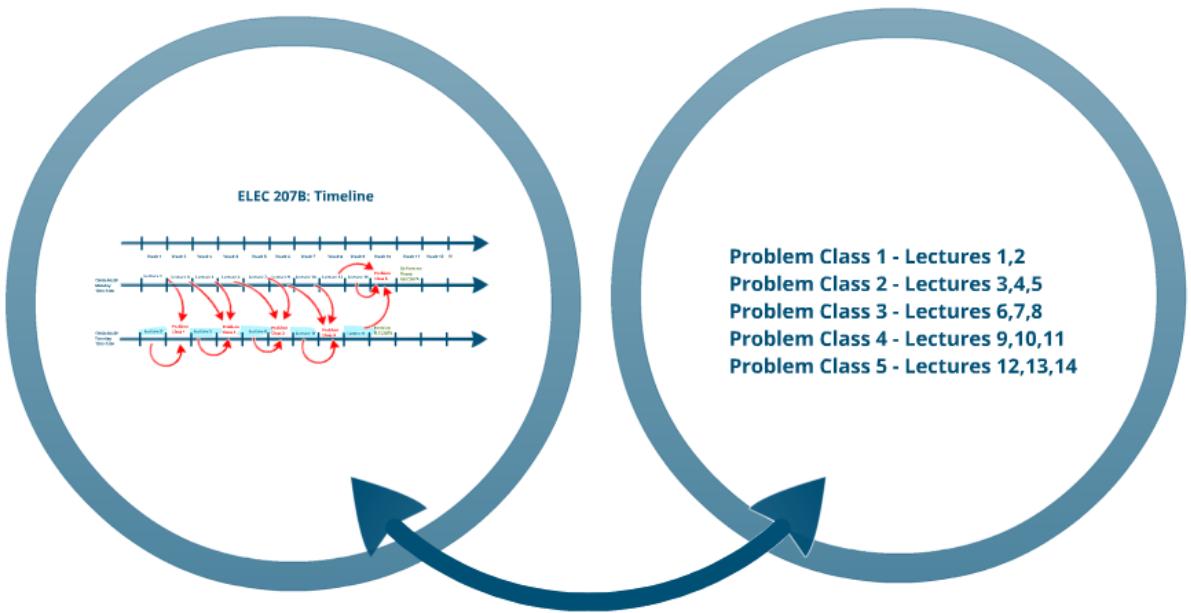


ELEC 207 Part B
Control Theory Lecture 1: Introduction

Prof Simon Maskell
CHAD-G68
s.maskell@liverpool.ac.uk
0151 794 4573

UNIVERSITY OF LIVERPOOL



Problem Classes

- This lecture covers:
- (Introduction to part B of ELEC207 module)
 - Function, architecture, (history) and applications of a control system
 - Open-loop and closed-loop systems
 - Mathematical model of a control system

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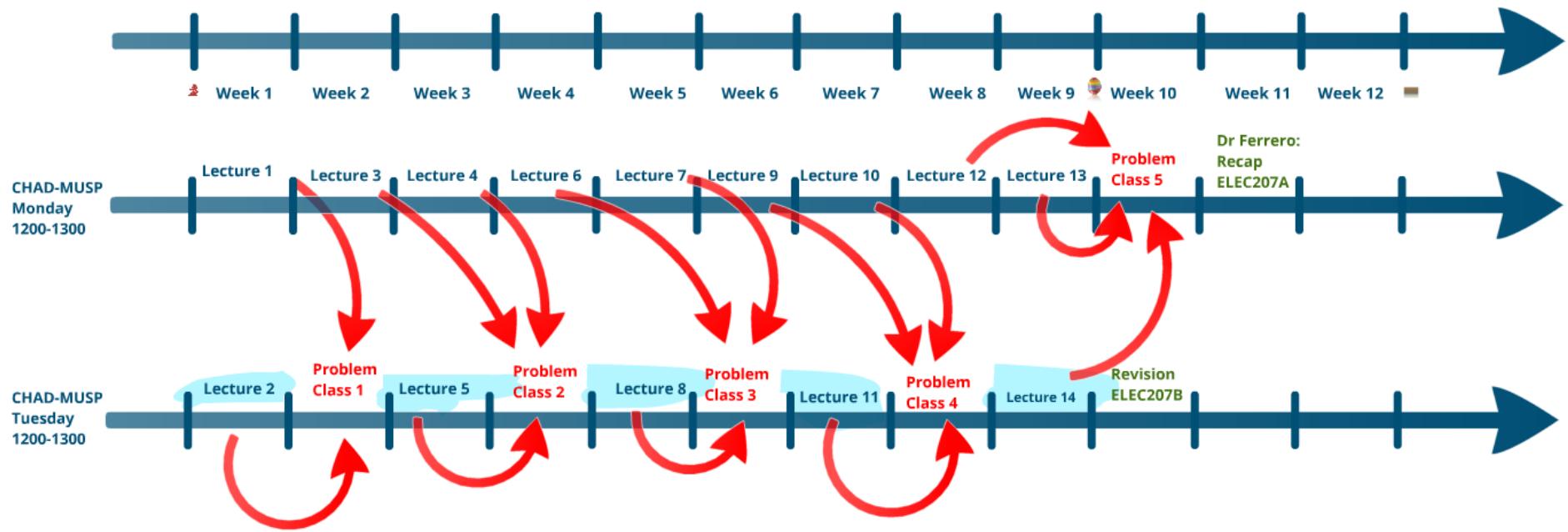
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ELEC 207B: Timeline

