

Improving attainment through flexible TEL

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Project

- Introduction
- TEL & 'Flexible' TEL
- Feedback
- Feed-Forward
- Effectiveness & Problems
- Conclusion

Introduction

- Level 4 ***Structures*** modules
- Involve extensive numerical work in solving engineering problems
- Various entry qualifications
- Varying numerical abilities
- Diverse group of students

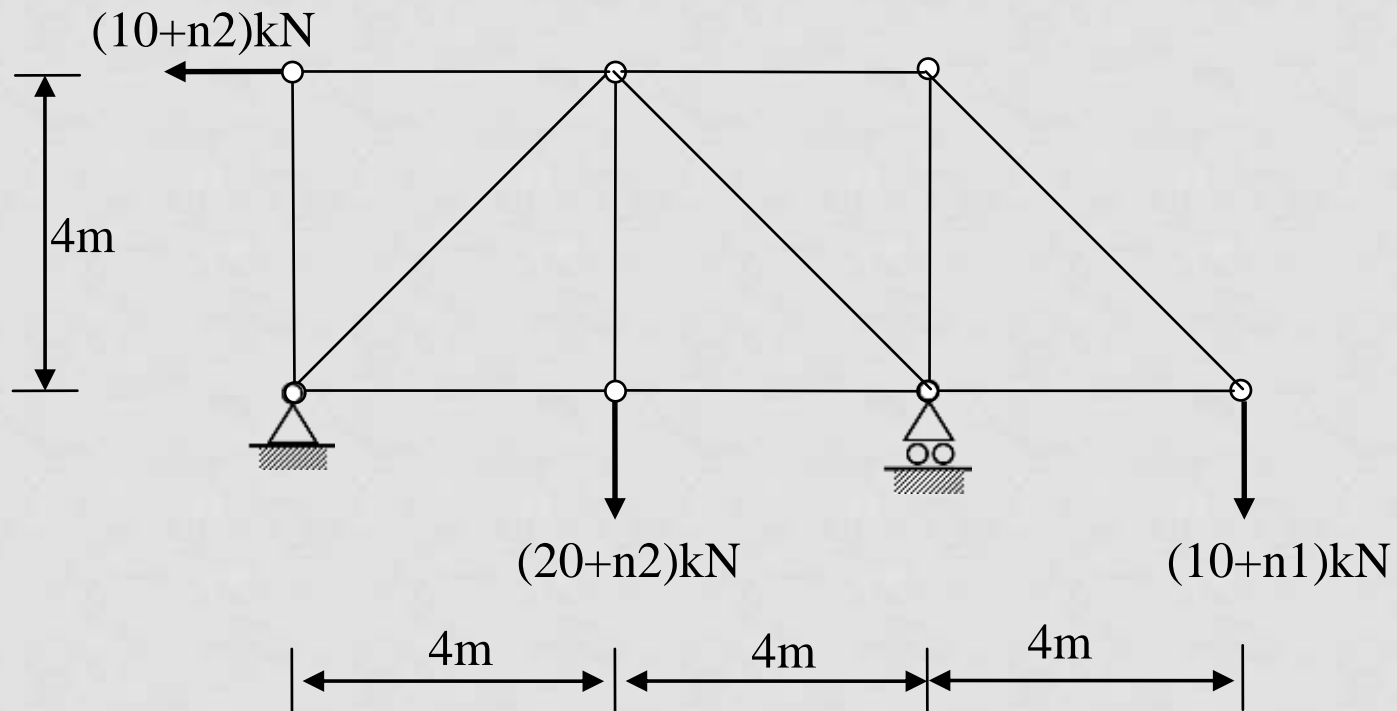
Traditional Method

In-Course Assessment

- 1 or 2 questions with variables depending on students' university numbers

Traditional Method

Example of Q with variables:



Traditional Method

- 1 submission
- No 2nd submission
- Possibility of copied work?
- Difficulties in attaining proper assessment
- Not necessarily learning principle

TEL

- Technology Enhanced Learning
- Wide area covered and Useful
- Multiple Choice Tests in class
- MCQs at home
- But 'rigid' numerical questions and answers if any

Flexible TEL

- Anytime and anywhere
- Minimal restriction
- Need *variables / parameters*
- Different numerical problems
- Pools of questions

Flexible TEL

Restrictions –

- length of time for each piece of work
- 45 mins to 1 hour
- No backtracking
- Answers need to be entered-rules

Flexible TEL

Incentives & Motivation :

- Multiple attempts
- Longer period of assessment
- Highest mark scored recorded for summative assessment
- Help provided !

Feedback

- Immediate score result after completion
- Questions with wrong answers will be displayed after completion
- But no detailed feedback in worked solution

Feed-Forward

Students getting help between attempts (print screens or photos)

- Built-in Review sessions
- Tutorials
- Email

Feed-Forward

- To improve understanding of subject matters
- To improve students' learning experience
- No fear of getting wrong !

