



Cardiff
Metropolitan
University

Prifysgol
Metropolitan
Caerdydd



Undergraduate

Handbook

BEng/MEng Electronics and Computer Systems Engineering

Cardiff School of Technologies



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Introduction

Welcome to Cardiff Metropolitan University

I am incredibly honoured and thrilled to extend a warm welcome to all of you from Cardiff Metropolitan University (Cardiff Met) and the Cardiff School of Technologies (CST). We are thrilled and brimming with excitement that you have chosen us as your educational destination for your extensive academic journey. Together, we will foster a collaborative environment, venturing into new frontiers, and pursuing intellectual growth that will lead to truly rewarding accomplishments.



The Cardiff School of Technologies thrives on the strength of its diverse community, exceptional faculty and staff, state-of-the-art classrooms, extensive library collections, and outstanding laboratory facilities, whether for in-person or virtual experiments. We encourage you to reach out to us without hesitation if you have any concerns or questions in the upcoming weeks. Our committed team is well-equipped to provide you with the necessary support as you navigate and acclimate to university life. We are here to assist you every step of the way as you embark on this exciting journey.

In an effort to help new students, Cardiff Met and CST will assign a personal tutor for your academic support including induction, academic engagement, mitigating circumstances, referral to specialist student services, and more. In addition, I (Programme Director) will not only be an additional point of contact for support but will also be responsible for the academic and administrative coordination of the course.

This welcome pack has been carefully crafted to introduce you to the starting blocks and highlight the activities planned for your first week at the University. Furthermore, there is a summer project with a range of activities that will enable you to engage and progress at your own pace. As you embark on this journey, you will discover a multitude of opportunities and benefits available to you here. I have every confidence that you will



encounter enthusiasm, professionalism, and enjoyable moments during your time at Cardiff Met.

During the induction week, you will have the opportunity to meet your faculties, fellow students and explore more about Cardiff Met and the city. We hope you find the week fulfilling and enjoyable.

We look forward to meeting you soon.

Yours Sincerely,

Dr. Jasim Uddin

Email: juddin@cardiffmet.ac.uk

Address: Llandaff Campus, Western Ave, Cardiff CF5 2YB



Essential Information

Programme Details

The programme aims to develop ethical, professional engineers who possess an in-depth understanding of electronic engineering and computer science and their inter-disciplinary applications.



The programme seeks to equip graduates with necessary technical and professional skills to identify, investigate and synthesis solutions for real-world problems.

The programme will enable graduates to manage complex, diverse and inter-disciplinary projects and are able to communicate, lead and continue to develop in the changing workplace by demonstrating entrepreneurial behaviours.

The programme aims to partially meet the educational requirements for eventual progression to Chartered Engineer status (with the UK Engineering Council).

Part-Time Students

Whilst full-time students should participate in everything, we recognise you may not be able to do so because of other commitments, and we understand this.

Talk with your Personal Tutor about which activities will be most valuable for you. You will be welcome to join in all events during the week as and when you can. Do, though, ensure that you have registered and completed the required paperwork before attending any events.

International Students

We understand that for international students coming to the UK, adjusting to a new culture, finding somewhere suitable to live, and following new processes and procedures



can be quite overwhelming. The Global Student Advisory Service is available to offer friendly advice and support to all international students in relation to welfare concerns, academic skills, and immigration matters. For more information about the services available, access the links below:

Global Student Advisory Support

[Global Student Advisory Service International Welfare Advice](#)

[Global Student Advisory Service International Academic Advice](#)

[Global Student Advisory Service Immigration Advice](#)

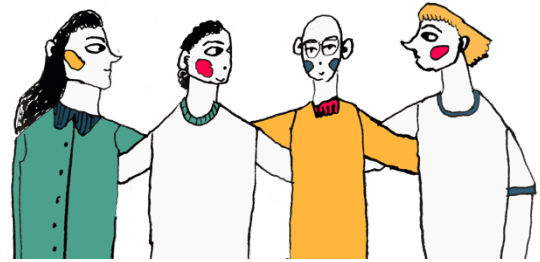
Global Student Advisory Contacts

Welfare advice – intstudentadvice@cardiffmet.ac.uk

It is also important that you attend the activities planned for your course during Welcome Week so you get to meet your Programme Director, Tutors, and the rest of your cohort. This will help you to settle into your new environment and make new friends.



