

## Project Outline ~ Electrical Engineering

<b>Project Code</b>	E1_SAND_1	
<b>Project Details</b>	<b>Internship Category</b>	Sandwich
	<b>Internship Period</b>	June 2019 to August 2020
	<b>Preferred Disciplines</b>	<b>First Preference:</b> Electrical Engineering <b>Other Preference:</b> Other Engineering disciplines
	<b>Project Name</b>	Setting up Operation and Maintenance of upcoming power plant
	<b>Business Objective(s)</b>	<ul style="list-style-type: none"> <li>• To set up O&amp;M for new builds. This requires preparation for:               <ul style="list-style-type: none"> <li>○ Recruitment and Training of O&amp;M Team;</li> <li>○ development of O&amp;M procedures;</li> <li>○ Setting up IT &amp; business system software, workshop &amp; infrastructure to support O&amp;M.</li> </ul> </li> </ul>
	<b>Project Descriptions</b>	<ul style="list-style-type: none"> <li>• Involve in review of plant design &amp; layout in terms of operability and maintainability of large (660MW units) thermal power plant</li> <li>• Involve in identification and selection of spare parts for the power plant</li> <li>• Involve in preparation of recruitment and training of O&amp;M team</li> <li>• Involve in preparation of Information Technology Plan and road-map</li> </ul>
	<b>Project Deliverables</b>	<ul style="list-style-type: none"> <li>• Detailed Plans for Recruitment, Training , IT and Business System</li> <li>• Finalized list of spare parts</li> <li>• Report of design review from O&amp;M standpoint.</li> </ul>
	<b>Required Skills</b>	<ul style="list-style-type: none"> <li>• Good at basic computer skills. (preferably MS Excel and MS Project)</li> <li>• Able to read and understand engineering drawings.</li> </ul>
<b>Learning</b>	<ul style="list-style-type: none"> <li>• Overview of power plants and understanding of O&amp;M management</li> <li>• How to set up O&amp;M of new build</li> <li>• Exposure to master drawing and design of power plant from operation and maintenance perspective.</li> </ul>	

<b>Project Code</b>	E1_SAND_2	
<b>Project Details</b>	<b>Internship Category</b>	Sandwich
	<b>Internship Period</b>	June 2019 to May 2020
	<b>Preferred Disciplines</b>	<b>First Preference:</b> Electrical Engineering <b>Other Preference:</b> Building Services Engineering
	<b>Project Name</b>	Energy Conservation and Battery Energy Storage System
	<b>Business Objective(s)</b>	<ul style="list-style-type: none"> <li>• Engagement plan for energy audits and energy savings</li> <li>• Application of smart technology in the collaborative projects</li> <li>• Sales Development &amp; Customer Engagement</li> </ul>
	<b>Project Descriptions</b>	<ul style="list-style-type: none"> <li>• Support on the planning and control of the number energy audit reports provided to customers.</li> <li>• Support on planning, monitoring, and reporting the amount of energy saving achieved by customers due to implementing the recommended energy saving opportunity</li> </ul>
	<b>Project Deliverables</b>	<ul style="list-style-type: none"> <li>• Successful commissioning of energy saving projects.</li> <li>• Successful commissioning of customer engagement activities.</li> <li>• Successful commissioning of Battery energy Storage System.</li> <li>• Successful commissioning EV, Data Centre and other sales projects.</li> </ul>
	<b>Required Skills</b>	<ul style="list-style-type: none"> <li>• basic understandings in electrical engineering.</li> <li>• Good in MS Excel.</li> <li>• Good in MS PowerPoint.</li> <li>• self driven.</li> </ul>
<b>Learning</b>	<ul style="list-style-type: none"> <li>• Technical               <ul style="list-style-type: none"> <li>○ Knowledge of Energy Consumption Analysis.</li> <li>○ Knowledge of energy saving and renewable energy equipment.</li> <li>○ Principles of special applications of batteries in the power system</li> </ul> </li> <li>• General               <ul style="list-style-type: none"> <li>○ Team work with parties of different background and expertise.</li> <li>○ Customer relationship building and engagement.</li> <li>○ Sales and marketing</li> </ul> </li> </ul>	

