

Welcome to CDP

John Dixon (CDP Manager)

CDP is a Masters Level Module (level 7)

The QAA (Quality Assurance Agency for Higher Education) says that, when you qualify as a level 7 student you should be able to:

- Set goals and identify resources for the purpose of life-long learning

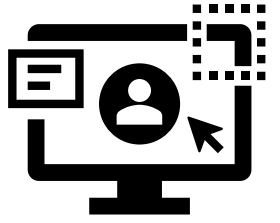
- Ensure the success of some technically sound endeavour.

- Recognise and respond to opportunities for innovation

- Critically review your own work and existing literature, identifying limitations and avenues for further development or explanation

- Show leadership skills, which tend to be characterised by acquiring a vision (based on sound technical insights) coupled with the ability to encourage others to share in that vision and to ensure that this will not be to their detriment.

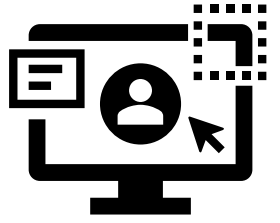
- Use translational skills which involve the necessary communication between technical and non-technical audiences.



What is CDP?

- CDP teaches you to work in a way businesses work
- Businesses/companies and organisations want students as junior developers.
- They also want students who can do more than just write code.
- In fact, they often tell us that writing code is only a very small part of what they are looking for when they read CV's or invite people to interview.
- Employers like EXPERIENCE. Why?

What is CDP?



- Employers like EXPERIENCE. Why?

The experience gap leaves lots of students on the back foot when it comes to getting a real, paid job.

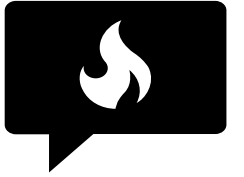
By engaging with your work in CDP, you will gain real experience of producing real software for real clients. That involves a LOT **more than just producing real code.**

You'll emerge more employable: with a Masters qualification and with experience you can talk about at interview and write about in your CV. It'll also hopefully make joining the workplace a little less intimidating.

Origins of the module

- SEED Software
- Established in 2005
 - Financial support from ESF and Microsoft
- Initially recruited graduates
- Now has a successful intern program
- Has been merged into Lampada





Origins of the module

- SEED focused on Fire and Rescue.
- Small projects came in from companies and businesses from all sectors!
- We now handle the small projects internally, under CDP.
- CDP stands for Commercial Development Practice, but is more than that.
- You are now working as part of the CDP team.
- You should consider adding CDP to your CV under 'work' or 'placements' instead of education.

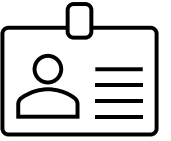


CDP Staff

- CDP is comprised of a set of academic staff, a commercial manager, researchers and MEng/MSc project students.

Key names:

- | | |
|-----------------------|-----------------|
| ■ John Dixon | CDP Manager |
| ■ Warren Viant | Academic Mentor |
| ■ Chandra Kambhampati | Academic Mentor |
- Other staff in the department may specialise in your project area. Use them as a resource.
 - You can make appointments to see any staff member by sending them an Outlook meeting request.



Systems Staff

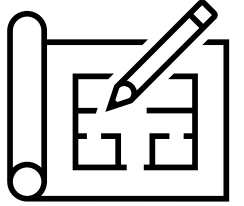
CDP relies heavily on systems staff for IT and systems infrastructure

Key names:

- Josh Gibson josh.gibson@hull.ac.uk
- IT Helpdesk <https://hull.service-now.com>
- If you foresee needing something unusual **put your requests in early!**
It takes a lot of time to get stuff set up in any large organisation.
- Most queries can go through me or the helpdesk.

Mark helpdesk queries 'For CS helpdesk' and 'MEng project' then keep me in the loop!

CDP Location



- You will be allocated a desk
- RBB-203A (.NET lab) and RBB-321 are dedicated to the use of CDP project students during timetabled CDP hours.
- You should treat the lab as your office – but be aware that others will need to use the space during the week.
- You have card access to RBB-203 and RBB-321, and are welcome to book other facilities around the department for meetings, teleconferencing, etc.
- Some students may also be assigned to work in RBB-203
- This is where you can store devices if you have any owned by external clients. RBB-203 is dedicated to CDP.

