

CLP Internship Programme 2021

Project Outline - Electrical Engineering

Project Code	E1_SAND_01	
Project Detail	Internship Category	Sandwich
	Internship Period	July 2021 to June 2022
	Preferred Discipline	First Preference: Electrical Engineering Other Preference: Mechanical Engineering
	Project Name	Generator Inspection Robot, Generator Stator/Rotor Integrity Test & Overhaul
	Business Objective(s)	<ul style="list-style-type: none"> • Renewable of generator will extend the critical generation equipment life • Research and develop the innovation project for the power plant asset management • Develop the engineering and investment solution of the generation asset in order to the long term operation and maintenance strategic study
	Project Description	<ul style="list-style-type: none"> • Develop a generator inspection robot for the stator laminated plate's ELCID test without rotor removal which can save the maintenance cost and enhance the productivity • Generator stator integrity test includes winding pressure and vacuum test, wedge tightness test, capacitance mapping, winding high voltage test and partial discharge test • Generator rotor integrity test includes replacement of main lead, rotor RSO test, ventilation path recondition and inspection and insulation test • Renew the critical component includes the hydrogen seal, bearings, exciter, windings and instrumentation. • Assist engineer to evaluate the generators performance, life time, historical figures, new technology and the operational & maintenance strategic for develop the long-term investment profile and engineering solution of all power plants generators
Project Deliverable	<ul style="list-style-type: none"> • The project scope includes, but not limited to: <ul style="list-style-type: none"> ○ Assist in the stator robot testing and develop performance test plan ○ Learn and review the spare list used for generators ○ Develop the generator performance instructions for monitoring the generator performance under the supervision of the CLP engineer 	

		<ul style="list-style-type: none"> ○ Develop the engineering knowledge of the generators and different power plant systems
	Required Skills	<ul style="list-style-type: none"> ● Basic knowledge on the electrical engineering and/or mechanical engineering ● Proactive and teamwork ● Good interpersonal skills and being able to work independently
	Learning	<ul style="list-style-type: none"> ● Understand the power plant operation and maintenance strategies of generation systems ● Engineering knowledge of different types of generators ● Enhance the on-site practice and interpersonal skills by the site work to deliver those projects ● Enhance problem solving and critical thinking skills

CLP Internship Programme 2021

Project Outline - Electrical Engineering

Project Code	E1_SAND_02	
Project Detail	Internship Category	Sandwich
	Internship Period	June 2021 to May 2022
	Preferred Discipline	First Preference: Electrical Engineering Other Preference: N/A
	Project Name	Review of large grid connection requirement and RES impact to grid with high penetration
	Business Objective(s)	<ul style="list-style-type: none"> • To review large grid connection requirement in which the RE capacity is greater than 1MW • To identify possible technical issue and challenges encountered with large RE and high RE system penetration in CLP's grid • To determine technical limits in different aspects in large RE system, e.g. voltage-rise limit, harmonics, power quality, etc • To conduct literature review of different practical impacts of large RE system PV system for grid connection • To be familiar with a computer software program for system analysis • To build-up typical models for analytical study of system impact with large RE grid connection system • To provide recommendations on the system with high RE penetration • To determine the generation characteristic of large RE system due to weather change • To conduct big data analysis and forecast the impact of high RE system penetration to CLP's grid
Project Description	<ul style="list-style-type: none"> • Since the launch of Feed-in-tariff (FIT) in 2018, grid connection application raised dramatically to over 10,000 cases. The RE system penetration in CLP's grid grows sharply & the impact to CLP's grid becomes significant. This project aims to study the possible impact of large amount of PV system connected to the CLP's grid and identify the grid connection requirement on large PV system. Besides, the RE system penetration limit to CLP's grid has to be assessed. By using appropriate computer simulation tool, some typical models could be developed to analyze the power quality impacts for voltage control study. • With the introduction of Decarbonisation, decentralisation and digitalisation of the power 	