## Project Outline ~ Electrical Engineering

<b>Project Code</b>	E1_SAND_3	
<b>Project Details</b>	<b>Internship Category</b>	Sandwich
	<b>Internship Period</b>	July 2019 to August 2020
	<b>Preferred Disciplines</b>	<b>First Preference:</b> Energy Engineering, Electrical Engineering, Building Services Engineering <b>Other Preference:</b> Sales and Marketing
	<b>Project Name</b>	Smart Initiatives to support customers improve energy efficiency
	<b>Business Objective(s)</b>	<ul style="list-style-type: none"> <li>• Natural Gas Fired Plant Performance Monitoring and Reporting</li> <li>• Provide support to the implementation of "Smart Hospital Project"</li> <li>• Implement the Indoor Air Quality Improvement project for Institution Customers</li> </ul>
	<b>Project Descriptions</b>	<ul style="list-style-type: none"> <li>• Search and carry out potential energy management studies</li> <li>• Support to energy saving achievement of Hospital Authority.</li> <li>• Develop smart applications at hospitals in Hospital Authority</li> <li>• Help to develop initiatives to Indoor Air Quality program</li> <li>• Implement Indoor Air Quality proposals for Institution Customer Accounts.</li> </ul>
	<b>Project Deliverables</b>	<ul style="list-style-type: none"> <li>• Ride on energy management studies to support energy saving target. achievement in Institution Account customers</li> <li>• To perform energy data collection and analysis to support Smart Hospital Project</li> <li>• To establish smart application model in Hospital Authority premises</li> <li>• To identify potential customers for promoting Indoor Air Quality Improvement</li> </ul>
	<b>Required Skills</b>	<ul style="list-style-type: none"> <li>• Excel for mathematical and statical analysis</li> <li>• Web page design.</li> <li>• Computer programming</li> <li>• Basic electrical / energy engineering knowledge</li> <li>• Technologies on energy efficiency and conservation.</li> <li>• Attention to details and good at figures.</li> </ul>
	<b>Learning</b>	<ul style="list-style-type: none"> <li>• Project Management</li> <li>• System analysis and translation of technical requirements to user requirement</li> <li>• Product development to meet customer need</li> <li>• Web service development</li> <li>• Event Management</li> </ul>

<b>Project Code</b>	E1_SAND_4	
<b>Project Details</b>	<b>Internship Category</b>	Sandwich
	<b>Internship Period</b>	June 2019 to June 2020
	<b>Preferred Disciplines</b>	<b>First Preference:</b> Electrical Engineering <b>Other Preference:</b> Electronic Engineering
	<b>Project Name</b>	Smart 400kV GIS condition monitoring platform development, 400kV protection system & variable speed generator drive upgrading at power station
	<b>Business Objective(s)</b>	<ul style="list-style-type: none"> <li>Maintain the reliability and availability of Castle Peak and Black Point 400 kV GIS and generators.</li> </ul>
	<b>Project Descriptions</b>	<ul style="list-style-type: none"> <li>The 400 kV Substation at Castle Peak Power Station (CPPS) and Black Point Power Station (BPPS) were commissioned on 1981 and 1995 respectively. They have reached the end or middle of design life. The purpose of developing smart condition monitoring system and replacement of obsolete protection equipment are to maintain the system availability and security, also to follow the latest trend of asset management</li> <li>Studies and implementation on upgrading of static frequency drive for generating machines.</li> </ul>
	<b>Project Deliverables</b>	<ul style="list-style-type: none"> <li>To perform studies and submit proposal for development of condition monitoring system on 400 kV GIS.</li> <li>To perform studies and submit proposal for upgrading of protection system on 400 kV GIS and static frequency drive on generating machines.</li> <li>To support the project team on project management and site implementation for the above-mentioned projects.</li> </ul>
	<b>Required Skills</b>	<ul style="list-style-type: none"> <li>Good communication and analytical skills</li> <li>Fundamental electrical engineering and software compilation knowledge</li> <li>Fluent in both Cantonese and English</li> <li>Good in Mandarin</li> <li>Proficient Word, Excel and Powerpoint skills</li> </ul>
<b>Learning</b>	<ul style="list-style-type: none"> <li>Safety and quality requirements in power station</li> <li>Project development/management and site supervision skills</li> <li>400 kV GIS architecture and refurbishment procedures</li> <li>GIS condition monitoring and analysis</li> </ul>	

