Teaching and Learning in Maths Courses

A student perspective

Vishal Khatri
Department of Civil Engineering, IIT Bombay
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I will be talking about four major themes:
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- Teaching with slides
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▶ Teaching with slides
▶ Tutorials
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- Exams
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- Teaching with slides
- Tutorials
- Exams
- Grading Scheme
Students’ questions

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- This is specially problematic in a subject like Mathematics.
- In addition, the students might also miss out on an alternate method, an analogy or an impromptu comment by the instructor.
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- Students don’t write notes. They feel out of sync and are more probable to falling asleep.
Teaching with slides

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► Everyone does not get enough time to understand before the next slide comes in.

► Students don’t write notes. They feel out of sync and are more probable to falling asleep.

► The conventional blackboard-and-chalk teaching gives one enough time before it is erased.
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- Peer learning opportunities
- Insightful comments/variations of a problem by the instructor
- Improves one-to-one interaction
- Instructor gets to know what the students have understood and where they have problems first hand
- might lead to chaos at times
Lectures 3:1 Tutorial

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- Can devote half a lecture more to problem solving
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- Can devote half a lecture more to problem solving
- Or one and a half hour slot for tutorials
Conduct

- Quick quiz at the start/end of the tutorial corresponding to content covered in last/this tutorial
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- Some weightage of tutorial performance in grading
Tutorials

Conduct

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- Some weightage of tutorial performance in grading
- Submission of written solutions as an assignment, specially for students not doing well
Problems and Solutions

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- Uploading model question paper and solutions so that the students have an idea what and how they are expected to write.
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- Uploading model question paper and solutions so that the students have an idea what and how they are expected to write
- Uploading model solutions for tutorial questions
Types of questions

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- Checking the solutions if the answer is correct, some credit for the solution as well
- Instead of multiple choice, we can have fill in the blanks since they require more understanding
- Many department core courses have the concept of bonus/challenging problems in exams - no weightage but a certain prestige associated
Types of questions

- **Synopsis** type of questions: outline the major steps without details (credits: Prof. K D Joshi)
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- Example: Polynomials are continuous

1. \( f(x) = x \) is continuous with \( \delta = \epsilon \);
2. Powers of \( x \) are continuous by product rule
3. Scalar times \( x^n \) is continuous
4. Sum of continuous functions is continuous
Grading scheme

Totally exam-dependent as of now

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- Continuous evaluation
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- Continuous evaluation
- No assignments in Maths courses- can give some weightage to assignments