PhD Project Proposal Call - Cohort 8 (Oct 2026 Student Intake)
Project Dates: October 2027-September 2030

Guidance Notes - Supervisors

1. General

This is the project call for Cohort 8, who start their MSc year of their 1+3 studentship in October 2026, and their PhD project the following year, October 2027. They will also use the PhD project area as their MSc project/dissertation in the summer of 2027, the planning for which begins in March 2027.

CDT Remit: Projects **must be within the remit of the CDT for Compound Semiconductor Manufacturing**.

The aim of the CDT is to provide intellectually challenging and industrially relevant training that facilitates the transfer of research into production.

Projects should therefore exemplify the remit of the CDT in that research will involve:

- manufacture of integrated CS on Silicon and the application of the manufacturing approaches of Silicon to CS. The latter includes using generic processes and generic building blocks and applying statistical process control
- the growth, fabrication characterisation or application of, normally group III-V, compound semiconductors or combinations of these compound semiconductors with other materials such as e.g. silicon, but where the CS plays the major role
- exploitation of the highly advantageous electronic, magnetic, optical and power handling properties of CS and the pioneering of novel integrated functionality such as sensing, data processing and communication

Projects involving organic semiconductors, silicon carbide and 2D semiconductors would **not** normally be considered as within remit unless there was a strong manufacturing element, as evidenced by industrial funding.

Projects **must have relevance to manufacturing.** There **must** be **involvement with industry**, meaning an industrial supervisor and in-kind access to resources as a minimum, ideally partial funding of the studentship of one-third of the costs, and/or an industry placement, normally approximately 3-4 months, during the PhD.

Industry Partner Funding: The CDT has made a commitment to EPSRC to fund a total of 70 students over the period of the award (five intakes), of which a minimum of 51 students will have industrial funding. The CDT will be judged on its progress towards this target.

Therefore, over **70% of allocated projects are required to have industrial funding, across all cohorts. When allocating students to projects, priority will therefore be given to those projects with industry funding,** although this may be balanced against student preferences and distribution of projects between the University partners. This priority is communicated to students, and projects with industrial funding will be highlighted in a project selection 'catalogue'.

Confirmation of industry funding must be with us for all projects by 30 November.

Projects which are part-funded by industry must have a minimum contribution of 1/3 of the total basic CDT CSM studentship costs (four-years of stipend, tuition fees and RTSG). For students starting in September 2024 whose PhD projects start in 2025, **this will require a minimum (estimated) contribution of £49,996 or £16,665 per annum, based on the total projected studentship costs of £149,998.**

Projects may be joint funded by two or more industry sponsors.

Number of projects and number of students: Our aim is to have at least twice as many projects available for selection than we have students. We aim to recruit 18 students for Cohort 8, so require >36 projects. Some projects will therefore be unsuccessful in attracting a student.

You are therefore encouraged to **submit multiple projects** – this will increase the chances of students selecting your project. Multiple projects will also give potential industry sponsors a more comprehensive idea of your research interests, which may lead to them suggesting projects of mutual interest that they are willing to support. If you submit multiple projects, please state how many students that you can supervise from this intake: it is acceptable to state 'one'.

You may wish to suggest a **broader topic** that could be undertaken by more than one student. If so, you must indicate how many students that the project can support.

The Lead Supervisor will be responsible for ensuring that EPSRC Terms and Conditions are met for their students, where these are within their remit.

Further information about the structure of the Centre for Doctoral Training (CDT) in Compound Semiconductor Manufacturing (CSM) Programme is on our website. If you have queries after reading this guidance, please contact the CDT CSM Project Manager, Sarah Brasher at semiconductors-cdt@cardiff.ac.uk, or your institutional Lead:

- Professor Peter Smowton (SmowtonPM@cardiff.ac.uk)
- Professor Mark Hopkinson (M.Hopkinson@sheffield.ac.uk)
- Dr Leszek Majewski (Leszek.Majewski@manchester.ac.uk)
- Professor Huiyun Liu (Huiyun.Liu@ucl.ac.uk)

2. Timeline

Students have a taught first year based on an MSc at Cardiff University and supplemented with CDT specific seminars and training. They select their PhD projects during this first year, undertake a summer MSc project which is a foundation for the PhD, and start their PhD Projects formally in October 2027.

