

SOLENT
UNIVERSITY



INNOVATIVE USE OF LECTURE CAPTURE TECHNOLOGY IN UNDERGRADUATE YACHT DESIGN AND POSTGRADUATE SHIP DESIGN COURSES

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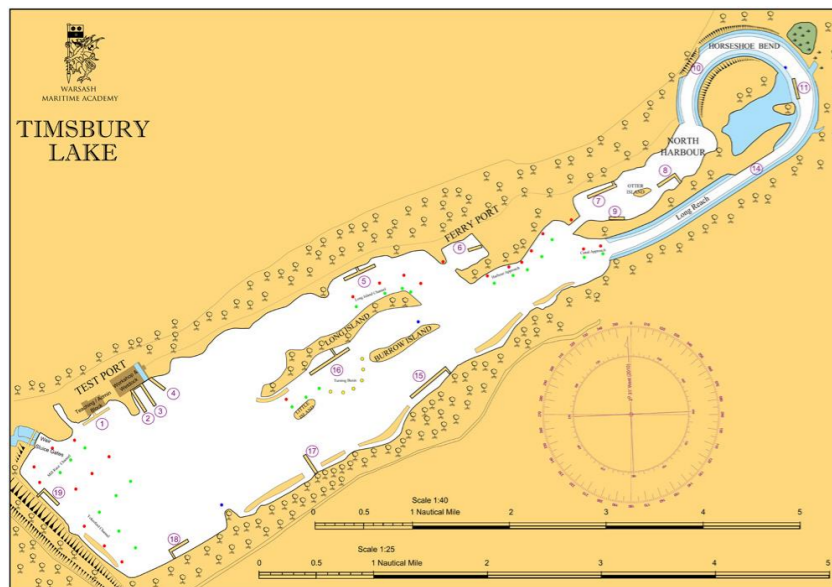
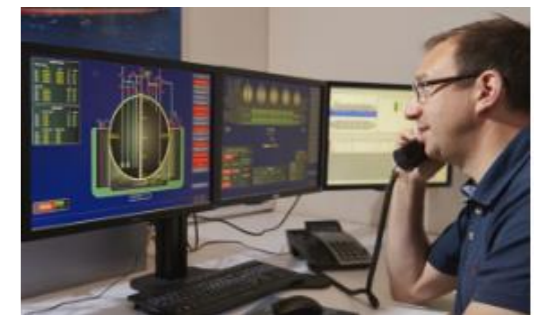
Education & Professional Development of
Engineers in the Maritime Industry
14 November 2018, London, UK

- Courses cover:
 - Mechanical Engineering
 - Manufacturing
 - Electronic Engineering
 - Shipping Operations
 - Nautical Science
 - Marine Engineering
 - Yacht Engineering

- The School also includes:
 - Warsash Maritime Academy
 - Warsash Super Yacht Academy



- Wide range of Facilities:
 - Bridge Simulators
 - Engine Room Simulators
 - Liquid Cargo Operations Simulators
 - Ship Handling Centre: Private Lake



- Wide range of Facilities:

- 60m Towing Tank
- 5m Stability Tank
- CAD Suite (Bentley Package, Wolfson Unit Package, AutoCAD, Rhino, Solidworks, Ansys, etc...)
- 5-Axis Milling Machine
- Laser Cutters and 3D Printers
- Composite Workshop, covering Infusion and Pre-preg
- Structural Testing Laboratory



- **1969 - 1990**: 3-year Diploma in Yacht Design and Yacht Manufacturing (Southampton Institute of Higher Education).
- **1990-1999**: 3-years Honours Degree in Yacht Design and HND in Naval Architecture and Yacht Manufacturing (Southampton Institute).
- **1999-2005**: 3-year Honours Degree in Yacht Design and 3-year Honours Degree in Yacht Manufacturing and Surveying (Southampton Institute).
- **2005-2013**: 3-year Honours Degree in Yacht and Powercraft Design and 3-year Honours Degree in Yacht Production and Surveying (Southampton Solent University).
- **2014-Present**: 3-year Honours Degree in Yacht and Powercraft Design and 3-year Honours Degree in Yacht Design and Production (Solent University).
- **2018**: MSc Superyacht Design (Solent University).

