

**NORCO COLLEGE  
SLO to PLO MATRIX**

| <b>NORCO COLLEGE<br/>SLO to PLO MATRIX</b>                             |   | <b>PLOs</b> | Understand the basic elements of game development and design including group working processes, game strategy, theory and gameplay. | Diagram and describe the major elements of video games from its beginning through the present. | Create multi-track MIDI and audio recordings utilizing basic and advanced editing techniques in Pro Tools. | Create and implement audio assets for a video game utilizing industry-standard software, hardware, game engines and audio engine middleware. | Create an industry-standard portfolio containing audio samples from class projects. | Demonstrate professional communication skills effectively with colleagues in an industry production project. |
|--|---|-------------|---|--|--|--|---|--|
| <b>CERTIFICATE/PROGRAM:</b> Game Audio NAS684/NCE684                   |   |             |   |  |  |  |   |  |
| <b>COURSE:</b> CIS -5: Fundamentals of Programming Logic using C++     |   |             |   |  |  |  |   |  |
| SLO 1  | Create computer programs in C++ using the principles of structured programming.   |             |   |  |  |  |   |  |
| SLO 2  | Apply the principles of logical programming concepts to develop specific solutions for gaming, business, scientific and mathematics problems.   |             |   |  |  | x  |   |  |
| SLO 3  | Identify the information input requirements, synthesize the algorithmic steps needed to transform the data input into the required output information, and organize the output format to facilitate user communication. |             |   |  |  |  |   |  |
| SLO 4  | Demonstrate the use of the C++ IDE and libraries.   |             |   |  |  |  |   |  |
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| <b>COURSE:</b> GAM-21: History of Video Games                          |   |             |   |  |  |  |   |  |
| SLO 1  | Diagram and describe the basic elements of video games from its beginning through the present.  |             | x   |  |  |  |   |  |
| SLO 2  | Understand the technical advancements of video games throughout time including but limited to microprocessors, desktop computers, the Macintosh computers and multi-dimensional viewing.                                |             |   |  |  |  |   |  |
| SLO 3  | Identify the representative video games throughout history that changed the course of the video game phenomenon.  |             |   |  |  |  |   |  |
| SLO 4  | Evaluate historical events that influenced video game development in various cultures around the world.   |             |   |  |  |  |   |  |
| SLO 5  | Compare and contrast various video games styles and genres throughout time.   |             |   |  |  |  |   |  |
| SLO 6  | Define standard operational video game terminology.   |             |   |  |  |  |   |  |
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| <b>COURSE:</b> GAM-35: Introduction to Simulation and Game Development |   |             |   |  |  |  |   |  |
| SLO 1  | Examine and critically discuss the various industries which use simulation and computer gaming and the methods of which gaming is used.   |             |   |  |  |  |   |  |

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| SLO 2   | Examine and differentiate the business aspects of game development from concept to commercialization such as concept pitch, planning and scheduling, and promotional tools.   |             |   |  |  |  |   |  |
| SLO 3   | Analyze, discuss, and apply the principles of theoretically sound game design.  | x           |   |  |  |  |   |  |
| SLO 4   | Identify and differentiate the game development project lifecycle and associated documents such as the Pitch Document, Game Design Document, Technical Design Document, Art Production Plan, Project Plan and Game Prototype. | x           |   |  |  |  |   |  |
| SLO 5   | Demonstrate an appreciation of the interactions between business, industry and the creative process of game design.   |             |   |  |  |  |   |  |
| SLO 6   | Identify career paths and understand the job market outlook and education requirements for computer gaming professionals.   |             |   |  |  |  |   |  |
|   |   |             |   |  |  |  |   |  |
|   |   |             |   |  |  |  |   |  |
| <b>COURSE: GAM-44: Portfolio Production</b>   |   |             |   |  |  |  |   |  |
| SLO 1   | Consider and assess student portfolio work based on content, creativity, presentation, craftsmanship, originality, and achievement of goals   |             |   |  |  |  | x   |  |
| SLO 2   | Choose and creatively organize original pieces into a cohesive body of work culminating in a presentation quality portfolio which emphasizes the student's strengths or area of specialization                                |             |   |  |  |  | x   |  |
| SLO 3   | Organize student information and experience and prepare a creative, professional resume, cover letter, and follow-up letter   |             |   |  |  |  | x   |  |
| SLO 4   | Employ professional interview skills in a mock interview setting including presentation of individual portfolio   |             |   |  |  |  |   |  |
|   |   |             |   |  |  |  |   |  |
|   |   |             |   |  |  |  |   |  |
| <b>COURSE: GAM-79: Game Studio Production</b> |   |             |   |  |  |  |   |  |
| SLO 1   | Produce an original, complete simulation, digital game or mobile application.   |             |   |  |  | x  |   |  |
| SLO 2   | Develop content in the area of game art, game audio, game design or game programming that contributes to a milestone based studio pipeline  | x           |   |  |  |  |   |  |

