# Fakulti Teknologi Kejuruteraan Elektrik dan Elektronik (FTKEE)
## Senarai Penawaran Tajuk PSM 1 Sem 2 Sesi 2020/2021
### BEEY

| BIL | NAMA PENYELIA | PROGRAM | TAJUK | SYNOPSIS | CATEGORY | TITLE CODE |
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| 1 | ADAM BIN SAMSUDIN | BEEY | The Development of Car Seat Alert System by using IoT | The research is to design a notification or an alert to parents by using WhatsApp application in smartphone when the left their baby in the car. The purpose for this project are: a) To study the existing infant car alert detection system b) To design a temperature level detection system with automatic roll down window and safety alert system in vehicle c) To develop an infant car seat alert system through WhatsApp Application. | PRACTICE ORIENTED | BEEY_T01 |
| 2 | AZHAN BIN AB. RAHMAN | BEEY | Development of an automatic welcoming signage using piezoelectric generator. | This project aims at developing an automatic welcoming signage at the main entrance of a building. A combination of several piezoelectric generators and arduino will be used to automatically activate the signage every time the piezoelectric generator is stepped on at the building entrance. | PRACTICE ORIENTED | BEEY_T02 |
| 3 | AZHAN BIN AB. RAHMAN | BEEY | Development of a micro scale tesla coil for wireless power transfer | To develop a hardware of a micro scale tesla coil that is able to perform wireless power transfer which is able to power up small load. | PRACTICE ORIENTED | BEEY_T03 |
| 4 | AZHAN BIN AB. RAHMAN | BEEY | Development of a capacitive type mobile phone charger | To apply the mechanism/concept of capacitive wireless power transfer on the development of wireless mobile phone charger. | PRACTICE ORIENTED | BEEY_T04 |
| 5 | AZHAN BIN AB. RAHMAN | BEEY | Viability study on different type of RE in Malaysia using HOMER. | This project aims to determine the most viable renewable energy resources that can be implemented in Malaysia. HOMER software will be used to simulate 4-5 different RE sources to ascertain the most viable option in terms of technology used, geographical factor and return of investment. "Design and simulation of (renewable power generation - be specific) in (location) using HOMER" | PRACTICE ORIENTED | BEEY_T05 |
| 6 | DATIN FADZILAH BINTI SALIM | BEEY | DEVELOPMENT OF CARBON MONOXIDE DETECTION FOR VEHICLE USING IOT SYSTEM | The incidence of carbon monoxide (CO) gas leakage in vehicles has increased. The leaking of the vehicle exhaust system will lead to a high risk to humans. This project is created to detect CO gas using the MQ-7 sensor. Arduino UNO is used to control the process input and output. The LCD is used to display the concentration of CO gas in the vehicle at a ppm value. LEDs and buzzers operate as alarm devices. GSM and GPS technology are used to send a warning message with a real-time location tracking device. This system is designed with a power window motor that automatically rolls down the window when the concentration of CO gas is in danger. | PRACTICE ORIENTED | BEEY_T06 |
| 7 | DATIN FADZILAH BINTI SALIM | BEEY | DEVELOPMENT OF ALCOHOL DETECTION SYSTEM WITH VEHICLE IMMOBILIZATION | Drinking alcohol and driving a car in a drunken state can result in loss of life. The development of the system is to prevent such cases happen. The system will always monitor the driver's breathing by placing it on the steering car or dashboard that will always be monitored by the sensor. If the driver is found in drunk condition and still wants to drive the car, the sensor of alcohol will detect alcohol presence in the breath and stop the engine system to prevent it from start the car. This project is to design and develop of alcohol sensor detection system with an Arduino microcontroller. | PRACTICE ORIENTED | BEEY_T07 |
| 8 | DATIN FADZILAH BINTI SALIM | BEEY | DEVELOPMENT OF INTELLIGENT LIGHTING SYSTEM INTEGRATED WITH PV SOLAR | There are a few issues looked at using the solar power system to keep the usage of electricity at full efficiency. The main issue that regularly happen is when the primary electricity source produced a high cost to support all the consumer needs. It happens when the consumer has a habit to do things that caused waste of electricity energy every single day. If these keep repeating, the primary source of electricity will have a big problem in future. The main problem will be the rate of electricity bill will increase. The second problem is related to energy saving which is to prevent the consumers pay high electricity bills due to over energy usage. Thus, to overcome these problems is by using a solar power system. It may have a high cost for building renewable energy in the first place but in a long term, it will show efficiency in energy saving. This system is only for lighting saving which is the saving of electrical use from off-grid. Hence, this project will observe the best way to enhance the assembling process to receive a very low cost for building a solar power system. The objective of this project is to design and develop an intelligent lighting system integrated with PV solar. | PRACTICE ORIENTED | BEEY_T08 |
