------|------------------------------|---|
| MAT 121 | Algebra/Trigonometry I ..... | 3 |
| MAT 143 | Quantitative Literacy .....  | 3 |
| MAT 152 | Statistical Methods 1.....   | 4 |
| MAT 171 | Precalculus Algebra .....    | 4 |

#### Humanities/Fine Arts Elective

(Select 3 credit hours from the following courses)

|         |                             |   |
|---------|-----------------------------|---|
| ART 111 | Art Appreciation .....      | 3 |
| ENG 125 | Creative Writing I.....     | 3 |
| HUM 110 | Technology and Society..... | 3 |
| HUM 130 | Myth in Human Culture ..... | 3 |
| HUM 160 | Introduction to Film .....  | 3 |
| REL 110 | World Religions .....       | 3 |

#### English Electives

(Select 3 credit hours from the following courses)

|         |                               |   |
|---------|-------------------------------|---|
| ENG 112 | Argument-Based Research ..... | 3 |
| COM 120 | Inro Interpersonal Comm.....  | 3 |
| COM 231 | Public-Speaking .....         | 3 |

#### Social/Behavioral Science Elective

(Select 3 credit hours from the following courses)

|         |                                 |   |
|---------|---------------------------------|---|
| ECO 151 | Survey of Economics.....        | 3 |
| HIS 111 | World Civilizations I.....      | 3 |
| PSY 150 | General Psychology .....        | 3 |
| SOC 210 | Introduction to Sociology ..... | 3 |

#### Major Required Electives

(Select a minimum of 4 credit hours)

|         |                                 |   |
|---------|---------------------------------|---|
| SGD 135 | Serous Games.....               | 3 |
| SGD 159 | SGD Production Management ..... | 3 |
| SGD 167 | SG Ethics.....                  | 3 |
| SGD 168 | Mobile SG Programming I.....    | 3 |
| SGD 172 | Virtual SG Environments.....    | 3 |
| SGD 180 | SGD HTML Programming I .....    | 3 |
| SGD 237 | Rigging 3D Models.....          | 3 |
| SGD 244 | 3D Modeling III.....            | 3 |
| SGD 268 | Mobile SG Programming II.....   | 3 |
| SGD 274 | SG Level Design II.....         | 3 |
| SGD 280 | SGD HTML Programming I .....    | 3 |
| SGD 288 | SGD Portfolio Design.....       | 2 |
| WBL 112 | Work-Based Learning I .....     | 2 |

\*WBL courses completed for one program may not count toward the completion of another program. For verification of WBL course work, please contact your academic advisor and/or your departmental Work-Based Learning faculty coordinator. The Work-Based Learning period may be taken over two semesters as WBL-112 and WBL-121 or over three semesters as WBL-111, WBL-121, and WBL-131.

### Simulation and Game Development- Programming Degree - A25450P

-Day and Evening

#### Program Sequence

##### FALL SEMESTER

|         |                               |   |
|---------|-------------------------------|---|
| ACA 111 | College Student Success ..... | 1 |
| ENG 111 | Writing and Inquiry .....     | 3 |
| SGD 111 | Introduction to SGD .....     | 3 |
| SGD 112 | SGD Design.....               | 3 |
| SGD 116 | Graphic Design Tools .....    | 3 |
| SGD 113 | SGD Programming .....         | 3 |

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## SPRING SEMESTER

|         |                          |   |
|---------|--------------------------|---|
| SGD 213 | SGD Programming II.....  | 3 |
| MAT 171 | Precalculus Algebra..... | 4 |
| SGD 114 | 3D Modeling.....         | 3 |
| SGD 163 | SG Documentation.....    | 3 |
| SGD 212 | SGD Design II.....       | 3 |

## SUMMER SEMESTER

|     |                        |   |
|-----|------------------------|---|
| — — | English Elective.....  | 3 |
| — — | HUM / FA Elective..... | 3 |

## FALL SEMESTER

|         |                              |   |
|---------|------------------------------|---|
| PHY 151 | College Physics I.....       | 4 |
| SGD 134 | SG Quality Assurance.....    | 3 |
| SGD 174 | SG Level Design.....         | 3 |
| SGD 180 | SGD HTML Programming I.....  | 3 |
| SGD 285 | SG Software Engineering..... | 3 |

## SPRING SEMESTER

|         |                              |   |
|---------|------------------------------|---|
| — —     | Social Science Elective..... | 3 |
| — —     | Major Elective I.....        | 2 |
| SGD 158 | SGD Business Management..... | 3 |
| SGD 164 | SG Audio / Video.....        | 3 |
| SGD 168 | Mobile SG Programming I..... | 3 |