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| SLO 3  | Demonstrate mastery of interdisciplinary communication and team skills necessary for success in the games industry.   |             | x   |  |  |  |   | x  |
| <b>COURSE: MUC-3: Introduction to Pro Tools: MIDI and Audio Production</b> |   |             |   |  |  |  |   |  |
| SLO 1  | Review basic music elements including notation, key signatures, measures, meters, harmony and rhythm.   |             |   |  |  |  |   |  |
| SLO 2  | Explain basic MIDI concepts including bit data, general MIDI, patch changes, sequencing, quantization and velocity.   |             |   |  | x  |  |   |  |
| SLO 3  | Describe concepts of basic digital audio including waveform, frequency, amplitude, bit resolution and sample-rate.  |             |   |  | x  |  |   |  |
| SLO 4  | Create a multi-track MIDI recording using Pro Tools software.   |             |   |  |  |  |   |  |
| SLO 5  | Record multi-track audio using Pro Tools software. This multi-track recording may or may include the importing of media such as audio, video or game video files. |             |   |  | x  | x  |   |  |
| SLO 6  | Employ Pro Tools editing and mixing procedures such as effects, looping, cut, copy, paste, EQ and bouncing.   |             |   |  | x  | x  |   |  |
| SLO 7  | Produce a final hands-on project which will result in an industry-standard level recording.   |             |   |  |  |  |   |  |
| <b>COURSE: MUC-4: Intermediate Pro Tools: 110</b>                          |   |             |   |  |  |  |   |  |
| SLO 1  | Employ the intermediate-level digital audio concepts of elastic audio, quantizing audio, audio editing and automation.  |             |   |  |  |  |   |  |
| SLO 2  | Organize a recording session utilizing MIDI (Musical Instrument Digital Interface), Loops and virtual instruments.  |             |   |  |  |  |   | x  |
| SLO 3  | Demonstrate the intermediate-level editing techniques of region looping, Grid editing, automation modes and mixing.   |             |   |  | x  | x  |   |  |

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| <b>COURSE:</b>                             | <b>MUC-5: Sound Design I</b>   |             |   |  |  |  |   |  |
| SLO 1                                      | Demonstrate an understanding of audio data compression and encoding including the advantages/disadvantages of formats.   |             |   | x  |  |  |   |  |
| SLO 2                                      | Define the different types of functions and roles of sound within games and multimedia.  |             |   | x  |  |  |   |  |
| SLO 3                                      | Understand sound production principles including human perception, vibration, damped/driving oscillations and resonance.   |             |   |  |  |  |   |  |
| SLO 4                                      | Demonstrate appropriate sampling techniques of a variety of sounds including ambient, practical and dialogue while using appropriate sample rates for the saving of files. |             |   | x  |  |  |   |  |
|  |  |             |   |  |  |  |   |  |
|  |  |             |   |  |  |  |   |  |
| <b>COURSE:</b>                             | <b>MUC-6: Sound Design II</b>  |             |   |  |  |  |   |  |
| SLO 1                                      | Apply non-repetitive design strategies including randomization in time, pitch, volume, envelope, pseudo-granular approaches and variation through layered re-combinations. |             |   | x  | x  |  |   |  |
| SLO 2                                      | Discuss the roles of audio engines and assets in a game program structure.   |             |   |  |  |  |   |  |
| SLO 3                                      | Understand and employ algorithms and audio systems such as weapon, impact, crowd, vehicle, physics systems.  |             |   | x  |  |  |   |  |
| SLO 4                                      | Apply and tag animations and cut scenes with appropriate sounds and timings.   |             |   | x  | x  |  |   |  |
| SLO 5                                      | Demonstrate an understanding of Interactive mixing, including base mixes, ducking, and snapshot mixes as well as linear design and implementation.                         |             |   | x  | x  |  |   |  |
|  |  |             |   |  |  |  |   |  |
|  |  |             |   |  |  |  |   |  |
| <b>COURSE:</b>                             | <b>MUC-8: Composing Music for Video Games</b>  |             |   |  |  |  |   |  |
| SLO 1                                      | Understand linear versus non-linear music composition.   |             |   |  |  |  |   |  |
| SLO 2                                      | Demonstrate melodic composition as appropriate to specific scenic, thematic and dramatic situations in a game.   |             |   |  |  |  |   |  |
| SLO 3                                      | Calculate tempi and time signature changes necessary for hit points.   |             |   |  |  |  |   |  |