Meet the Team



Dr Jasim Uddin

Programme Director in Electronics and Computer Systems Engineering (ECSE)

Email: JUddin@cardiffmet.ac.uk

Modules to be studied in Academic Year 23/24.

Confirmed Module Leader details will be provided towards the start of term. For more information on our CST teaching staff and their specialised areas please visit [the website](#).

SEN4000	Principles of Programming (Term 1)
ENG4002	Engineering Mathematics (Term 1)
IST4000	Explore (Year-long)
CMP4011	Architecture and Operating Systems (Term 2)
ENG4001	Analog and Digital Electronics 1 (Term 2)
ENG4003	Introduction to Mechatronics (Term 2)



Welcome Week

What to expect

During the week you will complete a project, which you will undertake with a group of other new students from your programme, supported by staff and current students who are on your programme. There will also be lots of help from the other university services, showing some great tools and techniques you can use to make your project a success.



At the end of the week we will also give you some feedback on the strengths of your group's approach, sharing and celebrating what we have discovered together.

There will be an introduction to your new School and Programme and lots of fun activities to help you meet new people.

You will need to complete a bit of administration and check-in with your programme, so we know who is doing what, and when. You will also need to complete any outstanding enrolment matters, pick up Students' Union cards, and touch base with any specialised support services that you need.

Here's what Cardiff Met students enjoyed about Welcome Week

"Helped me settle in and took the pressure off travelling to a new place"

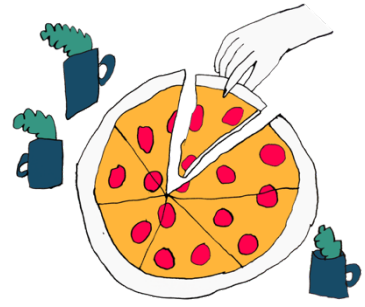
"The group projects to find out about our peers was a nice way of getting to know everyone"

"Helpful to chat informally to the Programme Director and chat about random things to help settle in".



Programme Activities and Projects

The following set of activities has been carefully curated to ignite your enthusiasm, foster critical thinking, and enhance your problem-solving abilities. These skills are crucial for achieving success in the field of Electronics and Computer Systems Engineering (ECSE). You are encouraged to engage



in these activities at your own pace, allowing you to explore and delve deeper into the subject matter. Should you require additional resources, feel free to refer to supplementary materials to further enrich your learning experience.

Activity 1: Learn Basic Electronics and Programming Skills

Programming serves as a language that enables the creation of logical and sequential functions to accomplish tasks. Throughout the course, you will acquire a range of programming skills that are essential for developing real-life-oriented projects. Programming languages will be utilized extensively, encompassing high-level application development, embedded system programming, and scientific programming. To support your learning journey, we have curated a selection of recommended books and freely available online courses. These resources offer comprehensive, step-by-step guidance for acquiring essential programming skills in languages such as C, Python, and Java.

In today's world, the knowledge of Electronics is not only highly valuable but also incredibly fascinating. Electronic circuits can be found in abundance, from computers to home appliances and even vehicles. It's no wonder that jobs in the field of electronics are in high demand and offer some of the best salaries worldwide. Pursuing this field during your time at university can prove to be a challenging, enriching, and ultimately rewarding experience. To help you get started, the following resources have been provided a comprehensive guide on the basics of electronics and the practical applications of its components:

1. Basic Electronics
2. Digital Electronics
3. C Programming - Absolute Beginners Guide
4. Codecademy: Python 2



5. Codecademy: Basic Java
6. Codecademy: C++
7. MATLAB - MathWorks - MATLAB & Simulink

Activity 2: IC Design Software Simulation and PCB Building Activity

Integrated Circuits (ICs) serve as the cornerstone in a wide range of industries, including aviation, solar energy, mobile phones, power generation, transport, medicine, quantum information, computing, artificial intelligence, communications, and medical healthcare, to name just a few. These ICs have the remarkable capability to control machines and process information, playing a vital role in countless applications. As students, you will have the opportunity to delve into the world of IC design by utilizing various resources such as Multisim, PSPICE, MICRO-CAP, AWR Microwave Office, and more. These tools will allow you to construct your own IC design schematic and perform spice simulations. Additionally, you can explore physical and virtual test benches using equipment like Digilent Discovery II, NI Elvis III, and Arduino kits. These resources will facilitate hands-on learning experiences and enable you to delve deeper into the fascinating realm of integrated circuitry.

Simulation IC Design:

1. Multisim
2. AWR Microwave Office
3. Micro-Cap
4. PSPICE

Testbench IC Design:

1. Digilent Discovery
2. NI ELVIS III - NI
3. Arduino

Activity 3: Electronics for Fun and Project Implementation

The process of building electronic circuits, conducting circuit analysis, and implementing practical projects is not only enjoyable but also serves as a means to prepare students as



competitive professionals in the real-world industry. Engaging in these activities fosters hands-on learning experiences and equips students with the necessary skills to excel in their chosen fields. To assist you in this journey, the following resources provide detailed guidelines and step-by-step instructions for building IC design architectures and completing full projects, serving as valuable examples to enhance your understanding and proficiency.

1. Electronics Hub
2. circuits today
3. Elprocus

Social Activities

Further information on social activities will be available in your induction week timetable, which will be provided closer to the start of term.

Freshers' Fayre

The Freshers' Fayre, organised by the [Students' Union](#), is your first chance to meet all our [SU Societies](#), [SU Sports Teams](#) and, of course, a chance to grab all manner of freebies from our commercial partners! The fayre is an all-day event taking place on Wednesday within NIAC on the Cyncoed campus! It is one of the highlights of the Freshers calendar and one of the only times during your university journey that every student from all Cardiff Met Schools will be in the same place!

Head over to the [Cardiff Met Students' Union website](#) for up-to-date information on events, societies, support and more.



Welcome Week Activities

During Welcome Week you will have the opportunity to:

- Attend a welcome meeting with your Programme Director and meet the team, where they will provide an introduction and outline expectations.
- Meet other students on your programme of study.
- Meet your Personal Tutor. *
- Take part in a welcome week project with other students on your programme of study and present the findings from your project to staff and peers.
- Familiarise yourself with the campus.
- Explore what services are available to support you on your learner journey.
- Attend Fresher's Fayre on Wednesday.
- Familiarise yourself with the digital tools you will be expected to use during your studies.
- Take part in a 'wrap up' session, reflect on the week and make sure you know what your timetable is looking like for the first week of teaching.
- Attend the Cardiff Met celebration event on Friday afternoon.

Please note you will find a detailed timetable for your programme of study on the Welcome Week site.

*If you would like to request a Welsh speaking Personal Tutor, please contact the School as soon as possible and we will do our best to accommodate your request. Contact email:

CSTAdministration@cardiffmet.ac.uk



Personal Welcome Week Checklist



During Welcome Week you need to make **sure** that you have:

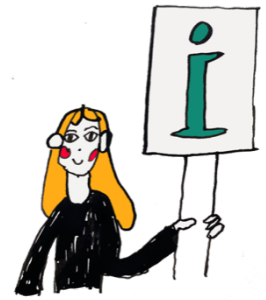
- Completed the enrolment process.
- Collected your student ID card.
- Attended programme activity sessions.
- Attended some social events on campus/online.
- Attended Fresher's Fayre
- Met with your Personal Tutor
- Familiarised yourself with the library and any support services you might need
e.g. Dyslexia or Disability help



Useful Information

New Students Information

The [Course Joining Information website](#) has lots of useful information to help with your planning. Simply select your level of entry on the website to find out more and access your important joining information.