| 9 | DATIN FADZILAH BINTI SALIM | BEEY | DEVELOPMENT OF WATER QUALITY MONITORING AND FISH FEEDING SYSTEM USING ARDUINO | Water quality refers to water's chemical, physical and biological characteristics depending on its consumption criteria. Water has numerous utilizations such as drinking, fisheries, agribusiness, and industry. Water quality investigation is to live the predetermined parameters of water, keeping standard strategies, to test whether they are as per the quality. These days, the Internet of Things (IoT) and remote detecting methods are utilized in various region of research for checking, gathering, and examining information from remote areas. Due to huge increment in worldwide modern, yield rustic to urban float. In this manner, the over-usage of land and ocean assets, the standard of water accessible to individuals has crumbled incredibly. Some programmed fish feedings could be a gadget that consequently feeds the fish at a foreordained time. As it were, it's to direct the fish taking care of action by utilizing a fish feeder that joined the mechanical framework and electrical framework to make an instrument instead of physically taking care of the fish by hand. The objective of this project is to build up a fully automated system that can monitor water quality and feed the fish by using Arduino mega microcontroller. | PRACTICE ORIENTED | BEEY_T09 |
| 10 | DATIN FADZILAH BINTI SALIM | BEEY | DEVELOPMENT OF SIGN LANGUAGE TRANSLATOR DEVICE WITH IoT | Sign languages have been used globally by the deaf and mute communities for communication in their daily lives. The languages are expressed as hand gestures and facial expressions to make others understand the message the users want to deliver. As time passing by, the understanding of these sign languages is still not recognizable and familiarized by most of the public. This project is to design and develop a glove that can translate alphabet sign language from hand wrist into text. | PRACTICE ORIENTED | BEEY_T10 |
| 11 | DR. MOHD BADRIL BIN NOR SHAH | BEEY | DEVELOPMENT OF PIEZO-BASED ARTIFICIAL LEAVES FOR RENEWABLE ENERGY SOURCES | Piezoelectric device can convert mechanical energy to electrical energy and conversely, electrical energy to mechanical energy. The stimuli for piezoelectric materials can be human walking, wind, rain, tide and wave etc. Energy harvesting applications for piezoelectric devices is less than 10% however it can change dramatically if the importance of piezoelectric materials is recognised for alternative energy from nature with zero carbon foot print. In this project, a set of artificial leaves will be developed, where each leaf will be equipped with piezoelectric device. The movement of leaves due to wind will generate electricity which then will be captured by appropriate circuit for energy storage purpose. Student have to developed the leaves which can optimally move when the wind blowing. It is expected the set of piezo based artificial leaves is able to generate an amount of electricity can recharge the battery. | PRACTICE ORIENTED | BEEY_T11 |
| 12 | DR. MOHD BADRIL BIN NOR SHAH | BEEY | DEVELOPMENT OF SPEED AND DIRECTION CONTROLLER FOR UNIVERSAL MOTOR USING ADRUINO | The universal motor is a type of electric motor that can operate on either AC or DC power and uses an electromagnet as its stator to create its magnetic field. It is often referred to as an AC series motor and always be used in vacuum cleaner, blender, drill machine, etc. Unlike DC motor or AC motor, controlling the speed and direction of universal motor is not easy. In this project, a circuit that can control the speed and direction will be developed using microcontroller-based circuit. The motor also will be equipment with speed sensor for analysis purpose. It is expected that the developed circuit is able to control the speed and direction of universal motor including performing the soft start operation of the motor. | PRACTICE ORIENTED | BEEY_T12 |