		<p>system, a big data analysis is proposed to analysis and forecast the impact high RE system penetration to CLP grid. The intern is required to assist the work.. Data analytic is required to determine the RE generation characteristic for further assessment.</p> <ul style="list-style-type: none"> • Conduct system analysis to support system development
	Project Deliverable	<ul style="list-style-type: none"> • Work Plan • Interim Report • Final Report • Final Presentation
	Required Skills	<ul style="list-style-type: none"> • Study in electrical engineering • Knowledge of computer science application and data analytis • Self learning
	Learning	<ul style="list-style-type: none"> • See objectives above

CLP Internship Programme 2021

Project Outline - Electrical Engineering

Project Code	E1_SAND_03	
Project Detail	Internship Category	Sandwich
	Internship Period	June 2021 to May 2022
	Preferred Discipline	First Preference: Electrical Engineering Other Preference: Business or others
	Project Name	Develop Strategic Plan for adopting more environmentally-friendly power equipment for the power network
	Business Objective(s)	<ul style="list-style-type: none"> • Intent to move towards where environmentally-friendly power equipment • Ensure smooth transition, both technically and commercially, from existing to environmentally-friendly power equipment
	Project Description	<ul style="list-style-type: none"> • Technology market research in environmentally-friendly switchgear and transformer • Devise asset strategy for adoption and formulate an action plan to move forward the initiative • Collaborating with internal and external stakeholders from strategy formulation to implementation
	Project Deliverable	<ul style="list-style-type: none"> • Assist in preparation of strategy paper for the adoption of environmentally-friendly power equipment • Assist in drawing up develop action plan to implement strategy • Assist in developing technical specifications for environmentally-friendly power equipment
	Required Skills	<ul style="list-style-type: none"> • Language: English and Cantonese, Mandarin is a plus • Independent and critical thinker
Learning	<ul style="list-style-type: none"> • Appreciate the process of asset strategy development planning and execution • Appreciate the major trends in the power industry • Opportunity to work along side international suppliers • Gain experience for inter-disciplinary collaboration amongst internal and external stakeholders 	

CLP Internship Programme 2021

Project Outline - Electrical Engineering

Project Code	E1_SAND_04	
Project Detail	Internship Category	Sandwich
	Internship Period	July 2021 to June 2022
	Preferred Discipline	First Preference: Electrical Engineering Other Preference: N/A
	Project Name	Simulation of CLP Power System
	Business Objective(s)	<ul style="list-style-type: none"> To develop a simulator of CLP Power System in order to enhance effectiveness of training on CLP Power System network and plant equipment design and operation To facilitate the digitalization of engineering training
	Project Description	<ul style="list-style-type: none"> To develop a simulated power system model to enhance the engineering training for technical staff and trainees To facilitate the development of multi-media training materials
	Project Deliverable	<ul style="list-style-type: none"> To establish a simulation model of power system equipment To produce video or training materials with simulation Design the simulation model with Arduino / Raspberry Pi based processor Budget & project plan for building the simulator
	Required Skills	<ul style="list-style-type: none"> Electrical Engineering knowledge Skill in building electronic hardware and programming of prevailing language (e.g. Arduino, Python, C+) Proficiency in English and Chinese
Learning	<ul style="list-style-type: none"> CLP Power System network and plant equipment design and operation Electrical fault handling in power system Project Management and Budget Control Commercial skill (procurement, specification) 	

