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| Title | **Develop solids** |
| Level | **3** | **Credits** | **7** |

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| Purpose | The competency standard is designed to explore the composites of solids and their three dimensional editing. |

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| Classification ISCED | 0611 Computer use |

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| Available grade | Competent / Not yet competent |

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| Modification history | N/A |

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| **Competency Unit** | **Performance Criteria** | **Knowledge and Understanding** |
| **H1: Create Solids** | **The trainee will be able to:****P1.** Launch Solid primitives tab from 3D Modeling dropdown option of solids panel.**P2.** Convert:* An existing line
* 2D polyline
* Arc
* Circle

to a solid with a rectangular profile using “Polysolid” command.**P3.** Create unique solid primitives by extruding existing two- dimensional objects using “Extrude” command with* Taper
* Path

**P4.** Execute following commands on Solids;* Revolve
* Sweep
* Loft
 | **The trainee will be able to: K1.** Discover Solid primitives.**K2.** Explain Extrude**K3.** Execute commands |
| **H2: Edit 3D Objects** | **The trainee will be able to:****P1.** Convert polylines and circles with thickness to 3D solids | **The trainee will be able to:****K1.** Explore different methods to convert the |

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|  | using “convtosolid” command.**P2.** Edit the existing solids through:* 3D Move
* 3D Rotate
* 3D Align
* 3D Mirror
* 3D Rectangular Array
* 3D Polar Array

**P3.** Extract edges of a 3D object using “\_xedges” command.**P4.** Adjust the smoothness of shaded and rendered objects using “FACETRES” command with valid values range.**P5.** Apply “ISOLINES” and “REGEN” command to regenerate the 3D drawing in 3D view. | object/drawing to Solid or Surface.**K2.** Discover how to edit the solids**K3.** Differentiate edge effects or extract edges.**K4.** Explain how to shade and render objects**K5.** Define the method of regenerating the 3D drawing in 3D view |

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| **H3: Develop 3D Solid composites** | **The trainee will be able to:****P1.** Apply following Composite functions on solids;* Union
* Subtract
* Intersect

**P2.** Create 3D solid by thickening a surface using “THICKEN” command.**P3.** Highlight 3D solids that overlap using “INTERFERE” command. | **The trainee will be able to:****K1.** Choose different composite functions applicable to solids**K2.** Define the method to thicken the Solids.**K3.** Find interference on solid objects. |