Year One

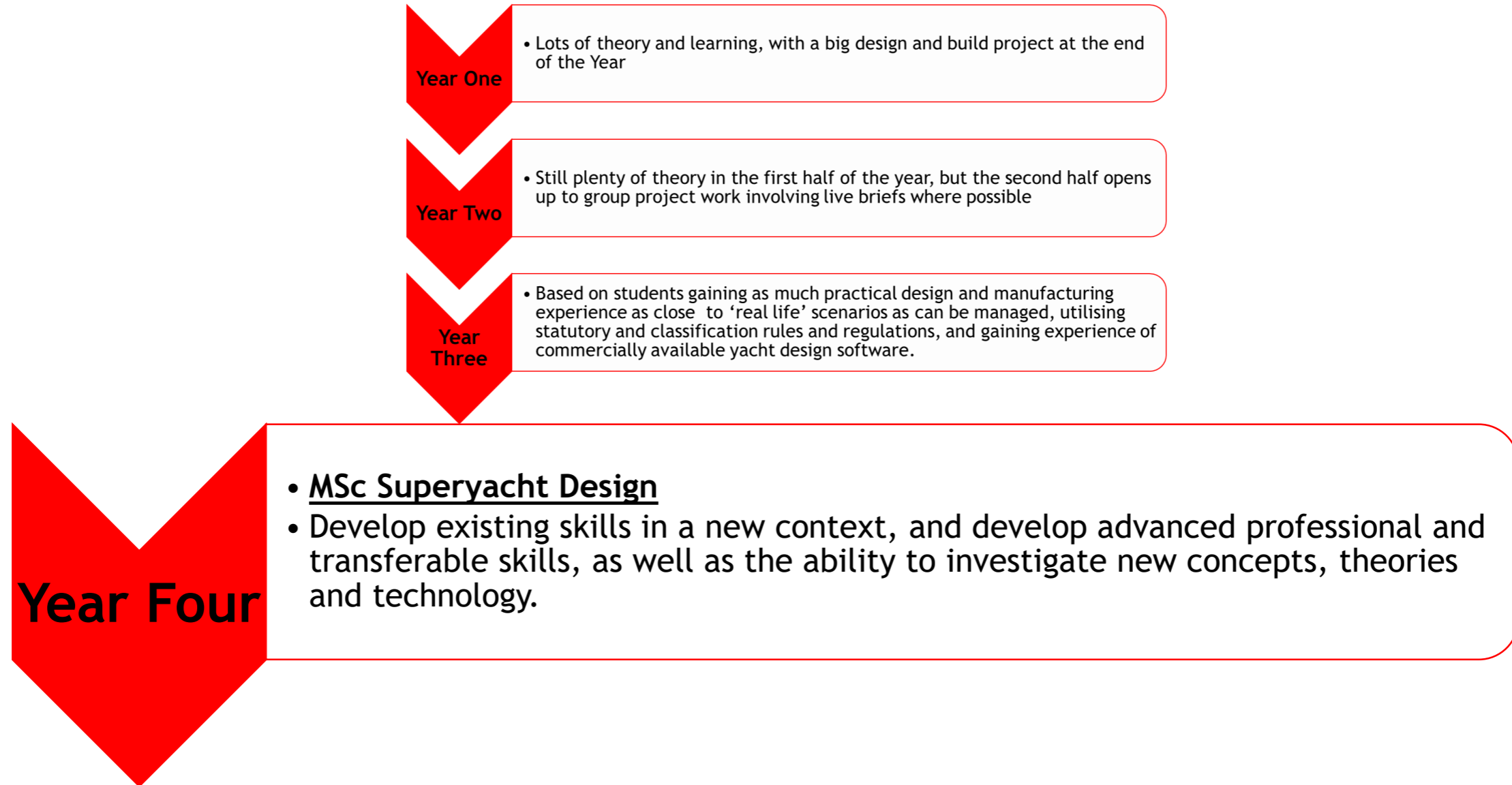
- Lots of theory and learning, with a big design and build project at the end of the year.

Year Two

- Still plenty of theory in the first half of the year, but the second half opens up to group project work involving live briefs where possible.

Year Three

- Based on students gaining as much practical design and manufacturing experience as close to 'real life' scenarios as can be managed, utilising statutory and classification rules and regulations, and gaining experience of commercially available yacht design software.



Yacht and Powercraft Design	Yacht Design and Production
First Year	First Year
Computer Aided Design Naval Architecture Marine Materials Marine Production Marine Systems	Computer Aided Design Naval Architecture Marine Materials Marine Production Marine Systems
Structural Mechanics	Small Craft Structures
Second Year	Second Year
Computer Aided Modelling Resistance and Propulsion Sailing Yacht Design Applied Marine Systems Motor Boat Design	Computer Aided Modelling Resistance and Propulsion Sailing Yacht Design Applied Marine Systems Motor Boat Design
Structural Analysis*	Marine Production Technology*
Curriculum Plus*	Curriculum Plus*
Third Year	Third Year
Computer Aided Engineering Project	Computer Aided Engineering Project
Advanced Naval Architecture	Yacht Surveying
Structural Design for Production	Structural Design for Production
Structural Design Theory	Marine Production Management
Marine Industry Work-Based Learning	Marine Industry Work-Based Learning

