DEMONSTRATING THE USE OF DIGITAL TOOLS IN THE BLENDED INSTRUCTION

Maynooth University
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SOME BACKGROUND

- I am a tutor for the MU MSC.
- I also teach a one-year pre-degree Certificate in Science program for mature students.
- Every MU student has access to Microsoft365.

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DIGITAL TOOLS I USE FOR LECTURES

- Useful for MSC?

Before lecture	During lecture		After lecture
Skeletal Notes	OneNote	Teams	YouTube

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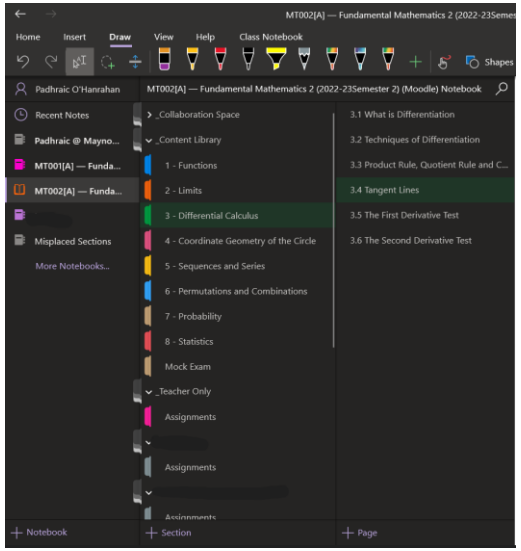

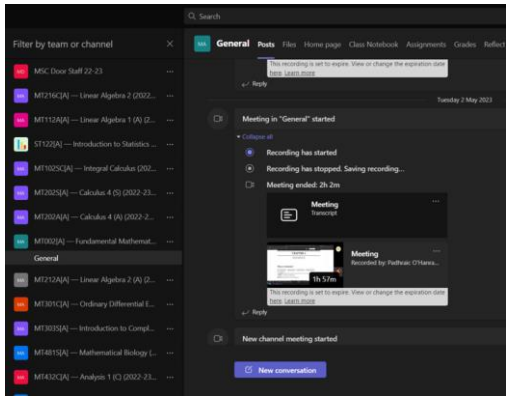

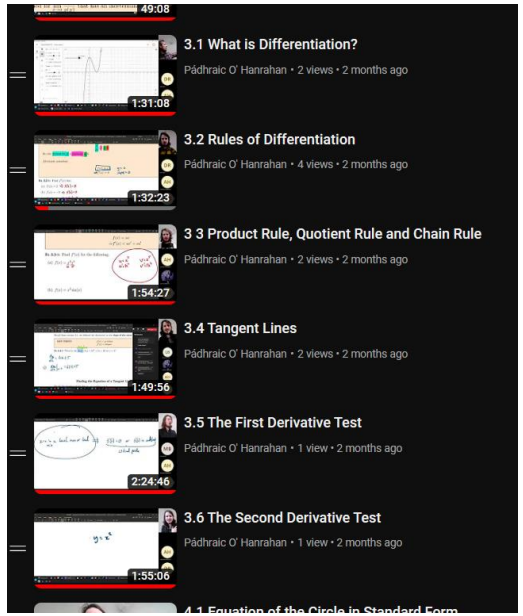

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LECTURE NOTES: 2016-19

- Lectures followed a traditional style of chalk talk.
- Some issues with chalk talk method:
  - Some students found it difficult to take down notes and pay attention to lecturer.
  - If student absent, they would not have access to notes.*
  - Student can’t corroborate with what they’ve written down.*

