Report on Implementation

Conceive, Design, Implement, and Operate (CDIO) Framework for

***Re*-Thinking *Engineering Education,* Thailand**

Name: Mr. Nachirat Rachburee
Department: Computer Engineering Faculty: Faculty of Engineering
RMUTT, Thailand

Course Name: Data Structure and Algorithms

A. Details

Brief description of Program Activities

Car Racing Activity

1. student work in team of 5
2. build a car with ready to make circle robot kits
3. develop an algorithm to control the robot car
4. car race

Dates

18-19 June 2014

25-26 June 2014

What CDIO skills and Standards implemented

To attach course learning outcomes, integrated learning experiences, etc and photo snapshots if any and any other supporting documents.

2.1.2 Formulate a Strategy to Solve Problems

2.4.1 Apply the Thinking Process

3.1.2 Manage and Participate in Teams

3.2.3 Demonstrate Effective Oral Communication

4.3.3 Model System to Verify Goals

4.5.1 Designing the Implementation Process

4.5.2 Plan for Hardware Realization

4.5.3 Planning for Software Implementing Process

4.5.4 Planning for Hardware Software Integration

Standard 7 -- Integrated Learning Experiences*
Standard 8 -- Active Learning

The students design and assemble a robot car

Description

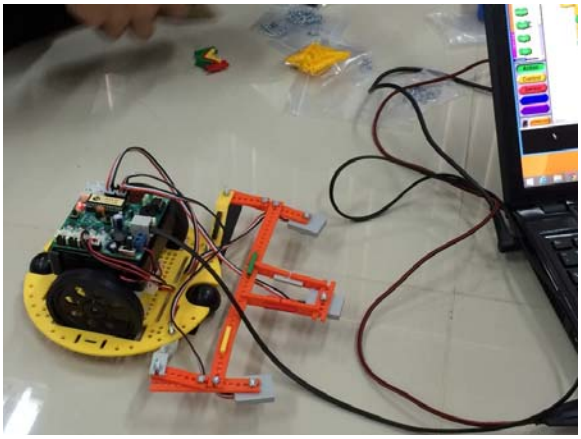
The students have options to solve the problems. Group work includes discussion, make alternatives, select the best one.

Team role:

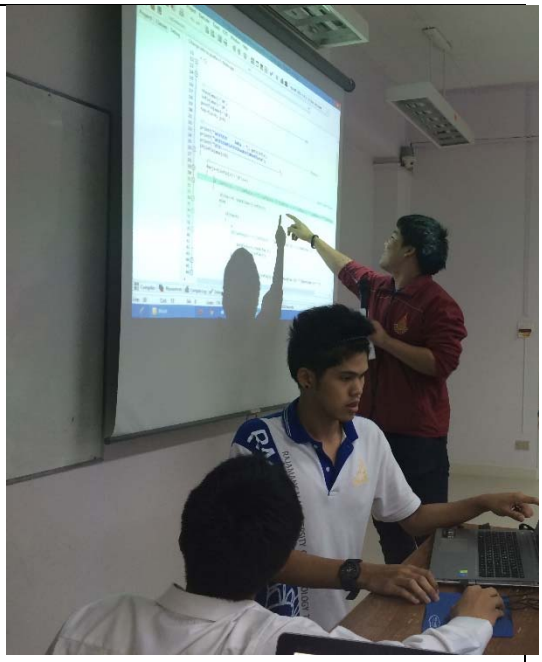
1. robot design
2. robot assembly
3. program installation and algorithm
4. robot control test
5. race area set up

Race time!!!

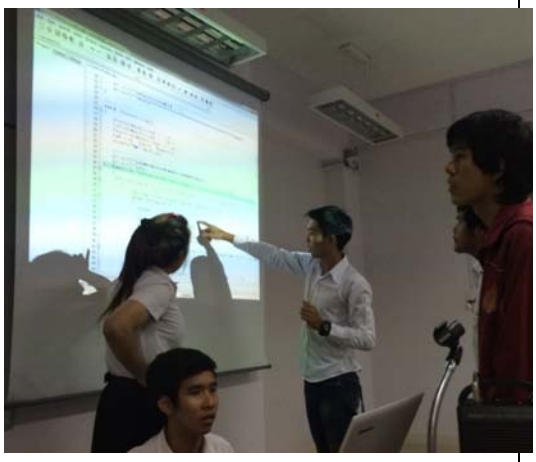
Algorithm design to control robot car regarding the race track



Connection of robot car to computer for software installation and robot car control



Discussion to write an algorithm for race car control



B. Evaluation on implementation (Please provide examples to substantiate where possible.)

a. Areas you have done well

The students are interested in this new activity. They are enthusiastic to work and do not get bored with learning activities. Within team, the students share ideas, teach each other and be able to achieve their learning outcomes through the assignment.

b. Areas of improvements

Help the students to be able to present more effectively.

c. Challenges of implementation

How to persuade other faculty members to apply CDIO framework and integrate within the sequence of coursework. Some activities need a lot of preparation, a TA should help with this.

