Skills

Power System Analysis

Analysis	Level from 5	Analysis tool	Level from 5
Power Flow	5	PSCAD	5
Optimal Power Flow	5	Simens PSS/E	5
AC DC load Calc.	5	ETAP	5
Harmonics	5	SKM	5
Power Quality	5	PowerGEM TARA	4
Transient Stability	5	ASPEN	4
Voltage Stability	5	CYME	5
Short Circuit	5	Hitachi GRIDVIEW	4
Motor Starting	5	Simulink	5
Arc Flash Hazard NFPA 70E	5	PLEXOS	3
Arc Flash Hazard IEEE	5	Hitachi PROMOD	2.5
Voltage Drop Calc.	5	GE PSLF	4
Reactive Power	5	CAPE	4
Generation Interconnection	5	Easypower	5
Transmission Planning	4.5	Mathpower	5
Demand Response	4.5		
Unit Commitment	4		
Generation Retirment	4		
Load Forcasting	4		
Power Market Analysis	4		
Reliability	3.5		
Microgrids	3.5		
Contingecy Analysis	3.5		
EV integration	4.5		
NERC Compliance	4		
FACTS Devices	5		
Renewables Integration	5		

Power System Desing

Design	Level from 5	Design tool	Level from 5
Drafting	5	AutoCAD LT	5

Last Modified 11/10/2023.

Lightning Protection Design Emperical Method	5
Lightning Protection Design Rolling Sphere	5
AC Schematics	5
DC Schematics	5
Wiring Diagrams	5
Conduit Fill Design	5
Bushing Design	5
Insulation Coordination	5
Lighting Desing	5
Panel Front	5
Surge Arrester Design	5
SCADA and Com Design	5
Conduit Plan	5
SCADA Coding	5
AC Transformer Sizing	5
Substation Design	5
Relay Coordination	5
BESS Design	5
Swithyard Design	5
Relay Setting	5
Cable Sizing	5
Battery Charger Sizing	5
Inverter Design	5
Controller Design	5
Control House Design	5
Grounding Design	4.5
NEC Compliance	4
IEC Compliance	4
IEEE Compliance	4
ANSI Compliance	4
Transmission Line Design	3.5
PV System Desing	3.5

PLS-CADD	4.5
PLS-Pole	3
PLS-Tower	3
Revit	4
Bluebeam	5
Microstation	4
PVSyst	3.5
COMSOL	4
Dialux	4
NX Routing	3
ETABS	3

Software and Data

Task	Level from 5	Language	Level from 5
Pipelining	5	Python	5
Data Cleansing	5	Shell Scripting/CLI	5
API/REST API	5	Git	5
Object Oriented	5	CSS3	4
ML	5	GITHUB	5
Deep Learning	4	VS CODE	5

Cloud	4	REACT	4.5
NoSQL	5	NODEJS	4.5
ETL	5	NGINX	4.5
Data Warehousing	5	POSTMARK	4
AWS	4	C++	5
GCP	5	VBA	5
Azure	5	.NET	3
Data Visualizaton	5	HTML5	5
Test Code	5	SQL	5
Web Scraping		Javascript	5
		MATLAB	5
		Apache Spark	4

Full list of Projects

Title	Description	Skill Set Involved	Title
Panel Fabrication, AC and DC elementaries, and wiring interconnection Drawing prepration for a new substation	The drawings are engineered and created (drafted) using AutoCAD LT	AutoCAD LT	Panel Fabrication, AC and DC elementaries, and wiring interconnection Drawing prepration for a new substation
Power Flow and Arch Flash Full Report using ETAP	Power Flow Report Preparation of a Full Power System of a Utility Client, with automatic Word File creation with all warnings, tables, and figures for 60 Scenarios and Load Categories, Data Visualization of Relay DATA as Appendix	Python, ETAP, Matplotlib, Git, Github, VS Code	Power Flow and Arch Flash Full Report using ETAP
Substation P&C and Physical: Full Line trap removal and line relay change in all Physical and P&C Drawings package	A remote end Relay change, another relay configuration change, Line change and line tuner removal is polulated into more than 600 physical and P&C drawings of a substation. Whole schematics, and	AutoCAD, Microstation, Bluebeam	Substation P&C and Physical: Full Line trap removal and line relay change in all Physical and P&C Drawings package

