Part IIA briefing notes - opportunities

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Staff Student Joint Committee

The Staff Student Joint Committee (SSJC) provides an important mechanism for students to help the teaching staff improve all aspects of the course. There are webpages describing the current membership, and giving more details of their remit.

Cambridge University Engineering Society

CUES is a student-run, University-wide society with over 1,000 active members and several thousand alumni. Its role is to organise events that will give its members a taste of the wider world of engineering, as well as a chance to get to know other students in Cambridge and beyond. Follow this link for further details.

Student-led societies

The Department hosts, or is associated with, a number of student-led societies, which students may be interested in joining.

Student-led Projects

Introduction to Student-led Projects

This initiative promotes hands-on, extra-curricular engineering education, where students can work in teams in the Dyson Centre for Engineering Design to develop and excel in both their technical and management abilities. The official programme started in 2010 and now approximately 150 students are involved in the 5 current large teams and 7 smaller initiatives. We support independent student engineering activities in the Cambridge University Engineering Department (CUED) through two different funding routes.

Firstly, projects where funding is required between £200 and £500 to start projects as a small group can apply to the **Cambridge University Engineers' Association (CUEA)**. Examples to date include the setting up of an Electronics Club for peer learning, to A.I. based maze navigation and also a project fusing engineering structures

with art. Expressions of interest are welcome at the Moodle site

Secondly, the **Student-led Projects and Industry Partnership (SPIP)** supports larger independent student engineering activity in CUED. Industrial support through sponsorship, mentoring, technical and management advice is provided by **Boeing, BP, Jaguar Land Rover, National Instruments and Marshall Group**. Any independent project with at least one student member from CUED can apply for funding. Please contact the SPIP coordinator, Dr Daly if you are interested in applying. Applications for the next round of funding should be submitted in the required format by 4pm on 28th October 2016.

The University of Cambridge would like to thank the industrial partners for their extremely generous contributions in terms of time, helpful advice and direct project funding.

Project Expo

Each year the teams present their most recent developments in the Expo early in November in the main engineering site. This year it will take place on 3rd November in the Dyson Centre for Engineering Design. Come along to find out how you can become involved or how you can turn your ideas into a new project.

Meet the Teams

There have been 6 main SPIP teams over recent years and they are described below.

Cambridge University Space Flight

- High powered rocketry (15 km)
- High altitude ballooning (40 km)
- Building everything from light computer to rocket motors
- Launched high-altitude planetary entry parachute test system
- Annual rocketry event in the Black Rock Desert.

Cambridge University Eco Racing

- Most enterprising student society (RBS ESSA Scheme)
- Designs, builds and races
- Lightest ever vehicle at 120 kg
- Ongoing event: World Solar Challenge - 3000km race (Darwin to Adelaide)

Project Voxel

- Starting out small but ambitious
- 3 students initially
- Crowd-based, interactive, wearable, pixel lighting system with new sensors to come
- Great technical support from ARM
- May Ball trial of similar technologies

Cambridge Autonomous Underwater Vehicle

- Founded in 2006
- Originally designed for scientific exploration under the arctic ice
- Compete annually in the Student Autonomous Underwater Challenge Europe
- Won 1st place in the 2013 competition with Barracuda

Full Blue Racing

- 60 students
- Design & build a single seater racing car
- 450 Formula Student Teams, 100 teams compete
- Assessed on (1) speed & handling, (2) Business/design presentations
- Promoted to Class 1 in 2014

Cambridge University Autonomous Flight

- Designs, builds and flies autonomous quadrotor, drones or fixed wing aircraft.
- This includes: Mechanical frames, camera stabilizers, payload release mechanisms, electronics and software
- Compete at International Micro Aerial Vehicle Conference and Competition.

Arthur Shercliff travel scholarship

Each year an Arthur Shercliff Travel Scholarship, currently valued at £1,300, is awarded to a member of the Cambridge University Engineering Department, to promote technical visits abroad. The Arthur Shercliff Memorial Trust was set up in memory of a former Head of Department.

Part IIA student exchanges

The Department runs a number of exchanges that allow students to spend a year at one of a number of prestigious overseas institutions instead of doing Engineering Part IIA or MET IIA. Students then return to Cambridge for Part IIB. Follow this link for an overview of the available exchanges.

Undergraduate Research Opportunities Programme (UROP)

UROPs are an opportunity for Cambridge undergraduate students to spend a period of time over the summer assisting with research activities taking place across the spectrum of University Departments.

The scheme is open to any Cambridge University student provided that they have at least one full academic year of their undergraduate course to complete.

UROPs usually have a 10 week duration and there is a bursary payment at the rate of £250 per week.

For full information, including the application procedure, FAQs and a list of available projects see the UROPs homepage.

Students in Parts IA-IIA will be alerted when the initial list of projects offered for the next summer vacation is posted, and further projects will be added as staff propose them.

