Implementation of Outcome Based Teaching and Learning in EE
- Aligning teaching, learning and assessment with ILOs

Dr. H P Chan, Associate Professor
OBTL Coordinator, EE
Outlines

1. Overview of the OBTL framework in EE
2. Examples of Courses
   a. Engineering Analysis (EE3108)
      – E-Platform & Laboratory
   b. Electronics Product Design (EE3003)
      – Enhancing writing skill through LCC
3. Summary
Management Structure for Implementing OBTL in EE

- **Departmental Executive Committee**
  - Chairman: Head of Department

- **Taught Programme Leader Committee**
  - Chairman: Associate Head

- **OBTL Working Group**

  - Programme Management Team
  - Programme Management Team
  - Programme Management Team
  - Programme Management Team
  - Programme Management Team
Quality Assurance System in PMT

Programme Management Teams

Monitoring the alignment of CILOs with PILOs

Form 2B

Course Planning Form

Exam Moderation Form

Course Evaluation Form

Evaluation and Feedback
1. Focus Group
2. Course level
3. Year Level
4. Programme Level
5. Exit Survey
6. JSSCC and Programme Committee
7. Staff feedback
8. LASSI
9. External examiner

Teaching and Learning Support and Development Team
(pool of committed teachers, preferably one from each programme, as well as the instructional designer)
- Activities to promote OBTL: retreats, workshops, sharing sessions for promoting paradigm shift
- New staff training
- External liaison
- Teaching Development Grant
- Support for individual staff on demand
- E-learning

Legends:
- Alignment (vertical and horizontal); the number of lines indicate the level of interaction, more lines means closer interaction.
- T&L outcomes open for external evaluation
- Feedback
- General support
- Under individual staff’s management
Programmes Offered by EE

UNDERGRADUATE PROGRAMMES

- Computer Engineering
  - BEng (Hons) in Computer Engineering
    (Optional Business Intelligence Minor)

- Electronic and Communication Engineering
  - BEng (Hons) in Electronic and Communication Engineering
    (Optional Business Intelligence Minor)

- Information Engineering
  - BEng (Hons) in Information Engineering
    (Optional Business Intelligence or Law Minor)
Programme Intended Learning Outcome

1. An ability to apply knowledge of mathematics, science and engineering.
2. An ability to design and conduct experiments as well as to analyze and interpret data.
3. An ability to design systems, components, or processes that conform to a given specification and according to recognized professional practices.
4. An ability to function effectively and responsibly as a team member.
5. An ability to identify, formulate and solve engineering problems.
6. Awareness of professional and ethical responsibilities.
7. An ability to communicate effectively.
8. Knowledge in contemporary issues and an awareness of the impact of engineering solutions in a broad, global and societal context.
10. An ability to use necessary engineering tools.
Programme Structure and Flowchart of
BE(Hons) in Electronic and Communication Engineering / BE(Hons) in Electronic and Communication Engineering (Business Intelligence Minor)
2009 / 2010 intake cohort

Semester / Year

A/1
- MA2149 (3CU) Mathematical Analysis
- EE2372 (1CU) Electronics Laboratory
- EE2000 (3CU) Logic Circuit Design
- EE2301 (3CU) Basic Electronic Circuit
- CS2363 (3CU) Computer Programming

B/1
- MA3150 (3CU) Advanced Mathematical Analysis
- EE2108 (3CU) Engineering Analysis
- EE2003 (3CU) Circuit Theory
- EE2006 (3CU) Electronic Devices & Circuits
- EE2170 (1CU) Analogue Electronics Laboratory

A/2
- EE2104 (3CU) Introduction to Electromagnetics
- EE3118 (3CU) Linear Systems and Signal Analysis
- EE3008 (3CU) Principles of Communications
- EE3110 (3CU) Analogue Electronic Circuits
- EE3110 (3CU) Electromagnetic Theory

B/2
- EE3109 (3CU) Applied Electromagnetics
- EE3114 (3CU) Systems & Control
- EE3008 (3CU) Principles of Communications
- EE3110 (3CU) Communication Engineering
- EE3003 I (1CU) Electronic Product Design

A/3
- Elective (Group A or B)
- EE3014 (2CU) Engineers in Society

B/3
- Elective (Group A or B)
- Elective (Group A or B)