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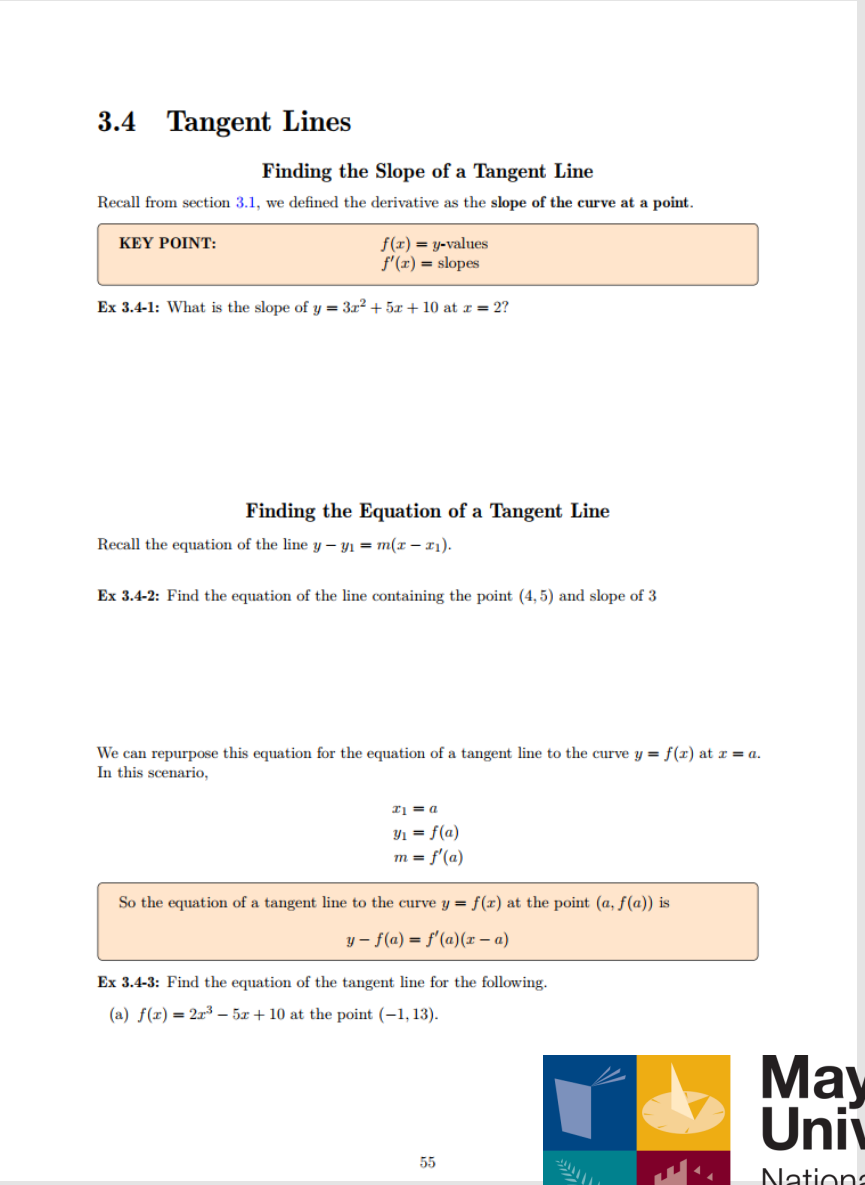
LECTURE NOTES: 2019-20

- Used skeletal notes in similar fashion to Cardetti *et al*. (2012), leaving gaps for exercises.
- I would fill in these gaps with chalk talk.



3.4 Tangent Lines

Finding the Slope of a Tangent Line

Recall from section 3.1, we defined the derivative as the **slope of the curve at a point**.

KEY POINT: $f(x) = y$-values
$f'(x) =$ slopes

Ex 3.4-1: What is the slope of $y = 3x^2 + 5x + 10$ at $x = 2$?

Finding the Equation of a Tangent Line

Recall the equation of the line $y - y_1 = m(x - x_1)$.

Ex 3.4-2: Find the equation of the line containing the point $(4, 5)$ and slope of 3

We can repurpose this equation for the equation of a tangent line to the curve $y = f(x)$ at $x = a$. In this scenario,

$$x_1 = a$$
$$y_1 = f(a)$$
$$m = f'(a)$$

So the equation of a tangent line to the curve $y = f(x)$ at the point $(a, f(a))$ is

$$y - f(a) = f'(a)(x - a)$$

Ex 3.4-3: Find the equation of the tangent line for the following.

(a) $f(x) = 2x^3 - 5x + 10$ at the point $(-1, 13)$.

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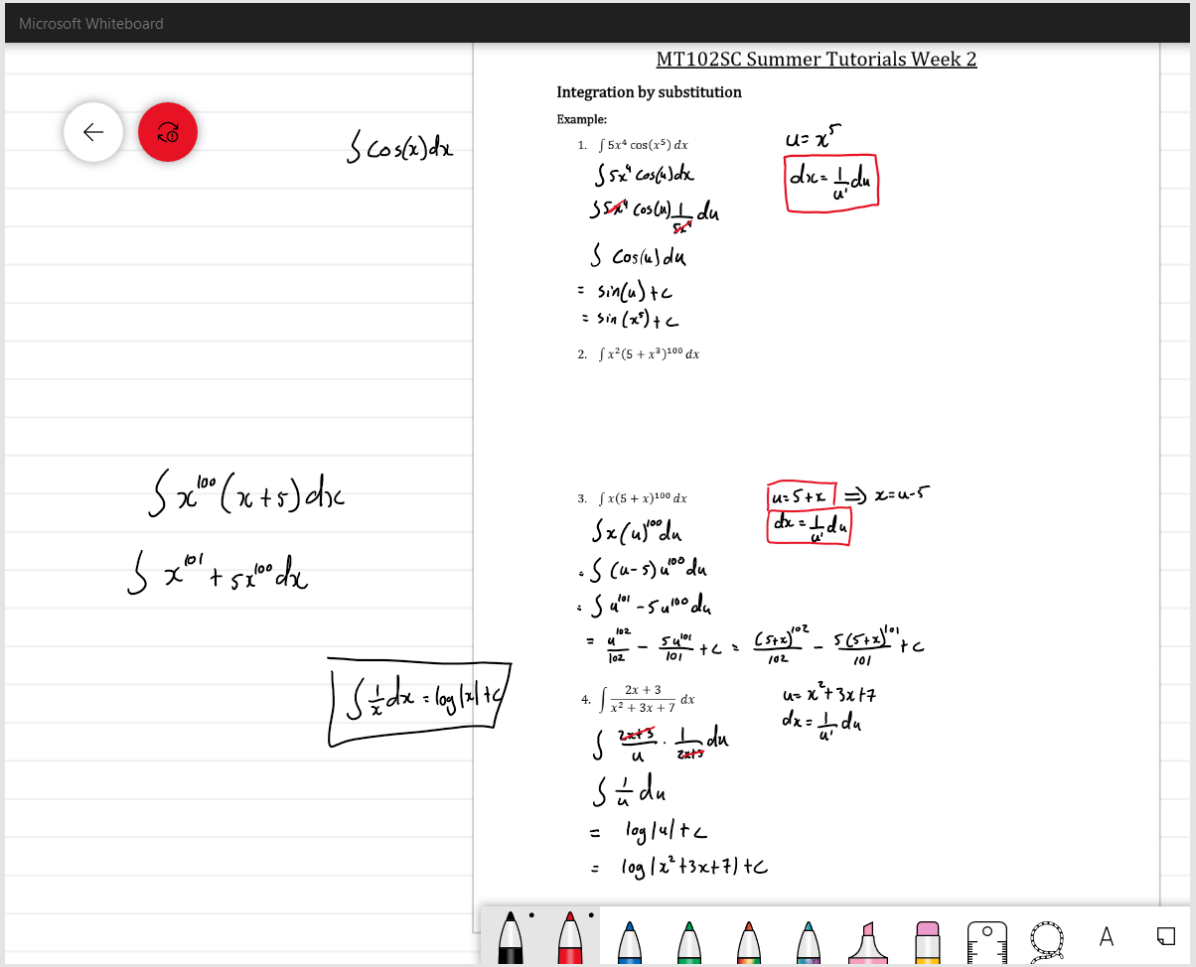
LECTURE NOTES: 2020-22