CDP Setup

- MEng students and MSc students
- Big pool of projects
- Real clients



CDP Commercial Clients

- We have links with commercial clients across the UK:
 - Games/AR/VR Companies
 - Fire & Rescue Services (through SEED – now Lampada)
 - Healthcare Providers (e.g. NHS)
 - Charities
 - Companies of all sorts across the Humber and UK
- We also take on University projects:
 - University Institutes
 - Other departments
 - Internal (within the School)
- These are all real clients who are depending on our software for use in the real world.
- They **don't want a piece of student coursework**, they want properly designed, tested, deployed, maintainable and useful applications.

Some Past Projects

ACTV (Asset Coverage, Tracking and Visualisation)

Sold to Fire and Rescue services to plan best locations for fire stations and see where they can/can't currently reach within the response time window.

NHS Surgical Voice Assistant

Voice-controlled surgical assistance software which allows surgeons access to critical tasks, documents and supportive features which are all valuable during surgery – without having to use a physical interface. Awarded funding for further proof of concept.

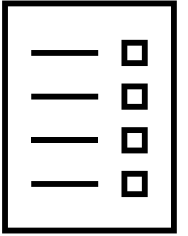
Phlegm Analysis and Early Diagnostics eHealth Tool

Using this mobile phone app and a specially designed cup, otolaryngologists could instruct their patients to take a picture of their spit at regular intervals and report on its consistency etc. These would be automatically analysed for colour and uploaded to help doctors make early diagnostics without the need for the patient to come into the hospital.

Virtual Reality Flood Modelling in the Humber Area

Using a mathematical model, devised by Geography, this VR model shows the effects of tidal activity and rising seas in the Humber area. It was featured on the BBC and is regularly used in science demonstrations and outreach.

CDP Projects

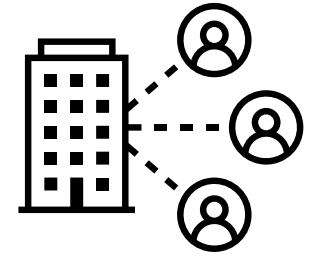


- These projects are:
 - Team projects
 - Real products for real customers, not an extended final year project
- Project teams may consist of
 - Staff/MEng/MSc students
 - Full-time staff (in-house or at your client's premises)
- Project process fully described in CDP Project Handbook on Canvas

Projects

- You may not get a project you wanted to work on. Sorry, but that's the way of the world.
 - The process isn't about the project it's about how you work, what you learn and the processes you use.
- Sometimes projects don't work, the client isn't able to continue to engage or there is some other (usually legal) problem.
 - We will sort out these problems.
 - This could get frustrating but it won't affect your mark if you alert us and keep us informed
- The project is not YOURS
 - You are working on the project for us & your client
 - As part of a team
 - You could be moved from it, it could be cancelled or have new team members added

Our Expectations

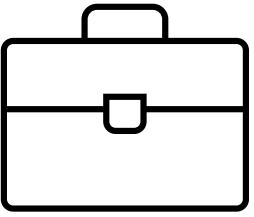


- We treat you as a employee throughout the project duration
- We expect you to treat the project as a job
 - Keep standard working hours
 - 9:00 - 13:00, 14:00 - 17:00 or 9:00 - 12:00, 13:00 - 17:00
 - Sign-in each morning and afternoon
 - Use your allocated time effectively
 - Show respect to team members and other colleagues
 - Use your initiative
- We will treat you more as an employer will treat you, not as a student
- WHY?
- What does this mean?
- How is this different from other University modules?
- Who manages you?



Learning

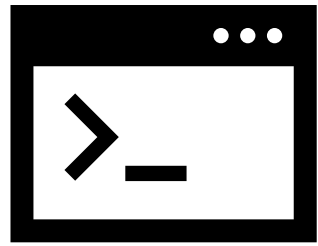
- This is still a learning experience
- You should treat all jobs as learning experiences to ensure your continued professional development
- However, we anticipate you will make some mistakes
- That's ok - fix them and learn from them. This gives you lots to talk about in assessment.
- This is a safe space to make those mistakes
- We will guide you to make the good decisions but if you ignore us we won't force you
- We expect you to push yourselves to learn something and do something new.
 - Don't just do what you think you're already good at – use this time to improve!
 - Set yourself goals. Track them, update them, add new goals!



