Cohort 4 (2022 Intake) PhD Project Proposals
Project Dates: October 2023-September 2026

Guidance Notes - Supervisors

Completing the Proposal Form

> **To submit a project you must complete the project proposal form, in Word format.**
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> This form will be used for two purposes:
>
>   - by the Management Board, to screen the project and make sure it is in remit
>   - to advertise your project to students

When completing the form bear in mind that students have previously favoured projects with practical application. Also, they make assumptions about the nature and scope of the project from the title and the department in which the Lead supervisor sits, for example, if they perceive the project to be theoretical or only suitable for electronic engineers, they may not explore further. **It is therefore important to make sure that the title is attractive and self-explanatory, and that the description makes it clear what the project involves.** You should also state if students from both physics and engineering backgrounds could be successful.

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Please submit the proposal in WORD format. If you wish to attach a PDF as well, that is acceptable, but the CDT Office have a word document in order to prepare the catalogue.

Section 1 **Title**	Please provide a concise **Project Title**.
Section 2 **Supervisor** **Details**	The **Lead Supervisor** must be employed by one of the four University partners in the CDT. Normally, the student will be enrolled at the University that employs the Lead Supervisor (their Home University). It will be the Lead Supervisor's responsibility to make suitable arrangements for a workspace at the Home University for their student and to ensure that EPSRC Terms and Conditions are met. The project must have a **Second CDT supervisor**, who is employed by a **different partner University** than that of the Lead Supervisor. If the Lead Supervisor has not previously supervised a PhD to successful completion, then the CDT Co-supervisor must be an experienced supervisor. Experienced Lead Supervisors are encouraged to seek ECRs as second supervisors. Please provide information on the number of students currently being supervised by the Lead and Co-supervisors as 1st or joint 1st supervisors, including the students' start and end dates. **You should submit a project for the 2022 Cohort only if you have supervisory capacity for 2022-2025, as defined by your employing University.**
Section 3	The **Project Description, Research Excellence** and **Research Training** (sections 3.1, 3.3, 3.4) will be included in the Project Catalogue, so you should provide a description

Project Details	sufficient to attract a student to the project. Make it clear, for example, if the project has a practical or manufacturing element or is theoretical modelling, and whether the project can be done by students on either the CS Physics route, the Engin route, or both (3.2).
	Please do not exceed the word limits.
	Note that the Lead Supervisor is responsible for ensuring that it is possible for a reasonably diligent student to complete the project and submit the thesis within the funded period, which is **by 30 September 2026** for this Cohort. This is an EPSRC requirement and is non-negotiable, with normal exceptions for sickness absence, parental leave etc.
	The PhD project must be scoped to take account of the student's attendance at CDT CSM training and engagement activities, which will be approximately **15 days** per annum.
	EPSRC also expects that students will have an annual leave entitlement of **40 days** per annum, inclusive of Bank Holiday and University closure periods.
	Research Facilities (3.5) will demonstrate to the Management Board that the student will have access to the facilities they need to carry out the work.
Section 4 Project Costs	**Project Costs** must be itemised by the heading given. Each project will have a total Research Training Support Grant (RTSG) of £15,000 over the three years of the project. **Do not** include any expenses that would normally be met by the University for its students.
	Note that CDT CSM students <u>must</u> have the opportunity to attend at least one UK and one international conference during their PhD, the costs of which are paid from their RTSG. The student must also be able to attend relevant training specific to their project and/or needs; the costs for these must come from the RTSG.
	Do not include costs for the student to attend the required CDT CSM Cohort training events, because these will be paid from CDT CSM funds rather than the RTSG.
	If the project costs exceed the RTSG level, describe how these costs will be met, for example by the industry partner or from other research grants you hold.
Section 5 Partner Details	Please state the proposed **Industrial Partner** and include the name and contact details of the contact person at the company and the name of the industrial supervisor (if different). *Only the company name will be provided in the student catalogue*.
	If the industrial partner has agreed to fund the project, **you must append the email or letter which confirms this**. The minimum contribution is **£38,000** for this Cohort. If you are still in conversation with one or more partners, please describe the status of these. The last possible date for confirmation of industrial funding is 30 November.
	Regardless of whether the project is funded at the point of submission, please state the industrial involvement that is expected in the project.
	If the partner is interested in several projects that you are submitting, please be clear on how many they will fund in this round.
Section 6 References	Please provide several references that provide the context or a starting point for the student to learn more about the topic. Normally, four or five should be sufficient.
Section 7 MSc Project	Please give a brief description of the **MSc project**(s) that might be suitable as a foundation to this PhD project and whether there is a preference for where the project should be undertaken (your University, industry partner premises or Cardiff). Remember that students may not be able to move during the summer, due to accommodation contracts, so please ensure the project *can* be conducted in Cardiff or remotely.