- In this period, I used Microsoft Whiteboard.
- During an in-person lecture, I would project screen to students.



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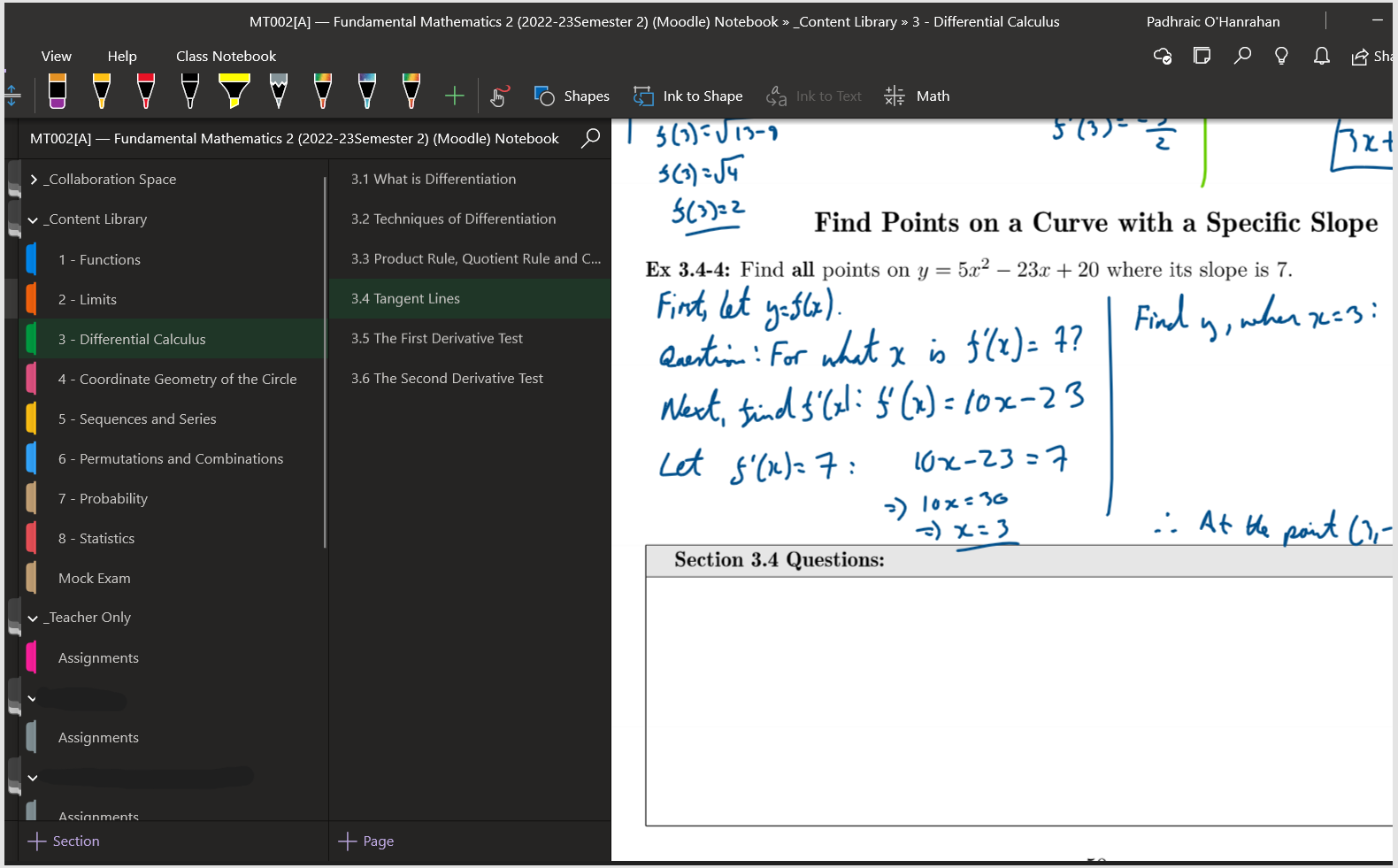
LECTURE NOTES: 2022-24

- I used Microsoft OneNote to store the filled-in notes.



