## ASSESSMENT RUBRIC: Ergonomic Screwdriver Project. Designing and 3D Printing a Compact Hand Tool

| Criterion | Related LO | Foundation | Emerging | Improving | Competent | Skilled / Accomplished |
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| **1. Ergonomics, anthropometrics, and user-centred research** | LO1, LO2 | Work is incomplete or shows very limited understanding of ergonomics, anthropometrics, or user needs. | Student gives simple definitions but makes limited connection between research and the screwdriver design. Measurements or analysis may be incomplete. | Student completes the main research tasks and shows some understanding of how hand measurements and user needs can inform the design. | Student clearly explains ergonomics and anthropometrics and uses hand data and product analysis to inform design decisions. | Student uses research independently and thoughtfully. Anthropometric data, user needs, comfort, safety, and usability are clearly connected to specific design decisions. |
| **2. Initial design ideas and creativity** | LO3 | Ideas are very limited, unfinished, or do not respond to the design brief. | Student produces a small number of basic ideas. Ideas lack variety, clear annotation, or connection to ergonomic needs. | Student produces a range of ideas that mostly respond to the brief. At least one idea has potential for development. | Student produces varied and creative ideas with relevant annotations about ergonomics, grip, safety, and use in confined spaces. | Student produces a wide range of creative, well-presented ideas. Annotations clearly explain ergonomic features, user benefits, and possible manufacturing decisions. |
| **3. Design development and prototyping** | LO2, LO3, LO5 | Development is minimal. Prototype is incomplete or does not communicate the intended design. | Student selects one idea but development is limited. Prototype shows basic form but needs significant improvement. | Student develops one idea further and creates a prototype that communicates the main shape and some ergonomic intentions. | Student develops a clear design based on research and testing. Prototype shows form, grip features, and consideration of comfort and use. | Student shows strong design iteration. Prototype testing leads to meaningful improvements in comfort, grip, safety, size, or usability. |
| **4. CAD modelling and 3D manufacturing** | LO4 | CAD model is incomplete or unsuitable for 3D printing. | CAD model is mostly based on the tutorial with little personal input. There may be errors affecting print quality or function. | CAD model is complete and printable. Student adds at least one personal ergonomic feature or adaptation from their design work. | CAD model is a good representation of the developed design. It includes ergonomic features such as rounded edges, grooves, anti-roll geometry, or improved grip. Print is completed to a good standard. | CAD model is accurate, well-constructed, and clearly developed from the student's design idea. The printed prototype is well finished, safe to handle, and demonstrates strong control of CAD and 3D printing decisions. |
| **5. Testing, evaluation, and sustainability reflection** | LO5 | Evaluation is missing or only describes the final product. No sustainability consideration is included. | Student gives a simple opinion about the prototype but limited evidence from testing. Sustainability is mentioned briefly. | Student tests the prototype and identifies basic strengths and weaknesses. Student comments on material use, waste, or durability. | Student evaluates the prototype using evidence from testing and peer feedback. Student explains how the design could reduce waste, last longer, or use material more efficiently. | Student gives a detailed, evidence-based evaluation. They clearly connect testing, iteration, material efficiency, durability, repairability, and responsible production decisions. |