

# Prof. Jaggi Sidharth

Department of Information Engineering

## Teaching arrangements

Professor Sidharth implemented flipped classroom methods in a compulsory course for freshmen, ENGG 1410C Engineering Mathematics I, in the second semester of 2014-15.

## Description

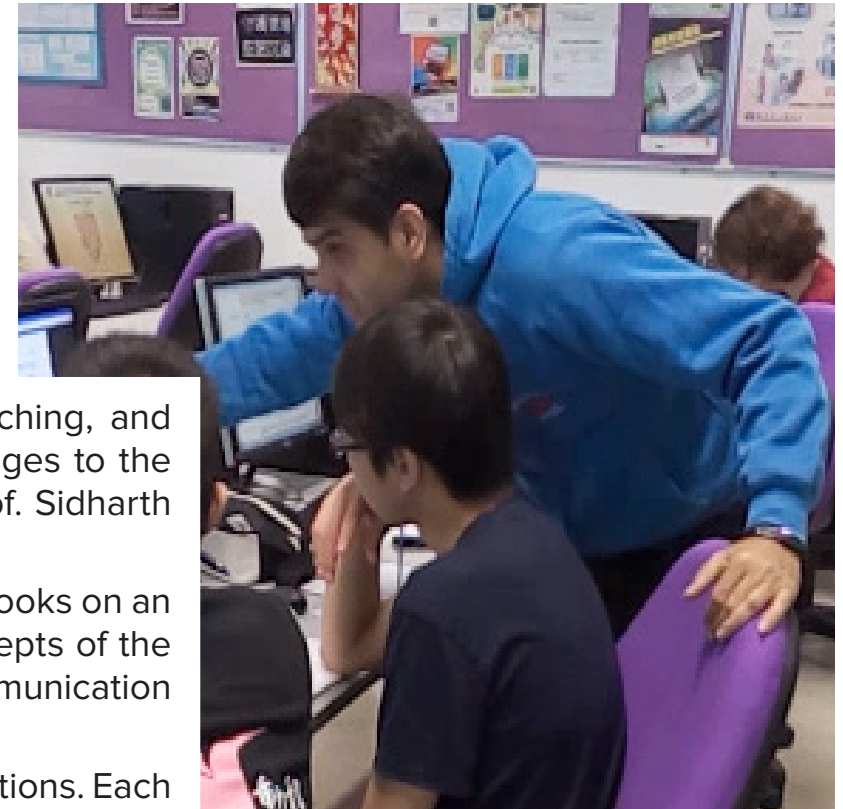
Prof. Sidharth had always wanted an interactive and active mode of teaching, and he thinks that the flipped classroom methods would make significant changes to the teaching and learning environment in his course. The course taught by Prof. Sidharth had the following features.

Before the class met, students were required to watch videos and read textbooks on an online learning platform ([Piazza](#)), in order to understand the logic and concepts of the subject. Piazza and Google Hangout were implemented as learning and communication platforms between students and the teaching staff.

Class time was spent on doing exercises in groups, discussions, and presentations. Each study group comprised 3 students. They were tasked with completing 3-4 questions in the 2 hours' allotted class time. Students who finished fast were selected to explain their answers to the entire class. The teacher and TAs walked around the classroom and responded immediately to students who raised their hands.

Students were divided into 4 tutorial groups. In each group, the tutor recorded each student's performance in the exercises and helped the student to solve difficulties and to improve on their understanding of the subject matter.

Thirty per cent of course assessment was allocated to evaluating students' attendance and participation, including completing in-class exercises, and doing presentations and bonus questions on Piazza.



**A Completed Flipped Classroom with Close Individual Tutoring**

# Students' Feedback

## Advantages

- 1 Students benefited most from the enriching engagements and interactions in the small-sized class than the class in the previous semester.
- 2 Students benefited a lot from the longer tutorial time. Since in-class exercises were completed with TAs' in-class help, the classes, in effect, became tutorials. Students felt all the 5 hours in class seemed like a tutorial session.
- 3 Learning initiative was nurtured. Students exhibited changes in their way of thinking and believed that the preview was helpful to learning after attending this course.
- 4 Students learned more in flipped classroom teaching than in traditional teaching because they could both teach and learn from fellow classmates in group study, search for more resources online, and take more initiative and responsibility for their learning in the preview session.

## Disadvantages

- 1 Students had diverse learning experiences when given more freedom in the flipped classroom teaching. Students who are good at the subject learned more by searching for more learning materials; while students who are not good at the subject confronted greater difficulties in understanding the subject.
- 2 Students felt it difficult to communicate in a group study context. For example, some students remained confused even after the teammate had explained a problem at length.
- 3 Students thought videos in the preview session were too long.

## Improvements

- 1 Improvements were continually implemented as TAs accumulated feedback from students every week during the teaching. Adjustments to flipped classroom teaching were made accordingly.
- 2 Short lectures were provided before class to students who had difficulties in learning by watching videos only.
- 3 Grading policy was revised so that students could gain the 30% score by participating in diverse teaching

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To watch real-time class videos, click 