<b>Project Code</b>	E1_SAND_5	
<b>Project Details</b>	<b>Internship Category</b>	Sandwich
	<b>Internship Period</b>	August 2019 to July 2020
	<b>Preferred Disciplines</b>	<b>First Preference:</b> Electrical Engineering <b>Other Preference:</b> Electronic Engineering, Energy Engineering, Information Engineering, System Engineering
	<b>Project Name</b>	Power System Security Studies
	<b>Business Objective(s)</b>	<ul style="list-style-type: none"> <li>To enhance transmission and distribution network security and ensure power delivery in a secure and reliable manner.</li> <li>To improve the current practice on demand response, smart grid, and load forecast.</li> </ul>
	<b>Project Descriptions</b>	<ul style="list-style-type: none"> <li>Identify transmission and distribution network improvement areas;</li> <li>Conduct power flow and fault level studies by using different simulation tools;</li> <li>Conduct study on demand response, smart grid, and load forecast practice;</li> <li>Formulate contingency plans for power systems;</li> <li>Recommend improvement actions.</li> </ul>
	<b>Project Deliverables</b>	<ul style="list-style-type: none"> <li>Interim deliverables include power flow studies and preliminary contingency actions.</li> <li>Final deliverables include study report, implementation strategies and plans.</li> </ul>
	<b>Required Skills</b>	<ul style="list-style-type: none"> <li>Proficiency in both spoken and written Chinese and English;</li> <li>Being customer-oriented, self-motivated, good team player, analytical, and able to work under pressure and tight schedule;</li> <li>Strong sense of responsibility with good interpersonal and communication skills;</li> <li>Proficiency in Microsoft Office and Visual Basic for Applications (VBA)</li> </ul>
<b>Learning</b>	<ul style="list-style-type: none"> <li>Understanding on transmission and distribution network of CLP Power;</li> <li>Familiarization training in System Control Centre;</li> <li>Visit to power stations and substations;</li> <li>Acquire in-depth power system knowledge, from generation to transmission and distribution</li> </ul>	

<b>Project Code</b>	E1_SAND_6	
<b>Project Details</b>	<b>Internship Category</b>	Sandwich
	<b>Internship Period</b>	June 2019 to May 2020
	<b>Preferred Disciplines</b>	<b>First Preference:</b> Electrical Engineering <b>Other Preference:</b> Information Technology / Computer Engineering
	<b>Project Name</b>	Energy Management System (EMS) Enhancement
	<b>Business Objective(s)</b>	<ul style="list-style-type: none"> <li>Enhance the EMS functionalities to cope with the power system operations</li> <li>Assist senior engineers to formulate the functional requirements and implementation approach</li> </ul>
	<b>Project Descriptions</b>	<ul style="list-style-type: none"> <li>The Energy Management System (EMS) is used to monitor and control the power system to ensure safe, reliable and economic operations. This project is to extend the life of the EMS up to at least year 2025, by upgrading obsolete EMS software components and by replacing the obsolete hardware.</li> </ul>
	<b>Project Deliverables</b>	<ul style="list-style-type: none"> <li>Complete the software upgrade of the system</li> <li>Complete the project planning for the hardware upgrade of the system</li> <li>Small software development projects that enrich the EMS functionalities</li> <li>Assist senior engineers to evaluate various technology and implementation approach and associated benefits</li> </ul>
	<b>Required Skills</b>	<ul style="list-style-type: none"> <li>Critical Thinking</li> <li>Software engineering and programming skills</li> <li>Good English writing skills</li> </ul>
<b>Learning</b>	<ul style="list-style-type: none"> <li>Learn about large scale modern EMS / SCADA system used in power system operations</li> <li>Learn and practise software development of small user applications on power systems control</li> <li>Gain experiences in the project planning and user requirement formulation</li> </ul>	

<b>Project Code</b>	E1_SAND_7	
<b>Project Details</b>	<b>Internship Category</b>	Sandwich
	<b>Internship Period</b>	June 2019 to June 2020
	<b>Preferred Disciplines</b>	<b>First Preference:</b> Electrical Engineering <b>Other Preference:</b> Electronic Engineering
	<b>Project Name</b>	Power System Protection Setting Review and Data Consolidation
	<b>Business Objective(s)</b>	<ul style="list-style-type: none"> <li>• Generation Statistic and Analytics Reporting System Revamp</li> <li>• To verify protection equipment and setting integrity for fast supply restoration</li> <li>• To consolidate protection data to facilitate protection operation and maintenance activities</li> </ul>
	<b>Project Descriptions</b>	<ul style="list-style-type: none"> <li>• To evaluate different types of protection settings such as Current Differential Protection, Distance Protection, Transformer Protection, and Over Current and Earth Fault Protection to enhance the reliability and security of protection system</li> <li>• To test different types of protection relays and carry out fault investigation to confirm protection integrity and identify faulty equipment for fast supply restoration</li> <li>• To consolidate all protection settings of power system in a platform to support and facilitate front-line staffs to perform operation and maintenance activities</li> </ul>
	<b>Project Deliverables</b>	<ul style="list-style-type: none"> <li>• Reliability and security enhancement in protection system.</li> <li>• Fault investigation report</li> <li>• Protection relay test report</li> <li>• Development of platform for protection data consolidation..</li> </ul>
	<b>Required Skills</b>	<ul style="list-style-type: none"> <li>• Proficiency in Microsoft Office and Visual Basic for Applications (VBA)</li> <li>• Being customer-oriented, self-motivated, analytical and good team player</li> <li>• Good interpersonal and communication skills</li> </ul>
<b>Learning</b>	<ul style="list-style-type: none"> <li>• Protection arrangement and coordination in power system via a series of trainings (practical and theoretical knowledge)</li> <li>• Power system knowledge, from generation to transmission and distribution network</li> <li>• Safety and quality requirements and consideration</li> </ul>	