**Baseline and
underpinning
knowledge**

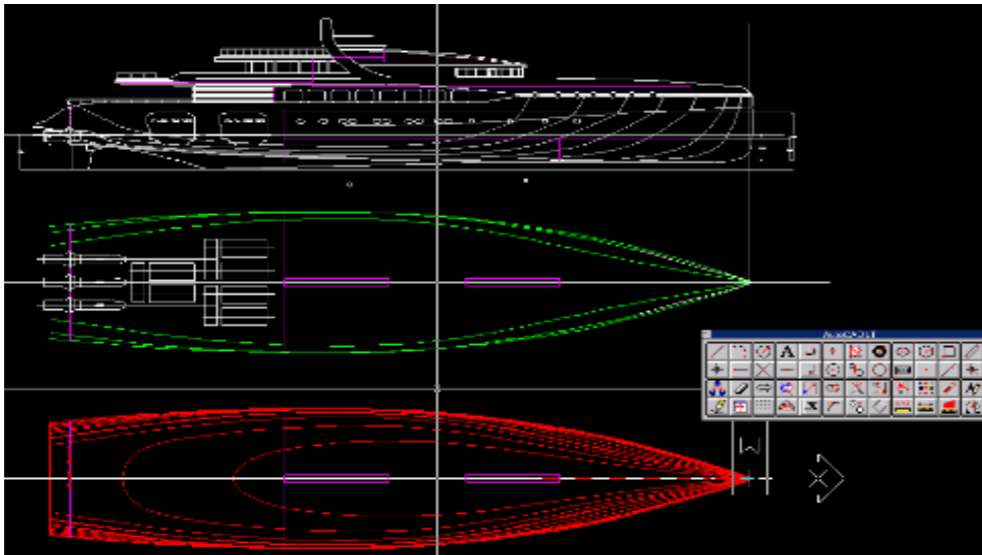
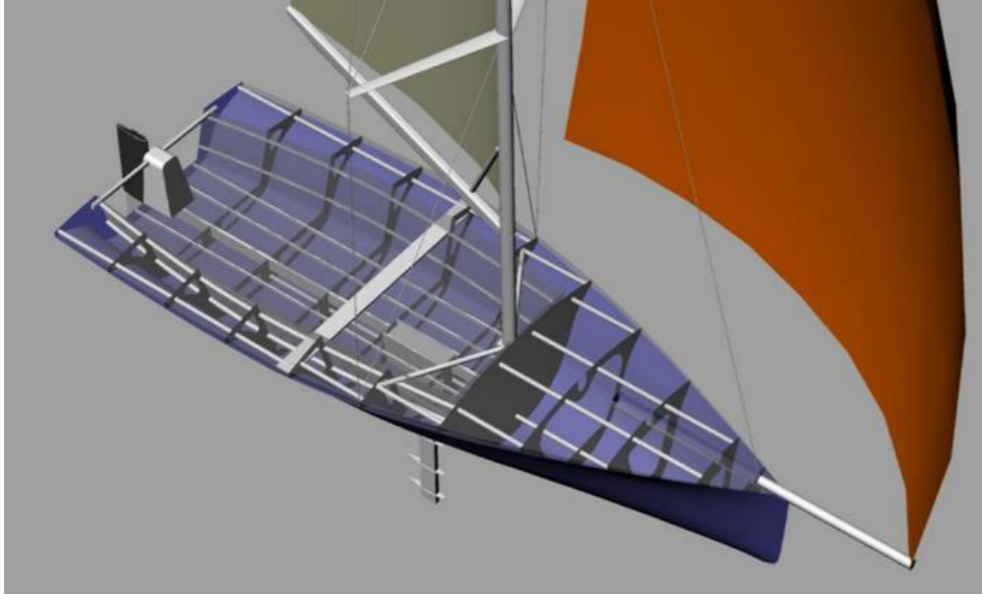
**Scope of
knowledge**