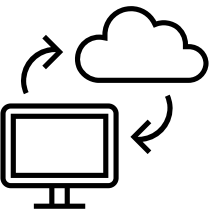
Dealing with Customers

- All projects have real customers and teams will need to meet and interact with them regularly
- We expect
 - All staff to act professionally and with courtesy in customer interactions
 - Dress appropriately
 - All team members to participate in customer meetings
 - Teams to minute all customer interactions
- Teams are required to maintain regular contact with customers and keep them informed of project progress
 - Email, Phone, MS Teams, Meetings at University, Meetings at their premises, etc.
- WHY?

Software Delivery

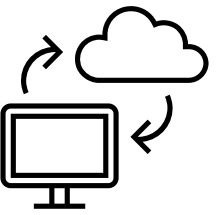


- Project are expected to succeed and deliver working software which matches the client's requirements
- All teams must
 - Manage projects using Scrum and Prince2
 - Implement two or more Scrum sprints
 - Deliver working software to the client by the end of the project period
 - Deliver incremental software releases to the client at the end of each sprint
- WHY?



Project Repository

- All teams must
 - Maintain a repository of
 - Project documentation (design, project management, etc)
 - Project handover documentation – providing a snapshot of project state for subsequent teams
 - Systems handover documentation – full details of development, test and deployment environments to allow their recreation by the Systems Team
 - Use the provided source version control system
 - Use Azure Devops wherever possible

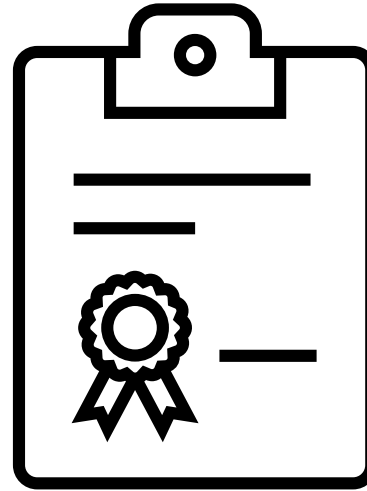


Project Repository

- All teams should not
 - Use web-based or cloud applications or source code repositories which have not been authorised for use by a manager.
 - Treat this like a piece of coursework.
- WHY?
- WHAT IS THE DIFFERENCE BETWEEN THIS PROJECT AND A PIECE OF COURSEWORK?

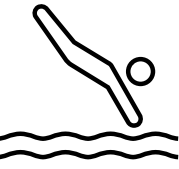
Quality

- Quality
- Quality
- Quality
- Quality
- Quality
- Quality
- (seriously)



Quality

- Quality is something you are probably not used to delivering.
- It is extremely important in the real world and we are very, very keen for you to produce quality work!
 - If you deliver bad quality software or documentation, you will suffer the consequences!
 - Ensuring quality is high can take more time than pushing on with programming. This is OK and expected.
 - Quality processes start before you start programming – so don't start programming without identifying and using them or you will suffer the consequences!
 - If you produce a small working product with high quality you will be more rewarded than if you produce a huge mammoth of a product with low quality. This is true in all areas of industry.
- Employers are fed up with graduates who can program but don't understand how to ensure high quality. CPD is trying to ensure you are not one of those graduates.



Jumping in the deep end

- We aren't here to babysit you any more
 - Most managers won't – they want you to be independent
 - We will let you make those mistakes
 - We will let you go off track
 - Module staff won't be here to sit with you and push you
- It is your responsibility to
 - Not be lazy about your project
 - Do your project properly
 - Continually evaluate your effectiveness as an individual and as a team, and make improvements
 - Identify questions and ask them when required!
- You won't like this to start with.
- Hopefully you understand why at the end of the project.



A student's experience

- An email I received from a student who felt very frustrated at having been dropped into the deep end and walked away at the end of the project feeling like it had been a waste of time:

“Just like to personally thank you for all your support within the CDP project last year.

Its really amazing how interested employees are regarding commercial work experience. I applied for two jobs mid-August and successfully got an offer from both employees. CDP provided me with plenty of talking points within the interviews and the employees couldn't stop writing notes!

Without the knowledge and experience I gained in the CDP project, I believe I would have been rejected for both applications.