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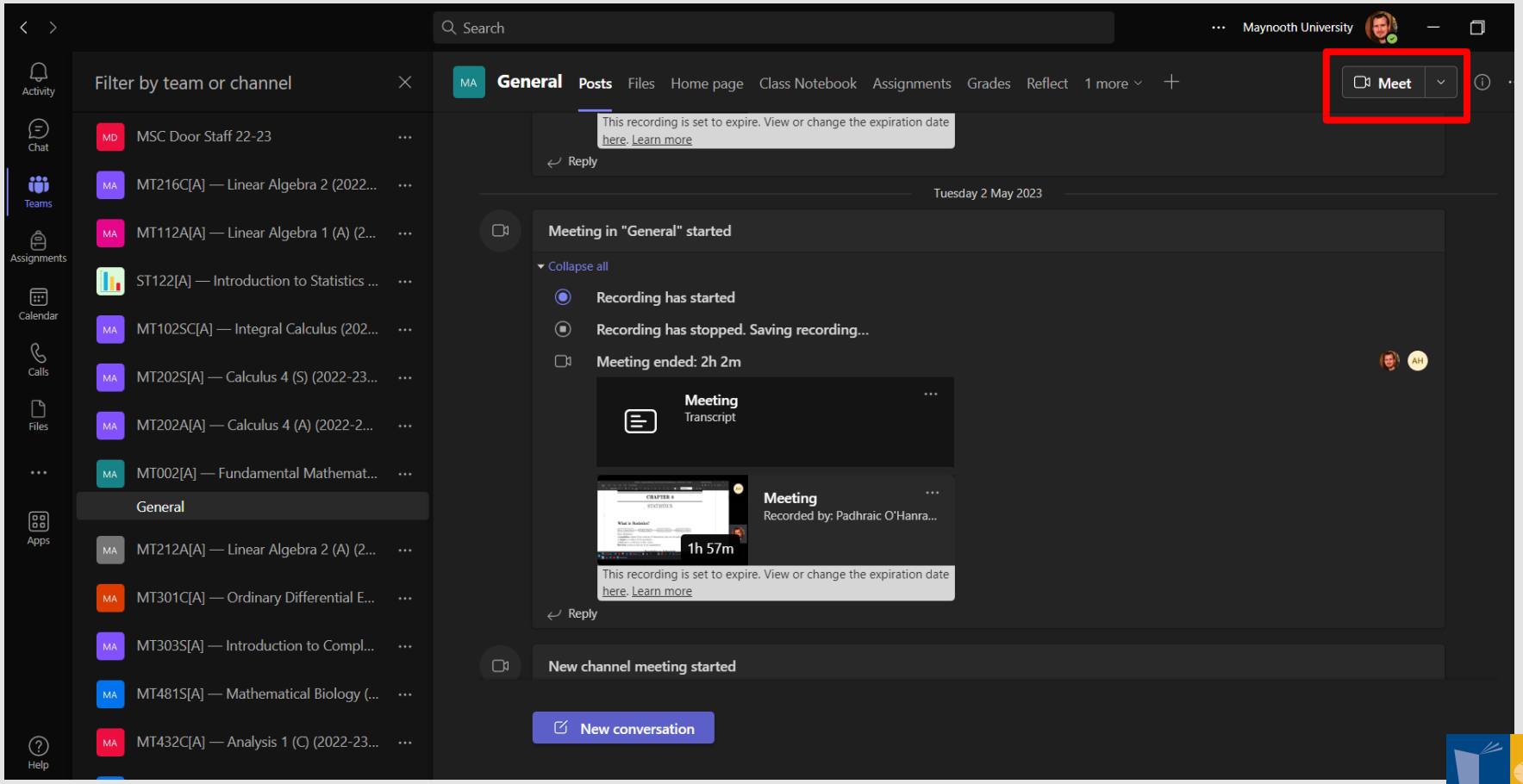
MICROSOFT TEAMS

- I use Microsoft Teams to provide hybrid lectures.