<b>Project Code</b>	E1_SAND_8	
<b>Project Details</b>	<b>Internship Category</b>	Sandwich
	<b>Internship Period</b>	July 2019 to June 2020
	<b>Preferred Disciplines</b>	<b>First Preference:</b> Electrical Engineering <b>Other Preference:</b> Electronic Engineering
	<b>Project Name</b>	Power Quality (PQ) mitigation solutions and applications for customer equipment
	<b>Business Objective(s)</b>	<ul style="list-style-type: none"> <li>• GBG Business Management Portal Revamp</li> <li>• Leverage new technologies and smart grid solutions to provide effective PQ mitigation solutions to customers</li> <li>• Assess power quality performance of power distribution networks</li> </ul>
	<b>Project Descriptions</b>	<ul style="list-style-type: none"> <li>• Project 1               <ul style="list-style-type: none"> <li>○ To evaluate &amp; test different types of PQ mitigation device (e.g. voltage-dip ride-through device, PQ measurement equipment etc.) to formulate effective PQ mitigation measures to customers.</li> </ul> </li> <li>• Project 2               <ul style="list-style-type: none"> <li>○ To assess the power quality performance for the sites with different loading characteristics in power distribution networks</li> </ul> </li> </ul>
	<b>Project Deliverables</b>	<ul style="list-style-type: none"> <li>• Project 1               <ul style="list-style-type: none"> <li>○ To complete evaluation report on PQ mitigation devices.</li> </ul> </li> <li>• Project 2               <ul style="list-style-type: none"> <li>○ To complete evaluation report on power quality performance of power distribution networks</li> </ul> </li> </ul>
	<b>Required Skills</b>	<ul style="list-style-type: none"> <li>• Basic knowledge of power quality</li> <li>• Hands-on experience in using power testing equipment.</li> <li>• Computer programming skills</li> <li>• Knowledge of electronics circuit design</li> </ul>
<b>Learning</b>	<ul style="list-style-type: none"> <li>• To understand the operating characteristics of customer equipment and customers' power supply configuration, PQ mitigation &amp; measurement device and CLP power network configuration etc.</li> <li>• To gain diversified knowledge of engineering principles and practices in formulating PQ mitigation solutions to customers.</li> <li>• To develop and exercise skills in project management, performance monitoring and reporting</li> </ul>	



## Project Outline ~ Electrical Engineering

<b>Project Code</b>	E1_SAND_9	
<b>Project Details</b>	<b>Internship Category</b>	Sandwich
	<b>Internship Period</b>	June 2019 to May 2020
	<b>Preferred Disciplines</b>	<b>First Preference:</b> Information Technology <b>Other Preference:</b>
	<b>Project Name</b>	Condition Monitoring System Alarm Status Platform
	<b>Business Objective(s)</b>	<ul style="list-style-type: none"> <li>To monitor and report performance statistics in relation To generation business</li> </ul>
	<b>Project Descriptions</b>	<ul style="list-style-type: none"> <li>To access various condition monitoring systems from various suppliers in server side</li> <li>To design and visualize equipment alarm status through Power BI</li> </ul>
	<b>Project Deliverables</b>	<ul style="list-style-type: none"> <li>Dashboard able to show equipment condition performance</li> <li>Alarm statistic shall be available to assess condition monitoring systems performance.</li> </ul>
	<b>Required Skills</b>	<ul style="list-style-type: none"> <li>Power BI and programing language</li> <li>Database language</li> </ul>
<b>Learning</b>	<ul style="list-style-type: none"> <li>Able to learn most advance condition monitoring technology</li> <li>Able to understand CLP's Operation Technology system topology, configuration and operation.</li> </ul>	