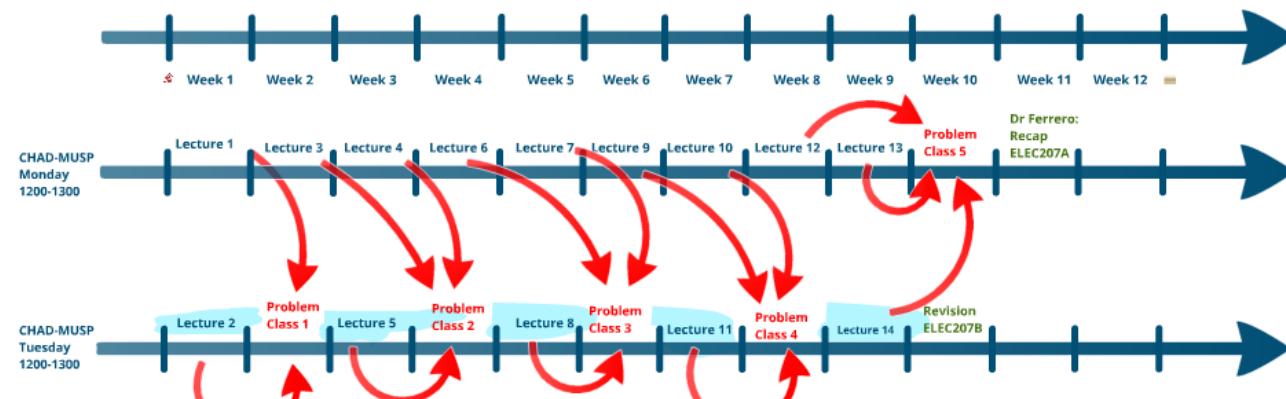




V

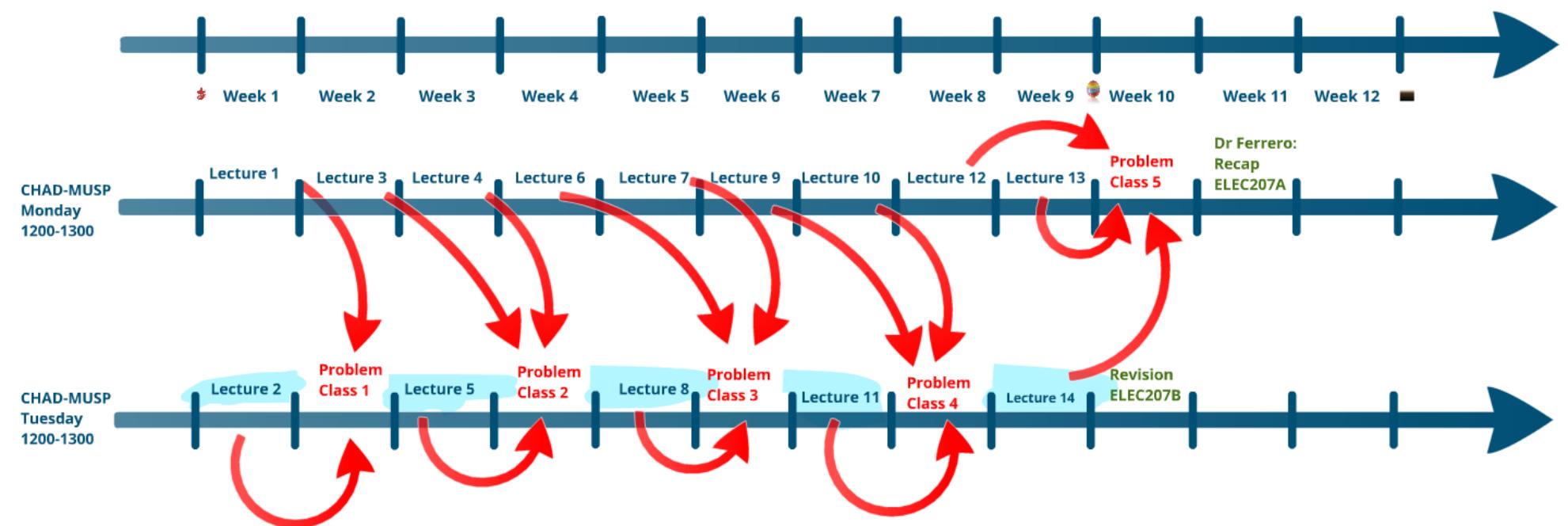
A large, dark blue, stylized letter 'V' is positioned on the right side of the image. It is oriented vertically and has a thick, solid appearance.

