

## Student expectation for ENGG300/NCP Jilin University 2019

Students who are participating in the Jilin University visit program will undergo a number of activities where they will be exposed to real engineering projects that requires them to demonstrates their skills in: 1) structured problem solving and design processes, 2) written and oral communication, 3) entrepreneurship, 4) social responsibility, 5) teamwork, project management and 6) self-management, lifelong learning, critical thinking.

### Learning outcomes:

The learning outcome of the visit will be directly related to the ENGG300 learning outcomes:

- LO1** Students will be able to apply specific problem-solving approaches including problem decomposition, system-level modelling, model refinement, manufacturing costing, and background research.
- LO2** Students will demonstrate a working knowledge of engineering documents and their preparation.
- LO3** Students will develop and apply the appropriate activities to budget the financial risk and gain for any engineering endeavours.
- LO4** Students will demonstrate understanding and implementation of standards.
- LO5** Students will demonstrate understanding and implementation of Engineering projects
- LO6** Students will assess and incorporate feedback and new technologies as part of continuous improvement and learning.

During the visit, students are expected to engage with the planning, design, construction and review process of the engineering solution they contribute with in the engineering challenge.

### Engineering challenge:

The concept behind Formula SAE is that a fictional manufacturing company has contracted a student design team to develop a small Formula-style race car. The prototype race car is to be evaluated for its potential as a production item. The target marketing group for the race car is the non-professional weekend autocross racer. Each student team designs, builds and tests a prototype based on a series of rules, whose purpose is both ensuring on-track safety (the cars are driven by the students themselves) and promoting clever problem solving.

Jilin University has been running the Formula SAE for a number of years. They have experience in building a car based on the requirements and constraints of the project. Additionally, they have a limited budget and access to a facility for building and designing that has certain capabilities. Their car and the way they go about Formula SAE are all products of their people, experience, and resources.

You will be participating in the Formula SAE as part of the Jilin team. During your time at Jilin, you will have an opportunity to be part of the overall team tasked with delivering a successful Formula SAE outcome for the team. This may be doing a bit of design. In last year's visit to Jilin some students got to build components or wire the part of the electrical system. For other students it might be testing components which are being included on the car or evaluating new technologies which might be included. In all cases, you will be engineering and solving problems, in many cases, your notion of "what is engineering" will be expanded.

The prescribed activities are related to the learning outcome of the course and are loosely associated with the three major activities of their visits:

Week	Date	Activities	Related LO	Related task
1	2/7/18 – 8/7/18	Coca-cola and FAW visit	LO1, 4, 5, 6	A3, A4
2	9/7/18 – 16/7/18	CRRC facility visit	LO1, 4, 5, 6	A3, A4
3	17/7/18 – 24/7/18	Formula SAE	LO1, 2, 3, 4, 5, 6	A1, A2, A3, A4

In addition, upon completing the following set of activities, students will be able to receive up to 15% additional grades towards their ENGG300 unit.

There are three submittable tasks:

- A1. Reflective documents, 3 in total
- A2. Semi-structured perspective piece on the “*interdependency of culture, society and technological innovation*”
- A3. Daily journal entry

#### Detail description of assessable tasks.

##### **A1. Reflective documents, 3 in total**

Students are required to reflect on their learning that they have undergone during this visit trip. The reflection should be in and around professional and transferable skills developed. There is a list of suggested topics for discussion provided on iLearn. There will be three such reflection recounts, with a total length of no longer than 4 A4 pages. Students are expected to provide examples where appropriate to support their reflective recount. The marking rubric and supplementary information on methods to writing a critical reflective essay will be available on iLearn.

##### **A2. Semi-structured perspective piece on the “interdependency of culture, society and technological innovation”**

Engineering is a socio-technical subject, where there are many involving human factors in addition to technological innovation. Students are to evaluate their experience on this Jilin visit to discuss the implication and interdependency of culture and technological innovation. The perspective piece is designed to draw attention towards the effects of technological innovation on the human culture and experience. The document should not be more than 10 pages in length. The marking rubric and supplementary information on methods to writing a critical reflective essay will be available on iLearn.

##### **A3. Daily journal entry**

Students are expected to document their experience during these three weeks of visit. ***Student will need to be equipped with an A4 soft bounded (not spiral bounded) note book to document their experience during their visit.*** The journal entry should be dated. Upon returning, student will need to submit their journal for assessment by the convenors of the unit.