# ENGR: Reverse Engineering

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| **Module Title:** | Reverse Engineering |
| **Language of Instruction:** | English |

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| **Credits:** | 5 |

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| **NFQ Level:** | 8 |

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| **Module Delivered In** | 1 programme(s) |

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| **Teaching & Learning Strategies:** | Learners will be expected to actively participate in class and work through assigned laboratory assessments throughout the year. |

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| **Module Aim:** | To provide learners with a theoretical knowledge of, and practical skills with, Reverse Engineering and Malware Analysis. |

| **Learning Outcomes** | |
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| *On successful completion of this module the learner should be able to:* | |
| LO1 | Reverse Engineer a Software Application |
| LO2 | Use Industry Standard Tools for Reverse Engineering |

| **Pre-requisite learning** |
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| ***Module Recommendations***<br>*This is prior learning (or a practical skill) that is recommended before enrolment in this module.* |
| No recommendations listed |
| ***Incompatible Modules***<br>*These are modules which have learning outcomes that are too similar to the learning outcomes of this module.* |
| No incompatible modules listed |
| ***Co-requisite Modules*** |
| No Co-requisite modules listed |
| ***Requirements***<br>*This is prior learning (or a practical skill) that is mandatory before enrolment in this module is allowed.* |
| No requirements listed |

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## Module Content & Assessment

| Indicative Content |
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| **Fundamentals**<br>Overview of Reverse Engineering Techniques used in Reverse Engineering, Approaches to Reverse Engineering, Ethics |
| **Fundamentals**<br>Processor Architecture, Operating Systems, Machine Code and Assembly |
| **Tools**<br>Disassemblers, Debuggers, Process System and Network Monitoring, Code Analysis |
| **Reverse Engineering**<br>Unpacking Software, Behavioural Analysis, Code Analysis |

| Assessment Breakdown | % |
|---|---|
| Continuous Assessment | 10.00% |
| Project | 15.00% |
| Practical | 15.00% |
| End of Module Formal Examination | 60.00% |

**Continuous Assessment**

| *Assessment Type* | *Assessment Description* | *Outcome addressed* | *% of total* | *Assessment Date* |
|---|---|---|---|---|
| Multiple Choice Questions | MCQ's covering material done in lectures | 1 | 10.00 | Ongoing |

**Project**

| *Assessment Type* | *Assessment Description* | *Outcome addressed* | *% of total* | *Assessment Date* |
|---|---|---|---|---|
| Project | Project Work involving larger scale problem | 1,2 | 15.00 | Week 10 |

**Practical**

| *Assessment Type* | *Assessment Description* | *Outcome addressed* | *% of total* | *Assessment Date* |
|---|---|---|---|---|
| Practical/Skills Evaluation | Practical Laboratory Work based on lectures | 1,2 | 15.00 | n/a |

**End of Module Formal Examination**

| *Assessment Type* | *Assessment Description* | *Outcome addressed* | *% of total* | *Assessment Date* |
|---|---|---|---|---|
| Formal Exam | Written paper covering Theory and Practice of Malwear Analysis and Reverse Engineering | 1 | 60.00 | End-of-Semester |

**SETU Carlow Campus reserves the right to alter the nature and timings of assessment**

# ENGR: Reverse Engineering

## Module Workload

| **Workload: Full Time** | | |
|---|---|---|
| *Workload Type* | *Frequency* | *Average Weekly Learner Workload* |
| Lecture | 12 Weeks per Stage | 1.00 |
| Independent Learning | 15 Weeks per Stage | 5.93 |
| Laboratory | 12 Weeks per Stage | 2.00 |
| | Total Hours | 125.00 |

## Module Delivered In

| Programme Code | Programme | Semester | Delivery |
|---|---|---|---|
| CW_KCCYB_B | Bachelor of Science (Honours) in Cyber Crime and IT Security | 8 | Mandatory |