

**Specification of Competency Standards**  
**for the Information & Communications Technology Industry**  
**Unit of Competency**

Functional Area - Operations Management

Title	Perform game programming
Code	107935L4
Description	This unit of competency applies to all Digital Media Technology (DMT) practitioners who are involved in game programming. Programming is a broad topic involving many different kinds of programming languages, tools and techniques. This UoC is concerned with the development of program modules based on its game design documents, using specified programming languages, and following the organisation's coding standards.
Level	4
Credit	3
Competency	<p>Performance Requirements</p> <p>1. Knowledge for game programming</p> <ul style="list-style-type: none"> <li>• Realise the philosophy and guidelines of the organisation towards game development</li> <li>• Master basic programming knowhow, concepts and techniques</li> <li>• Possess good understanding about the requirements of game specifications prepared by the development team</li> <li>• Possess good understanding about those programming techniques applicable to games, such as: <ul style="list-style-type: none"> <li>○ Windows programming</li> <li>○ Interactive programming</li> <li>○ Interfacing with multimedia development library, e.g. DirectX</li> </ul> </li> <li>• Master popular languages commonly used for game programming, such as: <ul style="list-style-type: none"> <li>○ C++</li> <li>○ Objective-C</li> <li>○ Java</li> </ul> </li> </ul> <p>2. Perform game programming</p> <ul style="list-style-type: none"> <li>• Comprehend the structure and contents of various design documents and specifications, which may include: <ul style="list-style-type: none"> <li>○ Architecture design</li> <li>○ Detailed level design</li> <li>○ Game specification</li> <li>○ Technical specification, etc.</li> </ul> </li> <li>• Devise program modules and decompose different program modules into software components according to their design documentation</li> <li>• Conduct the programming work for games according to the above documents</li> <li>• Work on the following key elements in the programming process, if required: <ul style="list-style-type: none"> <li>○ Integration of game logic and media components</li> <li>○ Integrate with social media Application Program Interface (API)</li> <li>○ Integrate with payment gateway, for providing in-app purchasing</li> <li>○ Perform network programming, for connection to the game server</li> <li>○ Access to Database (DB) API, for retrieving or storing all game related information</li> <li>○ Work with integrated script engine, for connection with tasks, missions, etc.</li> <li>○ Perform Artificial Intelligence (AI) programming</li> <li>○ Perform physics programming</li> <li>○ Perform shader programming, which are graphics related 3-dimensional (3D) effects like: <ul style="list-style-type: none"> <li>▪ Animal fur</li> </ul> </li> </ul> </li> </ul>

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	<ul style="list-style-type: none"> <li>▪ Water effect</li> <li>▪ Neon light</li> <li>• Carry out the following programming stages iteratively until completion of the specific program modules: <ul style="list-style-type: none"> <li>○ Coding</li> <li>○ Testing</li> <li>○ Debugging</li> </ul> </li> </ul> <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> <li>• Always develop program modules with full effort and in an efficient and effective manner</li> <li>• Always develop program modules according to organisational and / or international standards, regardless of those personal preferences</li> </ul>
Assessment Criteria	<p>The integrated outcome requirements of this UoC are the abilities to:</p> <ul style="list-style-type: none"> <li>• Complete the game programming work within required time frame and budget constraints; and</li> <li>• Develop system components based on designated design documents and specifications</li> </ul>
Remark	