Physics | Lancaster University

Industrial Group Projects

Testing new ideas, improving devices, materials or concepts, producing prototypes

Our 3rd-year undergraduate Physics students work over a year in small teams on an industrial project as part of their degree. Projects can include initial investigation of a new idea, testing or improvement of new devices, materials or concepts, producing prototype equipment. Previous companies that have benefitted range from large multi-nationals to small local companies and non-commercial organizations.

Why take part?

This is a great opportunity for businesses and organisations to take advantage of a team of highly-motivated and skilled undergraduates to work on specific projects at little or no cost. Projects run in previous years have delivered tangible benefits for businesses, including products that can be commercially developed. Interested businesses do not have to pay for the time of the students or academics, although they may need to provide specialised equipment or materials that are specific to their problem. Projects often lead to further funded research and development.

What kind of projects can we deliver?

The aim of the scheme is to tackle 'real' problems, not small exercises. Projects should be problems that you would really like to solve. They can be an initial investigation of a new idea for long-term development, testing or improvement of new devices, materials or concepts. The results may be of commercial value to the client, but projects should not involve any proprietary or commercially sensitive knowledge. It is inevitable that there is likely to be a strongly applied or engineering dimension to the research, but projects do need to be physics-related/ technically oriented.

Examples of recent projects

- Investigating light scattering for commercial smoke detectors
- Studying the properties of gas diffusion layers for fuel cells
- Developing an automated rig for testing cleaning products
- Testing novel plastic films for the food packaging industry

"The Kleentec Industrial Group Project was a very challenging research into polycarbonate protection. The students, with the backing and resources of the Physics Department, were able to successfully complete the project. The support I have received from the University has been second to none. I would recommend any company with a challenging research project to seriously consider applying for an Industrial Group Project."
Nigel Whitaker, Director, Kleentec.

www.lancaster.ac.uk/physics/business

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Benefits to your organisation

- The chance to have a problem solved or to gain fresh insight into a problem at very low cost
- The opportunity to establish or strengthen links with a leading UK physics department
- Up to 1 year FTE of effort from 3rd year physics students
- A public relations and recruitment opportunity

Benefits to students

- An opportunity to do "real" research
- Insight into the needs of industry and the opportunities available to them as physicists
- Experience in teamwork, time and project management
- Encourages self-assessment
- Improves written and oral communication skills

Cost

Organisations may contribute other resources (e.g. loan or purchase of equipment, samples, consumable items or running costs), but are not expected to pay for the time of either the students or the academics involved.

How the Projects work

The projects are available as an option to 3rd year students studying on our BSc and MPhys Physics degree programmes. The students work in small groups of 3-6 people, and the projects account for 25% of an individual student's marks in the 3rd year, so should be fairly substantial (approximately 1 year).

Timeframes

Ideas for projects can be proposed at any time, but those received before July are most likely to be ready for the kick-off at the start of the academic year (early October): the student teams meet the clients, who will introduce the problems, and are also given instruction on how to manage team projects. The 'research' phase of the projects runs from October through to end of February (15 weeks of academic term), during which period students report weekly on the progress in their teams, comparing it with what was planned. At the end of the project each student writes an individual report and gives an oral presentation at The Physics at Lancaster Annual Conference and Exhibition. They will also be given an individual oral exam (viva) on their project work. Copies of all the reports are supplied to clients.

What do partner organisations need to do?

- Provide a short briefing document for the students to read that details the problem
- Meet with the students on campus on the first day of the module
- Host the students on a visit to the client site
- If necessary, be prepared to loan any specialized equipment to the University required for the execution of the project or provide other resources
- Be prepared to answer e-mail queries from the students

Results and further research

If progress is promising, but the problem is not solved in the lifetime of a single group project, then it may be possible to arrange a follow-up summer vacation project with 1 or 2 students working full time on it, or our business partnership team can signpost to other sources of funding for R&D such as our Impact Acceleration Account.

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