ELEC 207B: Timeline

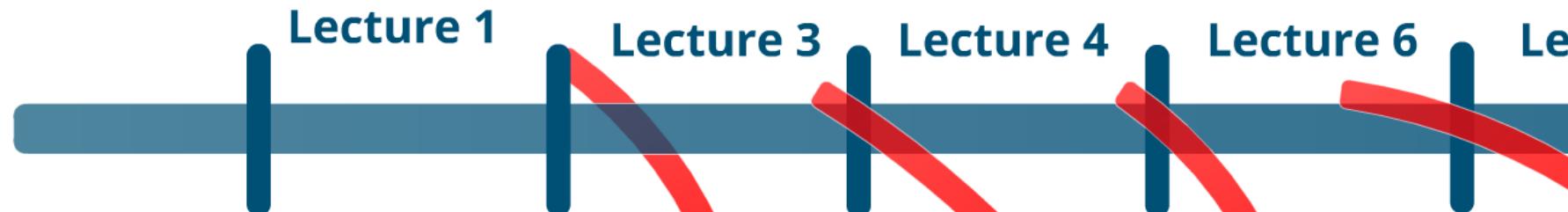




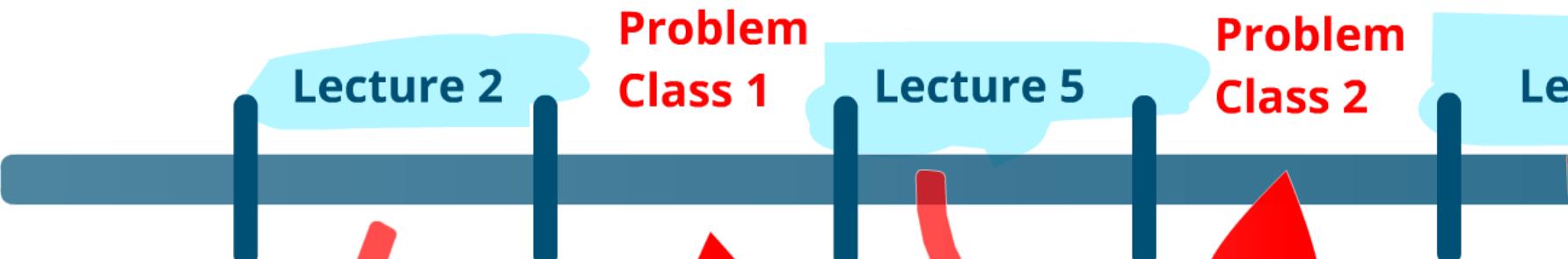
ELEC 207B: Timeline

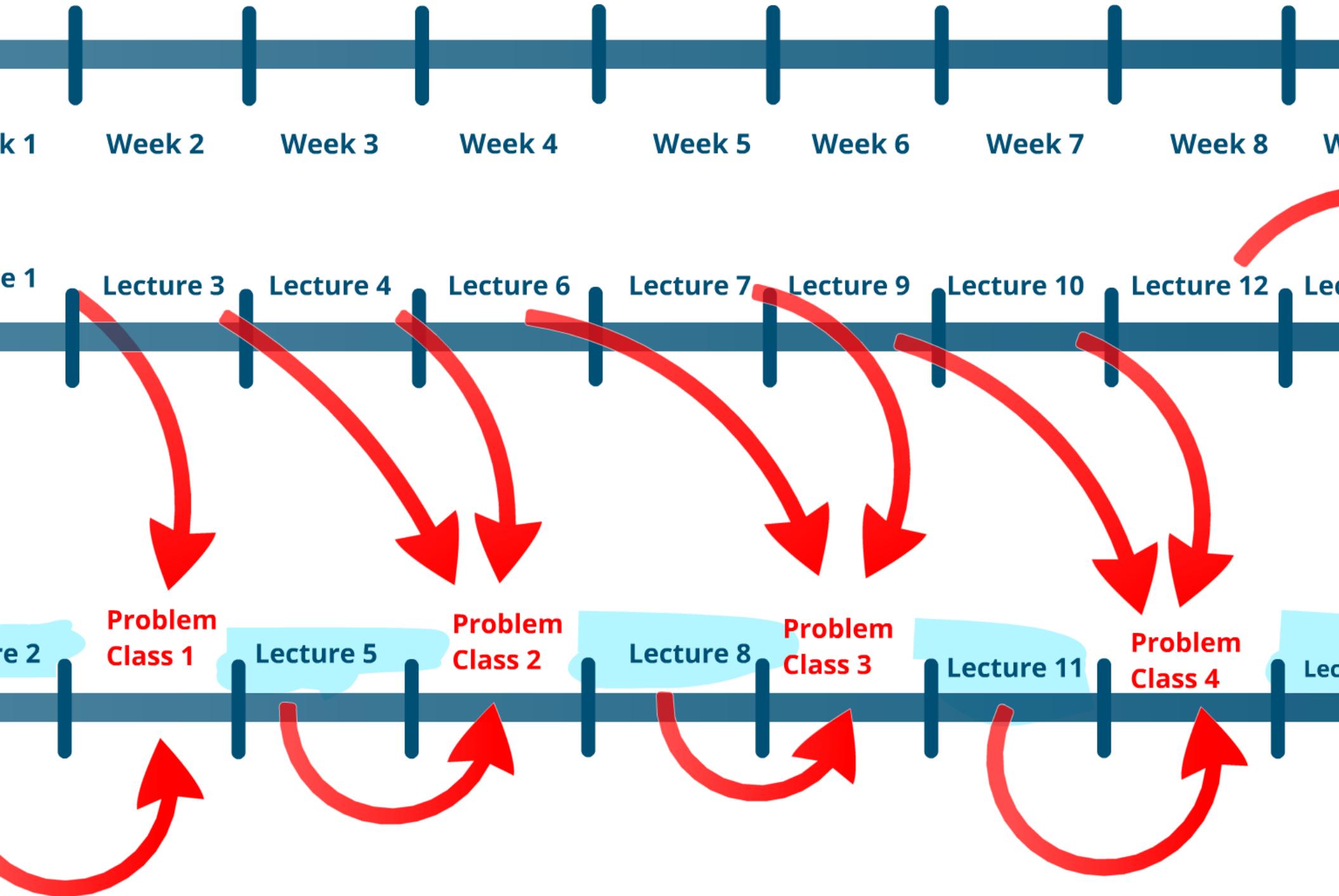


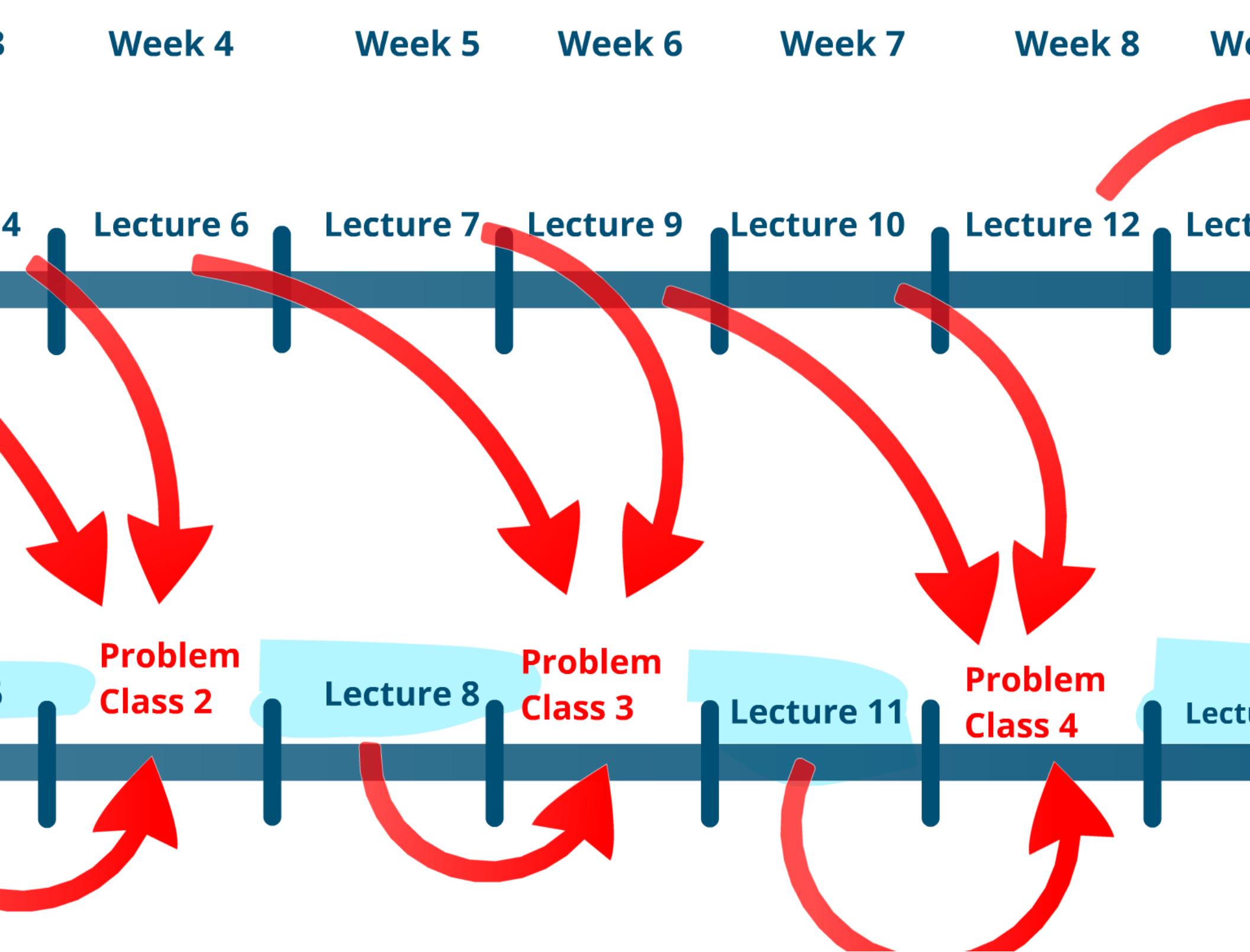
