

JUST-IN-TIME TEACHING (JiTT) IN PHYSICS

**Marion Birch & Niels Walet
The University of Manchester**

CONTENT

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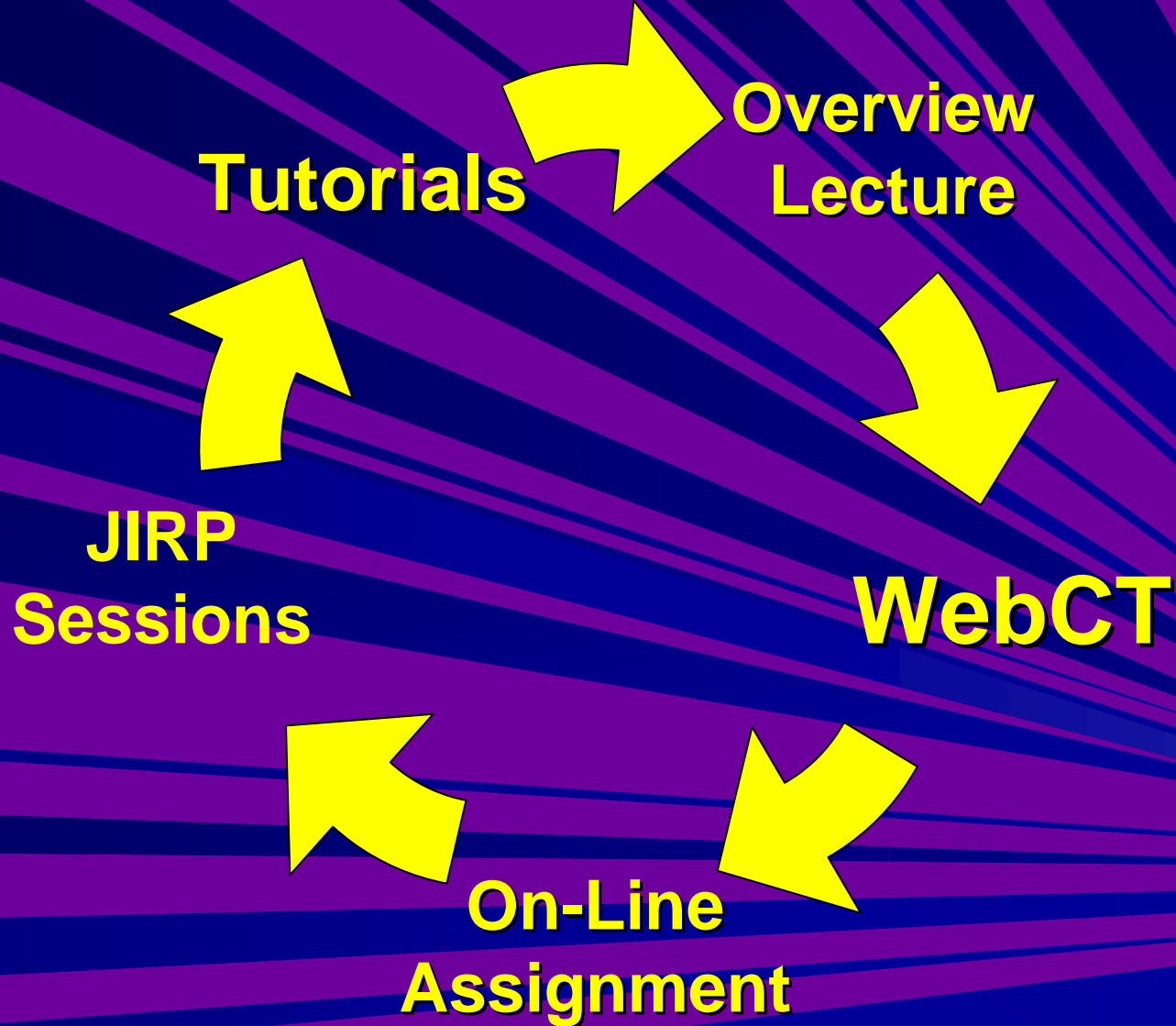
What is JiTT?