## SUMMER TERM

|         |                       |   |
|---------|-----------------------|---|
| — —     | Major Elective I..... | 2 |
| SGD 289 | SGD Project.....      | 3 |

**Graduation Requirements..... 73 Credit Hours**

### Humanities/Fine Arts Elective

(Select 3 credit hours from the following courses)

|         |                             |   |
|---------|-----------------------------|---|
| ART 111 | Art Appreciation.....       | 3 |
| ENG 125 | Creative Writing I.....     | 3 |
| HUM 110 | Technology and Society..... | 3 |
| HUM 130 | Myth in Human Culture.....  | 3 |
| HUM 160 | Introduction to Film.....   | 3 |
| REL 110 | World Religions.....        | 3 |

### Communication Elective

(Select 3 credit hours from the following courses)

|         |  |   |
|---------|--|---|
| ENG 112 | Argument-Based Research.....           | 3 |
| COM 120 | Intro Interpersonal Communication..... | 3 |
| COM 231 | Public-Speaking.....                   | 3 |

### Social/Behavioral Science Elective

(Select 3 credit hours from the following courses)

|         |                                |   |
|---------|--------------------------------|---|
| ECO 151 | Survey of Economics.....       | 3 |
| HIS 111 | World Civilizations I.....     | 3 |
| PSY 150 | General Psychology.....        | 3 |
| SOC 210 | Introduction to Sociology..... | 3 |

**Major Electives** (Choose a minimum of 4 credit hours from the following)

|         |                                |   |
|---------|--------------------------------|---|
| SGD 135 | Serious Games.....             | 3 |
| SGD 159 | SGD Production Management..... | 3 |
| SGD 162 | SG 3D Animation.....           | 3 |
| SGD 167 | SG Ethics.....                 | 3 |
| SGD 172 | Virtual SG Environments.....   | 3 |
| SGD 237 | Rigging 3D Models.....         | 3 |
| SGD 244 | 3D Modeling III.....           | 3 |
| SGD 268 | Mobile SG Programming II.....  | 3 |
| SGD 274 | SG Level Design II.....        | 3 |
| SGD 288 | SGD Portfolio Design.....      | 2 |
| WBL 112 | Work Based Learning I.....     | 2 |

\*WBL courses completed for one program may not count toward the completion of another program. For verification of WBL course work, please contact your academic advisor and/or your departmental Work-Based Learning faculty coordinator. The

Work-Based Learning period may be taken over two semesters as WBL-112 and WBL-121 or over three semesters as WBL-111, WBL-121, and WBL-131.

## Modeling and Animation Certificate - C25450A

This certificate focuses on the skills needed for an entry-level artist within the simulation or video game industry. Training includes 3d modeling, animation and character development.

|         |                               |   |
|---------|-------------------------------|---|
| SGD 116 | Graphic Design Tools.....     | 3 |
| SGD 114 | 3D Modeling.....              | 3 |
| SGD 162 | SG 3D Animation.....          | 3 |
| SGD 165 | SG Character Development..... | 3 |
| SGD 214 | 3D Modeling II.....           | 3 |

**Graduation Requirements..... 15 Credit Hours**

## Production Certificate - C25450B

This certificate focuses on skills needed for entry-level positions in the production side of game development or simulation. Course material includes training for management of a production team, business, development, design and documentation.

|         |                                |   |
|---------|--------------------------------|---|
| SGD 111 | Introduction to SGD.....       | 3 |
| SGD 112 | SGD Design.....                | 3 |
| SGD 163 | SG Documentation.....          | 3 |
| SGD 212 | SGD Design II.....             | 3 |
| SGD 158 | SGD Business Management.....   | 3 |
| SGD 159 | SGD Production Management..... | 3 |

**Graduation Requirements..... 18 Credit Hours**

## Mobile Game Development Certificate - C25450C

The mobile game development certificate prepares students with skills needed to build games or simulations for mobile devices. This certificate focuses primarily on Apple devices and secondarily the Android market.

|         |                               |   |
|---------|-------------------------------|---|
| SGD 112 | SGD Design.....               | 3 |
| SGD 113 | SGD Programming.....          | 3 |
| SGD 114 | 3D Modeling.....              | 3 |
| SGD 116 | Graphic Design Tools.....     | 3 |
| SGD 168 | Mobile SG Programming I.....  | 3 |
| SGD 268 | Mobile SG Programming II..... | 3 |

