

*Simulation and  
Game Development  
DACUM*

Hosted by

**Wake Technical Community College**

**9101 Fayetteville Road, Raleigh, NC 27603**

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## DACUM PANELISTS

**Dale Broadbent**, Webmaster, Gamepal

**Jerry G. Godwin**, Director of Online Services, Themis Group

**John Holloway**, Graphics Modeling Specialist III, RTI

**Paul Potera**, Owner, Sentinel Studios

**Christopher Reeves**, Senior Environmental Artist, Destineer Studios

**Bruce Shankle**, Software Engineer, Red Storm Entertainment

**Ken Turner**, Senior Quality Assurance Analyst, Red Storm Entertainment

**Ty Christopher**, Senior Software Developer, 3DSolve

**Lee Hammock**, Lead Game Designer, Icarus Studios

**Arnav Jhala**, Research Asst/Programmer, NCSU/Virtual Heroes

**Marc Racine**, Director, Sentinel Studios

**Christopher Roby**, Senior Game Designer, Destineer Studios

**Jeff C. Stanley**, Software Engineer, Destineer Studios

## DACUM FACILITATOR

**Judy LaBoone**

Greenville Technical College

## DACUM RECORDERS

**Steve Duncan, Carolyn Lewis, Susan Payne, Julie Taylor,**

Wake Technical Community College

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## **Overview:**

The DACUM Panelists who participated in this job analysis work in a number of different locations and in a variety of settings. Although the duties and tasks of this research chart are performed by one or more of these panelists, no single panelist performs all of the duties and tasks represented by this analysis.

## **Instructions:**

The following pages outline the tasks associated with the duties determined by the DACUM panelists: Design, Programming, Visual Arts, Testing, Project Management and Business Development. Presented in order of importance, each task represents an objective to be taught in a course for a Game/Simulation Developer.

Each duty's tasks are presented in tabular format. The block below each task is designed for entry of the course(s) that teaches that particular objective.

A

# **Game/Simulation Developer**

crafts games and simulations using  
creative and technical skills.

<b>A. DESIGN</b>	A-1 Assess client needs	A-2 Define the Need	A-3 Identify the Concept	A-4 Identify the Audience	A-5 Propose the Concept
	A-6 Analyze the Market	A-7 Analyze the Competition	A-8 Create the Vision	A-9 Articulate the Vision	A-10 Assess the delivery Platform
	A-11 Establish the Requirements	A-12 Interpret the Requirements	A-13 Define the Terms & Conventions	A-14 Define the Process	A-15 Cultivate Effective Team Communications
	A-16 Research the Content	A-17 Prioritize Features	A-18 Develop Documentation	A-19 Schedule Product Development	A-20 Develop the Product
	A-21 Design Interface Functionality	A-22 Design Tools	A-23 Develop Written Content	A-24 Design Levels	A-25 Design Scripting
	A-26 Apply Best Practices				

<b>B. PROGRAMMING</b>	B-1 Apply Basic Logic	B-2 Apply Data Structures	B-3 Apply Linear Algebra	B-4 Solve 3-D Vector Math Problems	B-5 Explain Computer Architecture
	B-6 Design Algorithms	B-7 Analyze Algorithms	B-8 Write Code	B-9 Debug Problems	B-10 Develop Unit Tests
	B-11 Optimize Code	B-12 Utilize Software	B-13 Apply Best Software Practices	B-14 Cultivate Effective Team Communications	B-15 Schedule Programming Tasks
	B-16 Articulate Build Processes	B-17 Explain AI Principles	B-18 Explain Networking Principles	B-19 Analyze Competition	B-20 Evaluate Product Design
	B-21 Interpret Product Design	B-22 Appraise Available Tools	B-23 Develop Tools		

<b>C. VISUAL ART</b>	C-1* Interpret Game Vision	C-2* Realize Platform Limitations	C-3* Define Art Pipeline	C-4 Determine Tool Needs	C-5 Analyze Competition
	C-6 Conceptualize	C-7 Create Style Guide	C-8 Apply Best Practices	C-9 Cultivate Effective Team Communication	C-10 Explain vector vs. Rastor
	C-11 Schedule Tasks	C-12 Create 3-D Art	C-13 Create 2-D Art	C-14 Apply Lighting	C-15 Create Animations
	C-16 Optimize Graphics	C-17 Optimize Modeling Techniques	C-18 Utilize Version Control		