CHAD-MUSP
Monday
1200-1300

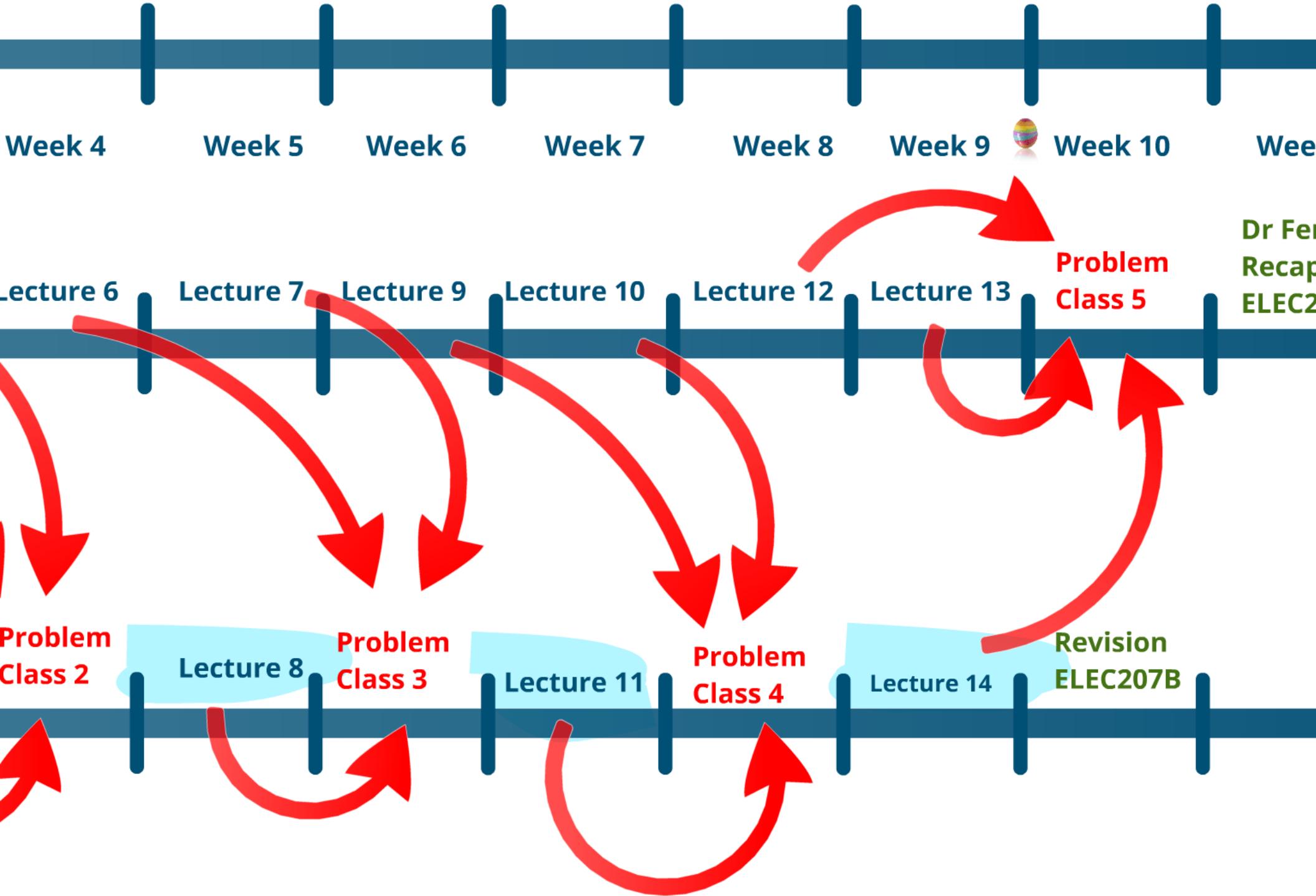


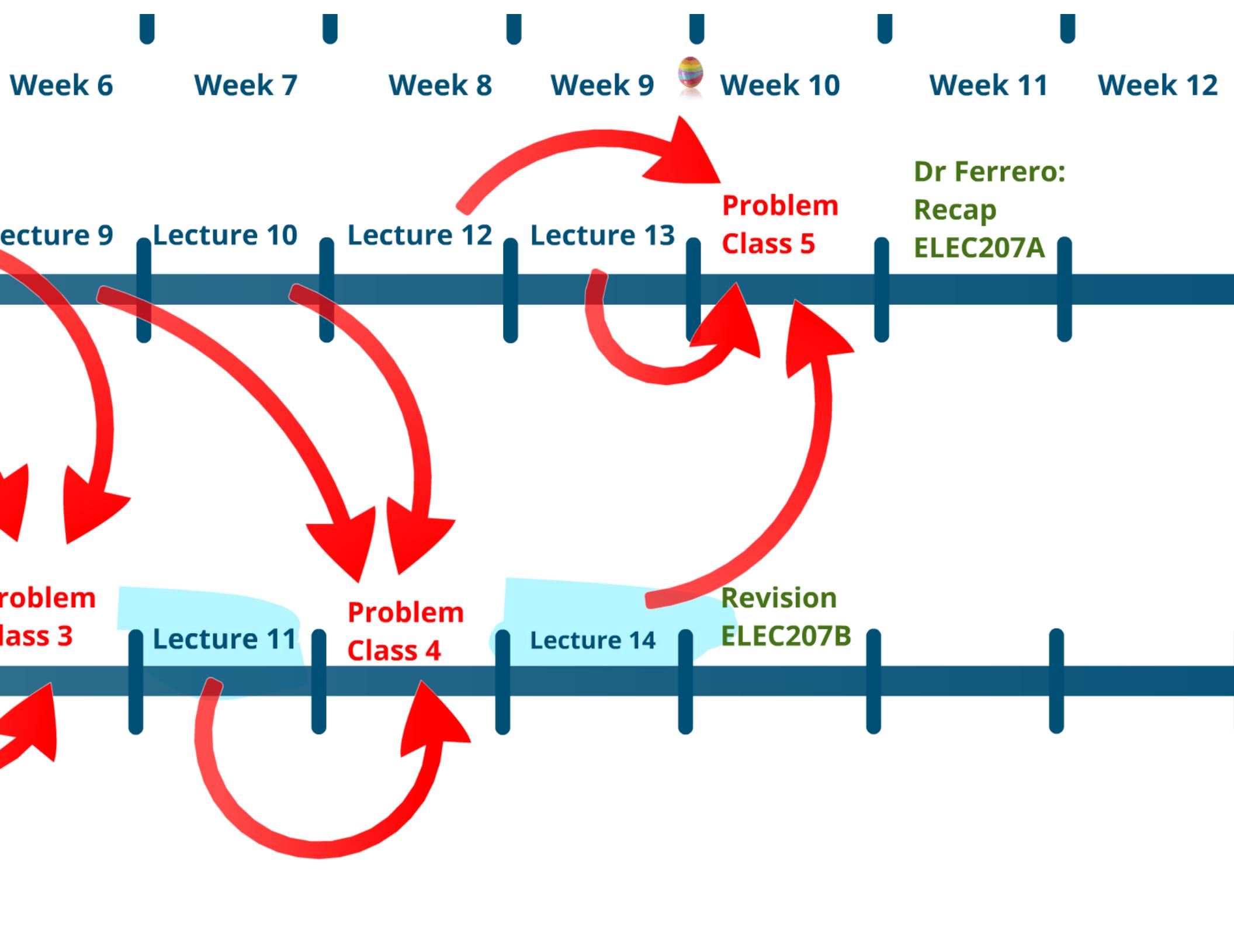
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Tuesday
1200-1300



