

SKILLS FRAMEWORK FOR MEDIA		
SKILLS MAP - SENIOR ENGINE PROGRAMMER* (TOOLS PROGRAMMING)		
Sector	Media	
Sub-sector	Games	
Track	Game Technical Development	
Sub-track	Game Programming	
Occupation	Game Programmer	
Job Role	Senior Engine Programmer* (Tools Programming)	
Job Role Description	<p>The Senior Engine Programmer is responsible for the development of the game engine which serves as the core of game development. He/She is responsible for conceiving the design of game engine modules in alignment with a specific project or with the type of games the engine intends to cater to. He maintains engine systems and writes programming codes to support the technical requirements of projects. In addition to providing technical assistance for engine modules, he develops solutions to address game performance and stability.</p> <p>He may also streamline game development processes by developing tools to aid production workflows and asset pipelines. For this, he works closely with 3D art and programming teams to understand their workflow requirements and deliver tools to meet their needs.</p> <p>The work involves leading a development team in an innovative and highly dynamic game development environment, which also requires interacting with and meeting expectations of a number of internal stakeholders.</p> <p>He is proficient at project management and a technical expert. He is adept at planning and organizing in order to deliver project outcomes effectively. He should also be effective at collaboration, communication and stakeholder management in order to work effectively in cross-functional project teams. He is an able problem solver. He should be adaptable to change given the rapidly evolving nature of this role.</p>	
Critical Work Functions and Key Tasks	Critical Work Functions	Key Tasks
	Design game engine	Support the requirements analysis and formulation of specifications and definition of delivery platforms for games
		Design new engine features to support game development and technical requirements
		Develop the overall engine architecture based on technical objectives and product roadmap
		Document designs and specifications for new engines and for changes made to existing engines or related systems
	Execute game development	Write programming code to achieve functionality of specific game engine modules
		Develop engine module prototypes to showcase planned functionality and to iteratively refine towards final build
		Collaborate with cross discipline team members to develop key game systems
		Conduct automated testing of game engine modules
		Support the development of game prototypes and custom solutions for development teams
	Optimise game development	Develop algorithms, techniques and processes to optimise performance of engines
		Develop solutions to optimise game engine performance and resolve stability issues
		Keep up to date on latest technologies, platforms, frameworks and game engines
	Promote best practices within game development	Stay abreast of the latest technology and its impact on game development and performance
		Lead the development of proofs-of-concept to support the adoption of new technologies
		Impress the importance of adopting suitable new technologies upon internal teams
	Specialisation in Tools Programming	
	Execute tools design and development	Analyse project scope and broad workflows to identify tool requirements in collaboration with the technical and creative leadership
		Create high level designs for new tool requirements and improvements and/or extensions to existing tools
		Lead the tool development by developing complex aspects of the tool code
Guide junior team members in developing code for tools		
Execute testing and implementation of tools	Lead the testing of tools created for the game development	
	Refine code by iterative testing, debugging and taking feedback from end-user teams	
	Oversee implementation of tool within existing workflows	
	Communicate the functionality and features of developed tools to the end-user teams	
	Review performance of tools integration with existing internal programs and pipelines	
	Oversee periodic maintenance and debugging of tools for performance, stability and usability in workflows	

	Oversee the resolution of issues with developed tools			
Skills and Competencies	Technical Skills and Competencies		Generic Skills and Competencies (Top 5)	
	Audio Programming	Level 3	Computational Thinking	Advanced
	Game Analytics	Level 3	Communication	Intermediate
	Game Artificial Intelligence Development	Level 3	Teamwork	Intermediate
	Game Engine Development	Level 3	Problem Solving	Intermediate
	Game Networking	Level 3	Creative Thinking	Intermediate
	Game Physics Development	Level 3		
	Game Porting	Level 3		
	Game Testing Automation	Level 3		
	Tools Development	Level 3		
Programme Listing	For a list of Training Programmes available for the Media sector, please visit: www.skillsfuture.sg/skills-framework/Media			

The information contained in this document serves as a guide.
 Note: *Text in brackets refer to specialisations included in the job role