



Wednesday, October 24, 2012

Mechanical Engineering Core Knowledge Exam

Making the Most of MyUni Workshop

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Core Knowledge Exam

- Aim
 - assurance students are retaining core knowledge
- Structure
 - questions designed by School's Teaching Groups
 - common groups & specialised groups
 - question database comprising 300+ questions (54 groups)
 - 44 questions
- Maple TA Assignment

Question Design

- Multiple choice
- Multiple selection
- Numeric
- True / false
- Clickable image
- ...and others

THE UNIVERSITY of ADELAIDE MyUni

Steven Grainger My Places Home Help Logout

MyUni Notifications Courses Community IT Services For Students

Mechanical Honours Project 2010 3010_MECH_ENG_COMBINED_0017 Maple T.A. Instructor Menu

Questions Content Manager Help

Finish

Select the region choices: Use HTML:

New Region Set Correct Delete

$j\omega$

$j1$

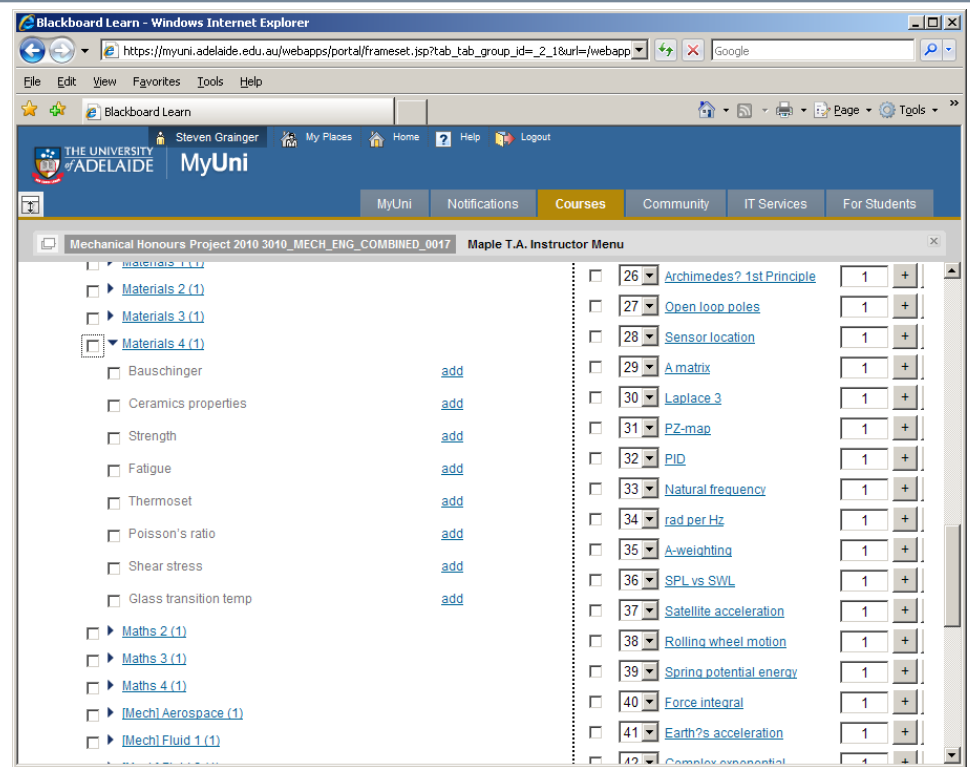
$-j1$

σ

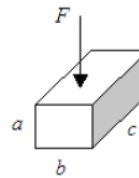
-1

Process

- Create Question Repository
- Create an Assignment
 - Select Questions (or randomize)
 - select policies
 - quiz
 - timed delivery
- Computer Aided Teaching Suite (CATS)
 - 1 hour, closed book
 - 200+ students
 - Grade delivered on completion