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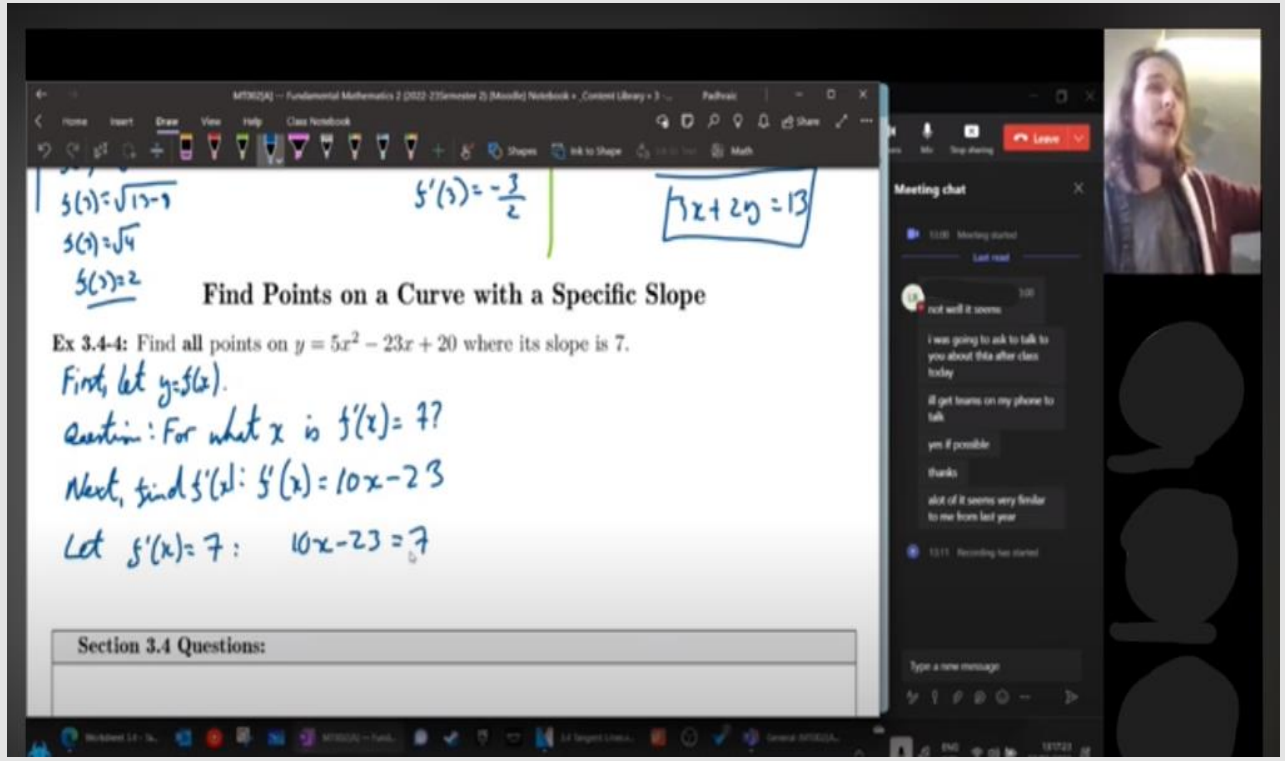
HYBRID LECTURES

- How I delivered hybrid lectures:
  - Ideal situation is to attend in person.
  - Only attend online if in person is not possible.



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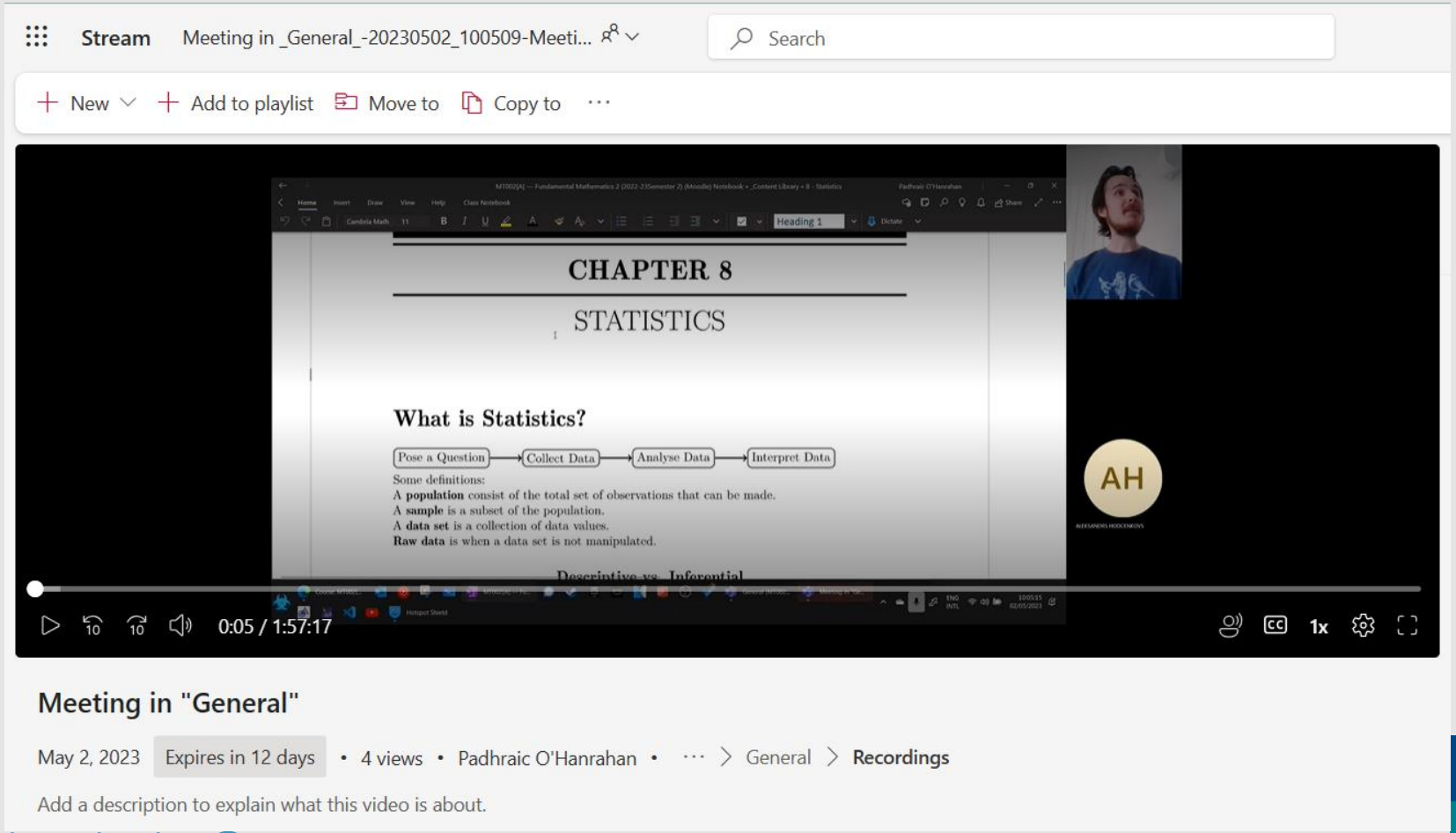
LECTURE RECORDINGS