The schedule for project proposals and allocation follows:

2026	May	Full Proposal Forms and Guidance Distributed
	June	**Information Session** (date tbc) Discussions with Industrial Partners
	September	**30: Deadline for projects**
	October	**Management Board Review and Project Approval** (date tbc)
	November	**30: Deadline for confirmation of Industrial Funding**
	December	2: Project Catalogue distributed to students Presentations (Project Pitches) by supervisors (date tbc)
2027	January	Student discussions with supervisors Supervisors provide availability for interviews
	February	1: Deadline for student choices 4: Management Board allocation of interviews 8-19: Students are interviewed by Lead Supervisor, Second CDT Supervisor and Industry Supervisors 22: Deadline for outcomes to CDT Office (earlier if possible) w/c 22: Management Board allocation of projects

	March	3: Decisions reported to students and supervisors Student/Supervisor begin co-development of Project Universities notified of studentships profile
	May	Home university prepares studentship agreements as relevant
	June	MSc Project begins
	August/ September	MSc Dissertation Submission Students transfer to Home University and attend induction
	October	1: Formal start of the PhD Project

3. Project Discussions

Project Pitch: Lead supervisors will have the opportunity, to provide more information to students about their projects via presentations to be scheduled by the CDT office in December/January. The exact details of this 'Project Pitch' will be confirmed. Alternatively, a short, recorded session can be provided.

Project Catalogue: After distribution of the Project Catalogue, Lead Supervisors should expect to be contacted by students who wish to discuss their projects in more details. Please do not encourage students to speak to industrial or second CDT supervisors at this stage, because of the potential for introducing bias into the selection process.

4. Selection and Interview Process

Project Choices: Students are required to select four projects that they would be willing to undertake. Currently, no more than **two** (tbc) can be from the same university and at least **three** must be industrially funded. As soon as possible after the deadline for selection, Management Board will meet to consider the distribution of preferences and to allocate students to be interviewed by their preferred supervisors in a two-week period, 8th – 19th February 2027.

Interviews: Because the timeline for the process is extremely tight, the CDT Office will need to arrange interview time slots with the Lead Supervisors in advance. The Lead will be asked to identify times that they, the industrial supervisor and, ideally, the second CDT academic supervisor can be available for interviews in the period. After the Management Board distributes students to interviews, the CDT Office will confirm the interviews and cancel any unused slots.

All students will be interviewed for their first and second choice projects while some will also be interviewed for third and fourth choice projects where there is clustering of preferences around popular projects.

The Lead Supervisor is provided with the students' CVs and asked to submit a report form as soon as possible after the interviews, and not later than the date specified. Supervisor reports should indicate if a student is 'suitable' or 'not suitable' for a project, but without indicating order of priority. The Lead Supervisor is responsible for chairing the interviews and ensuring that they are conducted fairly.

5. Project Allocation

Management Board considers the Interview Panel recommendations, student preferences, availability of industrial funding and distribution of projects across the four University partners.

If your project last year was not allocated to a Cohort 7 student, it is possible for it to be carried forward for Cohort 8. You will be asked to confirm your intention to do this shortly. You will not have to fill in a new proposal form, but we will ask you to confirm that the details on your previous form are extant, and the project has confirmed funding for the 'new' one-third projected amount.

It is difficult to state in advance how likely it is that students will be allocated their first preference project. A number of factors are taken into account, primary of which is student preference. In previous cohorts it has ranged from 70 to 86%.

6. Completing the Proposal Form

To submit a project you must complete the project proposal form, in Word format.

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.

The proposal form is available to download from our website. A step-by-step guide to filling in each section of the proposal form is at Annex A

7. Project Screening and Selection

Projects will be assessed for suitability against the following criteria, by members of the management board:

Fit to the CDT Remit (CSM & Industrial Relevance)
Evidence of Industrial involvement (funding, supervision, placement)
Evidence of relevance and quality of student benefits and experience
Evidence of project Costings and Resources if costs are above RTSG of £20k
Inclusion of an Early Career Researcher* in the Supervisory Team

*For this purpose, defined as being within 8 years of the PhD viva.

Projects which do not have a letter of support from Industrial partners will not be included in the selection catalogue.

Annex A: Completing the Proposal Form

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. Projects submitted by ECRs will get an additional weighting in the scoring criteria. 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 2027 starts (Cohort 8) only if you have supervisory capacity for 2027-2030, as defined by your employing University.**
Section 3 **Project Details**	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 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 CS 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 2030** 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 up to 24 days per annum**. This includes 10 days per annum of public engagement and outreach work as part of the UKRI 'Tech Expert' Scheme, which is a condition of the enhanced stipend for this cohort. 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 **£20,000** over the three years of the project.