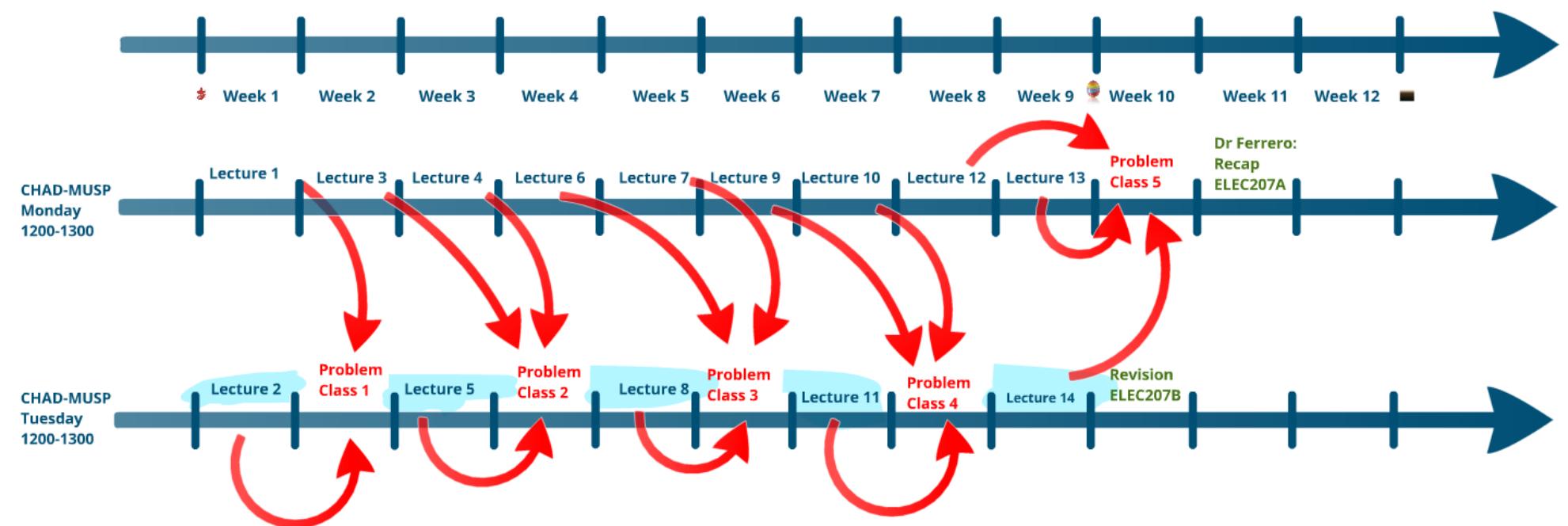


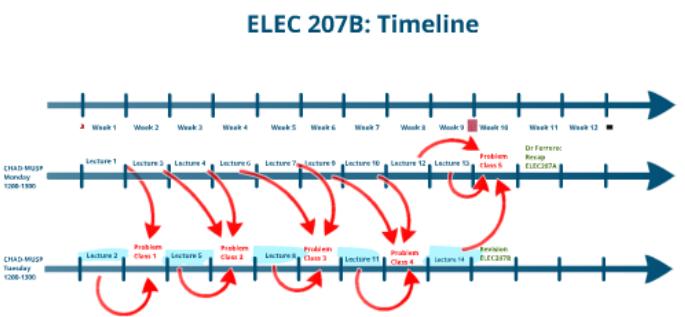






ELEC 207B: Timeline





Problem Class 1 - Lectures 1,2
Problem Class 2 - Lectures 3,4,5
Problem Class 3 - Lectures 6,7,8
Problem Class 4 - Lectures 9,10,11
Problem Class 5 - Lectures 12,13,14

Problem Classes

Problem Class 1 - Lectures 1,2

Problem Class 2 - Lectures 3,4,5

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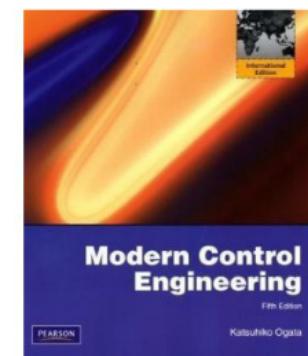
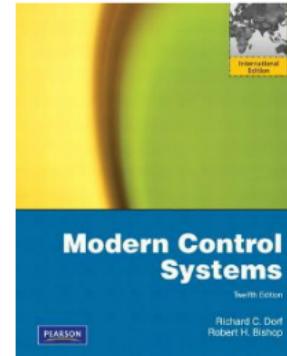
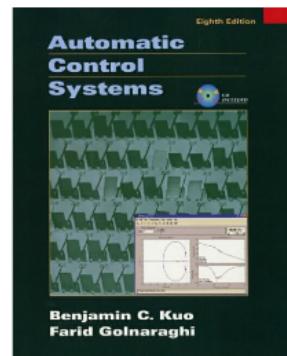
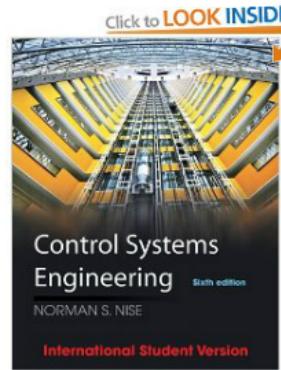
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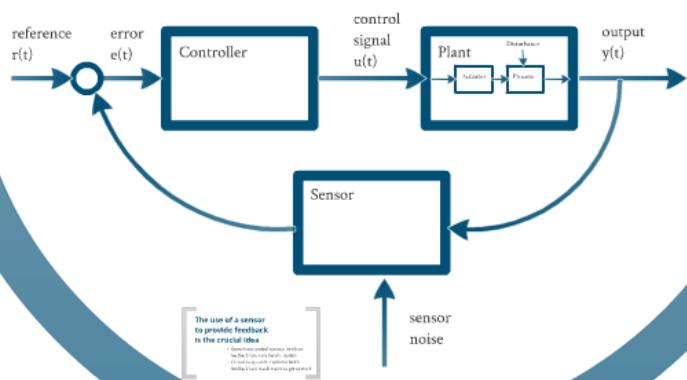
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Modern Control Engineering (5th Edition), Katsuhiko Ogata, Prentice Hall, 2009 [[621.815.O31](#)]



What is Control?