CLP Internship Programme 2021

Project Outline - Electrical Engineering

Project Code	E1_SAND_05	
Project Detail	Internship Category	Sandwich
	Internship Period	June 2021 to May 2022
	Preferred Discipline	First Preference: Electrical Engineering Other Preference: Information Technology / Computer Engineering
	Project Name	Energy Management System (EMS) and Distribution Management System (DMS) Enhancement
	Business Objective(s)	<ul style="list-style-type: none"> • Enhancement of the EMS and DMS functionalities to cope with the power system operations and cyber security requirements by designing and implementing software applications for automation of the power system operations • Extend the system life of the EMS and DMS by both software and hardware upgrade to maintain the continuous monitoring and control of the power grid network and generation
	Project Description	<ul style="list-style-type: none"> • The DMS and EMS is used to monitor and control the power system to ensure safe, reliable, and economic operations • The projects are to enhance the functionalities of DMS and EMS to cater for the operation of the power grid and cyber security requirements through the process of application design and implementation. It also requires to extend the life of EMS and DMS by upgrading the software and hardware components
	Project Deliverable	<ul style="list-style-type: none"> • Assist senior engineers to evaluate various technology, implementation approach and associated benefit for the system enhancement and life extension tasks • Complete the software upgrade or enhancement of the systems • Complete the project planning, design, implementation and system testing of the projects
	Required Skills	<ul style="list-style-type: none"> • Critical Thinking • Software engineering and programming skills • Good English writing skills
Learning	<ul style="list-style-type: none"> • Gain experiences in the usage and benefit of modern computer system technologies in power system control, and the usage of large scale modern DMS / EMS / SCADA system in power system operations 	

		<ul style="list-style-type: none">• Gain experiences in the project planning and requirement specification formulation• Learn and practise software development of applications on power systems control
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CLP Internship Programme 2021

Project Outline - Electrical Engineering

Project Code	E1_SAND_06	
Project Detail	Internship Category	Sandwich
	Internship Period	August 2021 to July 2022
	Preferred Discipline	First Preference: Electrical Engineering Other Preference: Energy Engineering, Electronic Engineering, Information Technology
	Project Name	Power System Security Studies
	Business Objective(s)	<ul style="list-style-type: none"> To enhance transmission and distribution network security and ensure power delivery in a secure and reliable manner To improve the current practice on demand response, smart grid, and load forecast
	Project Description	<ul style="list-style-type: none"> Identify transmission and distribution network improvement areas Conduct power flow and fault level studies by using different simulation tools Conduct study on demand response, smart grid, and load forecast practice Formulate contingency plans for power systems Recommend improvement actions
	Project Deliverable	<ul style="list-style-type: none"> Interim deliverables include power flow studies and preliminary contingency actions Final deliverables include study report, implementation strategies and plans
	Required Skills	<ul style="list-style-type: none"> Proficiency in both spoken and written Chinese and English Being customer-oriented, self-motivated, good team player, analytical, and able to work under pressure and tight schedule Strong sense of responsibility with good interpersonal and communication skills Proficiency in Microsoft Office and Visual Basic for Applications (VBA)
Learning	<ul style="list-style-type: none"> Understanding on transmission and distribution network of CLP Power Familiarization training in System Control Centre Visit to transmission stations and distribution substations Acquiring in-depth power system knowledge, from generation to transmission and distribution network 	

		<ul style="list-style-type: none">• Enrich the exposure in negotiation, project management, and analytical thinking
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CLP Internship Programme 2021

Project Outline - Electrical Engineering

Project Code	E1_SAND_07	
Project Detail	Internship Category	Sandwich
	Internship Period	July 2021 to June 2022
	Preferred Discipline	First Preference: Electrical Engineering Other Preference: Electronic Engineering
	Project Name	Power System Protection Setting Review, Testing and Data Consolidation
	Business Objective(s)	<ul style="list-style-type: none"> • To achieve optimum settings of power system protection systems to enhance their reliability and security • To verify protection equipment integrity and identify root cause of defects to formulate effective corrective actions • To enhance the protection data platform to facilitate operation, maintenance and asset management of protection systems
	Project Description	<ul style="list-style-type: none"> • 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 • To test different types of protection relays and carry out fault investigation to confirm protection integrity and identify faulty equipment for effective system restoration • To consolidate all protection settings in the power system on a platform to support and facilitate front-line staff and policy makers to perform operation, maintenance and asset management activities
	Project Deliverable	<ul style="list-style-type: none"> • Protection setting review reports • Fault investigation reports • Protection relay test reports • Development of platform for protection data consolidation
	Required Skills	<ul style="list-style-type: none"> • Proficiency in Microsoft Office and Visual Basic for Applications (VBA) • Being customer-oriented, self-motivated, analytical and good team player • Good interpersonal and communication skills