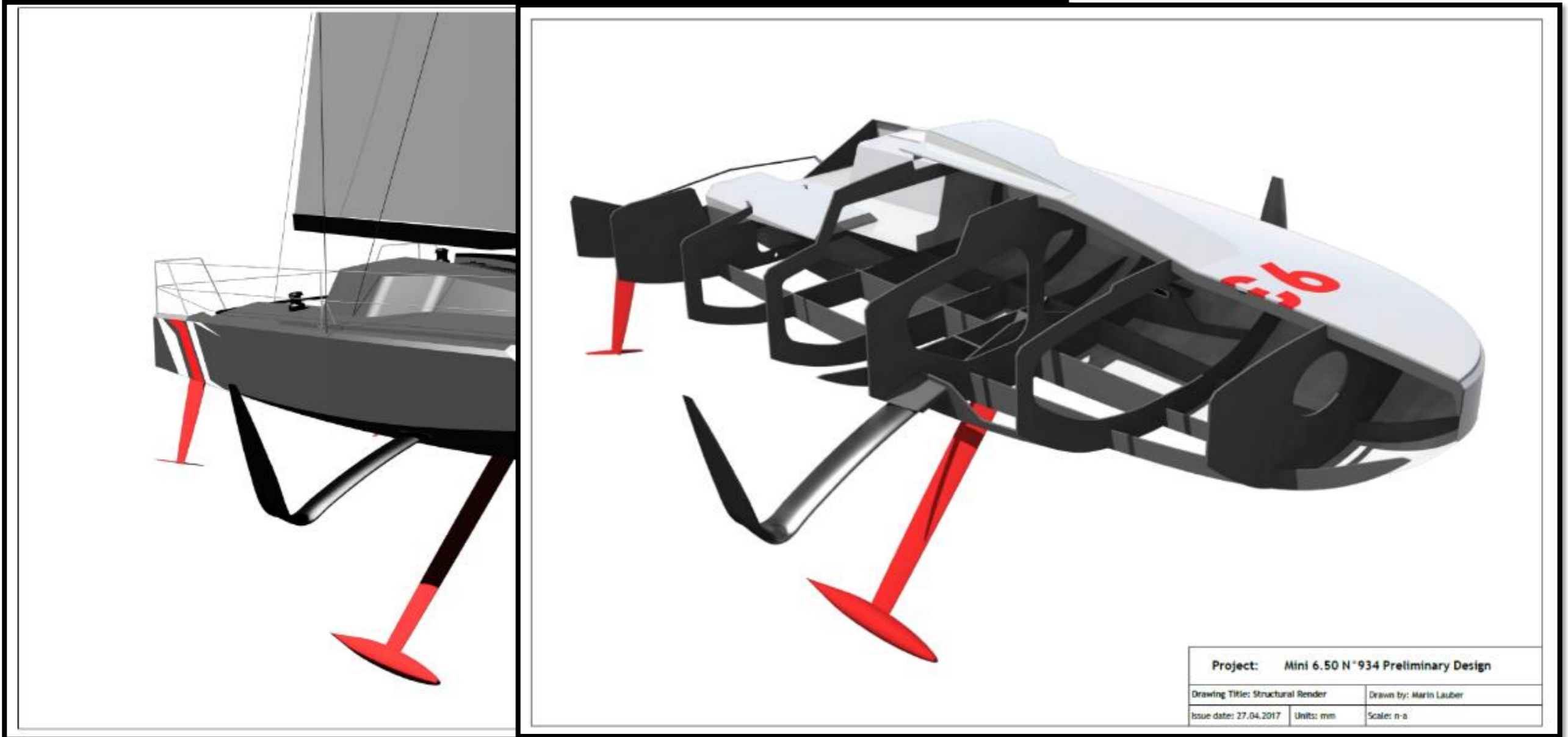
**Independent
Learning**

- **Naval Architecture**
 - Key themes and concepts for larger vessels
 - Superyacht hull forms
 - Resistance and powering
 - Dynamic sea-keeping
- **Superyacht Design Principles**
 - CAD processes
 - Drawings and design documentation
 - Codes and legislation
- **Superyacht Technology**
 - Structural design
 - Marine Engineering
 - Systems
- **Superyacht Design Analysis**
 - Research skills
 - Experimental skills
 - Theoretical analysis
 - Theory to practice links
- **Superyacht Design Realisation**
 - Group design project - combining the theory and practice
 - Design briefs, specifications and targets
- **Superyacht Project Management**
 - Project management
 - Business skills
 - Law
- **Project**









- Lecture Capture is a central part to the student experience
- New state-of-the-art learning and teaching buildings
- Panopto and microphones fitted in every room



- Promoting student engagement through technology enhanced learning
- Micro-Lectures
 - Short, sharp vodcasts covering the essential concepts
- Embedded Quizzes
 - Promote student engagement and a more active learning experience
 - But also provide feedback on student's understanding of particular concepts
- Action-Research Methodology
- Time-Line:
 - Spring 2017: Pilot study
 - Autumn 2017: Implementation on a 2 weeks short course
 - 2017/2018 Academic Year: Used weekly on a level 4 unit

- Micro-Lecture Structure:
 - 3 to 5 minutes long
 - Roughly one quiz per minute to promote active engagement
 - The rest of the video cannot be watched without answering the quiz!
- Results can be monitored
 - Allows to reflect on previous class, and influence the forthcoming one

Contents		
	ML1 Basic Principles	0:05
Discussion	Basics of Units	0:19
Notes	Basics of Units	0:23
Bookmarks	In physics there are 7 fundamental units anything...	0:32
	Mass (g)	0:46
	Length (m)	0:50
<input checked="" type="checkbox"/>	Quiz	1:07
	Density, Relative Density and Specific Gravity	1:09
	Density, Relative Density and Specific Gravity	1:13
	Density, Relative Density and Specific Gravity	1:28
	Density, Relative Density and Specific Gravity	1:42
<input checked="" type="checkbox"/>	Quiz	2:11
	Mass and Weight	2:12
	Mass and Weight	2:15
	Mass and Weight	2:35
<input checked="" type="checkbox"/>	Quiz	2:55
	Newton's Laws of Motion	2:56
	Newton's Laws of Motion	3:01
	Newton's Laws of Motion	3:08
	Newton's Laws of Motion	3:22
<input checked="" type="checkbox"/>	Quiz	3:42

Overview	Quiz Results Summary			Download					
Share	Section	Position		<div style="border: 2px solid red; padding: 5px;"> <table border="1"> <thead> <tr> <th>Results</th> </tr> </thead> <tbody> <tr> <td>11/11 (100%)</td> </tr> <tr> <td>11/11 (100%)</td> </tr> <tr> <td>11/11 (100%)</td> </tr> <tr> <td>4/10 (40%)</td> </tr> </tbody> </table> </div>	Results	11/11 (100%)	11/11 (100%)	11/11 (100%)	4/10 (40%)
Results									
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Outputs	Quiz	01:07							
Quiz Results	Quiz	02:11							
Streams	Quiz	02:54							
Clips	Quiz	03:42							
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Southampton

Quiz

1 of 1

Quiz Results: Quiz

When do you...

