EEE116
Experimental, Computer Skills and Sustainability

Week1 Module overview

Xi'an Jiaotong-Liverpool University

西交利物浦大学

Module Leaders

Xi'an Jiaotong-Liverpool University 西交利物浦大學

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Module Overview

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Module Credits: 5

A combined module of EEE107 (2.5 credit) and EEE110 (2.5 credit)

UoL: ELEC171 Engineering skills

Components:

1. Experimental Skills (70%)
   - LED running light (5%)
   - Smart car (25%)
   - Digital clock (10%)
   - Open project (30%)
2. Computer skills -- Matlab (15%)
3. Sustainability (15%)

Aims of the Lecture for Matlab. . .

To provide an opportunity for you to solve engineering problems with a computer software MATLAB.

Component Contents (Matlab)

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Contents to be taught (compulsory at UoL):

Introduction to MATLAB

1. Array and Matrix Operations
2. Files, Functions and Plotting
3. Branch Statements and Program Design
4. Loops and Program Debugging

Contents for self-learning (no assessment):

1. Polynomials and Solving Equations
2. Strings and Additional Plot Types
3. Cell Arrays and Structure Arrays
4. Handle Graphics
5. Graphical User Interfaces (GUI)

Aims and Methodology

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To develop practical lab skills in building and troubleshooting a circuit

via Experiments

Experiment 1: Soldering & LED Running Lights;

Experiment 2: Tea#1 smart car

Lab skills test: Oscilloscope, function generator, power supply, multi-meter.

To improve computer literacy and to develop the ability to solve 'real' engineering problems by numerical methods

via Lecture for Matlab and computer lab

Aims and Methodology (Cont')

To provide basic knowledge about sustainability development

via Seminars for Sustainability

To design and construct an electronic product

via Digital clock lab

via Open project

To know how to complete individual work and be a valuable team member.

To develop presentation, project management and communication skills.

Open project

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Do you want to be a maker or even start up your own company?

It is an OPEN project.

Only three requirement:

1. Use Arduino as controller
2. Have a sort of 'input' and 'output'
3. Related to sustainability

Assessment

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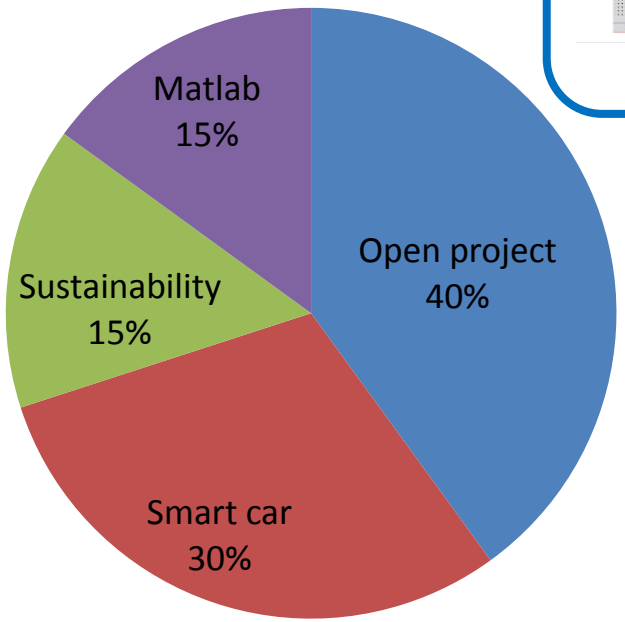

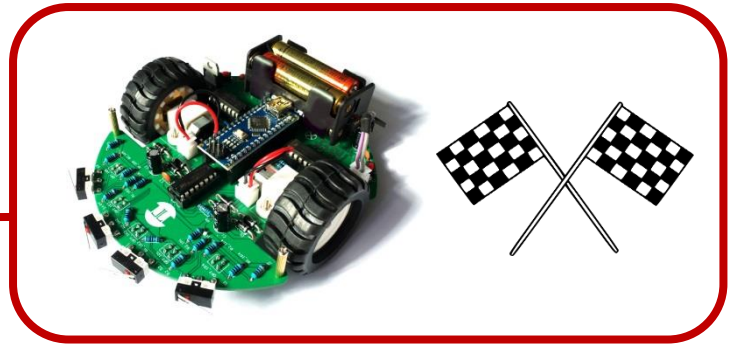

Assessment (cont')

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Smart car (30%)

- Soldering LED running light (5%)
- Bench inspection (20%)
- Final racing (5%)

Matlab (15%)

- Group report

Sustainability (15%)

- Individual report

Digital clock (10%)

- Bench inspection
- Lab skills assessment

Open project (30%)

- Demonstration
- Poster presentation
- Group report

The detailed assessment criteria will be introduced in the beginning of each component.

Module Schedule

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Classroom:	EE101,
Time:	9:00 – 11:00, Thursdays

Week 1:	Overview + Soldering pre-lab tutorial + Arduino 1
Week 2:	Smart car pre-lab tutorial + Arduino 2
Week 3:	Sustainability seminar 1 + Open project introduction
Week 4:	Matlab Lecture 1
Week 5:	Sustainability seminar 2 + Digital clock pre-lab tutorial
Week 6:	Matlab Lecture 2

Module Schedule (Cont')

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Week 7: Mid-term (Non-teaching)

Week 8: Sustainability seminar 3

Week 9: Open project consultation

Week 10: Final Racing (smart car)

Lab Planning

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Lab time: 11:00-13:00
14:00-18:00

Lab date: Tuesdays

Lab room: EE205 EE211 EE213 EE215
EE305 EE309 EE311 (Matlab)

Lab supervisors: Dr. Yang Du & Dr. Siyi Wang

The scheduled official lab sections have been listed. It is compulsory for every student to attend their assigned section. There is a assessment in the end of every lab section.

The students are also encouraged to arrange their own time to finish this project during the other lab opening hours (labs are open 9 am – 5pm, all working days).

Lab Planning (Cont')

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Week	Lab name	Student group	Assessment
Week-1			
Week-2	Soldering running LED light	**Group A&B**	Soldering skills
Week-3	Smart car 1	**Group A**	Lab skills
Week-4	Smart car 1	**Group B**	Lab skills
Week-5	Smart car 2	**Group A**	Bench inspection for smart car (**Group A**)
	Matlab computer lab 1	**Group B**	
Week-6	Smart car 2	**Group B**	Bench inspection for smart car (**Group B**)
	Matlab computer lab 1	**Group A**	
Week-7	Mid term		

Lab Planning (Cont')

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Week	Lab name	Student group	Assessment
Week-8	Digital clock	**Group A**	Bench inspection for Digital clock (**Group A**)
	Matlab computer lab 2	**Group B**	
Week-9	Digital clock	**Group B**	Bench inspection for Digital clock (**Group B**)
	Matlab computer lab 2	**Group A**	
Week-10			
Week-11			
Week-12	Open project	**Group A**	Demo & Poster
Week-13	Open project	**Group B**	Demo & Poster
Week-14	Open project Grand Final		

Grouping

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Since our lab time is overlap with EEE108, the whole class has been divided into two big groups, Group A and B.

Within each big groups, the students can form small groups of 3 students. Name as A1, A2…B1, B2…

Find your group member by yourself. Make the group choice on ICE.

All group members will receive the same marks based on the assessment result for all group works.

Class Rules

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Your presence in each class and lab is Important.

Miss more than one lab section may lead to failure for that component.

Please strictly obey the lab rules!

Please review Health and Safety Handbook of EEE and check the lab rules posted on the wall of each lab room!

THANKS

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