Data – 1st TB, 2014/5

Pass	Fail
77%	23%
88% > 3 attempts	< 3 attempts
46% achieved 70 mark and above	
38% Maximum attempts	

Effectiveness

- Over 4 years period
- Improvement in attainment
- Definite differences in cohorts using flexible TEL or not

Attainment

- Identify students who has not make any attempt
 - students not engaged or motivated
- Identify students with poor results
 - students who need help

Attainment

- Improved in Average Marks :
42%, 58%, 65% & 56%
- Definite improvement in 1st
attempt passes:
79%, 79%, 76% & 93%

Problems

- Occasional problem with computer
- Students with finance problem – no access to StudySpace!

Conclusions

- Multiple attempts
- Longer period of assessment
- Feedback and structured feed-forward
- Chance of exploring and learning
- No fear of making mistakes

Conclusions

- Online monitoring on attempts
- Leading to intervention
- Improved attainment !

Example of Calculated Formula Question

Blackboard Learn - Windows Internet Explorer

https://studyspace.kingston.ac.uk/webapps/portal/frameed.jsp?tab_group_id=113&url=%2Fwebapps%2Fblackboard%2Ffrontend%2Flauncher%2Ftype%3DCourse%26id%3D122865_1%26url%3D

Blackboard Learn | Access Manager | Login

MyKingston StudySpace Blackboard v9.1 Logout

My Home | My Content | One Community | Module Catalogue | Organisations | Support

Path: body

Answer Formula

$$\frac{-((Sa - Pb) - Ra)\sqrt{a^2 + b^2}}{2ab}$$

File

Remove

Example of Calculated Formula Question

Blackboard Learn - Windows Internet Explorer

https://studyspace.kingston.ac.uk/webapp/portal/home.jsp?tab_id=group_id=11,3&url=%2Fwebapp%2Fblackboard%2Fformula%2Fmain.htm%2Ftype%2Fcourse%26url%3D%2F26url%3D

My Kingston StudySpace Blackboard v9.1

My Home My Content One Community Module Catalogue Organisations Support

Home My Assignments My Assignments by Groups Wikis

Evaluation Grade Centre Users and Groups Customisation Packages and Utilities Help

External Link

Link Name

2. Options

Define the correct answer range, plus or minus a numeric or a percentage variation from the exact answer. If the correct answer must be exact, the range should be 0. If partial credit is allowed, define the broader range for partial credit and the percentage of the total points that will be given if the answer is within the partial-credit range. Units can be required as part of the answer and, optionally, a percentage of the total points can be deducted from the points given if the units are incorrect.

★ Answer Range +/- Numeric ▾

Allow Partial Credit

Units Required

★ Answer Units Units Case Sensitive

★ Units Points Percentage

3. Submit Information

Click Next to continue creating this Calculated Formula question. Click Cancel to quit.

Cancel Next

Example of Calculated Formula Question

Blackboard Learn - Windows Internet Explorer

https://studyspace.kingston.ac.uk/webapps/portal/frameSet.jsp?tab_tab_group_id=11_18&url=%2Fwebapps%2Fblackboard%2Fcreate%2Flauncher%2Fpage%2Dcourse%26id%2D528865_1%26url%2D

MyKingston StudySpace Blackboard v9.1

My Home My Content One Community Module Catalogue Organisations Support

Create/Edit Calculated Formula Question

A Calculated Formula question contains a formula with variables that change for each user. [More Help](#)

Go Back Cancel Calculate Next

1. Define Variables

Variable Name	Minimum Value	Maximum Value	Decimal Places
1. P	-25.0	25.0	0
2. Q	8.0	30.0	0
3. R	2.0	12.0	0
4. S	2.0	20.0	0
5. a	2.0	7.0	1
6. b	2.0	7.0	1

2. Answer Set Options

Decimal Places for Answer: 2

Number of Answer Sets: 200

Correct Answer Format: Normal

3. Submit Information

Click Calculate to generate the answer sets or to recalculate existing answer sets. Click Next to go to the next page without recalculating existing answer sets, if answer sets have already been generated. Click Back to go back to the previous page. Click Cancel to quit.

Go Back Cancel Calculate Next

Example of Calculated Formula Question

The screenshot displays the Blackboard Learn interface for course management. The main content area shows a list of five question sets, each with a calculated formula for the total number of questions and total points. The interface includes a navigation menu on the left and a top navigation bar.

Navigation Menu:

- My Home
- My Content
- One Community
- Module Catalogue
- Organisations
- Support

Question Set List:

Question Set ID	Total Questions	Number of Questions to display	Points per question	Total Points
1. Question Set	6	1	1	6
2. Question Set	2	1	1	2
3. Question Set	3	1	1	3
4. Question Set	1	1	1	1
5. Question Set	7	1	1	7

Any Question?

Thank You for listening !

Any Question?