Workshop skills sessions

This voluntary practical is based on the manufacture of a small oscillating air engine. The engine will consist of several parts, some of which will be supplied. You will be required to make the remaining parts and then assemble the engine. Manufacture will include turning, milling and drilling operations using workshop machine tools. Sessions for this activity take place in the Instrument Workshop (reached from the south-east corner of the DPO) and last from 9 am to 4 pm with an hour's break for lunch.

It is very much hoped that this session will go ahead at the end of the Michaelmas term, but is dependent on the completion of the Dyson Engineering Centre. Full details of where to sign up and dates for the sessions will be emailed out.

Workshop skills sessions (Lent term)

This voluntary practical is based on the manufacture of a small oscillating air engine. The engine will consist of several parts, some of which will be supplied. You will be required to make the remaining parts and then assemble the engine. Manufacture will include turning, milling and drilling operations using workshop machine tools.

Sessions for this activity take place in the Instrument Workshop (reached from the south-east corner of the DPO) and last from 9 am to 4 pm with an hour's break for lunch. This activity will take place on **Friday 10 March 2017.**

12 students can be accommodated, and you should book on the booking sheet, which will be posted in the Instrument Workshop on Thursday 23 February 2017.

If you book a session and then find you are unable to attend, please inform Dr Parks (tel. 748553) or Mr Ross (tel. 332853) at the earliest opportunity.

CUED outreach programme

The CUED outreach programme aims to introduce school children to the fun and excitement of engineering within a university research environment. Teams of student volunteers are given the chance to make engineering more accessible through activities such as public lectures, summer schools for A-level students and workshops aimed at primary school children. Last year, almost 3,000 young people and parents participated in one of our outreach events.

For further details of the programme and a calendar of events visit the outreach website or contact the Outreach Officer.

STIMULUS programme for helping children learn

Interested in helping children learn maths, science or computing?

STIMULUS is a community service volunteering programme, giving Cambridge students the opportunity to work regularly with pupils in local primary and secondary schools for a couple of hours a week.

STIMULUS will arrange a school placement for you at a time in the week when you are available, and give you training and support to help children in the age group of your choice. See http://stimulus.maths.org for more details.

Placements are usually 1-2 hours per week, and volunteers help the same class(es) each week so that you get to know the pupils. You can provide valuable support, giving many children more individual help and attention than teachers are able to give on their own.

Volunteers choose the age range of pupils with whom you wish to work and opt for Mathematics, Science, Design Technology, Computing or Coding classes (at the lower primary level other subjects are often available). As well as supporting the work of class teachers by helping individuals and small groups, volunteers wishing to do so may plan and carry out short practical projects with groups of pupils.

How to volunteer

To volunteer for a STIMULUS placement this term, **please apply by completing the on-line application form at** http://stimulus.maths.org/members/volunteers/

The deadline for applications is midnight on Friday, 20th January 2017.

All details of placements will be given at STIMULUS introductory briefing sessions on Tuesday 24th and Wednesday 25th January. DBS check forms (background checks required for voluntary work with children) will also be organised at these sessions. Details of these sessions will be sent automatically to anyone who signs up. School visits will start during the following week.

For more information, check out http://stimulus.maths.org or contact the STIMULUS Coordinator, Jacqui Watkins.

STIMULUS programme for helping children learn - Lent supplement

INTERESTED IN HELPING CHILDREN LEARN?

If so, then STIMULUS will arrange a school placement for you at a time in the week when you are available, and give you training and support to help children in the age group of your choice. See stimulus.maths.org for more details.

"Really fun working with young children and it's a nice break from work."

Placements are usually 1-2 hours per week, and volunteers help the same class(es) each week so that they get to know the pupils. They provide valuable support, giving many youngsters more individual help and attention than teachers are able to give on their own.

"Both teachers in STIMULUS and in schools are very supportive. It's really an unforgettable and valuable experience! Thank you!"

Volunteers choose the age range of pupils they wish to work with and opt for Science, Mathematics, design, computing or coding classes (at the lower primary level other subjects are often available). As well as supporting the work of class teachers by helping individuals and small groups, volunteers wishing to do so may plan and carry out short practical projects with groups of pupils.

"This term's STIMULUS has been very enjoyable and rewarding, working with children at the beginning of their science education and hopefully inspiring them to enjoy the subject."

If you would like to get involved in the STIMULUS volunteering programme this term, please log onto the STIMULUS website, enter your details and check the 'Yes' box to indicate your availability for the Lent Term. You can go directly to the volunteer login page by clicking on the following link: https://stimulus.maths.org/members/volunteers

Further information about STIMULUS is available from the programme Coordinator, Jacqui Watkins.

stimulus.maths.org

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http://www.facebook.com/groups/134906999853770/

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