

## MAKLUMAT PROGRAM

<b>FPJB &amp; Jabatan</b>	Pusat Keselamatan Siber dan Revolusi Industri Digital																							
<b>Nama Program</b>	<b>ROS (Robot Operation System) Technology Development</b>																							
<b>Sinopsis</b>	The course is designed to provide the participants with an extensive hands-on exercise to experience the concepts and tools to practice the artificial intelligent of robot. The course will exposure the participants with the ROS technology to stimulate the development of Artificial intelligent in robotic industry. At the end of the course, the participants will have proficient knowledge on ROS technology programming and AI robot creation.																							
<b>Hasil Pembelajaran (Learning Outcomes)</b>	Student be able to: <ol style="list-style-type: none"> <li>1. Explore various applications and advantages of ROS, especially for robotics applications in the industrial, construction, security and other large- scale industries.</li> <li>2. Understand the theory and experience the ROS development.</li> <li>3. Design and demonstrate AI robot in development.</li> </ol>																							
<b>Kaedah Pelaksanaan (Mode of Delivery)</b>	Dalam Talian <input type="checkbox"/>  Fizikal <input type="checkbox"/>  Catatan: _____																							
<b>Tempoh Pengajian (Duration of Study)</b>	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="width: 15%;">Part Time</th> <th style="width: 15%;">Minggu / Semester</th> <th style="width: 15%;">Semester</th> <th style="width: 15%;">Tempoh Pengajian</th> <th style="width: 15%;">Hari Bekerja / Hujung Minggu</th> </tr> </thead> <tbody> <tr> <td><b>Panjang</b></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td><b>Pendek</b></td> <td></td> <td></td> <td>3 hari</td> <td>Hari Bekerja/Hujung Minggu</td> </tr> <tr> <td><b>Latihan Industri</b></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>				Part Time	Minggu / Semester	Semester	Tempoh Pengajian	Hari Bekerja / Hujung Minggu	<b>Panjang</b>					<b>Pendek</b>			3 hari	Hari Bekerja/Hujung Minggu	<b>Latihan Industri</b>				
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<b>Kumpulan Sasaran (Target Participant)</b>	Students, researchers, Industry 4.0 related engineer, and people who want to acquire knowledge in Robot Operating System (ROS) Technology																							
<b>Syarat Permohonan/ Syarat Kemasukan (Admission Requirement)</b>	Basic Electronics and C programming knowledge is required for this course.																							

<p><b>Struktur Kursus (Course Outline) / Struktur Kurikulum (Topics Covered)</b></p>	<p><b>Day 1</b></p> <p>Chapter 1: Session 1: Introduction to Electronics Session 2: Introduction to Microcontroller Session 3: C Programming</p> <p>Chapter 2: Session 1: Introduction to Embedded Computer Session 2: Python Programming Session 3: Introduction to OpenCV</p> <p><b>Day 2</b></p> <p>Chapter 3: Session 1: Introduction to ROS Session 2: ROS Gazebo Simulation Session 3: Programming Virtual ROS Robot</p> <p>Chapter 4: Session 1: Mobile Robot Development Session 2: ROS Robot Programming Session 3: Tele Operation of Robot</p> <p><b>Day 3</b></p> <p>Chapter 5: Session 1: SLAM Robot Session 2: Mapping Session 3: Autonomous Navigation</p> <p>Chapter 6: Session 1: Introduction to TurtleBot Session 2: Teleop Turtlebot Session 3: SLAM using Turtlebot</p> <p>Chapter 7: Session 1: Multi Robots System using ROS Session 2: Virtual Multi Robots Simulation Session 3: Multi Robot System Implementation</p>
<p><b>Yuran Kursus (Course Fee)</b></p>	<p><b>RM4,000 per person</b></p>