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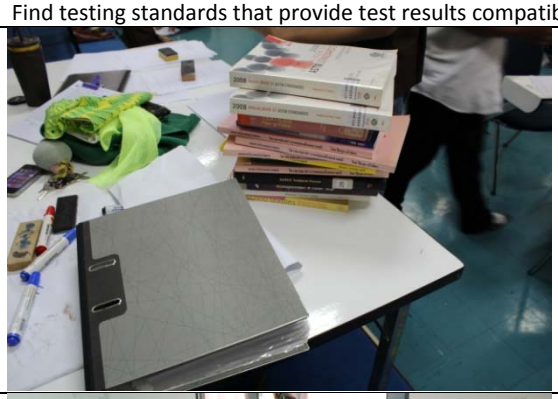
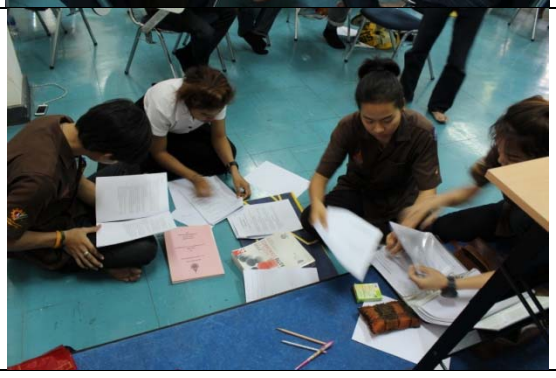
Name: ASST. PROF. PIYANUT JINGJIT
Department: TEXTILE ENGINEERING **Faculty: ENGINEERING**
RMUTT, Thailand
Course Name: TEXTILE CHEMICAL TESTING

Details	
Brief description of Course Activities	**Dates**
- Recognise textile testing standards:- companies' stds, industrial's stds, national stds, and international stds,	11-06-2014
What CDIO skills and Standards implemented	**Description**
- Fundamental technical knowledge:- textile testing standards	- Fundamental knowledge in principle of textile testing and its results - Recognise and understand major testing standards relevant to Textiles such as TISI, ISO, ASTM, AATCC, JIS, DIN, etc
- Teamwork - Communication skills:- reading, speaking, writing, and presentation	- students work in group of four (select randomly) - the teams work on finding proper information and relevant testing standards from piles of provided paper base information and standards

Assignment:
- Each team of students will receive a piece of fabric, which they will decide and write down its 10 possible end-uses with proper applicable explanations.
- Then select the most possible end-use of the fabric to analyse its 10 desired properties.
- Select 5 most critical properties from the desire properties.
- Find information relevant to each selected property.
- Find testing standards that provide test results compatible with the properties.








Evaluation on implementation (Please provide examples to substantiate where possible.)

Areas I have done well

1. sufficient supporting documents (Testing standards and relevant reference documents)
2. variety of pieces of fabric with distinct characteristics
3. clear instruction/assignment

Areas of improvements

1. work space:- no proper round table to facilitate group discussion
2. no facilities for students to search information on-line

Challenges of implementation

1. absenteeism:- some member in the team lack of participation
2. time limitation:- since there are piles of documents students need to look into within a time limit, students then tend to divide responsibility between themselves, therefore, each student will conceive only pieces of information that they responsible. The time limitation is also a barrier to a good group discussion.

Assessment of benefiting partner and community

1. Students are more familiar with testing standards and its applications, which is as one of the crucial fundamental knowledge for Textile Engineers.
2. Students have an opportunity to experience working as a team in academic assignment.
3. Students take responsibility for their own knowledge and perceive new information from accurate sources.

Learning points & recommendations for improvements

1. Improper workspace can be a burden of an efficient learning process. Therefore, the classroom should be improved to aid proper team working and group discussion.
2. The supporting documents should be in multiple copies which enough for every team to have their own copies.

Indication of sustainability:

1. This exercise is one of the efficient learning activities, which allow students to gain fundamental and theoretical based knowledge. The exercise makes students eager to learn and to find specific pieces of information from abundant documents. Therefore, the activity model will be put into several courses with similar form of knowledge perception.