I make We make 2020 Video Guide

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| Module 1 | Electronics Fundamentals |
| Description | This module emphasizes safety and extra caution in dealing with electronics |
| Videos | 1. Electrical Safety  2. Introduction to Electronics  3. Basic Electrical Components  4. Digital Multimeter |
| Materials | * LED’s * Breadboard Power Supply Module * 12V Adapter * Digital Multimeter * Resistors * Jumper Wires * Breadboard |
| Helpful Links | None |
| Instructor | Veenna Barnachea |

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| Module 2 | Electronics Laboratory |
| Description | First hands on exercises with electronics |
| Videos | 1. Breadboarding  2. Soldering |
| Materials | * LED’s * Breadboard Power Supply Module * 12V Adapter * Digital Multimeter * Resistors * Jumper Wires * Breadboard * Soldering Iron and Lead |
| Helpful Links | None |
| Instructor | Veenna Barnachea |

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| Module 3 | Introduction to Microcontroller (Basic) |
| Description | This module introduces you to Bluno Mega (Arduino based Microcontroller with built in Bluetooth) |
| Videos | 1. Introduction to Microcontrollers |
| Materials | * LED’s * Resistors * Bluno Mega * USB Micro Cable * Jumper Wires * Breadboard * Laptop with Arduino IDE |
| Helpful Links | <https://www.arduino.cc/> - to download Arduino Software  <https://wiki.dfrobot.com/Bluno_Mega_2560__SKU_DFR0323_> |
| Instructor | Veenna Barnachea |

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| Module 4 | Logic and Program Flow |
| Description | This module introduces you to Arduino Programming syntax and logic to make your own Arduino sketches |
| Videos | 1. Arduino Blink Code  2. Arduino Variables  3. Arduino Function and Control Structure |
| Materials | * Bluno Mega * USB Micro Cable * Laptop with Arduino IDE |
| Helpful Links | [https://imakewemake2020.thinklab.ph/](https://trc2020.thinklab.ph/) |
| Instructor | Mark Jayson De Jesus |

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| Module 5 | Serial Communication |
| Description | This module introduces you to Arduino Serial Communication (UART) |
| Videos | 1. Arduino Serial Communication |
| Materials | * Bluno Mega * USB Micro Cable * Laptop with Arduino IDE |
| Helpful Links | [https://imakewemake2020.thinklab.ph/](https://trc2020.thinklab.ph/) |
| Instructor | Mark Jayson De Jesus |

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| Module 6 | Digital Output |
| Description | This module introduces you to Arduino Digital Output |
| Videos | 1. Arduino Digital Output |
| Materials | * LED’s * Buzzer * Speaker * Resistors * Bluno Mega * USB Micro Cable * Jumper Wires * Breadboard * Laptop with Arduino IDE |
| Helpful Links | [https://imakewemake2020.thinklab.ph/](https://trc2020.thinklab.ph/) |
| Instructor | Mark Jayson De Jesus |

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| Module 7 | Digital Input |
| Description | This module introduces you to Arduino Digital Input and tact switches |
| Videos | 1. Arduino Digital Input |
| Materials | * LED’s * Tact Switches * Resistors * Bluno Mega * USB Micro Cable * Jumper Wires * Breadboard * Laptop with Arduino IDE |
| Helpful Links | [https://imakewemake2020.thinklab.ph/](https://trc2020.thinklab.ph/) |
| Instructor | Mark Jayson De Jesus |

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| Module 8 | Analog Output |
| Description | This module introduces you to Arduino Analog Output (Pulse Width Modulation) |
| Videos | 1. Arduino Analog Output |
| Materials | * LED’s * Resistors * Bluno Mega * USB Micro Cable * Jumper Wires * Breadboard * Laptop with Arduino IDE |
| Helpful Links | [https://imakewemake2020.thinklab.ph/](https://trc2020.thinklab.ph/) |
| Instructor | Mark Jayson De Jesus |

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| Module 9 | Sensor Basic |
| Description | This module will guide you how to accept sensor value using analog input pins |
| Videos | 1. Arduino Analog Input |
| Materials | * LED’s * Potentiometer * Digital Multimeter * Resistors * Bluno Mega * USB Micro Cable * Jumper Wires * Breadboard * Laptop with Arduino IDE |
| Helpful Links | [https://imakewemake2020.thinklab.ph/](https://github.com/thinklabph/trc2020) |
| Instructor | Roland Jay Miguel |