	Learning	<ul style="list-style-type: none">• Protection arrangement and coordination in power system via a series of trainings (practical and theoretical knowledge)• Power system knowledge, from generation to transmission and distribution network• Safety and quality requirements and application considerations in protection system• Presentation and communication skills• Computer programming skills
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CLP Internship Programme 2021

Project Outline - Electrical Engineering

Project Code	E1_SAND_08	
Project Detail	Internship Category	Sandwich
	Internship Period	June 2021 to June 2022
	Preferred Discipline	First Preference: Electrical Engineering Other Preference: Electronic Engineering
	Project Name	Power Quality Analysis, Mitigations and Applications
	Business Objective(s)	<ul style="list-style-type: none"> • To conduct research study on new industrial products/ engineering applications for effective power quality mitigations and evaluate the performance of the chosen products/ solutions with the consideration of customer equipment and power supply arrangement • To assist the annual voltage dip analysis and ad-hoc power quality studies after the familiarization with various power quality monitoring systems. • To support the process/ business improvement initiatives in the branch
Project Description	<ul style="list-style-type: none"> • Our intern will be given a full year to explore CLP's supply network and customers equipment with a focus on power quality. Power quality refers to the stability of electric power supply, which ties tightly to the compatibility of our customers' equipment with the power supply. A wide range of factors such as adverse weather and third-party intervention of power system makes power quality issues unavoidable in practice. The wide adoption of advanced equipment, which are susceptible to power quality issues, also results in rising concern of power quality. Our team works with customers for cost-effective mitigations to reduce the operational inconvenience brought by power quality issues. • During the year, our intern will learn the common power quality issues we face in Hong Kong and the corresponding mitigations. With deeper understanding on the mitigation rationale and power quality standards, he/she will be guided to research on new options for mitigation/ power quality assessment followed by a technical evaluation, which facilitates our investigation team to offer prudent recommendations to our customers. • Hands-on experience on the improvement projects of our power quality information systems will be expected to facilitate his/her preparation of the 	

		<p>voltage dip analysis. He/she will also take part in assessing the power quality performance of different load types on our distribution network. Ad-hoc assignments may be given considering the operational needs.</p>
	Project Deliverable	<ul style="list-style-type: none"> • Research on new products/ applications for power quality mitigations • An evaluation report for the chosen power quality mitigations • Branch sharing on the evaluation results of new products/ applications for power quality mitigations • Annual analysis on voltage dip performance • Power quality performance assessment for different load types • Process/ business improvement at branch level
	Required Skills	<ul style="list-style-type: none"> • General knowledge in power system arrangement • Basic knowledge in power quality • Basic knowledge in electronics circuit design • Basic programming skills • Experience on analytic tools/ platforms is preferred • Hands-on experience on power testing equipment is preferred • Good safety awareness
	Learning	<ul style="list-style-type: none"> • Deeper knowledge in CLP's transmission and distribution network • Focused training on power quality • Knowledge on the operating characteristics of customer equipment and the supply arrangement on customer side • Diversified knowledge of engineering principles and opportunities to put them to practice when formulating PQ mitigation for customers • Hands-on experience on electrical equipment testing and product evaluation • Chances of demonstrating and sharpening project management skills • Exposure to performance monitoring/ benchmarking and management reporting