Making machines do what they are supposed to do.

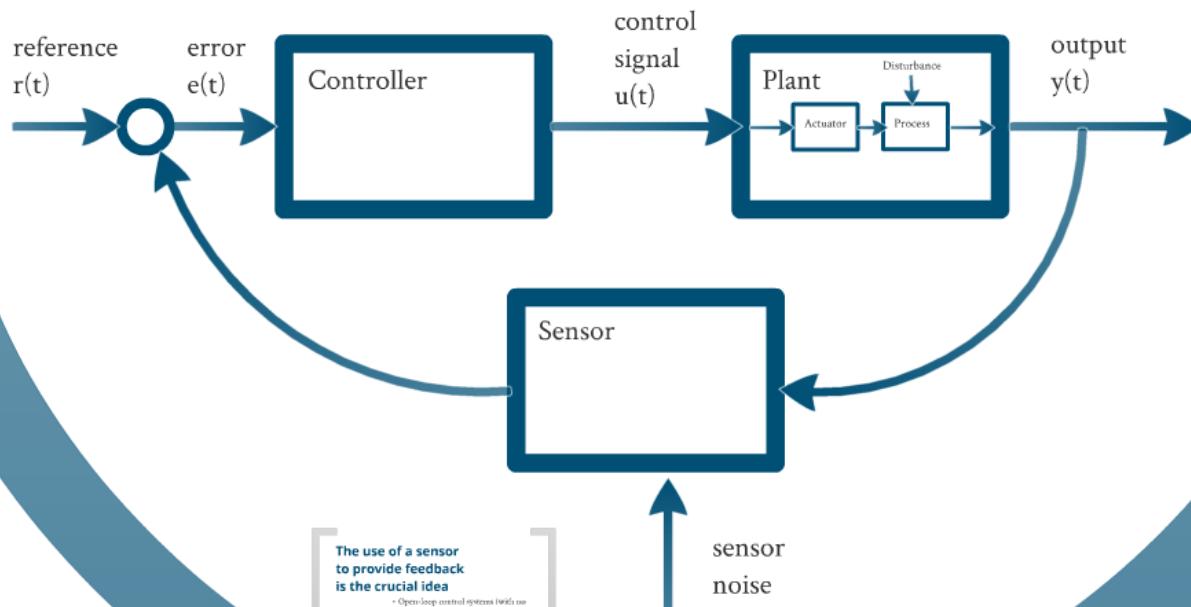


Many applications.

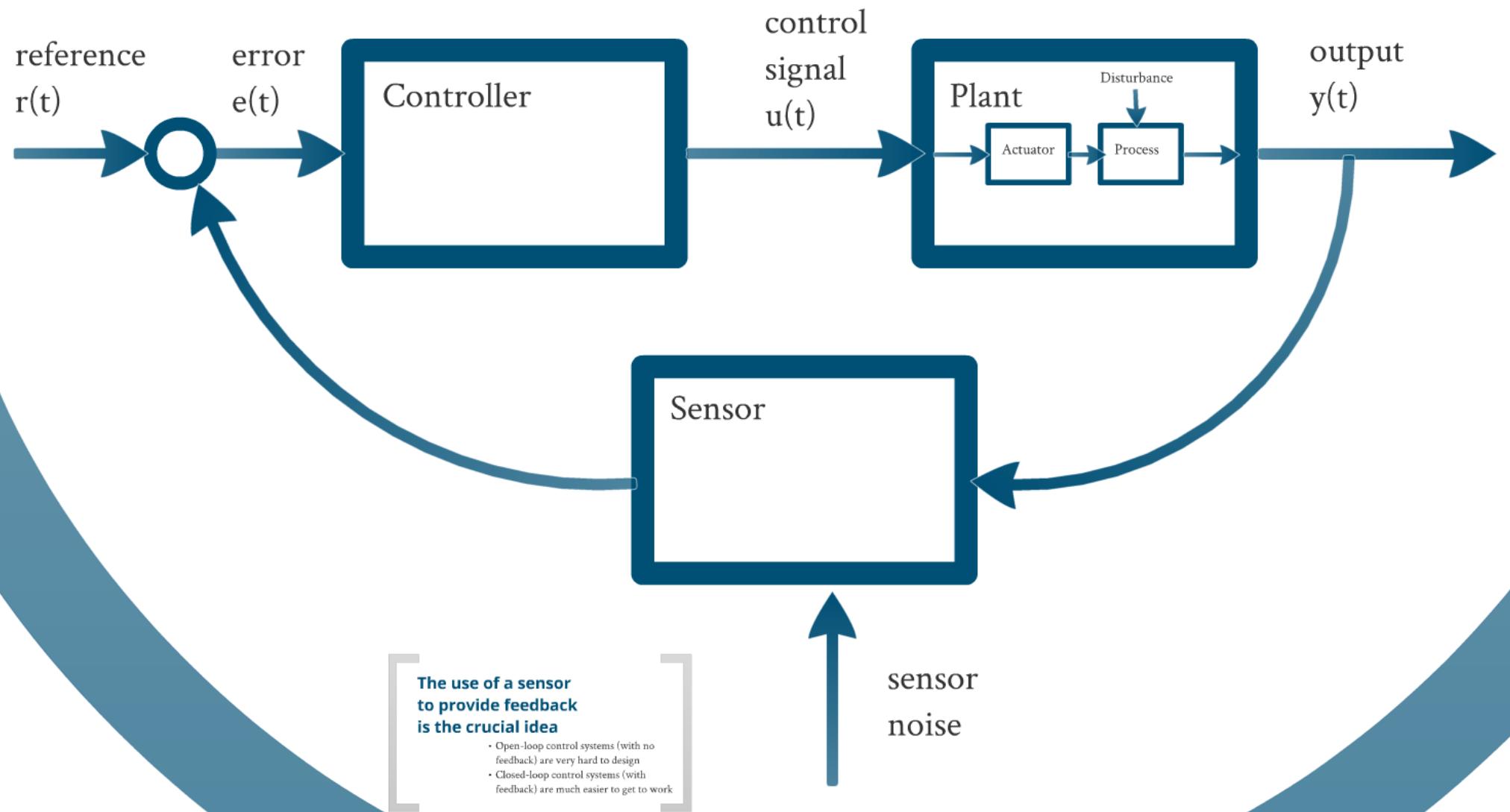
Control is a unifying approach to systems studied by (nearly) all engineers



Making machines do what they are supposed to do.