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| Module 10 | Sensor Interfacing |
| Description | This module introduces you to interface and experiment with other sensors |
| Videos | 1. Proximity Sensor  2. Rotary Encoder  3. Tilt Sensor  4. Color Sensor |
| Materials | * LED’s * Digital Multimeter * Resistors * Bluno Mega * USB Micro Cable * Jumper Wires * Breadboard * Laptop with Arduino IDE * Infrared Sensor * Rotary Encoder * Color Sensor |
| Helpful Links | [https://imakewemake2020.thinklab.ph/](https://github.com/thinklabph/trc2020) |
| Instructor | Roland Jay Miguel |

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| Module 11 | Introduction to Internet of Things |
| Description | This module explains what is IOT and show example of some devices that we can use to build our first IOT Application |
| Videos | 1. Internet of Things Concepts |
| Materials | None |
| Helpful Links | [https://imakewemake2020.thinklab.ph/](https://trc2020.thinklab.ph/) |
| Instructor | Veenna Barnachea |

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| Module 12 | Remote Sensing Using IOT – ESP32 |
| Description | Introduce you to ESP32 Module, it will guide on how to connect your devices thru the use of WiFi |
| Videos | 1. ESP32 Basics  2. ESP 32 with DHT Sensor |
| Materials | * LED’s * Breadboard Power Supply Module * 12V Adapter * Digital Multimeter * Resistors * ESP32 Module * USB Micro Cable * Jumper Wires * Breadboard * DHT11 Sensor * Laptop with Arduino IDE |
| Helpful Links | [https://imakewemake2020.thinklab.ph/](https://github.com/thinklabph/trc2020) |
| Instructor | Arnel Domingo |

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| Module 13 | Introduction to Raspberry Pi |
| Description | This module will guide you how to get started with Raspberry Pi |
| Videos | 1. Raspberry Pi Introduction  2. Rpi Safety  3. Rpi Initialization  4. Rpi Wifi and VNC Remote Connections  5. Rpi Linux Terminal Commands |
| Materials | * Raspberry Pi 4 Module * 5V DC Adapter with USB Type C Cable * SD Card Reader * MicroSD Card * 7” Touch Screen LCD * Keyboard and Mouse * Laptop with Internet |
| Helpful Links | [https://imakewemake2020.thinklab.ph/](https://github.com/thinklabph/trc2020) |
| Instructor | Josiah Sicad |

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| Module 14 | Python Programming |
| Description | This module will teach you Pyhon Programming Fundamentals. |
| Videos | 1. Rpi Python Thonny Ide  2. Rpi Python Basic Variables  3. Rpi Python User Input Formatting Strings  4. Rpi Python List and Tuples  5. Rpi Python Dictionary  6. Rpi Python If-Else  7. Rpi Python Loops  8. Rpi Python Function |
| Materials | * Raspberry Pi 4 Module * 5V DC Adapter with USB Type C Cable * SD Card Reader * MicroSD Card * 7” Touch Screen LCD * Keyboard and Mouse * Laptop with Internet |
| Helpful Links | [https://imakewemake2020.thinklab.ph/](https://github.com/thinklabph/trc2020) |
| Instructor | Josiah Sicad |

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| Module 15 | RPi GPIO |
| Description | This module will guide you how to interface electronics devices and sensors to your RPi. |
| Videos | 1. Rpi GPIO Introduction  2. Rpi GPIO Digital Output  3. Rpi GPIO Digital Input |
| Materials | * Raspberry Pi 4 Module * 5V DC Adapter with USB Type C Cable * SD Card Reader * MicroSD Card * 7” Touch Screen LCD * Keyboard and Mouse * Laptop with Internet * Other sensors and modules |
| Helpful Links | [https://imakewemake2020.thinklab.ph/](https://github.com/thinklabph/trc2020) |
| Instructor | Josiah Sicad |

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| Module 16 | RPi – PWM |
| Description | This module will guide you how PWM works in RPi System. |
| Videos | 1. Rpi GPIO PWM  2. Rpi GPIO ADC  3. Rpi Starting Python Programs on Start-up |
| Materials | * Raspberry Pi 4 Module * 5V DC Adapter with USB Type C Cable * SD Card Reader * MicroSD Card * 7” Touch Screen LCD * Keyboard and Mouse * Laptop with Internet * Other sensors and modules |
| Helpful Links | [https://imakewemake2020.thinklab.ph/](https://github.com/thinklabph/trc2020) |
| Instructor | Josiah Sicad |

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| Module 17 | RPi – IOT |
| Description | This module will guide you to build your first IOT Application. |
| Videos | 1. RPi IOT |
| Materials | * Raspberry Pi 4 Module * 5V DC Adapter with USB Type C Cable * SD Card Reader * MicroSD Card * 7” Touch Screen LCD * Keyboard and Mouse * Laptop with Internet * Other sensors and modules |
| Helpful Links | [https://imakewemake2020.thinklab.ph/](https://github.com/thinklabph/trc2020) |
| Instructor | Josiah Sicad |