Elective (Group C)
- EE3003 II (1CU) Electronic Product Design

Remarks:
1/ Apart from the above courses, students are required to take EE4091 Basic Training I and EE4092 Basic Training II in Year 1 and 2 summer respectively. Students should also fulfill 6 credits of University Language Requirements, 6 credits of Chinese Civilization and at least 3 CUs of General Education courses and 6 CUs of Out-of-Discipline (OOD) courses. For BE(Hons), GE/OOD can be fulfilled by the Minor's courses.
2/ Students opting for BE(Hons)(BIM) will take 4 electives instead of 5. They will also take EE3110 in Year 2 Sem B and Group C Elective in Year 3 Sem B.
3/ For detailed course descriptions, please refer to the departmental website: http://www.ee.cityu.edu.hk
## Constructive Alignment of BEngECE PILOs with Courses

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T - taught, P - practiced, M - measured
EE3180 Engineering Analysis
Programme Structure and Flowchart of BEEng(Hons) in Electronic and Communication Engineering / BEEng(Hons) in Electronic and Communication Engineering (Business Intelligence Minor) 2009 / 2010 intake cohort

Semester / Year

A/1
- MA2149 (3CU) Mathematical Analysis
- EE2372 (1CU) Electronics Laboratory
- EE2000 (3CU) Logic Circuit Design
- EE2301 (3CU) Basic Electronic Circuit
- CS2363 (3CU) Computer Programming
- **EE2108 (3CU) Engineering Analysis**

B/1
- MA3150 (3CU) Advanced Mathematical Analysis
- **MA3150 (3CU) Advanced Mathematical Analysis**
- EE2106 (3CU) Electronic Devices & Circuits
- EE2170 (1CU) Analogue Electronics Laboratory
- FB2200 (3CU) Management Sciences I

A/2
- EE2104 (3CU) Introduction to Electromagnetics
- EE3118 (3CU) Linear Systems and Signal Analysis
- EE3008 (3CU) Principles of Communications
- EE3111 (3CU) Analog Electronic Circuits
- EE3003 (1CU) Electronic Product Design
- EE3003 (1CU) Electronic Product Design
- MS3215 (3CU) Linear Models

B/2
- EE3109 (3CU) Applied Electromagnetics
- EE3114 (3CU) Systems & Control
- EE3101 (3CU) Communication Engineering
- EE3110 (3CU) Analogue Electronic Circuits
- EE3110 (3CU) Analogue Electronic Circuits
- MS3217 (3CU) SAS Programming

A/3
- Elective (Group A or B)
- Elective (Group A or B)
- Elective (Group A or B)
- (6CU) EE4181 / FS4003 Project
- EE3014 (2CU) Engineers in Society

B/3
- Elective (Group A or B)
- Elective (Group A or B)
- Elective (Group A or B)

Remarks:
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2/ Students opting for BEEngECE(BIM) will take 4 electives instead of 5. They will also take EE3110 in Year 2 Sem B and Group C Elective in Year 3 Sem B.

3/ For detailed course descriptions, please refer to the departmental website: http://www.ee.cityu.edu.hk
Background Information

- BEngECE Programme
- Target **First Year** Students
- Large Class Size **100+**
- A large variety of background
  - some good and some poor in programming skills
- Focus on the **implementation** of numerical algorithm in MATLAB programming environment.
  - Student are expected **to apply** the skills learned in this course in other subsequent courses
Course ILOs for Engineering Analysis

**CILO 1:** To **identify** different possible types of errors particular to numerical computation.

**CILO 2:** To **express** a range of fundamental numerical algorithms in form of flowchart, pseudo code and MATLAB programming language.

**CILO 3:** To **implement** a given algorithms in MATLAB programming environment.

**CILO 4:** To **apply** numerical analysis algorithms in solving a given engineering problem.
Adopting new TLAs and ATs to meet the CILOs

1. Meet the needs of OBTL
   – limitations in conventional TLAs and ATs
     ➢ programming assignments, and written quizzes & examination

2. Set up a Blackboard e-platform to
   – motivate student higher level learning
   – conduct assessments, and monitor student learning over a time period
   – offer computer assisted assessments/laboratory activities

3. Provide students with more opportunities to present their works
Limitations of conventional TLAs and ATs

Case 1
A part-time student who have scored a high grade in EE3108...

“To score a high grade in EE3108 is not very difficult as long as you know the trick to attempt questions in exam and test. In fact, you do not need to revise so much materials.”

Case 2
A full-time student who have scored a high grade in EE3108.