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| 13 | HALYANI BINTI MOHD YASSIM | BEEY | Feasibility analysis of a community microgrid in Sarawak using HOMER | Microgrids are viable options for energy access in the remote areas that is still not served by the conventional grid extension due to geographical location. This project focuses on the feasibility analysis, using HOMER Pro software, of a community microgrid in Sarawak using different energy mixes of a solar photovoltaic system, a micro-hydro system, a battery storage system and a diesel generator. The optimal system will be determined based on the two economic factors (net present cost and levelized cost of electricity). | PRACTICE ORIENTED | BEEY_T13 |
| 14 | HALYANI BINTI MOHD YASSIM | BEEY | Design and Simulation of a Solar PV Microgrid for Sarawak Rural Areas using LABVIEW | Sarawak Alternative Rural Electrification Scheme (SARES) is an initiative of Sarawak state government, aims to provide renewable and reliable energy to Sarawak remote communities since 2016. SARES powers up households in remote areas that are too distant to be grid-connected with microgrids that consist of either solar PV or micro-hydro system. In this project, a solar PV microgrid will be designed and simulated using LABVIEW software. Several microgrid parameters including solar PV generation source, an energy storage system and load demand will be analysed. The design and simulation of a solar PV microgrid with graphical user interface can be used for monitoring of meteorological parameters and electric power forecasting. | PRACTICE ORIENTED | BEEY_T14 |
| 15 | HALYANI BINTI MOHD YASSIM | BEEY | Assessment of Energy Storage from an Islanded Microgrid Installations in Sarawak using Batteries or Hydrogen | The aim of this project is to present economic efficiency studies comparing two different investment variants: with energy storage of batteries and hydrogen installation with a PEM fuel cell stack for an islanded microgrid in Sarawak. HOMER Pro software will be used to simulate the microgrid system. Each system will be analyzed based on Simple Pay Back Period and Net Present Value. The simulation results will be used as reference for the stakeholders and policy makers in deployment islanded microgrids for Sarawak rural areas. | PRACTICE ORIENTED | BEEY_T15 |
| 16 | HALYANI BINTI MOHD YASSIM | BEEY | Power Flow Analysis of a Campus Microgrid using PowerWorld Software | The aims of this project is to design and simulate a campus microgrid that consists of a solar PV system, a battery storage and a diesel generator. The campus microgrid can either operate autonomously with or without main grid connection. PowerWorld Software will be used in this project to analyze optimal power flow of the campus microgrid to minimize the generation cost and power losses. The simulation results will be used as a reference for stakeholders and policy makers in developing microgrid system for university campuses. | PRACTICE ORIENTED | BEEY_T16 |
| 17 | HALYANI BINTI MOHD YASSIM | BEEY | Smart Plant Monitoring System Utilizing IoT and Arduino: Software Development | This project is to develop a smart plant monitoring system using Internet of Things (IoT) technology and Arduino. This project will focus on the software development for Android/ IOS platform and Arduino. Parameters such as soil moisture, pH level and light intensity that affect plants will be monitored through sensors. Pertinent information from the respective sensors is sent to Arduino UNO boards to the IoT (Internet of Things) platform. This system will be monitored via user's smartphone can reduce manual intervention and improve the overall performance of the plants. | INDUSTRY BASED | BEEY_T17 |
| 18 | IR. DR. MOHD FARRIZ BIN HJ. MD BASAR | BEEY | Development of a trishaw model powered by solar system | The main aim of this project is to develop an electric rickshaw, identifying weaknesses in the current cycle rickshaw, developing a design solution to address problems found, and exploring the possibility of utilizing solar power. Through research and testing, must cover design issues, concerns with health and safety, comfort, and ergonomics. All problems must be addressed by implementing design upgrades. The testing of the current cycle rickshaw identified the power and energy required to implement an electric drive system, where a DC motor and a battery are used in conjunction with a pedal-assist system to provide a range of up to 10 km. A conceptual prototype will be developed to prove the successful application of a pedal-assist system, which will be established as a viable option for design. The design will be critically evaluated and the relevant issues will be discussed. | PRACTICE ORIENTED | BEEY_T18 |