- To doub
- To acco
- To trans
- To cons

You answered

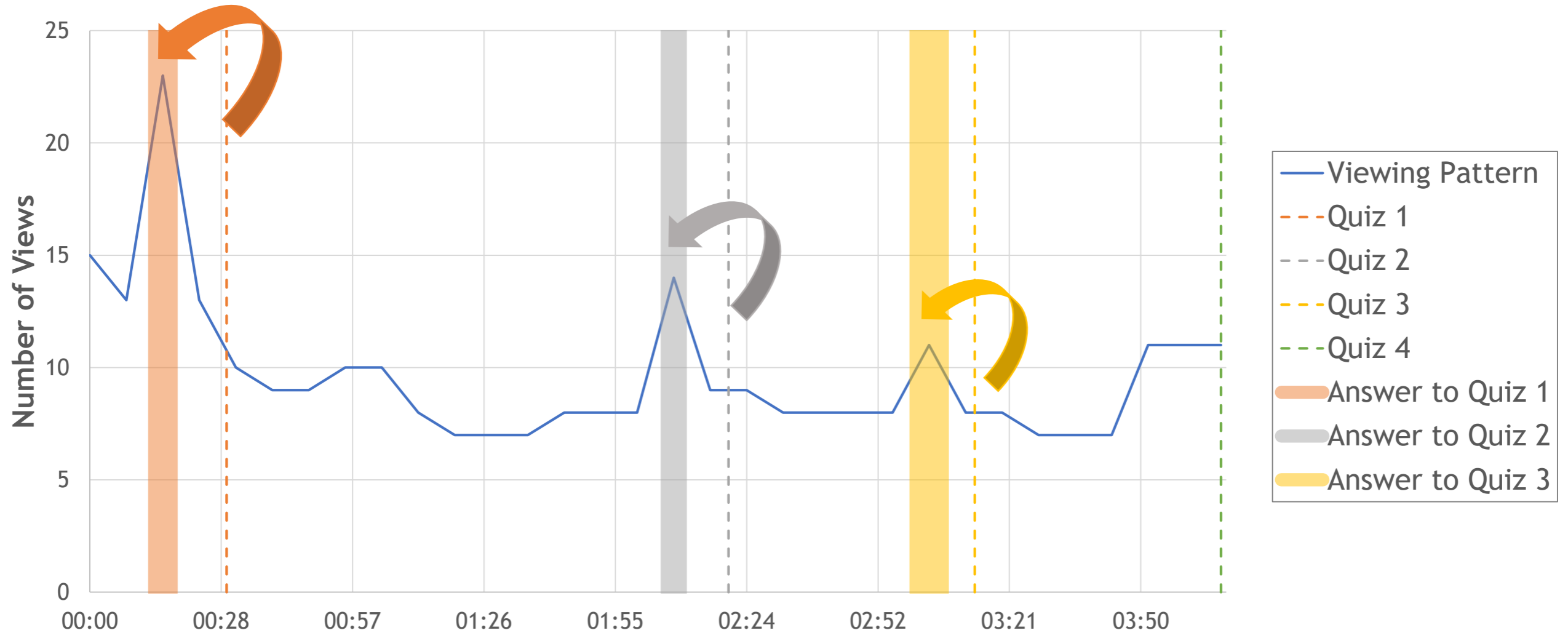
1 out of 1

questions correctly

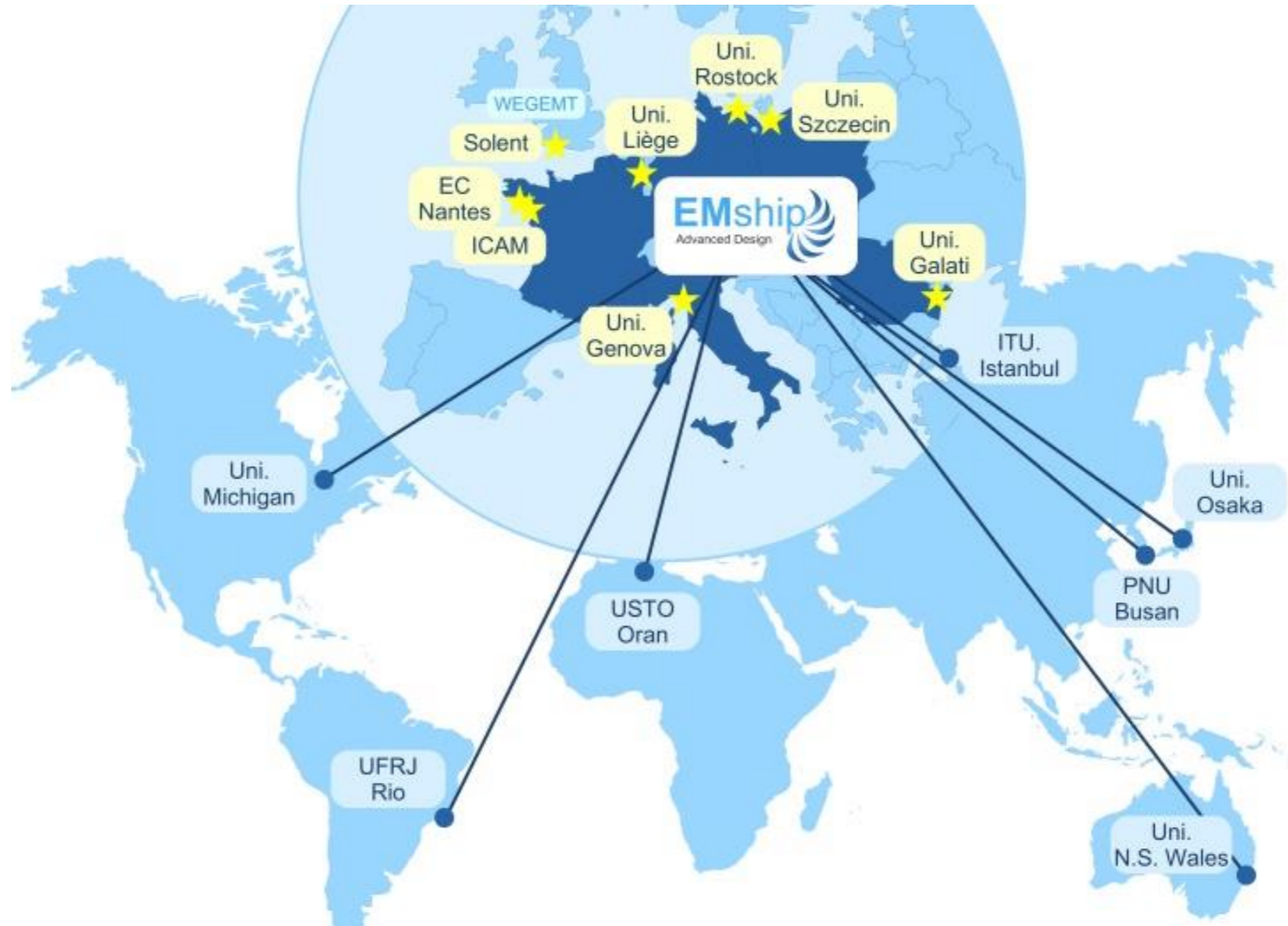
What would you like to do now?