During the handling a FYP problem, the student never thought of using MATLAB to solve a simple root searching problem. When I asked the student to use MATLAB to solve it, the student do not know how to write a root searching program.

Case 3
A full-time student who had taken EE3108.

The student told me that it is very easy to understand the concepts of the various algorithms. However, she often felt very frustrating in implementing the algorithms with program. She preferred me to just access the concepts like previous forms of assessments.
Adopting new TLAs and ATs to meet the CILOs

1. Meet the needs of OBTL
   - limitations in conventional TLAs and ATs
     ➢ programming assignments, and written quizzes & examination

2. Set up a Blackboard e-platform to
   - motivate student higher level learning
   - conduct assessments, and monitor student learning over a time period
   - offer computer assisted assessments/laboratory activities

3. Provide students with more opportunities to present their works
Constructive Alignment between CILOs, TLAs and ATs

**Teacher-controlled**
- Lectures
- Laboratory / Skill Test
- Discussion Board

**Peer-controlled**
- Project Group
- In-class exercise
- Discussion Board

**Self-controlled**
- Web recourse (MATLAB)
- Self-evaluation Exercise
- In-class exercise

Most of the Learning and Assessment Activities are supported by the Blackboard E-Platform
Assessment Weighting of EE3108

- Projects: 40%
- Participation: 20% bonus
- Self-Eval Ex: 10%
- On-line Quiz: 20%
- Written Quiz: 30%
## Tentative Teaching, Learning and Assessment Plan for Engineering Analysis EE3108 on 2006-2007 Semester B

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</tr>
</tbody>
</table>

Department of

**Electronic Engineering**
Evaluation of Students’ Learning
Statistics in accessing blackboard platform for EE3108 over one semester

<table>
<thead>
<tr>
<th>Selected Activities</th>
<th>Number of hits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>39,000</td>
</tr>
<tr>
<td>Announcement</td>
<td>13,000</td>
</tr>
<tr>
<td>Discussion Board</td>
<td>14,000</td>
</tr>
</tbody>
</table>
Access Traffic Patterns in using BB for EE3108
# Blackboard (BB) Usage Intensity

<table>
<thead>
<tr>
<th>Usage Intensity</th>
<th>Announcement</th>
<th>Discussion Board</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Usage (&gt; 200 hits)</td>
<td>11%</td>
<td>21%</td>
<td>57%</td>
</tr>
<tr>
<td>Medium Usage (&gt;100 hits)</td>
<td>63%</td>
<td>35%</td>
<td>92%</td>
</tr>
<tr>
<td>Low Usage (&lt; 25 hits)</td>
<td>1%</td>
<td>31%</td>
<td>1%</td>
</tr>
</tbody>
</table>

Remarks: If a student accesses a BB item once a day over the entire Semester, the total number of hit is approximately 100.
**Statistical Feedback (TFQ)**

### Part A:

In general, I have found that this teacher has:

<table>
<thead>
<tr>
<th>Statement</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>Mean</th>
<th>Stdev</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. communicated course aims clearly.</td>
<td>18</td>
<td>23</td>
<td>5</td>
<td>1</td>
<td>2</td>
<td>4.1</td>
<td>0.96</td>
</tr>
<tr>
<td>2. presented course content clearly.</td>
<td>17</td>
<td>26</td>
<td>4</td>
<td>0</td>
<td>2</td>
<td>4.14</td>
<td>0.89</td>
</tr>
<tr>
<td>3. been well prepared for classes.</td>
<td>22</td>
<td>23</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>4.33</td>
<td>0.77</td>
</tr>
<tr>
<td>4. organised class time effectively.</td>
<td>21</td>
<td>17</td>
<td>8</td>
<td>2</td>
<td>1</td>
<td>4.12</td>
<td>0.97</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Statement</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>Mean</th>
<th>Stdev</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. stimulated student interest in the subject.</td>
<td>20</td>
<td>19</td>
<td>5</td>
<td>2</td>
<td>3</td>
<td>4.04</td>
<td>1.12</td>
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<table>
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<th>3</th>
<th>2</th>
<th>1</th>
<th>Mean</th>
<th>Stdev</th>
</tr>
</thead>
<tbody>
<tr>
<td>6. made an effort to enhance student understanding of the subject.</td>
<td>22</td>
<td>20</td>
<td>5</td>
<td>0</td>
<td>2</td>
<td>4.22</td>
<td>0.94</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Statement</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>Mean</th>
<th>Stdev</th>
</tr>
</thead>
<tbody>
<tr>
<td>7. been helpful and responsive to student needs.</td>
<td>25</td>
<td>18</td>
<td>4</td>
<td>0</td>
<td>2</td>
<td>4.31</td>
<td>0.94</td>
</tr>
</tbody>
</table>