| 19 | IR. DR. MOHD FARRIZ BIN HJ. MD BASAR | BEEY | Development of A Simple Electrical Generator using Free Energy Turbine | More than 90% world's power is being generated using electromagnets based on faraday's law of electromagnetic induction. Many new technologies were discovered with time which led to a drastic change in the perception of electric energy. But at the same time, there is a misconception of free energy. Energy becomes free only at a point after which we don't have to pay for power generation after commissioning the unit. By using the magnetic force of magnets continuous motion (energy) is generated. This project will use Neodymium magnets that are placed on the fins of the fan. Disc-shaped magnets must be placed in such a way that all the north poles or south poles are facing one direction. This magnet also produces a magnetic field, so both the magnetic fields repel each other (like poles repel), which causes the fins to move. The power extracted will be used to charge a mobile battery and use for different necessary applications. | PRACTICE ORIENTED | BEEY_T19 |
| 20 | MASLAN BIN ZAINON | BEEY | Development of a Microcontroller-based Mini Hybrid Power Generation System Model for STEM application | This project proposes a mini hybrid power generation system for secondary school students in Malaysia in order for them to easily learn and understand the concept of renewable energy's working principles. A small size of solar photovoltaics panel and a horizontally rotating prototype wind turbine are used in this hybrid system. The system will be controlled by an Arduino microcontroller whilst a GUI-based supervisory control system is used to provide real-time control for human-machine interface (HMI) in order to connect the user to the controller. This is done using Visual Basic software via a computer and MIT App Inventor via a smartphone. The real-time data of the generated power by the hybrid system (solar and wind) will be displayed as well. | INDUSTRY BASED | BEEY_T20 |
| 21 | MAZREE BIN IBRAHIM (akan dibaiki) | BEEY | Dual axis solar tracking system | Solar tracking system | INDUSTRY BASED | BEEY_T21 |
| 22 | MAZREE BIN IBRAHIM (akan dibaiki) | BEEY | IOT based home monitoring system | Smart home | PRACTICE ORIENTED | BEEY_T22 |
| 23 | MOHAMAD NA'IM BIN MOHD NASIR | BEEY | "Designing of an Off-Grid Electrification Options for rural areas using HOMER software." | In this project, several option for renewable energy that suits the local resources will be designed and simulated using HOMER software. Numerous parameters including solar PV generation source, biogas, biomass source, energy storage system and load demand will be analysed. The optimal design will be determined by the project net present value (NPV). | Simulation software | BEEY_T23 |
| 24 | MOHAMAD NA'IM BIN MOHD NASIR | BEEY | "Development of Food waste-based for electricity generation in microbial fuel cell." | This project aims to develop Microbial Fuel Cell Bio device that converts chemical energy to electricity energy by using microbes from food waste. Performances of the device will be measured through its capability and capacity in generating the electricity. | PRACTICE ORIENTED | BEEY_T24 |
| 25 | MOHAMAD NA'IM BIN MOHD NASIR | BEEY | "Development of Rainwater and domestic water supply integration System for energy utilization" | This project aims to integrate rainwater flow and domestic water system flow in generating the electricity. The turbine will be develop and its energy system for both source will be integrated and monitored | PRACTICE ORIENTED | BEEY_T25 |
| 26 | MOHAMED AZMI BIN SAID | BEEY | Development of Automated Monitoring and Self-watering Planter Box using IoT | Automated monitoring and self-watering planter box is one of the main tasks in agriculture. This project will automate the traditional watering system by using Internet of Things (IoT) technology. | PRACTICE ORIENTED | BEEY_T26 |
| 27 | MOHAMED AZMI BIN SAID | BEEY | Smart Plant Monitoring System Utilizing IoT and Arduino: Sensor and Actuator Development | This project is to develop a smart plant monitoring system using Internet of Things (IoT) technology and Arduino. This project will focus on the sensor and actuator hardware development such as moisture, Ph, light intensity sensor. Actuator such as water valve and pump, lamp and others. Pertinent information from the respective sensors is sent to Arduino UNO boards to the IoT (Internet of Things) platform. This system will be monitored via user's smartphone can reduce manual intervention and improve the overall performance of the plants. | PRACTICE ORIENTED | BEEY_T27 |

| # | Name | Dept | Title | Description | Type | Code |