Fantastic module and hope the university carry on supporting it. Thanks again for your help”

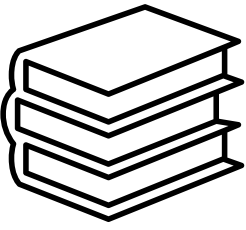


Risk Assessment

- All teams must
 - Conduct a thorough risk assessment for their project
 - Provide a written risk assessment report by the end of Week 3
 - All projects have risk. What risks are there in software development?
- We will consider some later this week.

Project Choices

- University staff receive, assemble and approve a list of projects submitted by various industrial partners and commercial organisations
- All projects have been vetted to ensure that they are
 - of sufficient scope for ~3-5 person team
 - fully supported by the client
- All students must attend the project initiation and choice meeting.
- The choice of projects and application process will be explained at this meeting



Assessment

- You are continually assessed as part of this work
- You are not directly assessed on your:
 - Code
 - The software you produce
 - Ability to 'finish' the project
- We are interested in the:
 - Processes you used and employed and improved (and why)
 - Things that went wrong and how you fixed them
 - Way you managed your own work and your team work
 - Effectiveness of your practices and processes
 - Professionalism you showed
 - Things you learned and self-led learning
 - Way you managed and worked with your client
 - Quality processes you used effectively in your project (code, documentation, audit, etc.)
 - Management and production of useful documentation

Assessment

- Assessment is typically broken down into a number of areas:
- 1/6 Discussion of Project and **Economic Context**
 - What is the project, what is the team doing, why; what are the implications of the project (legal, social, ethical); what would the project cost in the real world – how much would you charge the customer, what is your justification for this?
- 2/6 Critical Evaluation of **Own Skill Development**
 - What skills have you developed and why? How have you developed these skills – self-led? What skills would you need to develop further going forwards? What tools and techniques have you used and why are they useful? In areas such as: planning & organization of self and team, document production, document management, professionalism.
- 3/6 Critical Evaluation of **Software Engineering Skills**
 - What skills have you developed and why? How have you developed these skills – self-led? What skills would you need to develop further going forwards? What tools and techniques have you used and why are they useful? In areas such as: planning & organization of technical work, quality control, technical tools, frameworks, APIs and technologies.

Assessment

- Assessment is typically broken down into a number of areas:
- 4/6 Reflection on **Successes/Failures** and Approaches to Tackling Problems
 - What has gone wrong? Why? What have you learned from that? How did you put it right? What would you do differently in the future? What went well? Why? How would you make sure that similar situations continue to work well. What mechanisms have enabled you to succeed?
- 5/6 **Personal Goals** and Justification of Goals
 - What do you want to accomplish and get out of this module? What do you want to learn? Why? What is your plan for accomplishing these goals? What are the resources you will use? How will you measure success? Did you accomplish your goal? By how much? What went well/wrong? What will you do going forwards?
- 6/6 **Professionalism**
 - How have you acted with other staff/managers/clients? Do you turn up on time, waste time, act professionally? Have you managed to apply yourself to produce a good outcome for your client? Did you finish your project (brownie points but not always possible).

Assessment

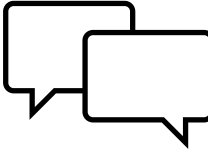
- Assessment is via:
 - Initial Portfolio: 10% of overall mark
 - Submitted in December
 - Team Observation: 10% of overall mark
 - No submission required
 - Final Portfolio: 20% of overall mark
 - Submitted in May
 - Viva Voce: 60% of overall mark
 - Examined in-person during May/June exam weeks with two examiners
 - Typically takes about 45min - 1 hour
 - Uses Final Portfolio as evidence so portfolio is key
- There is also a compulsory group presentation at the end of the process

Training Portfolio

- Students are required to maintain portfolio throughout module
 - Your portfolio is a record of what you have personally achieved and how you have achieved it
 - More than that it is a place to reflect and show us you really understand what you are doing, the decisions you've made and why.
 - Marks are based on evidence you present in portfolio
- Portfolio is a PebblePad site; one per student
 - <https://v3.pebblepad.co.uk/login/hull>
- Contains sections for storing evidence and forms you MUST complete. e.g.
 - Entry and exit surveys
 - Reflective Journal (developer diary/logbook)
 - Personal Goals
 - Skill Development