- Recordings get stored on Microsoft Stream.



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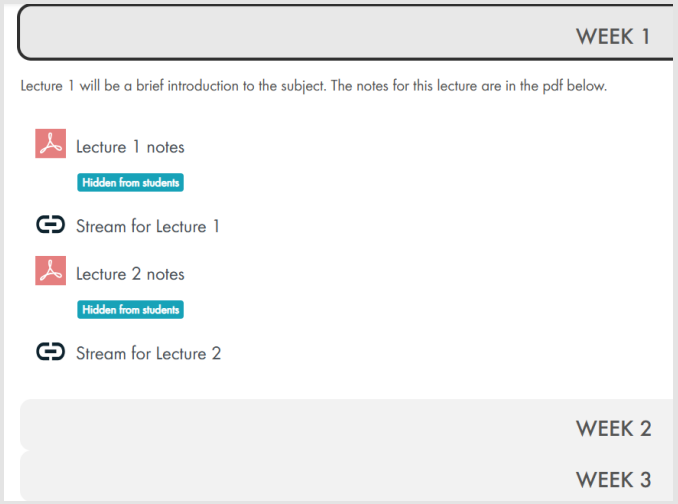
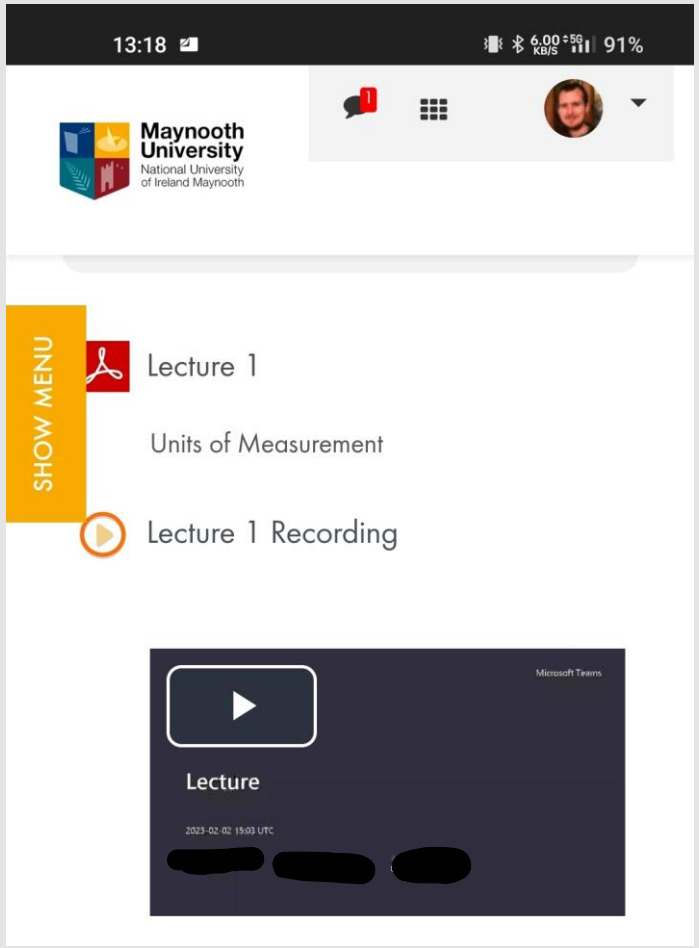
LECTURE RECORDINGS

- Lecturers can organise these videos on Moodle.





- Some issues with this organising videos this way:
  - Hard for students to find the video they want.
  - When they find the video, it can be hard to find the part of the video they want.

