POLITIHØGSKOLEN

# CURRICULUM

# POSTGRADUATE EDUCATION

# In

# NORDIC COMPUTER FORENSIC INVESTIGATORS

## MODULE 3M: FORENSIC TOOL DEVELOPMENT II

## 7.5 credits

**Approved by the Education Committee 12th May 2023**
**Changes approved by the head of department**
**30th November 2023**

# 1. Introduction and purpose

The proliferation of digital information in society has had a direct influence on the amount of data being processed and analysed during investigations. To strengthen the rule of law, investigations must be conducted using the highest quality standards. Investigations must be efficient and utilise techniques which support the valid interpretation of evidence.

The growth in disparate data sources encountered during investigation has led to many situations in which tools do not exist to process certain artefacts. The ability to develop ones own software allows for the creation of tools where none currently exist.

The area of digital investigation requires certainty in the tasks performed during investigation. Not only is it vital that analysts can develop tools when required, it is also vital that they can demonstrate that their software solutions are correct.

This module builds on the forensic tool development module which introduced students to the development of forensic tools using the Python programming language. This module aims to provide students with the ability to develop large scale software solutions and to demonstrate the correctness of these solutions.

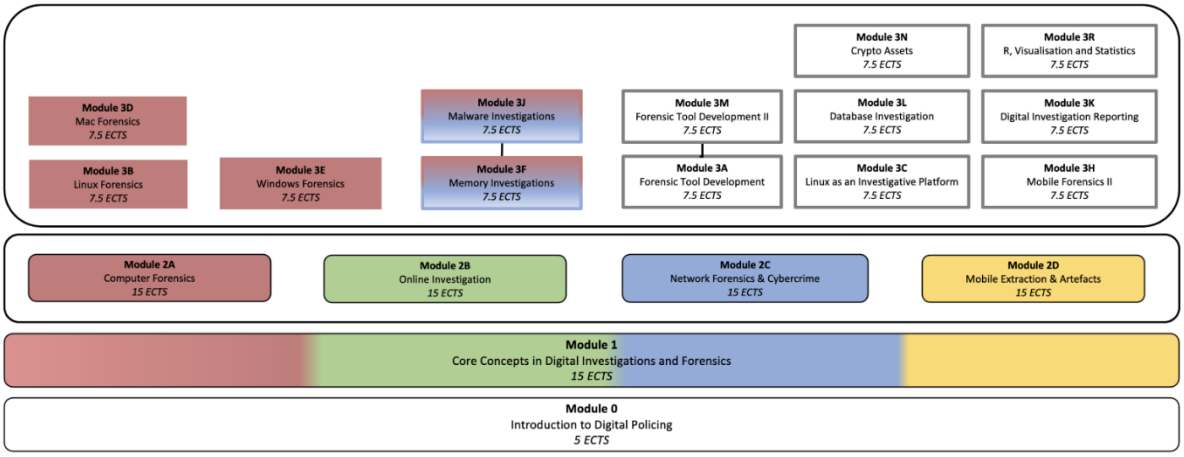
The postgraduate study programme shall contribute to police practitioners being better able to perform investigative and analysis tasks involving digital devices, and thus contribute to the quality and development of digital investigation and forensics.

# 2. When applicable: Educational pathways and formal approval

## *2.1. Education*

The education gives 7.5 credits and is included as a course in an educational portfolio (the 'NCFI Portfolio') according to the following model depicted below.

Admission requirements, content and organisation of the individual courses are described in more detail in the study plan for each course.




# 3. Target group and admission requirements

## 3.1. Target group

The primary target group for this education is police staff in the Nordic countries whose main task is, or will be, handling and investigating digital evidence.

Employees in other international police services or governmental agencies who currently work, or will work, with digital evidence are also eligible to apply.

Applicants must be recommended by the employer.

## 3.2. Admission Requirements

Applicants must document the following requirements:

Education:

- Bachelor's degree
- have passed NCFI M3A Forensic Tool Development I

Applicants who do not satisfy the requirement for a bachelor's degree must document the following:

- Passed and completed 2-year education at a higher level than upper secondary school, and in addition either:
  - Minimum 60 ECTS
    - (of which 15 ECTS can be NCFI Core Concepts and 15 ECTS from any relevant NCFI M2X module. The former NCFI Module 2 (25 ECTS) is also accepted.), or
  - 1680 hours of continuing education courses, or

- 5 years of practice

Employment, work experience and additional requirements:

- Current employment in a government agency (e.g., law enforcement agency or other cooperating governmental agencies/organisations)

# 4. Learning outcomes

## 4.1. General Competence

After completing the module, students can:

- perform professional and research tasks in digital policing
- see the role of digital policing in a broader perspective during an investigation

## 4.2. Knowledge

After completing the module, students have knowledge of:

- software development life cycle
- software design principles
- various software testing / validation methods

## 4.3. Skills

After completing the module, students will be able to:

- design large-scale software solutions
- implement large-scale software solutions
- validate large-scale software solutions
- communicate the results of the software development process

# 5. Organisation of teaching and learning activities

The education is organised as an online part-time programme and must be completed within 5 months. The scope of further education is estimated to be approx. 210 hours of study.

Teaching and learning activities shall contribute to providing students with good learning outcomes, and emphasis is placed on flexible and diverse working methods with a high degree of student activity. Furthermore, the study is organised around key issues and challenges in the investigation of electronic traces, which are illuminated with relevant theory.

The teaching and learning activities include lectures, presentations, individual and group work, practical exercises, cases, quizzes, assignments, and literature study. Student support will be delivered via electronic means such as: email, discussion fora, chat, and virtual classrooms. The teaching and learning activities also include optional live online lectures throughout the semester (totalling no more than 8 hours).

An online learning platform is used in the administration and pedagogical implementation of the programme.

### *Coursework requirements*

The following requirements must be approved before the students can take the exam:

- Successful completion of up to 10 automatically graded online quizzes. (Students may have multiple attempts at these tests, if necessary.)

## 6. Assessment

The module is concluded with a two part assessment consisting of:

- A software development task. This task will have multiple deliverables throughout the semester. These will include but are not limited to: a project plan; system design report; source code; and a final report.
- Oral assessment related to the software development task.

Both parts of the exam **must** be passed in order to successfully complete the module.

Letter grades are used on a scale from A to F, where A is the highest passing grade, E is the lowest passing grade and F is a failing grade.

# 7. Literature

## *7.1. Syllabus*

Students will be expected to read several web resources, lessons, reports, and academic research papers. These will form part of the mandatory reading requirements and thus be examinable.

Due to the rapid changes in the fields of digital forensics and cybercrime investigation, such resources must be provided to students during the study. This will ensure that the reference materials are up to date and based on current trends.

The mandatory reading shall not exceed 450 pages.

## *7.2. Assumed Knowledge*

Literature from The Norwegian Police University College's NCFI M1 Core concepts in Digital Investigation and Forensics of 15 ECTS, **and** at least one NCFI M2X module of 15 ECTS (or similar education), **and** NCFI Level 3A Forensic Tool Development I of 7.5 ECTS.