Training Portfolio

- The portfolio walks you through each of the areas you should be focussing on.
- It should not be a difficult task but it is extremely important that you engage with it.
- Start your portfolio early, You must complete it ALL to maximise your chances in assessment.
- When 'Year in Industry' students do a year out of academia, they are asked to reflect and evaluate on what they have done. This is the same. Think of it as a place to record what you did in your job and how it helped you develop as a professional.
- 90% of your final marks are dependent on your portfolio, not your code or a demo like other University modules. The Viva Voce is dependent on the evidence in your portfolio



Presentations and Vivas

- At the end of the year you are required to present your work at a team presentation and a separate viva voce.
- The team presentation is an opportunity for each team to show off what has been achieved and explain how you used development processes to good effect.
- Your viva is an individual assessment in which you discuss all aspects of your project and agree on your own mark.
- Your final portfolio is used to provide evidence in your viva.
- You will be expected to be able to talk in detail about every aspect of your time in CDP.
- If you don't understand something, or (for example) don't know how to use Scrum/TFS to its full potential, don't ignore it; this could harm your mark during your viva.
 - Talk to me, your Commercial Manager and/or do independent research

Processes and Practices over code!

- You are a Masters level student now.
- We (and employers) assume you can write code.
- This module is not about the code you write (other modules are).
- If you have poor personal/team working practices, your project and code will be poor quality (we don't even need to look at it to know this)
 - Remember that quality isn't all about code efficiency or fluency! It's all the other "stuff" too.
- Employers are looking for people who are skilled and experienced in:
 - Properly understanding and using industry-standard methodologies to manage projects effectively
 - Organising their own work/time
 - Identifying personal goals and taking the initiative to learn new skills and develop their own understanding
 - Working effectively with others, and using dev-ops technologies to enhance this effectively
 - Maximising the quality and the value of outputs
 - Accountability and professionalism
 - Working in partnership with clients (non-technical and technical)

Teams

- Microsoft Teams is a business messaging and collaboration system
 - provides a searchable knowledge archive
 - now commonly used across a range of businesses (or something very similar)
- We shall use Microsoft Teams as a primary means of communication and sharing knowledge between project teams
 - sharing is positively encouraged
 - there will be dedicated Teams channels for each project and some general channels for inter-team discussion
- You can share/store/collaboratively edit files and ensure that your work is accessible and backed-up

Training Presentations

- Training lectures if and when required
- Some years these are needed and some not – it depends on how you are getting on and if there are common problems which need to be addressed.
- I can also bring in guest speakers from industry to give talks.
 - This is led by you. Let me know if you have ideas
 - This will be dependent on if I can arrange this, if it would be useful and timing challenges.
- If there are lecture topics you think would be useful, let me know
- You are generally expected to do your own research and investigation – this module isn't about parroting back information, it's about challenging you to be independent and follow good industry practice.

Ad-hoc tasks

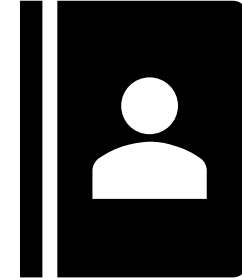
- Expect some ad-hoc tasks to be assigned throughout your project
- Why?

What do you want to get out of CDP?

- Consider this question. It is important that you don't treat this as a normal academic module where you have to do X,Y,Z to get the grades.
- We won't tell you exactly what to do – we will give you a framework to work in but we expect you to work independently as teams and manage your own personal goals.
- If you fully engage with Agile Development Methods, Teamworking, Developing your own skills and setting your own goals, you will do very well in this module and you will leave with invaluable skills.
- If you expect this module to treat you like a child – you will be severely disappointed. We expect you to be self-led and independent. We do not spoon-feed you, nor can we tell you exactly what is right for your project – because every team and project is different.

Contact Details

- My email: John.Dixon@hull.ac.uk
Phone: 01482 466758
- Student Hub: <https://hull.service-now.com>
- Phone: 01482 462222
- Security (If you're staying late)
- Phone: 01482 466868



Finally... And Again...

- Software Development is NOT coding!
 - Coding is a small part of the process
 - Quality is KEY
- The code isn't yours!
- Working at CDP will be excellent development for you if you apply yourself and push yourself.
- You will learn many other aspects required in Software Engineering to actually deliver software
- You will gain valuable commercial experience that will put you ahead of other graduates when you come to apply for work
- The more you invest, the more you will get out
- Good luck!