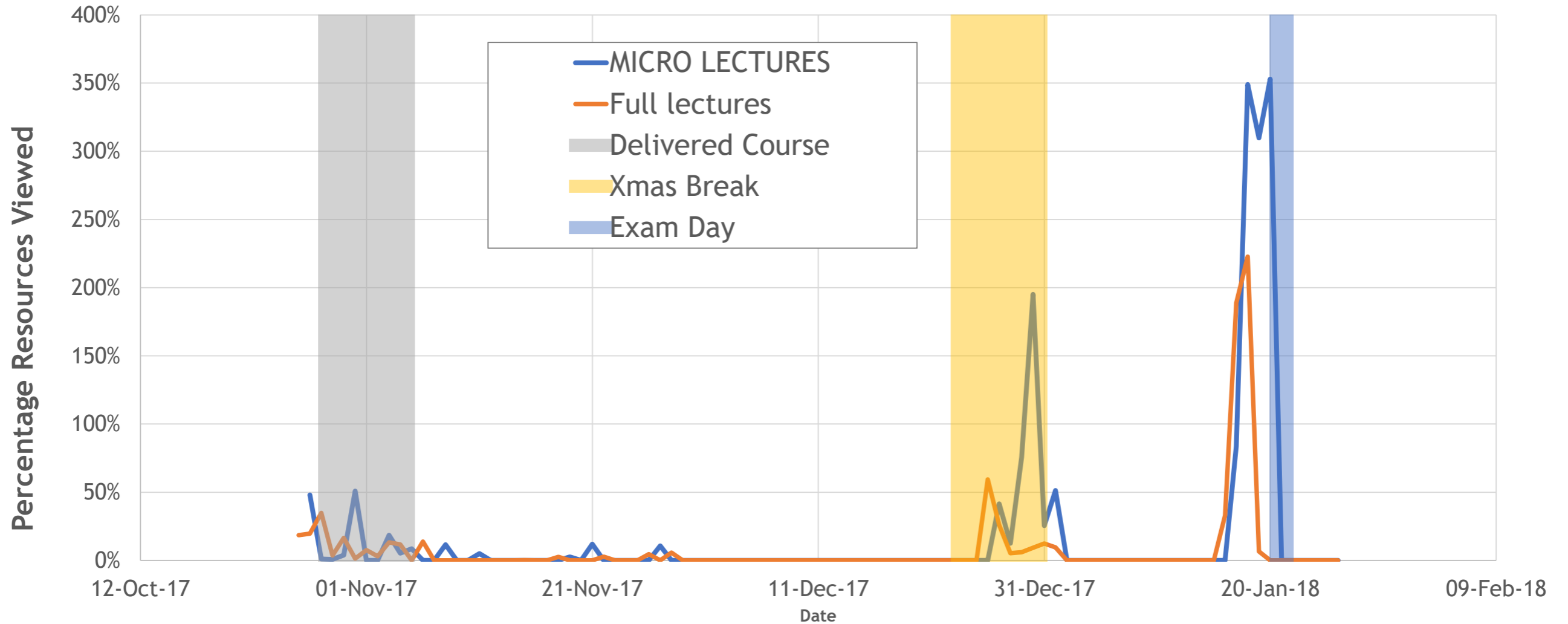
Retake Review Continue

- Mix of qualitative (focus group) and quantitative (questionnaire) data collected after each semester.
- One of the main findings of the focus group was the student perception of how they would use the resources.
- All agreed the micro-lecture and quizzes work together
- The majority of the students stated that:
 - They do not watch full lecture capture if they attended the lecture (only 10% would consider doing so).
 - They do watch the micro-lecture even if they attended the lectures (Over 80% agreed)
 - Their use of lecture capture is mostly for revision purposes (90% reckon this is when they will use it)
- This can then be contrasted with how they actually used it!