- **Just in Time Teaching**
- **Developed in the States**
- **Content decided at last minute**
- **Determined by what the students are struggling with**
- **Electronic assignment – submitted a few hours before the lecture**

Objectives

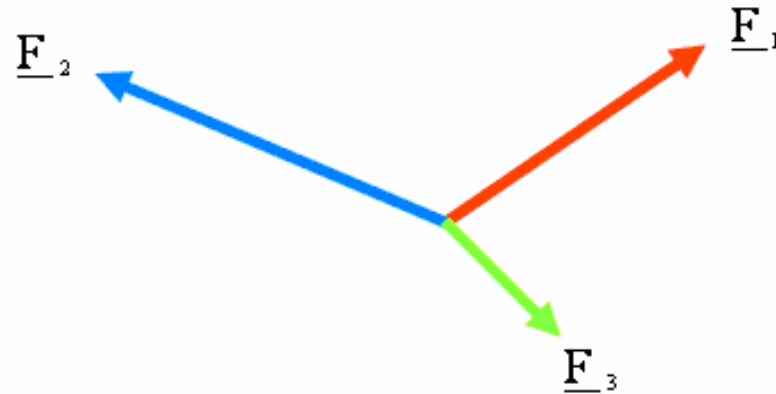
- To encourage the students to take responsibility for their own learning
- To change the students' attitude to learning
- To provide a much more student-centred approach
- To instil a deeper conceptual understanding
- To increase students' engagement with the material
- To enhance exam performance

Our Approach



Talklet

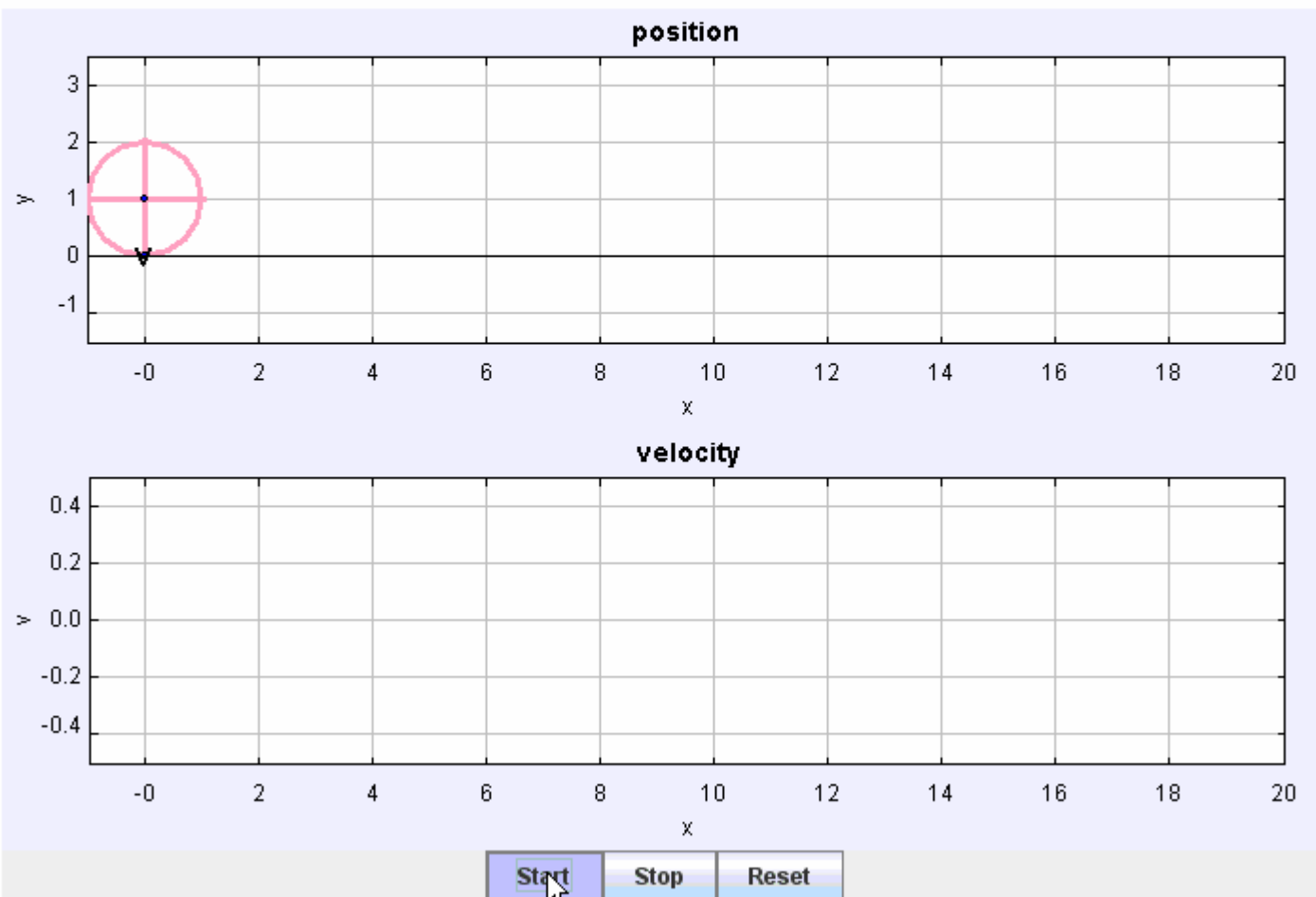
Addition of 3 forces using vector notation



Cycloid

Here we see the motion of a point on the rim of a wheel that rolls without slipping; the resulting cycloid is shown in the upper panel, the magnitude of the velocity in the lower one.