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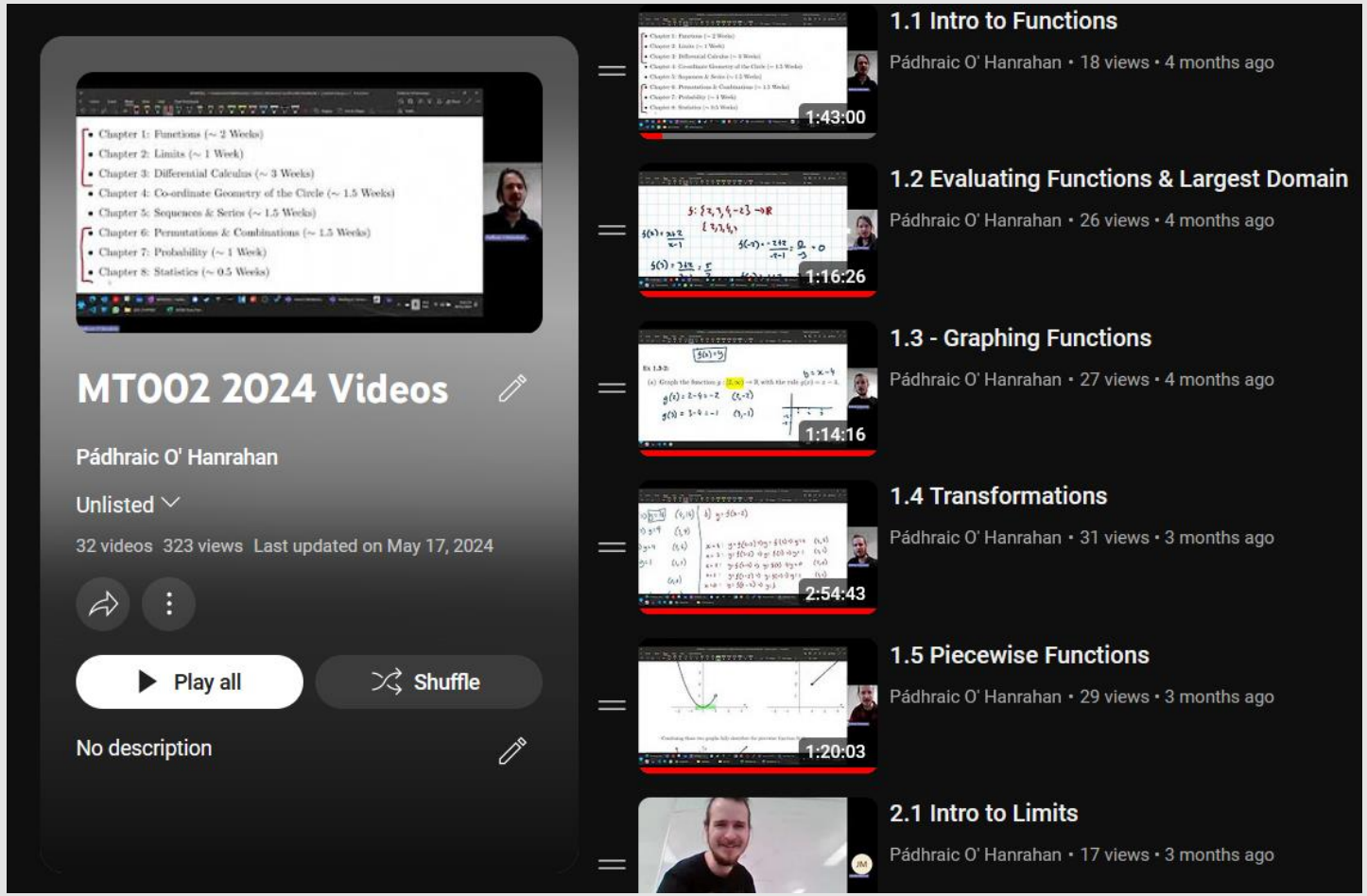
LECTURE RECORDINGS

- Solution? Use a video editing software to edit videos by subsection.
- Upload video to a YouTube playlist.