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| 28 | MOHD HATTA BIN JOPRI | BEEY | "Development of Power Quality Analyser for plug-in hybrid electric vehicles (PHEV) using Visual Basic software." | This project proposes the harmonic impacts of plug-in hybrid electric vehicles (PHEV) on power system distribution network in Malaysia. The harmonic series recreation is investigated using time-frequency distribution (TFD) namely Fast Fourier Transform (FFT). An analysis of FFT able to observe the frequency of the signal changes with time and has a straightforward interpretability of the results. This technique also provides fast and accurate analysis in power quality analysis. The harmonic effect of PHEV on the power system network are examined in terms of the generated current and voltage total harmonic distortion (THD) from the charging operation of PHEV.<br>OBJECTIVE<br>1. To analyse several current modelling of plug-in hybrid electric vehicles (PHEV).<br>2. To develop measurement approach of power quality measurement based on IEEE standard.<br>3. To analyse the impact of PHEV in terms of harmonic and interharmonic distortion to the power system network.<br>Equipments / software, Power quality analyser / MATLAB | INDUSTRY BASED | BEEY_T28 |
| 29 | MUSTAFA BIN MANAP | BEEY | Development of of DC to DC converters for Wind Farm applications | This project shall focus on developments of dc-dc converters for wind energy applciation. Due to the increasing distances of renewable and embedded generation in transmission and distribution systems, it is expected that the use of High Voltage Direct Current HVDC transmission and Medium Voltage Direct Current (MVDC) distribution systems for the grid integration of windfarms. One of the key components in such systems is the DC-DC converter, required to act as the interface between the generation, transmission and distribution voltage levels.<br>Objective:<br>1.To identify type of design and control of DC to Dc converter for wind energy application.<br>2.To analyse the present techniques of DC to DC converter.<br>3.To develop high efficiency and high gain with fast response for wind energy application.<br><br>Equipment/Software<br>1.Matlab | PRACTICE ORIENTED | BEEY_T29 |
| 30 | MUSTAFA BIN MANAP | BEEY | Development of Stable and Efficient Photovoltaic Module | This project emphasis on a method of modeling,simulation and development of photovoltaic (PV). It is necessary to define a circuit based simulation model for a PV cell in order to allow the interaction with a power converter. Characteristics of PV cells that are affected by irradiation and temperature are modeled by a circuit model. A study and coamparison of present PV module will be conducted and finally propose the development of stable and efficient photovoltaic (PV) module.<br>OBJECTIVE<br>1. To identify type of present photovoltaic (PV) cells<br>2. To analyse type of present photovoltaic (PV) cells<br> 3. To develop the stable and efficient photovoltaic (PV) module.<br><br>Equipment/Software<br>1.Matlab<br>2.A field-programmable gate array (FPGA) and power electronic devices. | PRACTICE ORIENTED | BEEY_T30 |
| 31 | PROFESOR MADYA MOHD ARIFF BIN MAT HANAFIAH | BEEY | Design of an Industrial GSM Based Lightning Monitoring and Warning Alert System. | The purpose of the project is to develop a Lightning Monitoring and Alert System for wastewater treatment plant using microcontroller, IoT and GSM. As the equipment for the water treatment controller always breakdown whenever in the event of lightning strike. | PRACTICE ORIENTED | BEEY_T31 |
| 32 | PROFESOR MADYA MOHD ARIFF BIN MAT HANAFIAH | BEEY | Design of an Industrial GSM Based Wireless Reading System for Energy Meter | This project is aimed to design an AMR (Automatic Metering Reading) System used in energy meter for electricity bill generation without manual operation. The proposed system can be designed with an ARM controller to measure the consumption of electricity in a given time period. Further, the information regarding billing will send to the customers & companies through the GSM module. | PRACTICE ORIENTED | BEEY_T32 |
| 33 | PROFESOR MADYA MOHD ARIFF BIN MAT HANAFIAH | BEEY | Design of an Android Based Domestic Electrical Appliance Controller | The objective is to control the home appliances from a conventional manual switch pressing system. It uses an Android mobile with a user graphical interface application in it. The control circuit is attached to a number of devices to be controlled through a relay mechanism with any communication module (eg. Bluetooth, Zigbee, IoT devices etc) | PRACTICE ORIENTED | BEEY_T33 |