Coded by Niels Walet, using the EJS Toolbox.



- assignment list
- current assignment
- current problem
- previous problem
- next problem
- class list
- gradebook
- problem library

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Done

STP Two Blocks and Two Pulleys

Difficulty: 3

Time: 21m

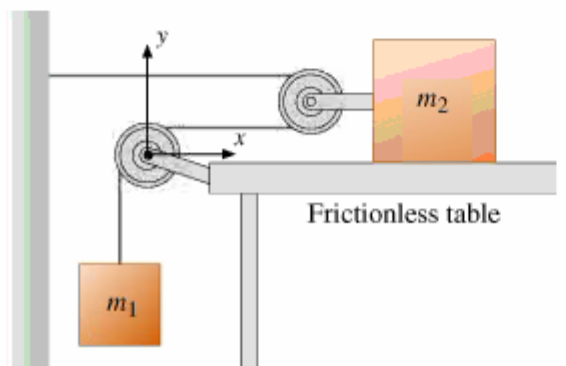
Action: (select action)

Two Blocks and Two Pulleys

A block of mass m_1 is attached to a massless, ideal string. This string wraps around a massless pulley and then wraps around a second pulley that is attached to a block of mass m_2 that is free to slide on a frictionless table. The string is firmly anchored to a wall and the whole system is frictionless.

Use the coordinate system indicated in the figure when solving this problem.

Intro 1



Marion Birch

Part A

Assuming that a_2 is the magnitude of the horizontal acceleration of the block of mass m_2 , what is T , the tension in the string?

Express the tension in terms of m_2 and a_2 .

$T =$

submit hints my answers show answer review part

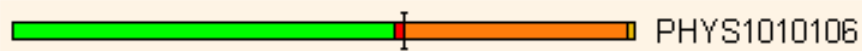
Part B

Given T , the tension in the string, calculate a_1 , the magnitude of the vertical acceleration of the block of mass m_1 .

Express the acceleration magnitude a_1 in terms of m_1 , g , and T .

$a_1 =$

My Class:	1	6m	Completed by 220 students
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Instructions for creating free-body diagrams are provided. Students practice creating diagrams for two different physical situations.

STP	Blocks in an Elevator Ranking Task	3	10m	10
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My Class:	4	11m	Completed by 219 students
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Short conceptual question about the contact forces between stacked boxes in an elevator when the elevator is at rest and accelerating.

STP	Two Blocks and Two Pulleys	3	21m	10
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My Class:	2	28m	Completed by 217 students
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Gradebook for My Physics Class Spring 02

 Group: View Download (as CSV)

Student	Assignments															Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Last1, F	67	98	103		105		103	107	108	79	105	102	148	0		104
Last10, F	61	97	78		70		67	82	83	44	96	72	88	61		84
Last100, F	67	100	93		95		98	103	106	103	116	99	145	0		104
Last101, F	64	98	0		0		0	0	0	0	0	0	0	0		3
Last102, F	63	98	78		76		76	95	106	79	118	91	139	0		94
Last103, F	67	95	103		101		100	105	107	106	118	99	147	0		106
Last104, F	67	100	100		100		102	108	108	73	105	51	145	88		109
Last105, F	67	100	104		104		103	105	108	107	104	102	145	46		111
Last106, F	62	93	65		58		87	91	84	83	94	76	125	58		92
Last107, F	67	100	97		90		95	108	108	107	111	100	147	0		104
Last108, F	67	100	95		0		0	0	0	0	0	0	0	0		8
Last109, F	62	93	103		96		61	100	108	0	104	0	0	0		66

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Outcomes

Successes

- **Better exam performance**
- **95% submission of on-line assignments**
- **Favourable feedback re' talklets**

Outcomes

Pitfalls

- **Did not meet with students' expectations**
- **Disappointing feedback – resistance to on-line learning cf. lectures**
- **Reduction in attendance at lectures**
- **On-line assignments not very popular**
- **Penalty for using hints set too low**

Conclusions

- **Enhanced exam performance**
- **Students did take more responsibility for their own learning but not without some resistance**
- **Need to manage student expectations**