	wiring SCADA and panels change performed accordingly		
Three phase unbalanced LV system optimal power Flow with PVs and Evs with Power Quality improvement features	A MATLAB code is created to model the three-phase unbalanced system and then perform Optimal Power Flow with several existing and proposed engines. Evs and PVs are integrated as controllable objects into the model. Voltage imbalance (A power Quality measure) is implemented in the optimization as a constraint. Several Scenarios were tested and Data Visualization about the Optimal Power Flow is created. An academic Paper is created upon this	MATLAB-CVX-MATHPOWER Visualization -OOP - Latex	Three phase unbalanced LV system optimal power Flow with PVs and Evs with Power Quality improvement features
Digital Implementation of Protection Relays Logic and phase recognittion with MATLAB and Novel Spiral Data Driven Distance Relay Method	First Phase detector algorithms are modelled in MATLAB to extract the magnitude and angle of a signal during fault. On this basis relay protection logics such as Over current, transformer differential, and distance with Power Swing Blocking is Modelled. Finally a new method is proposed to improve performance of	MATLAB - REGRESSION - PSCAD	Digital Implementation of Protection Relays Logic and phase recognittion with MATLAB and Novel Spiral Data Driven Distance Relay Method

	relay during power swing in the marginal faults using real-time spiral regression		
Overhead Transmission Line Design	Mechanical and Electrical Calculation, Specification, Drawing, installation guideline, grid code compliance, Technical Report prepared and presented	PLS-CADD, Office Tools+C6	Overhead Transmission Line Design
Physical Equipment: Transformer Bushing Design	A Bushing is Modelled in COMSOL and its shape is optimized to reduce electric field tension on the sharp edges	COMSOL	Physical Equipment: Transformer Bushing Design
Data pipeline: Automatic Migration of Excel formatted power system Data into CYME	Having information about a Power System in Excel worksheets created manually by the client, I managed to figure out the relation of the CYME Database and then created a code to format and convert their data into CYME Database without manually modeling the system in CYME	CYME - Access Database - Python	Data pipeline: Automatic Migration of Excel formatted power system Data into CYME
Power System Dynamics: AVR, Governor, and PSS Design for a Generator	Tradittional Generator is modeled in detailed in MATLAB simulink. A test scenario of short circuit fualt is designed to test the	SIMULINK - SISO TOOL	Power System Dynamics: AVR, Governor, and PSS Design for a Generator

	Genearator. Then using MATLAB SISO Tool AVR, Governer, and PSS controllers are designed to control Generators power voltage and improve stability of the power system		
Full Microgrid Modeling: DC and AC	Two Microgrids, One AC and one DC are created. Several severe transient and power quality phenomena is implemented as scenarios (Model resiliency test). First Buck and Boost inverters to convert DC to AC with L and LCL filters are designed. Then PID and PR controllers are designed using SISO tool and PID tuner for the inverters. Then these inverters are connected with several loads and phenomena are tested. Finally a tritery control (Droop and average power Sharing) is desinged to coordinate and stabilze the inverters as a whole in the Islanded Microgrid	MATLAB PLEX PSCAD SISO TOOL PID	Full Microgrid Modeling: DC and AC
An automated personal scheduling assistant: To Do items integrated into Icalendar format and a task status dashboard	Integrates the To-do list into Calendar format and spreads the items into the schedule based on item length, deadlines, conflicts,	python, Icalendar, VBA, and Shell Scripting, Datetime Library - Git - Github	An automated personal scheduling assistant: To Do items integrated into Icalendar format and a task status dashboard

