Greenery Institute of Science & Technology

Applied AI for Solar PV & EV Business Professionals — Program Structure & Curriculum (Part 1)

PROGRAM STRUCTURE & DETAILS

Program Detail	Specification
Duration	8 weeks | 16 sessions | 24 contact hours
Schedule	Friday & Saturday, 7:00 PM – 8:30 PM
Delivery Mode	Hybrid: interactive lab sessions + cloud workspace practice

16-SESSION CURRICULUM (SESSIONS 1 TO 8)

No.	Session Title	Key Content
Class 1 & 2: Multimodal AI for Solar Sales & Energy Auditing		
1	AI Landscape in Clean Energy & Prompt Engineering for EPCs	Role of AI/ML in solar and EV ecosystems; prompt frameworks (ChatGPT, Claude, Gemini) for feasibility summaries, tender responses, and client proposals
2	Automating Lead Generation & Client Energy Profiling	OCR and invoice extraction; converting scanned electricity bills into structured hourly load curves; auto-generated commercial load profiles
Class 3, 4 & 5: Computer Vision Solar Design & Financial Modeling		
3	AI-Driven Rooftop Solar Assessment & Computer Vision	Satellite/geospatial imagery analysis; automated roof tracing, tilt/azimuth estimation, obstruction identification, rapid layout capacity modeling
4	Solar Yield Prediction & ML Weather Modeling	Limits of static TMY data; time-series models (LSTM, XGBoost) for irradiance and temperature forecasting; PR variance analysis
5	AI-Driven Financial Modeling & Bankability Dossiers	Dynamic cash flows, LCOE, NPV, IRR with AI data analysts; multi-scenario sensitivity (tariffs, degradation, currency risk)
Class 6, 7 & 8: Predictive Asset Management & Drone Thermal Vision		
6	Predictive Maintenance & Fault Detection in PV Plants	Shift from reactive to predictive maintenance; anomaly detection on inverter, combiner box, and SCADA data; isolating PID and string dropouts
7	Drone Thermal Imagery & Computer Vision for Hotspots	UAV thermal inspection; CNNs for hotspot, snail trail, and cell-crack detection; auto-generated maintenance tickets
8	Smart Cleaning Optimization & Soiling Prediction	Soiling loss vs. wash cost economics; ML using PM2.5/PM10, rainfall, and humidity to set optimal cleaning intervals

16-SESSION CURRICULUM (SESSIONS 9 TO 16, CONTINUED)

No.	Session Title	Key Content
Class 9, 10, 11 & 12: EV Charging Infrastructure & Smart Grid Intelligence		
9	EV Charging Market Dynamics & AI-Driven Site Selection	CPO business models; geospatial traffic analysis, POI clustering, and transformer headroom evaluation for DC fast-charging plazas
10	EV Load Forecasting & Dynamic Load Management (DLM)	Spatial/temporal demand forecasting; peak shaving and demand-charge mitigation for fleet depots; DLM algorithms
11	Dynamic Pricing Algorithms & Revenue Optimization	Real-time pricing balancing utilization, wholesale tariffs, and consumer elasticity; ToU arbitrage and demand response
12	Battery Health Diagnostics & Charger Predictive O&M	SoH and RUL estimation; OCPP telemetry fault classification; remote reset and automated technician dispatch
Class 13 & 14: Integrated Microgrids & Regulatory Strategy		
13	Solar + BESS + EV Hub Dispatch Optimization	Clean microgrid architecture; reinforcement learning and heuristic EMS; maximizing self-consumption and peak shaving
14	Virtual Power Plants (VPPs) & Regulatory Compliance	VPP and P2P trading concepts; AI regulatory assistants for national net-metering policy and EV charging statutory rules
Class 15 & 16: Capstone Project Defense & Certification		
15	Capstone Project Studio & Mentorship	Finalize a commercial project: (A) AI C&I Solar Feasibility & O&M Plan, (B) EV Charging Hub Deployment, or (C) Integrated Microgrid Dispatch
16	Executive Pitch, Industry Panel Review & Convocation	Defense before a panel of EPC directors and clean-tech investors; certificate distribution, convocation ceremony, and networking