Section 8 **Covid19 Impacts**	**COVID-19 Impacts**: Please describe possible impacts from COVID-19 on the PhD Project. These may include UK or overseas travel, accessing facilities, equipment, materials, resources, or personnel required for the projects, or delays to start dates or milestones. Note that it is not expected that additional funding or time will be available to manage these impacts so the project scope would need to be adjusted.
Section 9 **Student Numbers**	**Student Numbers:** If the project is one of several that you are submitting, please state how many students in total you can supervise from this Cohort. So, if you have submitted four projects to enable student choice, but only have capacity to supervise 2 students – please state 2 on each of the proposal forms. If you believe that this topic could support more than more student from this cohort, please state how many you could supervise in this topic area.
Section 10 **Confirmation**	As Lead Supervisor, you will be confirming on behalf of the supervisory team that you will participate in the CDT activities and monitoring process, and that you will make best efforts to ensure that the student selected for this project participates in CDT CSM activities. Please be aware that the studentship can be withdrawn if the student fails to engage with the CDT. Please indicate whether you have already attended your University's ED&I training or whether you are committing to do so prior to the project selection interviews.
**Please submit the proposal in WORD so that the CDT Office can create the catalogue.  ** **Please use the Lead Supervisor's SURNAME as the PREFIX to the document name.**

Annex B: Q & A on Industrial Funding

Does the project have to be funded by a company?

All projects must have relevance to manufacturing, as this is the focus of the CDT.

The CDT has committed to funding 65 students over five years. To achieve this at least 37 of the projects must have industrial funding. In order to reduce the risk of not meeting that target, **the Management Board is prioritising projects with industrial funding.** Other proposals will be considered, but **industrially funded project will be allocated ahead of those that are not**. Note that due to the current distribution of projects, **ALL** Cardiff based projects **MUST** have industrial funding to be considered.

Note also that most students are seeking a project with strong industry links; in the post-selection survey, **85%** said that they would have chosen an industrially funded project even if they had not been required to do so.

If you have not yet identified an industrial partner, the Industrial Interface Director and your University representative may be able to help you to do so.

How do I find companies that might be interested in funding a studentship?

The companies who provided Letters of Support for the Centre for Doctoral Training are listed on the CDT website: https://www.cdt-compound-semiconductor.org/partnerships/ If you need contact details, please email the CDT office (semiconductors-cdt@ardiff.ac.uk).

There are many other companies using compound semiconductors that might have an interest in the research that you are proposing. Click here for details of the core and business partners in the CS Cluster and their sphere of activities.

The CDT Management Board is keen to help facilitate introductions where they can – please contact your University Management Board representative or Professor Khaled Elgaid, the Industry Interface Director (ElgaidK@cardiff.ac.uk) for assistance.

The Management Board is also canvassing partners for their research interests and will make these available to potential supervisors via an MS Teams space or via the University contacts, to be confirmed.

When is the last date to confirm industry funding?

In order that students can make an informed decision, we ask that you provide confirmation of industrial funding **not later than 30 November** so that this can be highlighted in the Project Catalogue.

How much cash does the company need to provide?

The minimum amount requested from an industry partner is one-third of the total projected studentship costs of approx. £115, 200 which means a minimum contribution of **£38,000** for students starting in September 2022. This is for a standard studentship; if the project costs exceed £15,000 in total or there are additional costs of a placement, the company should be asked to cover these unless you have another source of funds.