**Graduation Requirements..... 18 Credit Hours**

## Fundamentals I for Simulation and Game Development Certificate - C25450D

Fundamentals I is the first in a series of four step certificates toward the simulation and game development degree. This certificate introduces design, texturing, traditional art and programming basics as well as what to expect with a career in simulation or video game development.

|         |                           |   |
|---------|---------------------------|---|
| SGD 111 | Introduction to SGD.....  | 3 |
| SGD 112 | SGD Design.....           | 3 |
| SGD 113 | SGD Programming.....      | 3 |
| SGD 116 | Graphic Design Tools..... | 3 |

**Graduation Requirements..... 12 Credit Hours**

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## Fundamentals II for Simulation and Game Development Certificate - C25450E

Fundamentals II is the second in a series of four step certificates toward the simulation and game development degree. This certificate covers topics in 3D modeling, documentation, advanced design principals and introduces programming languages used in the industry.

|         |                          |   |
|---------|--------------------------|---|
| SGD 114 | 3D Modeling .....        | 3 |
| SGD 163 | SG Documentation .....   | 3 |
| SGD 212 | SGD Design II .....      | 3 |
| — —     | SGD 117 or SGD 213 ..... | 3 |

**Graduation Requirements..... 12 Credit Hours**

## Quality Assurance for Simulation and Game Development Certificate - C25450F

Quality Assurance is the third in a series of four step certificates toward the simulation and game development degree. This certificate focuses on skills required for a position as a quality assurance tester in the simulation or video game industry.

|         |                            |   |
|---------|----------------------------|---|
| SGD 134 | SG Quality Assurance ..... | 3 |
| SGD 174 | SG Level Design.....       | 3 |
| — —     | SGD 180 or SGD 214 .....   | 3 |
| — —     | SGD 168 or SGD 162.....    | 3 |

**Graduation Requirements..... 12 Credit Hours**

## Business for Simulation and Game Development Certificate - C25450G

Business for SGD is the final in a series of four step certificates toward the simulation and game development degree. This certificate introduces students to the business development side of the industry, the audio/video career field and tackles advanced topics in programming and art.

|         |                              |   |
|---------|------------------------------|---|
| SGD 158 | SGD Business Management..... | 3 |
| SGD 164 | SG Audio/Video .....         | 3 |
| — —     | Elective I.....              | 3 |
| — —     | Elective II.....             | 3 |

**Graduation Requirements..... 12 Credit Hours**

### Elective I

(Choose a Min of 3 Credit Hrs)

|         |                               |   |
|---------|-------------------------------|---|
| SGD 285 | SG Software Engineering ..... | 3 |
| SGD 165 | SG Character Development..... | 3 |

### Elective II

(Choose a Min of 3 Credit Hrs)

|         |                                 |   |
|---------|---------------------------------|---|
| SGD 135 | Serious Games.....              | 3 |
| SGD 159 | SGD Production Management ..... | 3 |
| SGD 167 | SG Ethics .....                 | 3 |
| SGD 168 | Mobile SG Programming I .....   | 3 |
| SGD 172 | Virtual SG Environments .....   | 3 |
| SGD 237 | Rigging 3D Models .....         | 3 |
| SGD 244 | 3D Modeling III .....           | 3 |
| SGD 268 | Mobile SG Programming II .....  | 3 |
| SGD 274 | SG Level Design II.....         | 3 |

## Programming for Simulation and Game Development Certificate - C25450H

This certificate prepares students for an entry-level programming position within the simulation or video game industry.

|         |                               |   |
|---------|-------------------------------|---|
| SGD 113 | SGD Programming.....          | 3 |
| SGD 213 | SGD Programming II .....      | 3 |
| SGD 180 | SGD HTML Programming I .....  | 3 |
| SGD 168 | Mobile SG Programming I ..... | 3 |
| SGD 285 | SG Software Engineering ..... | 3 |

**Graduation Requirements..... 15 Credit Hours**

## Level Design Certificate – C25450I

This certificate focuses on training students to design and implement levels within a video game or simulation.

|         |                               |   |
|---------|-------------------------------|---|
| SGD 112 | SGD Design .....              | 3 |
| SGD 114 | 3D Modeling .....             | 3 |
| SGD 172 | Virtual SG Environments ..... | 3 |
| SGD 174 | SG Level Design .....         | 3 |
| SGD 274 | SG Level Design II .....      | 3 |

**Graduation Requirements..... 15 Credit Hours**