Why are supposed to do.



Plant

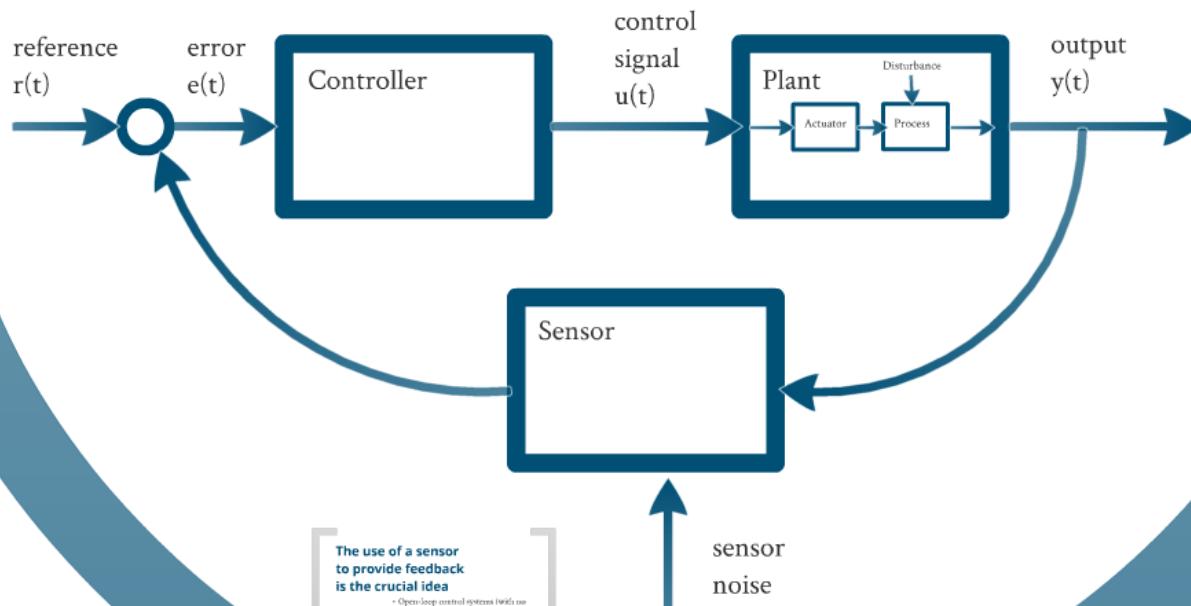
Disturbance

Actuator

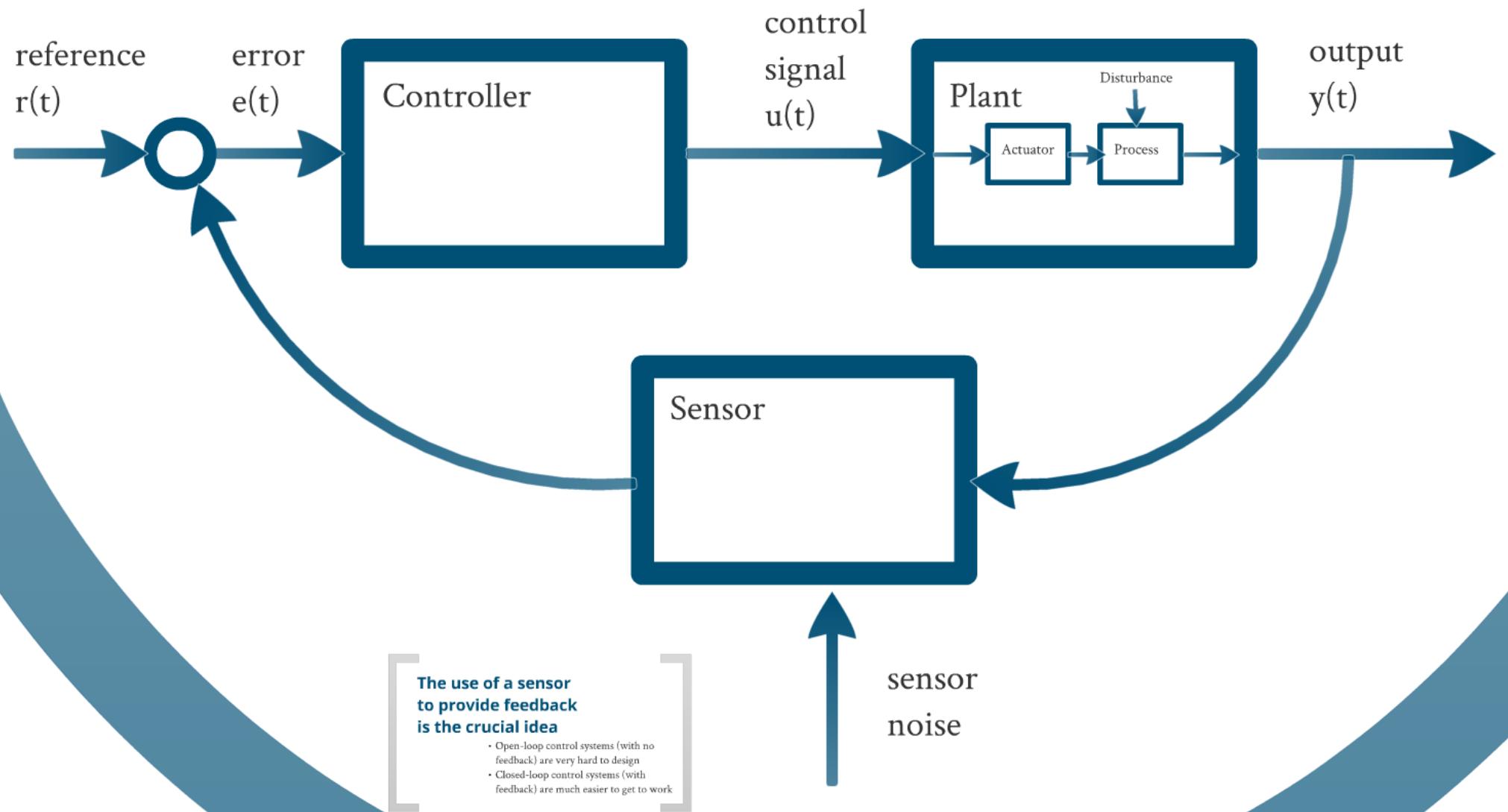
Process



Making machines do what they are supposed to do.