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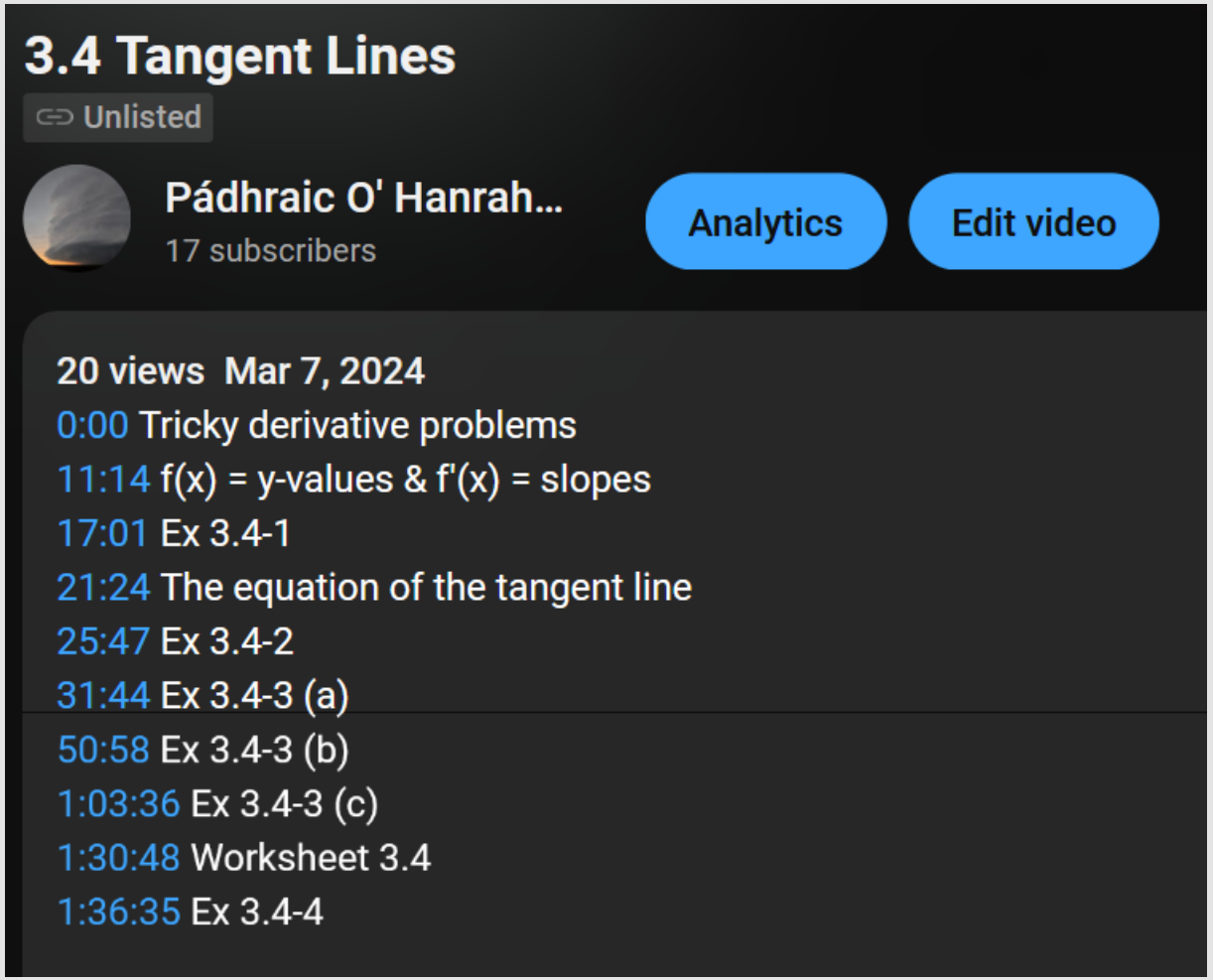
LECTURE RECORDINGS

- Benefits of using YouTube:
  - Can timestamp the video for quick access to specific parts.
  - Students are familiar with YouTube.
  - Watching videos on YouTube is a smooth experience.



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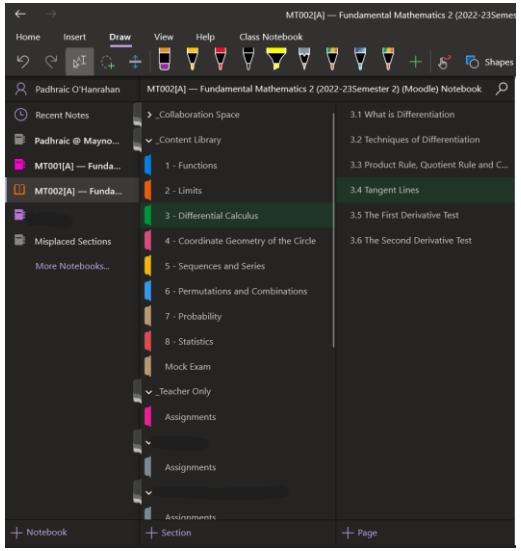

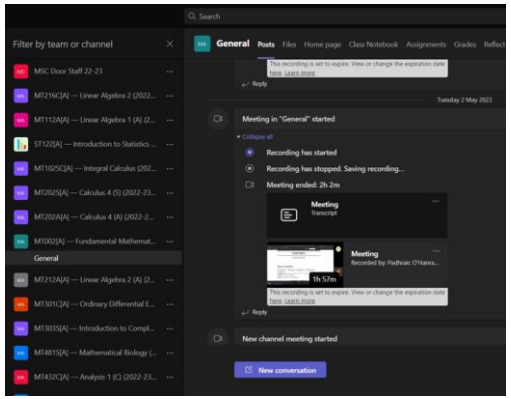

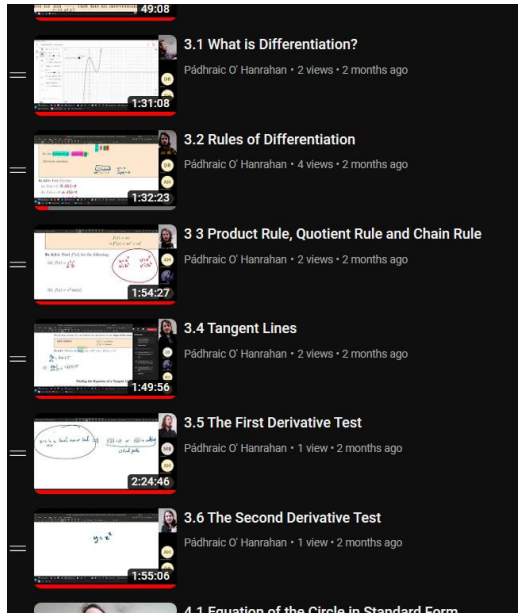

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