<table>
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<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>Mean</th>
<th>Stdev</th>
</tr>
</thead>
<tbody>
<tr>
<td>8. explained expectations on coursework and assessment clearly.</td>
<td>24</td>
<td>15</td>
<td>8</td>
<td>0</td>
<td>2</td>
<td>4.2</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Statement</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>Mean</th>
<th>Stdev</th>
</tr>
</thead>
<tbody>
<tr>
<td>9. given realistic, relevant coursework and assessment activities.</td>
<td>17</td>
<td>22</td>
<td>5</td>
<td>1</td>
<td>2</td>
<td>4.09</td>
<td>0.97</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Statement</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>Mean</th>
<th>Stdev</th>
</tr>
</thead>
<tbody>
<tr>
<td>10. provided useful and timely feedback on student learning.</td>
<td>20</td>
<td>17</td>
<td>7</td>
<td>1</td>
<td>2</td>
<td>4.11</td>
<td>1.03</td>
</tr>
</tbody>
</table>
Written Feedbacks in TFQ

• The blackboard is a good place for student and teacher communication and learning.

• The discussion board is useful medium for ask question and find the answer.

• I most like the open Book test, it focus on the student understanding and not to memorize the formula.
Written Feedback in TFQ

• Project A&B can **enhance our study motivation** and **problem solving skill**.

• During studying this subject, I find that the **assignments (projects) are very helpful to us**. These two assignments are very related to our study and also give us **a very good chance to practice our test and examination**.

• **Too much workload** (extreme)
Student #1 commenting the teaching mode of EE3108

• It is very good to learn MATLAB during Week 1 tutorial (laboratory) in CSC. This allow students (her) to have a first hand experience to handle the software. This help them to relieve the anxiety in programming.

• The provision of on-line resource to self-study MATLAB is important and helpful. Since this enable students to learn the MATLAB at their own pace.

• Notes with illustration and programming examples are very helpful in implementing the algorithms without the necessary memorizing each program.
Student #2 commenting the teaching mode of EE3108

• The provision of Self-evaluation exercise (with instant feedback) after each lecture enables the students to identify any mis-concepts immediately.

• Discussion Board is very effective to post questions and collect comments. This will encourage students to clear up any questions as soon as possible.

• Short-quiz at the beginning of each tutorial class (laboratory) forced students to revise the lecture notes after each lecture. The immediate feedback on short-quiz results motivate them to learn.
Student #3 commenting the teaching mode of EE3108

• **Q&A and practicing sessions** (laboratory) allow students to have **instant feedbacks** on programming skill.

• **Projects** enable students to have experience to **handle real problems**. In particular, group project enable students to have **peer learning environment**.

• In general, if anyone can preview the notes before lecture, pay attention during lecture and, revise & do the self-evaluation exercises after each lecture to clarify any misconcepts, the **student think this course is not difficult to study**.
Reflections

• Blackboard, if probably used, is a very good platform in enhancing students learning, monitoring student learning activities..

• To force students into an active learning mode is important.

• Workload is subjective, it depends on student’s learning attitude.

• From the feedback received, most students feel they benefited from the current implementation of OBTL for EE3108.
EE3003 Electronic Product Design
Programme Structure and Flowchart of
BEeng(Hons) in Electronic and Communication Engineering / BEeng(Hons) in Electronic and Communication Engineering (Business Intelligence Minor)
2009 / 2010 intake cohort

Semester / Year

A/1
- MA2149 (3CU) Mathematical Analysis
  - EE2372 (1CU) Electronics Laboratory
  - EE2000 (3CU) Logic Circuit Design
  - EE2301 (3CU) Basic Electronic Circuit
  - CS2363 (3CU) Computer Programming

B/1
- MA3150 (3CU) Advanced Mathematical Analysis
  - EE2108 (3CU) Engineering Analysis
  - EE2300 (3CU) Circuit Theory
  - EE2006 (3CU) Electronic Devices & Circuits
  - EE2106 (3CU) Analogue Electronics Laboratory

