



# JUNIOR RESEARCHER MENTORING PROGRAMME 2022

<b>Code:</b>	JRMP2022_36
<b>School / Department:</b>	School of Design
<b>Name of Research Leader:</b>	Dr Clifford Choy, Assistant Professor
<b>Research Topic:</b>	Design with Construction Kit using CAD
<b>Short Description of the Research Project:</b>	<p>Construction kit is a collection of components and tools through which users can use to quickly prototype their ideas for communication and/or evaluation purposes. A popular example is LEGO® bricks (<a href="http://www.lego.com">www.lego.com</a>) and fischertechnik (<a href="http://www.fischertechnik.de/">www.fischertechnik.de/</a>).</p> <p>This research aims at exploring the use of computer-aided design (CAD) tool and the development of additional tools to facilitate users in designing with a construction kit. For this research, we define a construction kit that consists of commercial off-the-shelf (COTS) components which can be purchased from online stores at a low price, and users can make use of our construction kit to design rigid structures suitable for mechanical movements.</p> <p>Participating students will be involved in the measurement, modelling and parameterization of its components, and develop tools on a CAD system to assist users to design with this construction kit, including alignment of components, procedural generation of</p>

	components and design of 3D printed parts to enhance integration with other components. Students will also explore how the same approach can be extended to other existing construction kit systems.
<b>No. of Places Offered:</b>	3
<b>Frequency of Meetings:</b>	Weekly
<b>Special Requirement(s):</b>	<ul style="list-style-type: none"> <li>- Preferred subjects taken: Physics; Design and Applied Technology</li> <li>- Students should have experience in using at least one CAD tool. This can be as simple as TinkerCad and can be other more sophisticated tools like Fusion 360 and Rhino 3D.</li> <li>- Knowledge on programming is a plus, especially on Python.</li> </ul>

*\* The information presented above is subject to change.*