CLP Internship Programme 2021

Project Outline - Electrical Engineering

Project Code	E1_SAND_09	
Project Detail	Internship Category	Sandwich
	Internship Period	June 2021 to August 2022
	Preferred Discipline	First Preference: Electrical Other Preference: Other engineering
	Project Name	Operation and maintenance readiness of new power projects
	Business Objective(s)	<ul style="list-style-type: none"> • Reliability Availability and Maintainability study of new Open Cycle Gas Turbine (OCGT) project • Setting up O&M infrastructure and business systems for OCGT project • Spares selection for new projects • Thermal Power Plant Operational performance reporting and benchmarking
	Project Description	<ul style="list-style-type: none"> • To support supervisor to review implementation of Asset Management Standards at new power projects to achieve operational readiness in advance of startup • Involve in review of plant design & layout in terms of operability and maintainability of large gas turbine (OCGT) power project • Involve in identification and selection of spare parts of new build and inventory optimization of existing power plants • Involve in Information Technology Plan and road-map of OCGT • To collect key performance indicators of operational plants and prepare annual reports and carry out benchmarking
Project Deliverable	<ul style="list-style-type: none"> • Operational readiness program for an Open Cycle Gas Turbine project • Detailed Plans for IT and business System, O&M Infrastructure for new projects • Finalised list of spare parts of new gas turbine OCGT project • Report of design review of OCGT from O&M standpoint • Collection of data and benchmarking of 2020 operational performance 	
Required Skills	<ul style="list-style-type: none"> • Good at basic computer skills: Microsoft Excel, Power Point and MS Words • Report writing • Preparing presentations 	

		<ul style="list-style-type: none"> • Preferable- MS Project • Able to read and understand engineering drawings
	<p>Learning</p>	<ul style="list-style-type: none"> • Learn about Asset Management standards • Learn about Gas Turbine O&M preparation aspects • Learn about LNG project O&M preparation aspects • O&M Key Performance Indicators • Overview of power plants and understanding of O&M management • How to set up O&M of new build • Exposure to master drawing and design of power plant from operation and maintenance perspective

CLP Internship Programme 2021

Project Outline - Electrical Engineering

Project Code	E1_SUM_01	
Project Detail	Internship Category	Summer
	Internship Period	June 2021 to August 2021
	Preferred Discipline	First Preference: Engineering Other Preference: N/A
	Project Name	Data Analytic for LV Cable Fault
	Business Objective(s)	<ul style="list-style-type: none"> • To conduct the dependency from different types of available data against LV cable incipient fault • To develop an algorithm/model for LV cable Health Index • To improve LV cable reliability and reduce unplanned CML
	Project Description	<ul style="list-style-type: none"> • To conduct the correlation study from different types of available data such as loading history, temperature, humidity, rainfall, construction activities and root cause of failure against LV cable incipient fault. It is beneficial to the operation of power systems for inputting more information for Health Index, improving system reliability and reducing inconvenience to public • Use different type of available data and algorithm to analyze and visualize the incipient fault of LV cable <ul style="list-style-type: none"> ○ loading history for features of LV power cable ○ historical fault incident ○ environmental factors such as temperature, humidity and rainfall, etc.
	Project Deliverable	<ul style="list-style-type: none"> • Dependency relationship for different types of available data • Algorithm of LV cable Health Index • Recommend any method to predict LV cable fault
	Required Skills	<ul style="list-style-type: none"> • Familiar with programme language such as Python 3.6 • Data Analytics, for example, train the model to analyse the data • Basic knowledge of power system
Learning	<ul style="list-style-type: none"> • Skills in Data Analytics • Practical Engineering Knowledge such as <ul style="list-style-type: none"> ○ Failure mechanism of LV cables ○ Networking ○ Safety Culture in CLP 	

CLP Internship Programme 2021

Project Outline - Electrical Engineering

Project Code	E1_SUM_02	
Project Detail	Internship Category	Summer
	Internship Period	June 2021 to August 2021
	Preferred Discipline	First Preference: Electrical Engineering Other Preference: N/A
	Project Name	Research on Trends on Smart Grid Development in Global and HK context
	Business Objective(s)	<ul style="list-style-type: none"> • To monitor the smart grid development trends • To update the 2033 landscape and initiatives for the Smart Grid Strategy for PSBG
	Project Description	<ul style="list-style-type: none"> • To conduct desktop research and study on Smart Grid development on below areas: <ul style="list-style-type: none"> ○ Intelligent Grid ○ Smart Metering ○ Digital Workforce ○ Digital Asset Management
	Project Deliverable	<ul style="list-style-type: none"> • Produce a report on the results of the research and recommendations • Deliver a presentation on the research
	Required Skills	<ul style="list-style-type: none"> • General understanding of electrical power systems • Knowledge of smart grid development
	Learning	<ul style="list-style-type: none"> • Understand global trends of smart grid development • Understand the business drivers for smart grid development in CLP • Appreciate the importance of cost-benefits justification for smart grid development