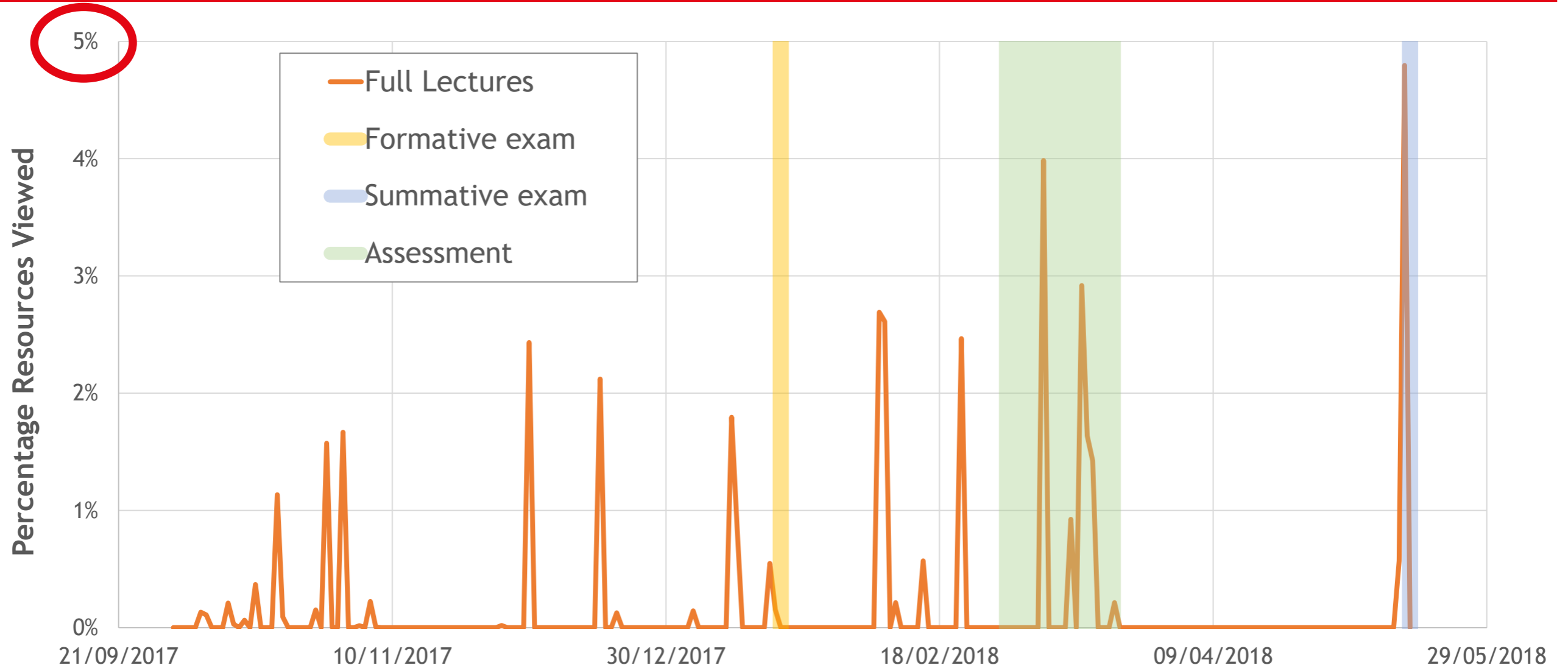


- Students going back looking for the answer

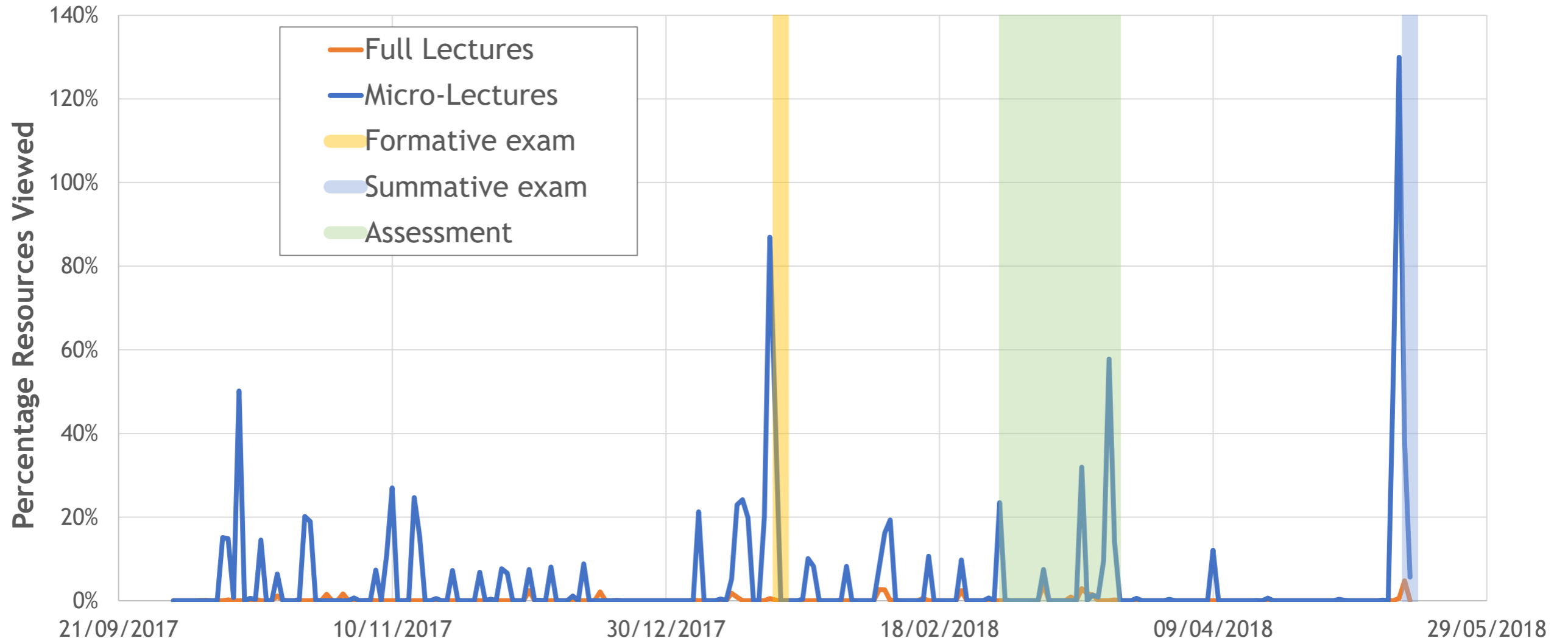




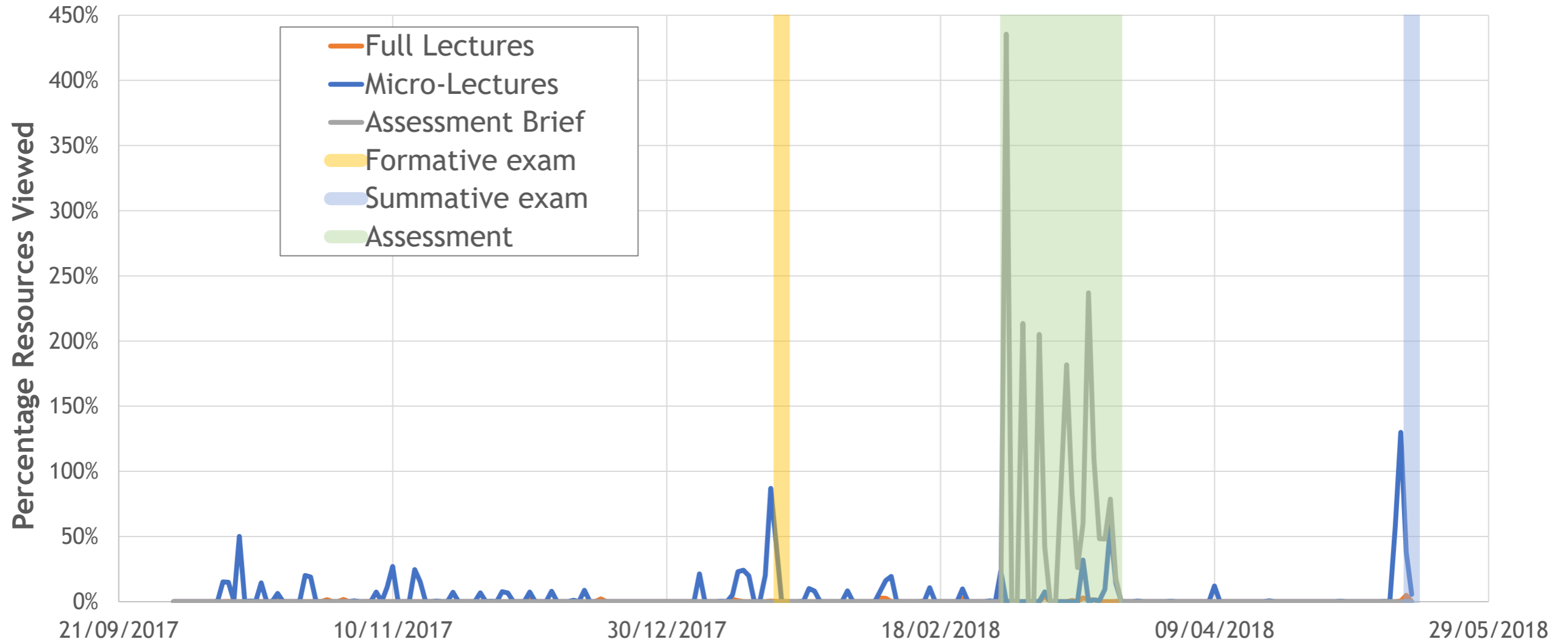
- Greater use of Micro-Lectures, particularly for exam revisions



- Extremely little use of full Lecture Captures



- Much larger use of Micro-Lectures, with more regular viewings



- Tremendous use of the Micro-Lecture for the assessment brief

- Use of questionnaire and focus groups to assess student perception and refine the Micro-Lectures
 - Very high student satisfaction
 - Assessed the need for both Micro-Lectures AND quizzes
 - Perception that Lecture Capture is for missed lecture only, and Micro-Lectures for revision purposes
- Viewing patterns revealed:
 - The critical under-use of Full Lecture capture (less than 5% viewed)
 - The much better alternative that Micro-Lectures represent
 - The greater use of Micro-Lectures to support exam revision and assessment
- Overall, there is a strong place in modern Higher Education for Micro-Lectures with embedded Quizzes to suit students' learning, but also monitor the impact of one's practice.



THANK YOU

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