Dublin City University
School of Electronic Engineering

Risk Assessment Experimental Method Form for Undergraduate and Taught PG Projects

All operations/procedures being assessed (give specific details):

Evaluation of performance acceleration in cryptographic applications (AES and SHA) using RISC-V architecture extensions (B and K). The project involves setting up a simulation environment using VirtualBox, Linux, Docker, running computationally intensive simulations, and analyzing performance metrics such as throughput, energy efficiency, and resource utilization.

Risk Category Rating:

- **Category D - General laboratory practice.**

Known or expected hazards associated with the activity:

- **Risk of overheating or hardware failure due to prolonged use of high computational resources during simulation.**
- **Potential data loss or corruption during simulation runs.**
- **Eye strain or musculoskeletal issues from prolonged use of computer equipment.**
- **Risk of software crashes or instability during simulation.**

Precautions to be taken to reduce the level of risk:

- **Ensure proper ventilation and cooling for hardware to prevent overheating.**
- **Regularly back up simulation data to avoid loss or corruption.**
- **Take regular breaks to reduce eye strain and musculoskeletal.**
- **Use stable and well-tested software versions to minimize crashes or instability.**

Training prerequisite:

- **Training on using VirtualBox , Linux , IDE and docker for simulation setup.**
- **Familiarity with RISC-V architecture and its extensions.**
- **Training on data backup and recovery procedures.**
- **Awareness of ergonomic practices for prolonged computer use.**

Risk remaining:

- **Minimal, if all precautions are followed; however, prolonged computational work still carries inherent risks, including hardware overheating or software instability.**

Emergency procedures:

- **In case of hardware overheating, shut down the system immediately and allow it to cool before resuming work.**
- **In case of data loss or corruption, restore from the most recent backup.**
- **If software crashes, restart the simulation and check system logs for errors.**

Detail references if any:

- **VirtualBox Linux, Docker, RiscV user manuals.**
- **RISC-V architecture documentation.**
- **School Safety Handbook for ergonomic practices and data backup procedures if needed.**

<u>For the Project Worker and Project Supervisor:</u>

We have carried out a risk assessment for the above operation/procedure in accordance with those guidelines as detailed in the School Safety Handbook.

Signature of Project Worker : ***harshmayankdabhi*** Date: 5/3/25

Print name of Project Worker: Harsh Mayank Dabhi

Signature of Project Supervisor……..… xiaojun wang Date…07/03/2025…….

Print name of Project Supervisor: Dr Xiaojun Wang

Print name of Technical Officer assigned to Project : Mr Robert Clare

N.B.

- Copies of completed forms should be submitted to the Project Supervisor and the Technical Officer assigned to the project.
- A signed copy of the completed form should be kept in close proximity to the project bench/space where the project is taking place.