CLP Internship Programme 2021

Project Outline - Electrical Engineering

Project Code	E1_SUM_03	
Project Detail	Internship Category	Summer
	Internship Period	June 2021 to August 2021
	Preferred Discipline	First Preference: Electrical Engineering Other Preference: N/A
	Project Name	Technical study and enhancement for distribution cable laying works
	Business Objective(s)	<ul style="list-style-type: none"> • To review the overall process of cable laying from trench opening to cable installation operation • To improve the safety and quality performance of cable laying operation
	Project Description	<ul style="list-style-type: none"> • This project aims to let candidate conduct the technical study on distribution cable laying process • Candidate will need to work out a practical cable laying model for routine site operation • Candidate will also need to review the working methods of cable laying in safety and quality aspects
	Project Deliverable	<ul style="list-style-type: none"> • To define a distribution cable laying protocol • To review the quality assurance process such as pulling tension monitoring and control • To review the working methods and seek improvement for safe operation
	Required Skills	<ul style="list-style-type: none"> • Knowledge in electrical system and basic mechanics • Knowledge in IT system and database application • Good communication and interpersonal skills
Learning	<ul style="list-style-type: none"> • Gain practical experience on distribution project execution • Develop in-depth knowledge on cable pulling method • Familiarize with basic contractor management 	

CLP Internship Programme 2021

Project Outline - Electrical Engineering

Project Code	E1_SUM_04	
Project Detail	Internship Category	Summer
	Internship Period	June 2021 to August 2021
	Preferred Discipline	First Preference: Electrical Engineering Other Preference: N/A
	Project Name	Development of Distribution Work Management System
	Business Objective(s)	<ul style="list-style-type: none"> To improve the efficiency and effectiveness of distribution work programming process To review the performance management on excavation permit application, manpower scheduling and work coordination by contractors
	Project Description	<ul style="list-style-type: none"> This project aims to review the current work programming methodology and develop a new control system/ mechanism for improving the work flow efficiency and thus overall project implementation performances
	Project Deliverable	<ul style="list-style-type: none"> To define the key measurements on work scheduling To develop and manage the performance monitoring system To propose recommendations for continuous improvement
	Required Skills	<ul style="list-style-type: none"> Knowledge in project management Knowledge in IT system and database applications Good communication and interpersonal skills
	Learning	<ul style="list-style-type: none"> Gain practical experience on distribution project implementation and schedule management Learn contractor performance management, establishing and implementing proposed improvement plan

CLP Internship Programme 2021

Project Outline - Electrical Engineering

Project Code	E1_SUM_05	
Project Detail	Internship Category	Summer
	Internship Period	June 2021 to August 2021
	Preferred Discipline	First Preference: Electrical Other Preference: Electronics
	Project Name	Performance of new Field Services System in Metering Works
	Business Objective(s)	<ul style="list-style-type: none"> • Understand the process of metering services of CLPP • Benchmark the process and services levels among CLPP and other well-known utilities • Identify the areas for improvement and recommend the solutions
	Project Description	<ul style="list-style-type: none"> • A new Field Services System would be rolled out in PSBG's metering services and meter reading work in 2021. This is the first use case of Digital Workforce of CLPP. A well-structured performance measurement (eg KPI) of this FSS would provide better justifications for extending the FSS to other type of field works in CLPP • The student-intern would review the business process in details and benchmark with best practices of other utilities
	Project Deliverable	<ul style="list-style-type: none"> • Then student-intern is expected to develop the indicators of measuring the performance of the FSS and help measuring the actual performance • Identify the areas for improvement and recommend the solutions
	Required Skills	<ul style="list-style-type: none"> • Electrical or Electronics Knowledges • Green Card and Construction Safety Basic Knowledges • Power Point Presentation • Basic Statistic Skills
	Learning	<ul style="list-style-type: none"> • Metering Work Skills • Key Considerations of A Digital Work Force • Electrical Industry (utility) Performance Index