\*See Appendix

<b>D. AUDIO ART</b>	D-1 Schedule Development Cycle	D-2 Organize Documentation	D-3 Analyze Competition	D-4 Design Soundscape	D-5 Realize Limitations
	D-6 Apply Best Practices	D-7 Record Voices	D-8 Work With Voice Talent	D-9 Record Foley/FX	D-10 Compose Music
	D-11 Record Music	D-12 Optimize Sound	D-13 Cultivate Effective Team Communications		

<b>E. TESTING</b>	E-1 Define Testing Phases (alpha, beta)	E-2 Develop a Standardized Bug Reporting Procedure	E-3 Create a Testing Plan	E-4 Evaluate Defect Tracking Tools	E-5 Manage Bug Database
	E-6 Utilize Automation Tools	E-7 Integrate into the Development Process	E-8 Compare Implementation Vs. Design	E-9 Test the Game	E-10 Document Discrepancies (defects, bugs)
	E-11 Assess Risk of Bugs	E-12 Prioritize Bugs	E-13 Re-evaluate Bug Fixes	E-14 Conduct Progression Testing	E-15 Evaluate Milestone Checklists (alpha, beta, internal)
	E-16 Evaluate the Fun Factor	E-17 Appraise Localized Version	E-18 Report Findings to Management	E-19 Manage Replication and Delivery	E-20 Analyze Competition
	E-21 Apply Best Practices	E-22 Cultivate Effective Team Communications			

<b>F. PROJECT MANAGEMENT</b>	F-1 Assess Risk	F-2 Apply Best Practices	F-3 Schedule the Project	F-4 Manage Scope of Project	F-5 Determine Milestones
	F-6 Determine Dependencies	F-7 Create Project Schedule	F-8 Maintain Project Schedule	F-9 Critique Schedules	F-10 Manage Team Resources
	F-11 Solve Problems	F-12 Facilitate Communications Between Departments	F-13 Intervene Between Departments	F-14 Delegate Effectively	F-15 Cultivate Effective Team Communications
	F-16 Perform Team Evaluations	F-17 Operate Within Budget Constraints	F-18 Assess Skills	F-19 Analyze Competition	F-20 Manage Client Expectations
	F-21 Organize Post-Mortem				

<b>G. BUSINESS DEVELOPMENT</b>	G-1 Assess Risks	G-2 Analyze Competition	G-3 Create Business Plan	G-4 Maintain Industry Relations	G-5 Identify Leads
	G-6 Manage Budgets	G-7 Interpret Contracts	G-8 Negotiate Contracts	G-9 Cultivate Effective Team Communications	G-10 Schedule Product Cycles
	G-11 Apply Best Practices				

## **Appendix:**

The following is a review of the complete DACUM by John Holloway. He suggested the following modifications.

**C-1 "Interpret game vision":** In this case I would suggest "Interpret objectives vision", "Interpret program vision" or perhaps more accurately "Interpret specific project vision". In the simulation world this step is performed when the developers are in both the Proposal (pre contract) and Development (post contract) phases. In the Proposal stage developers only have a very sketchy idea of what the prospective client may want so the resultant vision is obviously limited. The hope is that project managers can provide enough guidance for the artist to come close enough to the mark to peak the prospective client's interest. In the Development phase this vision is only able to be "interpreted" after in depth consultation with the client as to their operational needs. We call this "data collection" and must be performed before this vision interpretation can be realized in full. This is a critical difference between gaming and simulation. Simulation is dependent on very close relations with clients. These relations are on going throughout the life of a project by necessity.

**C-2 "Realize platform limitations":** I would suggest "Review platform limitations" as realization is usually the result of a review.

**C-3 "Define art pipeline":** I would offer "Define art production pipeline" or "Define Graphics production workflow" another difference between gaming and simulation. We generally refer to art as graphics in all of our documentation and discussions.

Simulation terminology is much more engineering oriented. In our world "art" is understood to be more entertainment oriented. We do hope to entertain the end user but only in as much as keeping there attention on the task at hand. Our obligation to the client is "training" not entertainment or diversion.