Year 2

A/3
- EE2104 (3CU) Introduction to Electromagnetics
- EE3118 (3CU) Linear Systems and Signal Analysis
- EE3101 (3CU) Communication Engineering
- EE3110 (3CU) Analogue Electronic Circuits
- Elective (Group C)
- EE3103 (1CU) Electronic Product Design

B/3
- Elective (Group A or B)
- Elective (Group A or B)
- Elective (Group A or B)
- (6CU) EE4181 / FS4003 Project
- EE3014 (2CU) Engineers in Society

Remarks:
1/ Apart from the above courses, students are required to take EE4091 Basic Training I and EE4092 Basic Training II in Year 1 and 2 summer respectively. Students should also fulfill 6 credits of University Language Requirements, 6 credits of Chinese Civilization and at least 3 CUs of General Education courses and 6 CUs of Out-of-Discipline (OOD) courses. For BEengEC(BIM), the GE/OOD can be fulfilled by the Minor’s courses.
2/ Students opting for BEengEC(BIM) will take 4 electives instead of 5. They will also take EE3110 in Year 2 Sem B and Group C Elective in Year 3 Sem B.
3/ For detailed course descriptions, please refer to the departmental website: http://www.ee.cityu.edu.hk
Background Information

• EE 3003 is a laboratory-based course, lasting two semesters targeting Year 2 students.

• Students are working in groups. Each group has 3 to 4 students.

• Each group has to build a circuit and will then be asked to design a test jig for testing the circuit.

• In semester B, students will be asked to design a circuit or system that will integrate with three key components – linear / digital circuit design, microprocessor programming and interfacing.
Course ILOs for Electronic Product Design

**CILO 1:** To identify and recognize the essential design and production procedures of electronic products.

**CILO 2:** To apply fundamental analysis methods and theorems to the solution of the case study.

**CILO 3:** To design and implement a prototype for meeting the case study requirements.

**CILO 4:** To acquire hands-on experience and problem-solving skills in electronic product design.

**CILO 5:** To acquire experience in presenting the design work.

**CILO 6:** To form the foundation for the Electronic Product Manufacturing Project, the penultimate part of the industrial training programme run in the summer semester.
Adopting new TLAs and ATs to meet the CILOs

• Meet the needs of OBTL

• Set up a platform for the laboratory supervisors to conduct group and individual assessments, and monitor student learning over a time period

• Provide students with more opportunities to write and present their works

• Introduce Language Company Course (LCC) to assist student in writing skills. (PLIO 7)
TLAs in EE3003

Each student has

• One laboratory kit
  – Laboratory manual
  – Laboratory schedule

• One Logbook
  – Attendance record
  – Development plan
  – Weekly development progress
  – Group and individual assignments
TLAs in EE3003
Weekly development report

• Every week, students have to write a one-page summary to briefly report the development progress.

• The laboratory supervisor can keep tracking the progress of each student and giving necessary feedback.
Sample [assessment table]

<table>
<thead>
<tr>
<th>Item</th>
<th>Week</th>
<th>Activity</th>
<th>Weighting</th>
<th>Level of achievement (0 – 3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>B1</td>
<td>2</td>
<td>Development plan</td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td>B2</td>
<td>2</td>
<td>Development progress in Week 1</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>B3</td>
<td>3</td>
<td>Development progress in Week 2</td>
<td>1.0</td>
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<tr>
<td></td>
<td></td>
<td>...</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B13</td>
<td>13</td>
<td>Development progress in Week 12</td>
<td>1.0</td>
<td></td>
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</tbody>
</table>
# Group and individual assignments

<table>
<thead>
<tr>
<th>Item</th>
<th>Week</th>
<th>Assignment</th>
<th>Weighting</th>
<th>Format</th>
<th>Rating (0 – 4)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Individual</td>
</tr>
<tr>
<td>C1</td>
<td>2</td>
<td>Understanding of the circuit</td>
<td>3.0</td>
<td>Logbook</td>
<td>N/A</td>
</tr>
<tr>
<td>C2</td>
<td>3</td>
<td>Two-page summary about the operating principles of the circuit</td>
<td>3.0</td>
<td>Group report</td>
<td>N/A</td>
</tr>
<tr>
<td>C3</td>
<td>6</td>
<td>Demonstration of the circuit</td>
<td>3.0</td>
<td>Demo</td>
<td></td>
</tr>
<tr>
<td>C4</td>
<td>7</td>
<td>Five-page testing report with the bill of materials</td>
<td>5.0</td>
<td>Group report</td>
<td></td>
</tr>
<tr>
<td>C5</td>
<td>8</td>
<td>Two-page proposal on the operating principles of the test jig circuit</td>
<td>3.0</td>
<td>Group report</td>
<td>N/A</td>
</tr>
<tr>
<td>C6</td>
<td>12</td>
<td>Demonstration of the test jig</td>
<td>5.0</td>
<td>Demo</td>
<td></td>
</tr>
<tr>
<td>C7</td>
<td>13</td>
<td>Formal presentation of the starter circuit and test jig</td>
<td>5.0</td>
<td>Demo</td>
<td></td>
</tr>
<tr>
<td>C8</td>
<td>13</td>
<td>Five-page report about the test jig, including operating principles, testing results, bill of materials</td>
<td>5.0</td>
<td>Group report</td>
<td></td>
</tr>
</tbody>
</table>
Language Companion Course (LCC)

