Emerging Technologies

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An introduction to new and emerging technologies in computing. Technologies such as new paradigms, new programming languages, new infrastructures, and new communications protocols will be investigated.

Learning Outcomes

On completion of this module the learner will/should be able to[1]:

1. Detect new and emerging technologies in computing through reputable sources.
2. Contextualise an emerging technology by identifying its origins and proponents.
3. Research an emerging technology in order to use it.
4. Implement a solution to a computing problem using an emerging technology.

[1] These learning outcomes were recently updated and are making their way through our quality assurance procedures.

Assessment

This assessment will be in the form of a portfolio[2] and is 100% continuous assessment.

20% Presentation of portfolio

40% Theory element of portfolio

40% Practical element of portfolio

[2] Here a portfolio will essentially mean a GitHub repository.

Delivery

This is a semester long module[3].

- Realistically, we will have ten uninterrupted teaching weeks.
- There are many ideas about how lecturers should deliver modules.
- Some suggest a top-down, structured approach where topics are clearly defined ahead of time.
- Others suggest involving students in decisions, letting content evolve during the semester.
- Let's not be idealistic about it: we'll have an initial plan and tailor it during the semester.
- It is worth discussing in the Moodle forums what you as a class would like to work on.

[3] Each semester typically has thirteen teaching weeks.

- Just keep in mind that everyone will want something different.
- Also, remember that there is one lecturer and dozens of students in each of several modules.
- Time is limited, we will have to be careful about scope creep.

Topics

We will start with a plan to cover these five topics.

GitHub Pages: Hosting your own static site.

JupyterLite: Web Assembly and browser storage.

JavaScript Frameworks: Processing and Svelte.

Fourier Transform: Algorithms and applications.

Quantum Computing: QisKit and Deutsch's algorithm.

Advice

Based on previous delivery of the module.

- Everyone procrastinates, you need a strategy to compensate.
- You will be less stressed if work regularly, a bit every week.
- Review the marking scheme regularly and work to it.
- You must learn to deal with uncertainty in decision-making.

Policies

- In April 2022, GMIT merged with IT Sligo and LyIT to become ATU, the Atlantic Technological University.
- Although the merger has happened, it will take a couple of years for our systems and policies to fully merge.
- During this time, we will continue to use GMIT's policies where an ATU policy has not yet superseded them.
- That means the GMIT Quality Assurance Framework [4].

GMIT is now ATU.

[4] GMIT. Quality Assurance Framework. `https://www.gmit.ie/general/quality-assurance-framework`