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|---|--|-------------|---|--|--|--|---|--|
| SLO 4   | Describe and compose music for non-linear aspects of composition as they apply to video game music including looping, layering stems, superimposition and transitions. |             |   |  |  |  |   |  |
| SLO 5   | Construct a basic electronic musical sequence.   |             |   |  |  |  |   |  |
|   |  |             |   |  |  |  |   |  |
|   |  |             |   |  |  |  |   |  |
| <b>COURSE: MUS-3: Music Fundamentals</b>      |  |             |   |  |  |  |   |  |
| SLO 1   | Construct key signatures, time signatures, diatonic scales, triads, seventh chords and chord inversions on a grand staff.  |             |   |  | x  | x  |   |  |
| SLO 2   | Compose original melodies using parallel and contrasting phrases that include half and full cadences.  |             |   |  | x  | x  |   |  |
| SLO 3   | Analyze diatonic music examples written in Common Practice style   |             |   |  |  |  |   |  |
| SLO 4   | Sing diatonic melodies at sight using solfege syllables.   |             |   |  |  |  |   |  |
| SLO 5   | Notate diatonic intervals and melodies from aural examples.  |             |   |  |  |  |   |  |
| SLO 6   | Demonstrate diatonic scales using the piano.   |             |   |  |  |  |   |  |
|   |  |             |   |  |  |  |   |  |
|   |  |             |   |  |  |  |   |  |
| <b>COURSE: GAM-22: Game Design Principles</b> |  |             |   |  |  |  |   |  |
| SLO 1   | Examine and critically discuss the component parts of games  |             |   |  |  |  |   | x  |
| SLO 2   | Identify, examine and differentiate various aspects that make a game fun and compelling  | x           |   |  |  |  |   |  |
| SLO 3   | Apply the principles of theoretically sound game design including gameplay, core mechanics, game balancing, and iterative rapid prototyping                            | x           |   |  |  |  |   |  |
| SLO 4   | Demonstrate teamwork skills in the development of an original non-digital game   |             |   |  |  |  |   | x  |
| SLO 5   | Develop analytical skills which can be applied to the multiple uses of both computer hardware and software products for simulation gaming                              |             |   |  |  |  |   |  |
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| <b>COURSE:</b>                             | <b>MUC-9: Voice Acting and Dialogue for Games</b>  |   |  |  |  |   |  |
| SLO 1                                      | Demonstrate an awareness of natural 'true voice' sounds including quality, tone, timbre, pitch and range.            |   |  |  |  |   |  |
| SLO 2                                      | Understand how voices are culturally perceived.  |   |  |  |  |   |  |
| SLO 3                                      | Demonstrate vocal qualities and exertions including gravelly, throaty, strident, nasal, de-nasal, grunts and groans. |   |  |  | x  |   |  |
| SLO 4                                      | Demonstrate various forms of voiced and non-voiced diction utilizing vowels and consonants.                          |   |  |  | x  |   |  |
| SLO 5                                      | Demonstrate appropriate microphone technique when recording.   |   |  |  | x  |   |  |
|  |  |   |  |  |  |   |  |
|  |  |   |  |  |  |   |  |