

Example Work Experience Schedule\_2024

Monday 25 <sup>th</sup> March		
09.00-9.05	Arrival	Main entrance
09.05-10.00	Health and Safety Induction and Department Tour	
10.00-11.30	Electronics, circuit design and soldering	
11.30-12.30	Campus tour with UG Student Ambassadors	
12.30-13.30	Lunch with UG Student Ambassadors:	
13.30-15.00	<p>“Seeing things in a different light- developing THz technology for skin cancer detection”</p> <p>Introduction to THz light and labs including the THz systems and Robot.</p>	
15.00-17.00	<p>“From Electrons to the Young’s Modulus: Computer Modelling of Atoms in Metals”</p> <p>The metals surrounding us in our day-to-day lives actually represent hugely complicated physical systems of many interacting electrons and nuclei. We will examine how high-performance computing can link the abstract theory of quantum mechanics with day-to-day materials properties by simulating a small group of atoms in the metal to understand how they arrange themselves, before applying strain to our simulation to obtain the metal's Young's modulus, all without having to perform a single experiment!”</p>	

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**Tuesday 26<sup>h</sup> March**

<b>Tuesday 26<sup>h</sup> March</b>		
09.00	Arrival	Main entrance
09.00-10.30	Introduction to labs	Teaching labs
10.30-11:45	<p>Outreach planning: rollercoasters</p> <p>We will be looking at activities that could be taken into primary schools to explain how rollercoasters work. There will be an introduction to roller coaster physics and how to keep them safe, then we will try a few different activities and brainstorm how the content could be brought to life. We will consider how to explain science to different year groups, from reception to A-level, and what is appropriate for each group.</p>	
11.45-12.45	Lunch with PhD Students	
13.00-14.00	<p>Practical Tutorial using Raman Spectroscopy to different identity forms of Carbon with Dr Chris Waldron:</p> <ul style="list-style-type: none"> <li>• <i>Overview of the application of spectroscopy for characterization of modern materials</i></li> <li>• <i>Discussion around the origin of Raman Spectroscopy</i></li> <li>• <i>Hands on session using Raman spectroscopy to different identify forms materials such as graphene, graphite and diamond</i></li> </ul>	
14.00-15.00	<p>We will look at why scientists are interested in changing the temperature. Can we learn something new? How easy is it to cool something from room to three quarters of the way down to absolute zero. We will finish with a tour of the Nuclear Magnetic Resonance Laboratory and our superconducting magnets.</p>	
15.00-16.00	Solid State NMR: Practicalities for Rotor Packing, data analysis, and data collection	
16.00-17.00	<p>Lab tour and talk: Our research group builds quantum technology with diamond. Our magnetic fields sensors may be useful for diverse applications such as fusion power, space missions, navigation and guiding surgery. We are also levitating nanodiamonds towards testing the quantum nature of gravity and developing a quantum computer.</p>	

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Wednesday 27 <sup>th</sup> March		
09.00	Arrival	Main entrance
09.10-10.30	<p>Group 1: Tour of the cleanroom, insight into technician projects with demonstrations</p> <p>Group 2: How we create experiments in research. Since the point of research is to try something new, how do we know it'll work? How do we know it'll be safe? In this session, we'll see how a Research Technician creates (and survives) a new experiment. We shall explore this by building and launching rockets.</p>	
10.30-10.40	Swap groups	
10.40-11.55	<p>Group 1: How we create experiments in research. Since the point of research is to try something new, how do we know it'll work? How do we know it'll be safe? In this session, we'll see how a Research Technician creates (and survives) a new experiment. We shall explore this by building and launching rockets.</p> <p>Group 2: Tour of the cleanroom, insight into technician projects with demonstrations</p>	
12.00-13.15	Lunch with PhD Students	
13.15-13.30	Walk to observatory	
13.30-16.30	Tour of The Marsh Observatory, how the telescope works and take a look at data from the telescope.	

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Thursday 28 <sup>th</sup> Mar		
09.00	Arrival	Main entrance
09.00-9.45	Chladni plate demo	
10.00-12.00	Astronomy and Astrophysics group: The explosive Universe, searching for new transient sources with GOTO	
12.00-13.00	Lunch with postgraduate students	
13.00-16.00	"Cleaning up the Mess in Space" <ul style="list-style-type: none"> <li>• History of space debris</li> <li>• Risks to active spacecraft</li> <li>• Monitoring space with telescopes</li> <li>• Guidelines for spacecraft operators</li> <li>• Removing debris from space</li> </ul>	