Student Services

[Student Services](#) provide support and guidance, including mental health, disability support, careers advice, information on part-time jobs and money management.

SU Welcome Guide

An interactive guide to help you navigate your journey into and throughout your university life. Take the tour and enjoy each section designed to help you get to know Cardiff Met.

[What you need to know before you go](#)

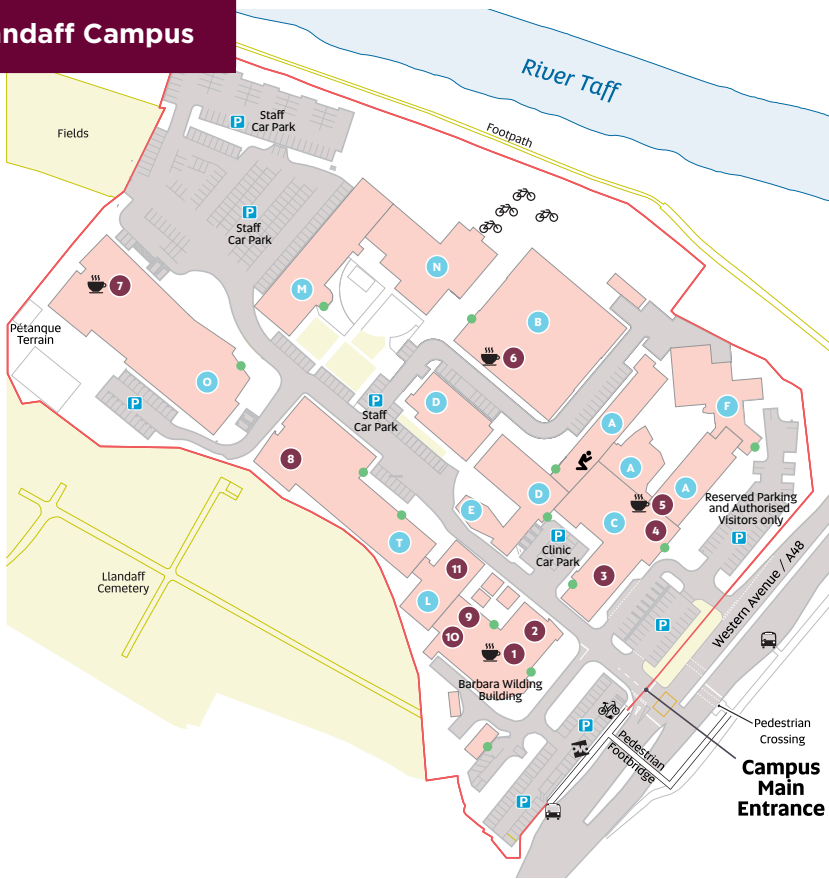


Academic Calendar 2023/24

[Academic Calendar 2023/2024](#)



Llandaff Campus



Key

- | | | |
|------------------------------|----------------------------------|---------------------------|
| 1 The Hub | 8 IT Help Desk (First Floor) | P Parking |
| 2 Cym (First Floor) | 9 The Global Lounge | 🚲 Electric Bikes |
| 3 Podiatry Clinic | 10 Students' Union (First Floor) | 🚲 OVO Bikes |
| 4 Main Reception & i-Zone | 11 Learning Centre | 🚲 Bike Rack |
| 5 The Gallery (First Floor) | ● Building letter | 🚰 Bus Stop |
| 6 The Box Café (First Floor) | ● Building Main Entrance | ☕ Café |
| 7 The Atrium | | 🕌 Multi-faith prayer room |

All our rooms use the same naming formula – *Building Floor . Room Number*. So if you're looking for 01.18, go to building O, climb to the first floor, and find room number 18. Or for B0.10 go to building B, stay on the ground floor and look for room 10. In the naming formula, 'LL' refers to Llandaff.



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Wythnos groeso
Welcome week

2023