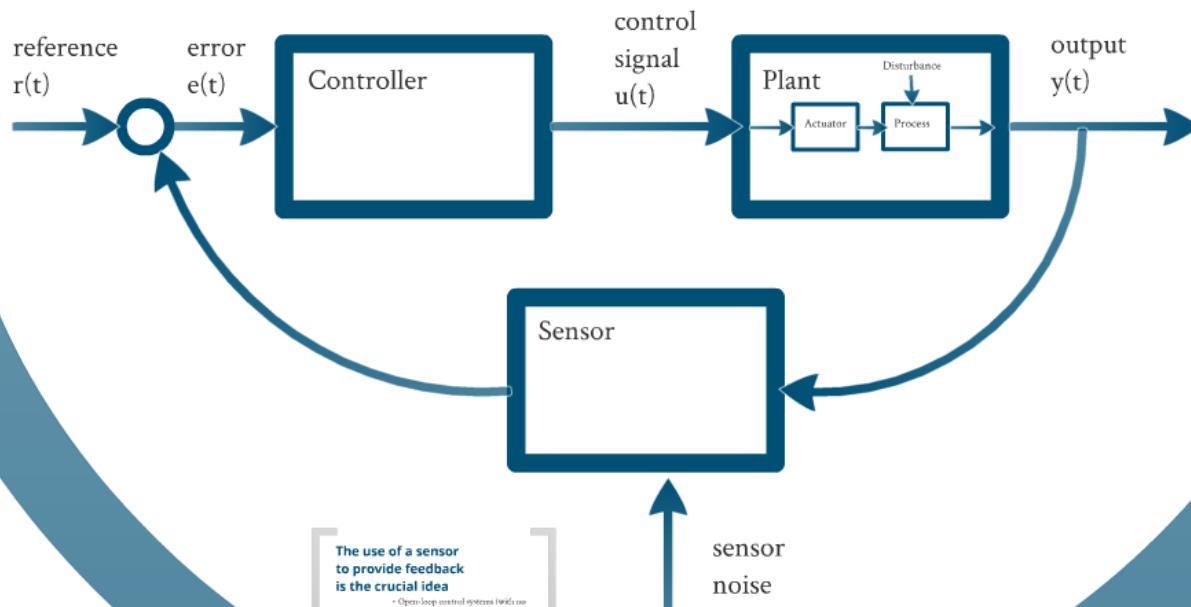
Why are supposed to do.



The use of a sensor to provide feedback is the crucial idea

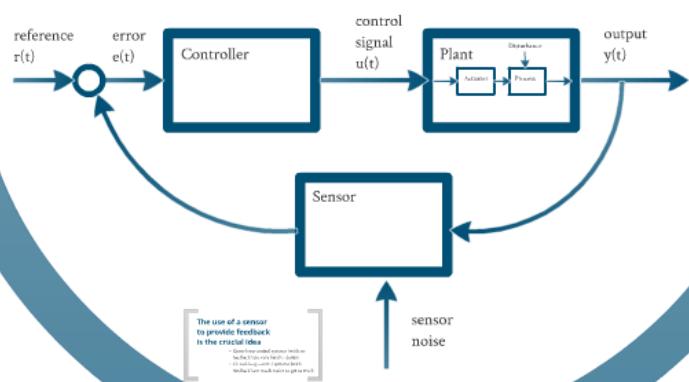
- Open-loop control systems (with no feedback) are very hard to design
- Closed-loop control systems (with feedback) are much easier to get to work

Making machines do what they are supposed to do.



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Many applications.

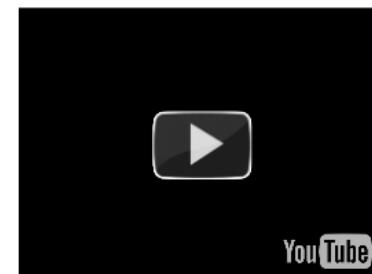
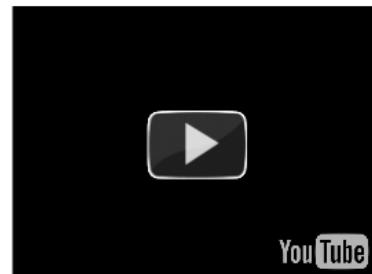
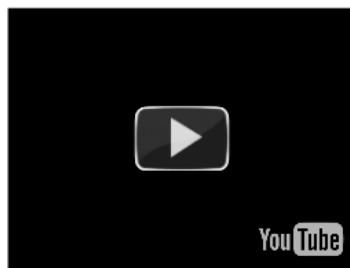
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Many applications.

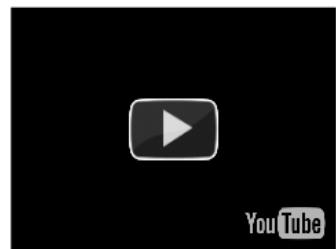
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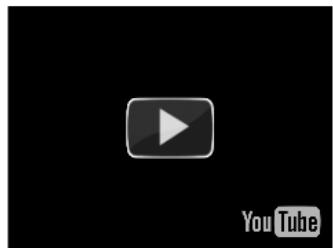


You Tube



Many applications.

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You Tube



You Tube

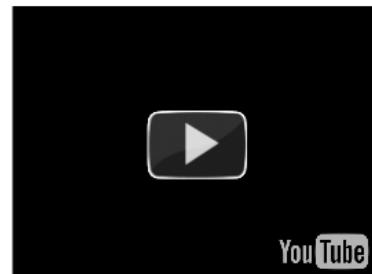
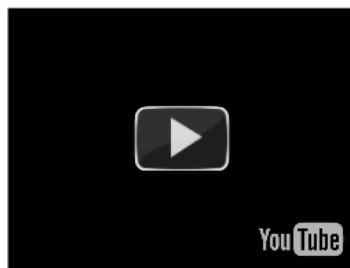


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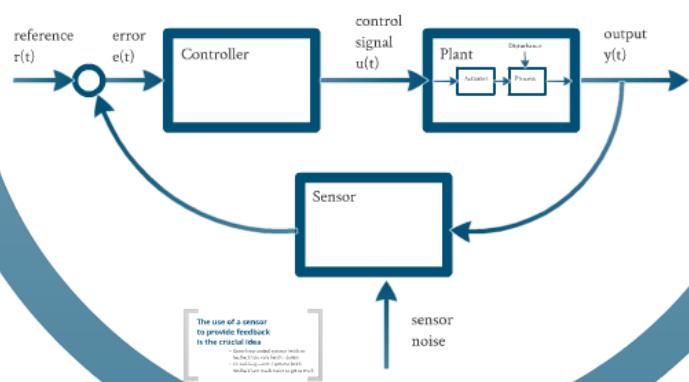
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