## Project Outline ~ Electrical Engineering

<b>Project Code</b>	E1_SUM_1	
<b>Project Details</b>	<b>Internship Category</b>	Summer
	<b>Internship Period</b>	June 2019 to August 2019
	<b>Preferred Disciplines</b>	<b>First Preference:</b> Energy Engineering, Electrical Engineering, Building Services Engineering <b>Other Preference:</b> Sales and Marketing
	<b>Project Name</b>	Smart Initiatives to support customers improve energy efficiency
	<b>Business Objective(s)</b>	<ul style="list-style-type: none"> <li>• To develop an enhanced system of generation statistic and analytic reporting and</li> <li>• Provide support to the implementation of "Smart Hospital Project"</li> <li>• Implement the Indoor Air Quality Improvement project for Institution Customers</li> </ul>
	<b>Project Descriptions</b>	<ul style="list-style-type: none"> <li>• Search and carry out potential energy management studies</li> <li>• Support to energy saving achievement of Hospital Authority.</li> <li>• Develop smart applications at hospitals in Hospital Authority.</li> <li>• Help to develop initiatives to Indoor Air Quality program.</li> <li>• Implement Indoor Air Quality proposals for Institution Customer Accounts.</li> </ul>
	<b>Project Deliverables</b>	<ul style="list-style-type: none"> <li>• Ride on energy management studies to support energy saving target achievement in Institution Account customers</li> <li>• To perform energy data collection and analysis to support Smart Hospital Project</li> <li>• To establish smart application model in Hospital Authority premises</li> <li>• To identify potential customers for promoting Indoor Air Quality Improvement.</li> </ul>
	<b>Required Skills</b>	<ul style="list-style-type: none"> <li>• Excel for mathematical and statical analysis</li> <li>• Web page design.</li> <li>• Computer programming</li> <li>• Basic electrical / energy engineering knowledge</li> <li>• Technologies on energy efficiency and conservation.</li> <li>• Attention to details and good at figures.</li> </ul>
<b>Learning</b>	<ul style="list-style-type: none"> <li>• Project Management</li> <li>• System analysis and translation of technical requirements to user requirement</li> <li>• Product development to meet customer need</li> <li>• Web service development</li> <li>• Event Management</li> </ul>	

<b>Project Code</b>	E1_SUM_10	
<b>Project Details</b>	<b>Internship Category</b>	Summer
	<b>Internship Period</b>	June 2019 to August 2019
	<b>Preferred Disciplines</b>	<b>First Preference:</b> Electrical Engineering <b>Other Preference:</b>
	<b>Project Name</b>	Overhead Line Improvement Initiatives
	<b>Business Objective(s)</b>	<ul style="list-style-type: none"> <li>• To identify foreseeable challenges on the overhead line prone system</li> <li>• To discover the latest overhead line technologies, of which can be applicable to the existing system</li> <li>• To devise improvement suggestions</li> </ul>
	<b>Project Descriptions</b>	<ul style="list-style-type: none"> <li>• Focused on incessant supply reliability improvement as well as continuous customers' satisfaction, the Smart Village team seeks to advance overhead line prone supply areas in North Region with connection of innovation and available methodologies. This project aims to offer a platform to devise improvement suggestions on North Region's 11kV overhead line (OHL) with four particular focuses, inclusive of OHL Design Arrangement, System Resilience, Process Improvement and Innovation..</li> </ul>
	<b>Project Deliverables</b>	<ul style="list-style-type: none"> <li>• To conduct analysis on past and existing distribution OHL configuration as well as design</li> <li>• To conduct analysis on existing OHL automation schemes.</li> <li>• To devise practical improvement suggestions on observed OHL systems</li> </ul>
	<b>Required Skills</b>	<ul style="list-style-type: none"> <li>• Sound power system and related equipment knowledge</li> <li>• Comprehension, analytical and communication abilities with relevant parties involved throughout the project</li> <li>• Creative and flexible in design thinking.</li> <li>• Proficient Microsoft Office skills.</li> </ul>
<b>Learning</b>	<ul style="list-style-type: none"> <li>• Design standard of 11kV overhead line network.</li> <li>• Pole equipment installation practice of 11kV overhead line network</li> <li>• Experience in engineering project implementation.</li> </ul>	