	types, and priorities. VBA to extract a table of figures into CSV and run a bat file in MS Word		
Power System Blog web application using React nodeJS Postmarks and GCP	Another Website was created using React Technology and NodeJS backend. Hosted by GCP cloud	REACT-NODEJS-MongoDB-GCP-Postmark-YAML	Power System Blog web application using React nodeJS Postmarks and GCP
Short-Circuit based DG placement tool for MV Networks	A software native script is developed in C++ to perform short circuit study in select buses and export results for each study and automaticly testing the results to generate warnings to aid the placement of new Distributed Generation in the system	C++, PSS/E, Digsilent, DPL	Short-Circuit based DG placement tool for MV Networks
Motor Starting Study of cold start Scenario in Tabriz Power Plant	Tabriz power Generation Plant with internal Loads is modelled and motor starting studies are performed to determine the resiliency of the system in Black Start	PSS/E - Cable Sizing -Transient Modeling	Motor Starting Study of cold start Scenario in Tabriz Power Plant
Substation Calculations: P&C and Physical	AC Station Service Transformer Sizing/ Battery and Battery Charger Sizing, Voltage drop and Raceway Fill Calculations, Lighting design using IEEE Rolling Sphere and emperical methods	Microsoft Excel BlueBeam ProjectWise	Substation Calculations: P&C and Physical
Substation Physical:	Below grade and	AutoCAD,	Substation Physical:

QC/QA on the full Physical IFR Drawing Package	above grade cable trench and raceway, grounding, and section elevations and detail drawings, plan layouts and lighting equipment are reveiwed for IFC submittal	Microstation, Bluebeam	QC/QA on the full Physical IFR Drawing Package
Power Flow and Arc Flash Report QA/QC of a Hyperloop Power System	Reviewed and Commented on the ETAP Arch Flash and Power Flow Reports and Conceptual Design proposed for HyperloopTT	ETAP	Power Flow and Arc Flash Report QA/QC of a Hyperloop Power System
Complete Design of a distribution system	Instrumentation & Distribution System Design Cable Sizing, Load Estimation, Transformer Selection, Relay Selection, and coordination in PSS/E Grid Code Compliance assessment, Grounding Design, Maneuver points, radial topology design Technical reports are presented, including voltage profiles, load statistics, and planning comment	SKM - CYME	Complete Design of a distribution system
Inverter Small Signal Model: A detail Model using computational approach	Inverter control and operation is modeled using linerization and full phsical model in matlab. 16 Equations were solved parametrically in MATLAB and an explicit equation is derived as an	MATLAB - Symbolic Functions - Text manipulation	Inverter Small Signal Model: A detail Model using computational approach

	accurate linear inverter small signal model		
Ivnerter based system protection modeling	MATLAB SIMULINK + MATLAB coding is used to implement overcurrent and distance relays logic into MATLAB simulink to be used by other researchers in their studies	MATLAB - Callback functions	Ivnerter based system protection modeling
DC to DC Inverter and Controller Desing	Another Project to design a buck-boost inverter and test scenarios this time modelled in MATLAB SIMULINK with SISO tool for PI controller desing	MATLAB PLEX PSCAD SISO TOOL PID LATEX VISIO	DC to DC Inverter and Controller Desing
Domestic and Industrial Electrical Design	For an industrial System: Lighting Design using Dialux, AC load, cable sizing, and power factor correction calculations. Recepticles and Lighting Circuits and drawings are created	Autocad, Revit, Dialux	Domestic and Industrial Electrical Design
IEEE 18 Bus: Line Outage Contingency Study of an HV Network	PSS/E and DigSilent are used to perform load flow studies in contingency scenarios of N-1 line outages	PSS/E, Digsilent	IEEE 18 Bus: Line Outage Contingency Study of an HV Network
MV system total loss calculation with Load Imbalance Effect	A software native script is developed in C++ to calculate loss of all system in unbalanced conditions and compare the results	C++ PSS/E	MV system total loss calculation with Load Imbalance Effect

	to figure out trend between rise of imbalance and the system loss		