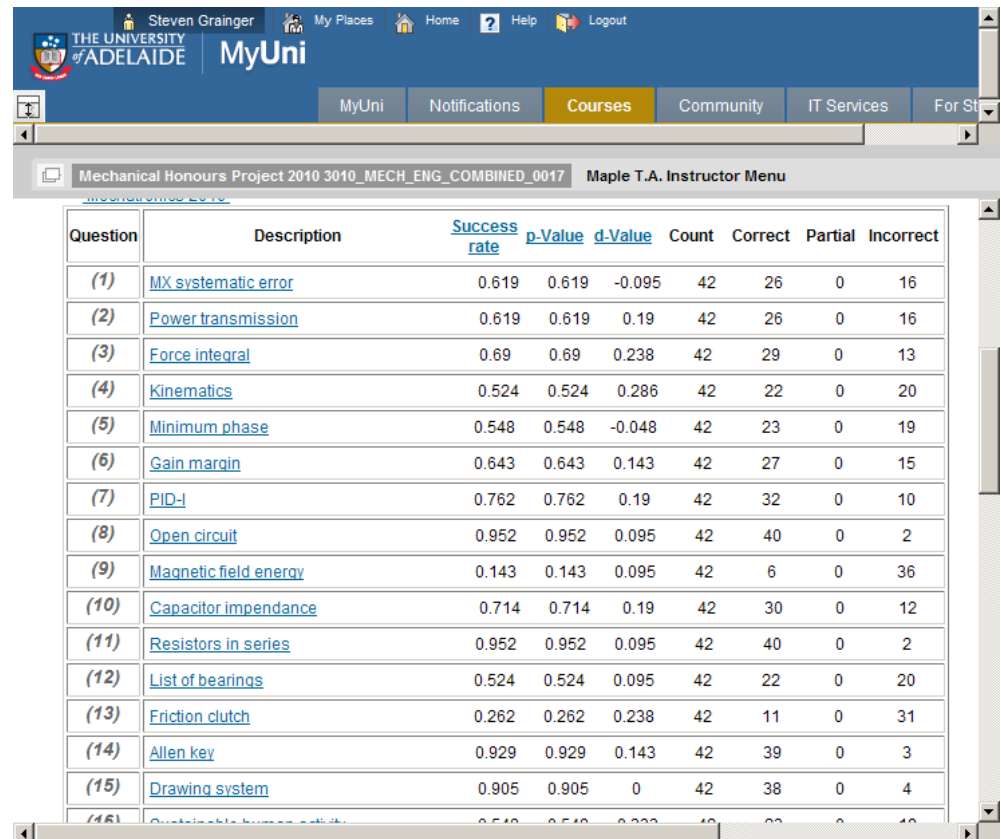
Which of the following is an equation for the pressure due to a force, F , applied on the surface of a mass, as shown in the figure?



- (a) $P = \frac{F}{ac}$
- (b) $P = \frac{F}{abc}$
- (c) $P = \frac{F}{bc}$

Outcomes

- Analysis
 - Feedback to Teaching Groups
 - Annual prize
- Student feedback
 - ‘generally fine and well executed’
 - ‘interesting to get an indication of how much I had retained. In all it was a good test’



The screenshot shows the MyUni interface for a Mechanical Honours Project. The table displays performance metrics for 15 questions, including success rates, p-values, d-values, counts, and the number of correct, partial, and incorrect answers.

Question	Description	Success rate	p-Value	d-Value	Count	Correct	Partial	Incorrect
(1)	MX systematic error	0.619	0.619	-0.095	42	26	0	16
(2)	Power transmission	0.619	0.619	0.19	42	26	0	16
(3)	Force integral	0.69	0.69	0.238	42	29	0	13
(4)	Kinematics	0.524	0.524	0.286	42	22	0	20
(5)	Minimum phase	0.548	0.548	-0.048	42	23	0	19
(6)	Gain margin	0.643	0.643	0.143	42	27	0	15
(7)	PID-I	0.762	0.762	0.19	42	32	0	10
(8)	Open circuit	0.952	0.952	0.095	42	40	0	2
(9)	Magnetic field energy	0.143	0.143	0.095	42	6	0	36
(10)	Capacitor impedance	0.714	0.714	0.19	42	30	0	12
(11)	Resistors in series	0.952	0.952	0.095	42	40	0	2
(12)	List of bearings	0.524	0.524	0.095	42	22	0	20
(13)	Friction clutch	0.262	0.262	0.238	42	11	0	31
(14)	Allen key	0.929	0.929	0.143	42	39	0	3
(15)	Drawing system	0.905	0.905	0	42	38	0	4
(16)	Continuity between points	0.519	0.519	0.238	42	22	0	20