## Project Outline ~ Electrical Engineering

<b>Project Code</b>	E1_SUM_2	
<b>Project Details</b>	<b>Internship Category</b>	Summer
	<b>Internship Period</b>	June 2019 to August 2019
	<b>Preferred Disciplines</b>	<b>First Preference:</b> Electrical Engineering <b>Other Preference:</b> Electronic Engineering
	<b>Project Name</b>	Precipitator High Freq Transformer Upgrade
	<b>Business Objective(s)</b>	<ul style="list-style-type: none"> <li>• Uplift the performance of precipitators in an CPB unit</li> </ul>
	<b>Project Descriptions</b>	<ul style="list-style-type: none"> <li>• Each unit of CPB Electrostatic Precipitator (ESP) has been equipped with 18 transformers for controlling the Respirable Suspended Particulate (RSP) levels within limits. These transformers have been in service for 30+ years. Due to end of life, obsolescence, uplift of efficiency and economic benefits, it is necessary to replace the conventional transformers with high frequency transformers.</li> </ul>
	<b>Project Deliverables</b>	<ul style="list-style-type: none"> <li>• Perform studies on high frequency transformer</li> <li>• Support project development/management and site implementation.</li> </ul>
	<b>Required Skills</b>	<ul style="list-style-type: none"> <li>• Sound knowledge about electrical engineering</li> <li>• Good spoken Mandarin</li> <li>• Proficiency in Word, Excel, and Powerpoint.</li> </ul>
<b>Learning</b>	<ul style="list-style-type: none"> <li>• Safety and quality requirements in power station</li> <li>• Project development/management and site supervision skills</li> <li>• Fundamental engineering theories about ESP.</li> </ul>	

<b>Project Code</b>	E1_SUM_3	
<b>Project Details</b>	<b>Internship Category</b>	Summer
	<b>Internship Period</b>	June 2019 to August 2019
	<b>Preferred Disciplines</b>	<b>First Preference:</b> Electrical Engineering <b>Other Preference:</b> Information Technology
	<b>Project Name</b>	Study the LiFi technology application for data transfer in power plant
	<b>Business Objective(s)</b>	<ul style="list-style-type: none"> <li>• To adopt the latest technology of Big Data and Data analytic for performance</li> <li>• Improve monitoring and control system of power plant equipment in GBG by using the LiFi technology</li> </ul>
	<b>Project Descriptions</b>	<ul style="list-style-type: none"> <li>• Study the latest development of LiFi technology and application in different industrial sectors.</li> <li>• Evaluate and study the feasibility of applying the LiFi technology in generation plants.</li> </ul>
	<b>Project Deliverables</b>	<ul style="list-style-type: none"> <li>• Understand generation plants operation.</li> <li>• Understand the importance of safety at work.</li> <li>• Understand the latest LiFi technology and its application in different industrial sectors.</li> <li>• Feasibility study of monitoring and control system using LiFi technology in generation plants</li> <li>• Submit a project proposal for applying LiFi technology with various application in generation plants.</li> </ul>
	<b>Required Skills</b>	<ul style="list-style-type: none"> <li>• Analytical skill</li> <li>• Communication skill</li> <li>• Presentation skill.</li> </ul>
<b>Learning</b>	<ul style="list-style-type: none"> <li>• Electrical Engineering</li> <li>• Information Technology</li> </ul>	

<b>Project Code</b>	E1_SUM_4	
<b>Project Details</b>	<b>Internship Category</b>	Summer
	<b>Internship Period</b>	June 2019 to August 2019
	<b>Preferred Disciplines</b>	<b>First Preference:</b> Electrical Engineering <b>Other Preference:</b> Material Science
	<b>Project Name</b>	Condition Assessment of Power Cables
	<b>Business Objective(s)</b>	<ul style="list-style-type: none"> <li>• monitoring of generation plant</li> </ul>
	<b>Project Descriptions</b>	<ul style="list-style-type: none"> <li>• To establish an effective and unified methodology to assess the conditions of power cables in service</li> </ul>
	<b>Project Deliverables</b>	<ul style="list-style-type: none"> <li>• study of different failure modes of distribution and transmission cables.</li> <li>• identification of different methods for assessing conditions of power cables</li> <li>• selection of an optimal set of appropriate methods.</li> </ul>
	<b>Required Skills</b>	<ul style="list-style-type: none"> <li>• knowledge in high voltage engineering</li> <li>• knowledge in properties of metals and polymers.</li> </ul>
	<b>Learning</b>	<ul style="list-style-type: none"> <li>• General knowledge in HV power system</li> <li>• Distribution and transmission cable system</li> </ul>