- Form of support:
  - to provide subject teachers and language specialists with a platform for helping students improve their academic writing ability in English.
  
  - The main rationale behind the LCC is that language learning takes place more effectively within the context of the courses in students’ chosen subject disciplines.
Implementation of LCC in EE3003

- Students have to submit the two five-page reports to EDO two weeks before the due date.
- After receiving the first draft of the reports, the language tutors will give students some comments on English and will ask them to submit the report again.
- The language tutors will mark the second submission and the laboratory supervisors will receive the final version.
- After finishing the first report, a sharing session will be organized by the EDO. The tutor will share with the students the common mistakes found.
- The marks given by the language tutors will contribute 10% of the overall mark for the reports.
Evaluation of Students’ Learning in writing skills
Impact of the no. of submissions on the final mark

YY: Groups that have submitted at least 1 draft
XX: Groups that have not submitted any draft
# Common Errors found in EE3003 Progress Reports

<table>
<thead>
<tr>
<th>Ass#1 Version 1</th>
<th>Ass#1 Version 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Comment type</strong></td>
<td><strong>Freq</strong></td>
</tr>
<tr>
<td>1 Article missing</td>
<td>265</td>
</tr>
<tr>
<td>2 Delete this (unnecessary)</td>
<td>257</td>
</tr>
<tr>
<td>3 Word choice - Collocation</td>
<td>141</td>
</tr>
<tr>
<td>4 Verb - past simple</td>
<td>126</td>
</tr>
<tr>
<td>5 Noun - countable</td>
<td>113</td>
</tr>
<tr>
<td>6 Punctuation – missing</td>
<td>110</td>
</tr>
<tr>
<td>7 Preposition - wrong use</td>
<td>89</td>
</tr>
<tr>
<td>8 Spelling</td>
<td>78</td>
</tr>
<tr>
<td>9 Punctuation - capitalisation</td>
<td>71</td>
</tr>
<tr>
<td>10 Verb - present simple</td>
<td>66</td>
</tr>
<tr>
<td>11 Word order</td>
<td>55</td>
</tr>
</tbody>
</table>
## Outcome – EE3003

<table>
<thead>
<tr>
<th>Assignments</th>
<th>Error rate for students who have submitted once</th>
<th>Error rate for students who have submitted twice</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Draft 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Draft 2</td>
</tr>
<tr>
<td>1st essay (progress report)</td>
<td>6.95</td>
<td>7.21</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>5.02</td>
</tr>
<tr>
<td>2nd essay (final report)</td>
<td>3.88</td>
<td>3.73</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.09</td>
</tr>
</tbody>
</table>
Overall satisfaction (EE2170)

The LCC met my expectations. (N=31)
Overall quality of the essay improved. (N=30)
LCC stimulated my interests in learning English. (N=31)
It was worth spending time on LCC. (N=30)
I would like to join LCC again. (N=29)
I would recommend LCC to others. (N=30)

Disagreed  Neutral  Agreed
Reflections

The new TLAs and TAs can provide

- a platform for the laboratory supervisors to closely monitor the learning progress of the students; and
- means to assess the performance of individual student and success of the student groups.
- students with more opportunities to write and improve their writing skills with the support of LCC
Summary

• We have introduced the OBTL framework in EE which assists in aligning teaching, learning and assessment with ILOs.

• This framework aims to give a good balance between the Quality Monitoring at Programme Level and the liberty of individual staffs to enhance students’ learning.

• Two courses are selected to demonstrate how TLAs and ATs are aligned at CILOs and PILOs level. And the corresponding learning outcomes have been discussed briefly.
Thank You