This sum is payable over the three years of the PhD project, beginning in October 2023, or by a single payment in 2023. Payment terms can be negotiated with the company: initial lump sum, 3 annual instalments, 6 six-monthly instalments or 12 quarterly instalments.

These sums are familiar to companies who have been involved in industrial CASE studentships where the company must provide a top-up of a minimum of one third of the EPSRC funding.

When discussing sponsorship, you should be aware that Research Studentship funding qualifies for R&D Tax credits when undertaken via a Contract with a University (Sub-contractor costs). As explained in the box below (source: www.Gov.uk website) an SME would qualify for 100% of their Costs, plus 130%. A large company would be able to claim 100% plus 13% against their corporation tax. An SME may even be able to claim if they do not currently pay corporation tax.

This is a major boost to the industrial partner where their corporation tax is reduced by 230% for an SME and 113% for large corporations. Even a SME who has not paid any corporation tax but is making NI payments for their employees can recover some of their contribution over a number of years.

Claiming Research and Development tax reliefs - GOV.UK (www.gov.uk)

Types of R&D relief
There are different types of R&D relief, depending on the size of your company and if the project has been subcontracted to you or not.

Small and medium sized enterprises (SME) R&D Relief
You can claim SME R&D relief if you're a SME with:

- less than 500 staff
- a turnover of under 100 million euros or a balance sheet total under 86 million euros

You may need to include linked companies and partnerships when you work out if you're a SME. SME R&D relief allows companies to:

- deduct an extra 130% of their qualifying costs from their yearly profit, as well as the normal 100% deduction, to make a total 230% deduction
- claim a tax credit if the company is loss making, worth up to 14.5% of the surrenderable loss

Research and Development Expenditure Credit

This replaces the relief previously available under the large company scheme.
Large companies can claim a [Research and Development Expenditure Credit (RDEC)](link) for working on R&D projects.
It can also be claimed by SMEs and large companies who have been subcontracted to do R&D work by a large company.
The RDEC is a tax credit of 13% of your qualifying R&D expenditure (since 2020).

Can two companies jointly fund a student?

Normally, the project should be funded by one company. However, if two <u>small</u> companies wish to co-fund a student, the Management Board will consider such proposals. The companies must be in agreement about the aims of the project and the assignment of intellectual property arising; these should be discussed well in advance to ensure that all material issues are agreed before a student is allocated to the project.

Does the Company have to be based in the UK?

No, this is not a requirement of EPSRC. If the student is to spend some time with the company outside of the UK, however, then the additional travel/subsistence costs will need to be considered when planning the budget and the Company may need to cover these costs. There may also be additional complexity around intellectual property and the studentship agreement, which again should be considered well in advance of a student being allocated to the project.

Will I need an Export Control License?

In a research context, export controls are most likely to apply to collaborative scientific or technical research with a potential military or security-related application. You should therefore explore [export controls](link) at an early stage if you think your project falls into these categories. Where applicable, researchers need to apply for an Export Control Licence to transfer controlled goods, technology, software or knowledge outside of the UK.

Cardiff University is in the process of developing an Export Control Policy and guidance for its researchers. In the meantime, Researchers are advised to review the information on [this page](link), together with the referenced documents, and to contact the [Research Integrity, Governance and Ethics Team](link) if they consider that export controls may apply, ***or the equivalent department in the partner universities.***

How is the student selected for the project?

As noted above, the Lead Supervisor and the Industrial Supervisor will interview the students who have expressed an interest in the project and will indicate whether the students are appointable.

Management Board receives these recommendations and allocates students to the projects, taking into consideration the balance of students at each University, which is fixed by the CDT agreements.

What if the project is not selected by any student or the Management Board does not allocate a student to the project?

The project can be carried forward for the following year's intake. You will be asked to confirm that you and the company, where relevant, wish to do this. You will need to amend the description or update it prior to the next round, as there are some new questions on this year's form.

What happens after an industrially funded project is confirmed?

The CDT Office will inform your University's contracts office of the funding and you will need to work with them to develop a studentship agreement, as soon as possible and before the start of the PhD project. Your University will be responsible for confirming completion of the agreement to the CDT Office and for collecting the industry contributions.