<b>Project Code</b>	E1_SUM_5	
<b>Project Details</b>	<b>Internship Category</b>	Summer
	<b>Internship Period</b>	June 2019 to August 2019
	<b>Preferred Disciplines</b>	<b>First Preference:</b> Electrical Engineering <b>Other Preference:</b>
	<b>Project Name</b>	Online Condition Monitoring Systems Implementation and Strategy Review
	<b>Business Objective(s)</b>	<ul style="list-style-type: none"> <li>To review current maintenance strategy to achieve just-in-time maintenance</li> <li>To assist frontline engineers to optimize maintenance cost efficiency in WE Region with the aid of the Systems</li> <li>To let the intern learn more about hands-on experience and knowledge in Power Engineering through Region's operations &amp; maintenance</li> </ul>
	<b>Project Descriptions</b>	<ul style="list-style-type: none"> <li>Time-based Maintenance (TBM) plays an important role in transmission and distribution equipment. Thanks to the cutting edge technology in partial discharge detection, we can now be able to monitor asset conditions in day-to-day operations and identify incipient fault and repair it accordingly before catastrophic failure. After the full implementation of the Online Condition Monitoring Systems (OCMS), we need to adjust the maintenance intervals of each type of assets to achieve Condition-based Maintenance (CBM) and ultimately, the goal of just-in-time maintenance.</li> </ul>
	<b>Project Deliverables</b>	<ul style="list-style-type: none"> <li>Review and recommend revised maintenance intervals of transmission switchgears and transformers.</li> <li>Facilitate frontline engineers to operate OCMS on day-to-day basis.</li> <li>Acquire hands-on experience and knowledge in Power Engineering through Region's operations &amp; maintenance.</li> </ul>
	<b>Required Skills</b>	<ul style="list-style-type: none"> <li>Knowledge of basic Electrical and Mechanical Engineering.</li> <li>Basic IT skills (eg Excel and VBA etc)</li> </ul>
<b>Learning</b>	<ul style="list-style-type: none"> <li>Operations and maintenance practices in Power Engineering.</li> <li>Knowledge of CLPP's Transmission and Distribution Systems.</li> <li>Fundamentals of High Voltage Engineering for the future Graduate Trainee (GT) recruitment</li> </ul>	

<b>Project Code</b>	E1_SUM_6	
<b>Project Details</b>	<b>Internship Category</b>	Summer
	<b>Internship Period</b>	June 2019 to August 2019
	<b>Preferred Disciplines</b>	<b>First Preference:</b> Electrical Engineering <b>Other Preference:</b>
	<b>Project Name</b>	Portable smart device for health monitoring of workers working at height
	<b>Business Objective(s)</b>	<ul style="list-style-type: none"> <li>To study the occupational risk of overhead line operation &amp; maintenance activities.</li> <li>To evaluate the application of smart technologies for monitoring the fitness of transmission linesmen when working at height.</li> </ul>
	<b>Project Descriptions</b>	<ul style="list-style-type: none"> <li>Linesmen are required to work at height under different working environment when carrying out overhead line operation and maintenance works. These works are classified as high risk activities and various safety measures are in place to ensure the safety of linesmen.</li> <li>The project is to study the possibility of applying smart watch/device, together with computer programme, to monitor the health index of linesman so that a warning signal would be given out to alert the linesman when he or she is unfit for work.</li> </ul>
	<b>Project Deliverables</b>	<ul style="list-style-type: none"> <li>Understand the overhead line operation and maintenance activities and the safety requirements for different working environment.</li> <li>Study the technology and function of smart watch/device available in the market for health monitoring.</li> <li>Identify valuable health indexes to be monitored and possible abnormal physical conditions at work.</li> <li>Develop a computer programme to give early safety warnings and suggest follow up actions under unfit condition.</li> </ul>
	<b>Required Skills</b>	<ul style="list-style-type: none"> <li>Good communication skill</li> <li>Able to work independently</li> <li>Good electrical knowledge</li> <li>Fluent in both Cantonese and English</li> <li>Good in Mandarin</li> <li>Good programming skill (e.g. C++ or apps programming).</li> </ul>
<b>Learning</b>	<ul style="list-style-type: none"> <li>Learn CLP safety culture and standard</li> <li>Learn overhead line facilities</li> <li>Understand circuit O&amp;M and project activities.</li> </ul>	