	Do not include any expenses that would normally be met by the University for its students, such as a workstation. Note that CDT CSM students must 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 **£49,996** for this Cohort. Note that this is an estimate of one-third of the cost of a studentship (see FAQs) and can rise by up to **15%** if conditions dictate higher stipends. This includes increases to costs due to inflationary factors or individual student situations such as sick leave. 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. Note that more than one industry partner can support/fund a 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 **you must ensure the project *can* be conducted in Cardiff or remotely.**
Section 8 **Impacts**	**Impacts**: Please describe possible risks or impacts 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, many of which are mandatory. 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 70 students over five years. To achieve this at least 51 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 projects will be allocated ahead of those that are not**.

Industry partners can jointly fund a project.

Note also that most students prefer projects 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@cardiff.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 (ElgaidK@cardiff.ac.uk), the Industry Interface Director, for assistance.

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 a four-year studentship. At this stage, the amount is the ***projected*** four-year studentship costs, as we do not know the annual UKRI stipend and fees increase for the final three years of the studentship for Cohort 7. The projection is based on known costs for 2026-7 and inflationary rises of 3%, 2% and 2% for the remaining three years).

The cost of a **four-year** studentship is therefore currently *projected* to be approx. **£149,998** which means an estimated minimum contribution of **£49,996** for students starting in Oct 2026 (with their PhD starting in October 2027). Please note that, as this is the *estimated* cost of a four-year (1+3) studentship, it may change slightly with inflationary pressures when UKRI announce stipends and fees for the remaining study period.

This sum is payable over the **three** years of the PhD project, beginning in October 2027, or by a single payment in 2027. Payment terms can be negotiated with the company: initial lump sum, 3 annual instalments, 6 six-monthly instalments or 12 quarterly instalments. **The balance may be adjusted in the final**

year to ensure that the partner contributes one-third of the studentship cost. To reduce industry exposure to risk, any inflationary rises will be capped at 15% of the estimated cost above.

This is for a standard studentship; **if the project costs exceed £20,000 in total, or there are additional costs of a placement (such as accommodation or travel to the site), the company should be asked to cover these unless you have another source of funds**.

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) the rate of R&D expenditure credit is 20%, or 86% for loss making SMEs. This is a major boost to the industrial partner, as their corporation tax is reduced.

Tax Relief on Research

Research and Development (R&D) tax relief supports companies that work on innovative projects where those projects seek an advance in science or technology.

Enhanced intensive support and the merged scheme

The merged scheme R&D expenditure credit (RDEC) and enhanced R&D intensive support (ERIS) replace the old RDEC and small and medium-sized enterprise (SME) schemes.

For expenditure under **the merged RDEC scheme**, the **rate of R&D expenditure credit is 20%.**

Enhanced intensive support allows loss-making R&D intensive SMEs to:

a. deduct an extra 86% of their qualifying costs in calculating their adjusted trading loss, as well as the 100% deduction which already appears in the accounts (or in the computations as a result of s1308 CTA 2009), to make a total of 186% deduction

b. claim a payable tax credit, which is not liable to tax and is worth up to 14.5% of the surrenderable loss

Can two companies jointly fund a student?

Normally, the project should be funded by one company. However, if two 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 Export Controls, 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?

Export controls may apply if elements of the PhD program involve the sharing of materials or information with entities outside the UK. 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 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.

We encourage researchers involved in Uk based projects that relate to one of the 17 sensitive areas of the economy as defined by the National Security and Investment Act, (2021) to liaise with their Research Governance teams for guidance on the management of sensitive research items.

Researchers are advised to review the information on this page, if they consider that export controls may apply.

Cardiff University has a comprehensive range of guidance in relation to the Trusted Research agenda on its intranet, including the University's Export Control Policy and associated Procedure. All Trusted Research assessments must be completed in collaboration with the Research Integrity, Governance and Ethics Team.

For projects led by researchers at the University of Sheffield, please contact exportcontrol@sheffield.ac.uk or visit their webpage, for Manchester the email is regulatory.compliance@manchester.ac.uk and their web information is here. Supervisors at UCL should contact ris.complianceandassurance@ucl.ac.uk or visit their webpage.

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?

Projects may be rolled forward to the following year if not selected by a Cohort 8 student.

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**.