| 34 | PROFESOR MADYA MOHD ARIFF BIN MAT HANAFIAH | BEEY | Design of an IoT Based Solar Powered Forest Fire Detection and Control System | The objective of this project is to detect and prevent the forest fire remotely by using any communication medium or devices (GSM, Zigbee etc). The entire transmitter circuit is located in the forest with different sensors like smoke and fire detectors, which are powered with a solar panel source. | PRACTICE ORIENTED | BEEY_T34 |
| 35 | PROFESOR MADYA MOHD ARIFF BIN MAT HANAFIAH | BEEY | Design of an Industrial GSM based Substation Monitoring and Control System | This project aims to acquire various substation parameters like current, voltage, temperature, power factor, etc., remotely via GSM communication. Thus, the remote operator can analyze these parameter values and take a corresponding control action. A user can remotely operate the substation equipment like circuit breakers, isolators, relays, buzzer alarms, and so on. | PRACTICE ORIENTED | BEEY_T35 |
| 36 | SITI NUR SUHAILA BINTI MIRIN | BEEY | "Design and development of Autonomous robotic weed control systems using microcontroller" | Autonomous robotic weed control systems hold promise toward the automation of one of agriculture's few remaining unmechanized and drudging tasks, hand weed control. Robotic technology may also provide a means of reducing agriculture's current dependency on herbicides, improving its sustainability and reducing its environmental impact. This project describes the current status ofthe four core technologies (guidance, detection and identification, precision in-row weed control, and mapping) required for the successful development of a general-purpose robotic system for weed control. Of the four, detection and identi¬cation of weeds under the wide range of conditions common to agricultural fields remains the greatest challenge. A few complete robotic weed control systems have demonstrated the potential of the technology in the field. Additional research and development is needed to fully realize this potential. | PRACTICE ORIENTED | BEEY_T36 |
| 37 | TS. DR. ZIKRI ABADI BIN BAHARUDIN | BEEY | Modification of solar energy management for Lightning Detection System by optimizing the operation of controller system. | Continuation of FYP in year 2019 which was found to have a weakness in the controller, P20L. Ideally, the Lightning Detection System (LDS) system consume 60 A with 12 V from ONE battery (120 AH), continuously. The system will stop operate if the ambient temperature is less than 27° Celsius. However, the controller can not allow the system to operate directly from the solar panel even during fair weather. It will only operate with the battery. Then the problematic issue always happens when the weather change to twilight condition which lead the battery to drain quickly. Finally, the system cannot operate when there is a lightning event to be happened at night. Therefore, some modification in the controller section needs to be done. This project requires two students for analysing, contracting and evaluating the performance of the LDS system. | PRACTICE ORIENTED | BEEY_T37 |
| 38 | TS. DR. ZIKRI ABADI BIN BAHARUDIN | BEEY | Modification of cooling box system for Lightning Detection System by optimizing the temperature controller | Continuation of FYP in year 2019 which was found to have a weakness in the controller, P20L. Ideally, the Lightning Detection System (LDS) system consume 60 A with 12 V from ONE battery (120 AH), continuously. The system will stop operate if the ambient temperature is less than 27° Celsius. However, the controller can not allow the system to operate directly from the solar panel even during fair weather. It will only operate with the battery. Then the problematic issue always happens when the weather change to twilight condition which lead the battery to drain quickly. Finally, the system cannot operate when there is a lightning event to be happened at night. Therefore, some modification in the controller section needs to be done. This project requires two students for analysing, contracting and evaluating the performance of the LDS system. | PRACTICE ORIENTED | BEEY_T38 |
| 39 | ZULKIFLI BIN IBRAHIM | BEEY | Development of a prototype submersible in-pipe pico-generator for low stream fluid by utilizing 3D printer for concept proven. | Free energy sources from small stream are often being neglected due to low possible energy harvested. In this work, new method is approached by development of submersible pico-generator. This generator is expected to produce at least 5W of electric power. The analysis will be conducted by the aid of Finite element software. Later, the generator concept/model will be constructed using 3D printer. | PRACTICE ORIENTED | BEEY_T39 |