<b>Project Code</b>	E1_SUM_7	
<b>Project Details</b>	<b>Internship Category</b>	Summer
	<b>Internship Period</b>	June 2019 to August 2019
	<b>Preferred Disciplines</b>	<b>First Preference:</b> Electrical Engineering <b>Other Preference:</b>
	<b>Project Name</b>	Applications and Impacts of New Emerging Technologies on Electric Power Systems
	<b>Business Objective(s)</b>	<ul style="list-style-type: none"> <li>• To conduct literature review of different new emerging technologies on electric power systems, such as battery energy storage systems and line voltage regulators</li> <li>• To be familiar with computer software programs to examine the applications and impacts of new emerging technologies on electric power systems</li> <li>• To provide recommendations on the applications and impacts of new emerging technologies on electric power systems from the technical and commercial perspectives</li> </ul>
	<b>Project Descriptions</b>	<ul style="list-style-type: none"> <li>• To tackle the climate change and energy crisis, many countries are making their endeavors to transform their electric power systems from fossil fuels to renewable energy. However, high penetration of renewable energy power systems has an impact on electric power systems with respect to the supply reliability and stability. For example, it is more difficult for grid operators to control the generation output and forecast the electricity demand. Therefore, to make the transition to a low-carbon electric power system successfully, some new emerging technologies are being developed, such as battery energy storage systems and line voltage regulators. This project aims to examine the applications and impacts of those new emerging technologies on electric power systems from the technical and commercial perspectives.</li> </ul>
	<b>Project Deliverables</b>	<ul style="list-style-type: none"> <li>• Simulation Models</li> <li>• Written Report</li> <li>• Presentation</li> </ul>
	<b>Required Skills</b>	<ul style="list-style-type: none"> <li>• Study in Electrical Engineering</li> <li>• Knowledge of Computer Science Application</li> <li>• Self-starter</li> </ul>
<b>Learning</b>	<ul style="list-style-type: none"> <li>• See objectives above</li> </ul>	

<b>Project Code</b>	E1_SUM_8	
<b>Project Details</b>	<b>Internship Category</b>	Summer
	<b>Internship Period</b>	May 2019 to August 2019
	<b>Preferred Disciplines</b>	<b>First Preference:</b> Electrical Engineering <b>Other Preference:</b> Technology Research
	<b>Project Name</b>	Identification of New Technology Applications in Power Systems
	<b>Business Objective(s)</b>	<ul style="list-style-type: none"> <li>To identify new topics for Master's degree level research projects that apply new technologies / data analytic approaches to streamline/automate process. The ultimate objective is to improve system reliability and safety.</li> </ul>
	<b>Project Descriptions</b>	<ul style="list-style-type: none"> <li>By studying the latest applications of new technology/data analytic approaches on power supply system, the intern will propose topics of research projects for MPhil students.. The proposed topics aim to stimulate the MPhil students to develop industry-based research projects, and to allow the students together with their academic/industrial supervisors to apply their knowledge and skills to actual industrial problems.</li> </ul>
	<b>Project Deliverables</b>	<ul style="list-style-type: none"> <li>Defining topics of industry-based research projects including project scope and expected outcome.</li> <li>Some project scopes should be related to AI, Big Data, Renewable Energy, etc.</li> <li>The projects need to be met the requirement from academic / industrial supervisors.</li> </ul>
	<b>Required Skills</b>	<ul style="list-style-type: none"> <li>Engineering knowledge to define the engineering projects</li> <li>Creative</li> <li>Analytical thinking</li> </ul>
<b>Learning</b>	<ul style="list-style-type: none"> <li>Communication.</li> <li>Understanding new technology direction being developing. such as AI, Big Data, Renewable Energy, etc.</li> <li>Skills to convince stakeholders in various levels to accept their proposed topics.</li> </ul>	

## Project Outline ~ Electrical Engineering

<b>Project Code</b>	E1_SUM_9	
<b>Project Details</b>	<b>Internship Category</b>	Summer
	<b>Internship Period</b>	May 2019 to August 2019
	<b>Preferred Disciplines</b>	<b>First Preference:</b> Electrical Engineering <b>Other Preference:</b> IT/ Computer Science
	<b>Project Name</b>	Enhancing on Excavation Permit Management
	<b>Business Objective(s)</b>	<ul style="list-style-type: none"> <li>• To improve the efficiency and effectiveness of excavation permit management</li> <li>• Strengthen control on the excavation permit application process</li> </ul>
	<b>Project Descriptions</b>	<ul style="list-style-type: none"> <li>• This project is aimed to review the existing excavation permit monitoring system and develop new control system/ mechanism for improvement</li> </ul>
	<b>Project Deliverables</b>	<ul style="list-style-type: none"> <li>• To define the key measurement on permit performance.</li> <li>• To develop and manage the monitoring system.</li> <li>• To make suggestions for future improvement.</li> </ul>
	<b>Required Skills</b>	<ul style="list-style-type: none"> <li>• Knowledge in IT system and software.</li> <li>• Good communication and interpersonal skill</li> </ul>
	<b>Learning</b>	<ul style="list-style-type: none"> <li>• Gain experience to the key process on distribution cable project management.</li> <li>• Learn the right way to define and measure key performance.</li> </ul>