CLP Internship Programme 2021

Project Outline - Electrical Engineering

Project Code	E1_SUM_06	
Project Detail	Internship Category	Summer
	Internship Period	June 2021 to August 2021
	Preferred Discipline	First Preference: Electrical Engineering Other Preference: Energy Engineering
	Project Name	Demand side management in smart grid
	Business Objective(s)	<ul style="list-style-type: none"> • An overall review on drivers, benefits, approaches and current state for demand side management in globally • Benchmark global utilities smart grid practices to resolve distribution network constraint • Reveal feasible options for demand response management in Hong Kong
	Project Description	<ul style="list-style-type: none"> • To conduct worldwide market research on new technology and its applications related to demand side management • To benchmark global utilities practices on smart grid initiative on demand management • To formulate options and conduct feasible study for demand response management in Hong Kong • To support the study on localized demand response projects and stakeholders management for proof-of-concept (PoC) • To assist the cost-benefit evaluation on the PoC projects for full scale implementation • To conduct data analytics on system load forecast and its correlation with weather forecasts and records
	Project Deliverable	<ul style="list-style-type: none"> • Identify technologies and opportunity for demand side management in Hong Kong • Delivery and review of CLP demand response initiatives • Recommendation on the applicable scenario on demand side management • Identify correlation between local consumption and available local weather information
Required Skills	<ul style="list-style-type: none"> • Basic knowledge in electrical engineering with sound knowledge of power systems • Proactive, creative, self-motivated, well-organised, detail-minded, and responsible individual • Excellent team player, outgoing. and eager to learn • Excellent command of both written and spoken Chinese and English 	

		<ul style="list-style-type: none">• Proficiency in MS Word, Excel, Powerpoint & Word Processing• Knowledge of Matlab or other computerized simulation tool is an advantage
	Learning	<ul style="list-style-type: none">• In-depth understanding on energy market in Hong Kong, and the development of smart grid• Work with and learn from seniormanagement/ experienced engineers for leadership skills• Understanding the development. & execution processes to qualify and manage first-time-engineering• Hands on experience in project management and engineering practices

CLP Internship Programme 2021

Project Outline - Electrical Engineering

Project Code	E1_SUM_07	
Project Detail	Internship Category	Summer
	Internship Period	June 2021 to August 2021
	Preferred Discipline	First Preference: Electrical Engineering Other Preference: N/A
	Project Name	Portable Smart Device for Transmission Overhead Line Location's Routing & Trail
	Business Objective(s)	<ul style="list-style-type: none"> To study the application of portable smart device for transmission overhead line Tower/Pole location's routing and possible trail to enhance the safety and efficiency of overhead line operation & maintenance activities To evaluate the application of smart technologies for routing and trail towards the working OHL towers/ poles. Also studying the possibility of replacing the traditional paper location maps
	Project Description	<ul style="list-style-type: none"> Linesmen are required to work at remote area and they require to know an access route towards the working location With the smart devices available, this project is to study the possibility of applying those smart watch/device, together with mobile application for identification and suggesting a correct trail to the working location of transmission overhead line towers/ poles. Hence it can enhance the safety and efficiency of overhead line operation & maintenance activities
	Project Deliverable	<ul style="list-style-type: none"> Understand the overhead line operation and maintenance activities and the safety requirements, e.g. correct working location and safety access route of overhead line circuits Study the technology and function of applying smart watch/device, together with programming mobile apps for transmission overhead line circuit Tower/ Pole to suggest a correct trail and routing to enhance the safety and efficiency of overhead line operation & maintenance activities
	Required Skills	<ul style="list-style-type: none"> Good communication skill Able to work independently Good electrical knowledge Fluent in both Cantonese and English

		<ul style="list-style-type: none">• Good programming skill (e.g. C++ or mobile apps programming)
	Learning	<ul style="list-style-type: none">• Learn CLP safety culture and standard• Learn overhead line facilities• Understand overhead line circuit O&M and project activities

CLP Internship Programme 2021

Project Outline - Electrical Engineering

Project Code	E1_SUM_08	
Project Detail	Internship Category	Summer
	Internship Period	June 2021 to August 2021
	Preferred Discipline	First Preference: Electrical Engineering Other Preference: Electronic Engineering
	Project Name	Smart Systems for Outage Optimization and Quality Assurance
	Business Objective(s)	<ul style="list-style-type: none"> • To develop systems for outage scheduling to optimize manpower arrangement, system availability and statutory compliance • To develop a collaboration platform to make sure all work teams can plan their yearly schedule based on the most updated info • To develop means to facilitate outage program preparation, ie with updated and accurate circuits data available on SAP, automated switching instructions selection in excel, etc.
Project Description	<ul style="list-style-type: none"> • Currently the yearly outage plan within Transmission is prepared at the start of each year. The preparation of the outage plan highly depends on the experiences of the planner regarding system loading, statutory requirements & manpower available in each work team, etc. A system to help the planner to prioritize and arrange the numerous outages is desired. The system should be able to schedule the statutory outage in top priority and schedule the remaining outages based on system loading and resources available. • The work teams, who are responsible to carry out the outage, will plan their manpower and material continuously based on the master outage plan. Any changes in a single work team may result in repeated outage on the same apparatus and affect system availability. A common platform that allow all work teams to stay on the same page is to be developed. The platform should show all the work teams that will work in the same outage and promptly notify all teams if the outage is to be rescheduled. • Currently the outage programs are manually prepared. To lighten the efforts of the planner, means to facilitate the outage preparation process, such as automatically selected circuit names & switching instructions, are desired. 	

	Project Deliverable	<ul style="list-style-type: none"> • System to prioritize numerous outages based on statutory requirement, system constraints and manpower resources • Platform to enable collaboration of work teams and outage rearrangement • Means to ease outage preparation by reducing manual efforts required
	Required Skills	<ul style="list-style-type: none"> • Basic Computer Skills • Detail-orientated Mindset • Communication and interpersonal skills
	Learning	<ul style="list-style-type: none"> • Design philosophy of Power Systems • R&R of various parties, both internal and external, in the O&M of power systems

CLP Internship Programme 2021

Project Outline - Electrical Engineering

Project Code	E1_SUM_09	
Project Detail	Internship Category	Summer
	Internship Period	June 2021 to August 2021
	Preferred Discipline	First Preference: Electrical Engineering Other Preference: N/A
	Project Name	Study & Enhancement of Emergency Restoration Process
	Business Objective(s)	<ul style="list-style-type: none"> To study on available guidelines and processes in Emergency Services To identify and prepare reference cards/ materials, which can be applicable to our staff in timely handling system and other emergencies
	Project Description	<ul style="list-style-type: none"> Emergency Services team seeks to continuously uphold and improve the internal restoration processes in order to meet all stringent service pledges. This project aims to offer a platform for the intern to study as well as together takeaways in existing processes. Reference cards are to design for emergency crew and engineers in standby duty to make certain they are ready every time responding to most system emergencies as part of their work.
	Project Deliverable	<ul style="list-style-type: none"> To study and to review common defect and alarm events triggered under various fault scenarios To study existing guidelines and processes in relation to system emergencies and communication flow To prepare quick reference cards on alarm handling, emergency handling and other process essentials, with emphasis on key takeaways; usable for all industrial staff and engineers
	Required Skills	<ul style="list-style-type: none"> Sound power system and related equipment knowledge Comprehension, analytical and communication abilities with relevant parties involved throughout the project Creative and flexible in design thinking Proficient Microsoft Office skills
	Learning	<ul style="list-style-type: none"> Routine operations on distribution network Experience in fault handling, emergency restoration practices under frontline Emergency Services

