HRD CORP CLAIMABLE PROGRAMME

Power System Protection & Substation Operations

Training Programme · 132kV and Above · Transmission Systems

15	37	3	18+
Modules	Training Days	Expert Trainers	Years in Grid Systems

ALPHA AMPERE

1 STAGE 1 · FOUNDATION

Drawing & Interlocking (132kV / 275kV) — 2 Days
AC/DC schematics, trip & close circuits, interlocking logic in AIS & GIS, hands-on wiring

Substation Overview (132kV / 275kV) — 2 Days
SLD design, protection philosophy, fault clearing, primary equipment, CT/VT specification

Substation Operation (132kV / 275kV) — 2 Days
HV switching, interlocking, OHL & transformer switching, commissioning memo & new equipment

2 STAGE 2 · PROTECTION

OHL / Underground Cable Protection — 2 Days
Distance & current differential, autoreclose & synchro-check, coordination, relay settings

Transformer Protection (132kV / 275kV) — 3 Days
87T, 64REF, standby earth fault, 50/51, transformer guards, stability test

Busbar Protection (132kV / 275kV) — 3 Days
High & low impedance busbar, 50BF, CT saturation, busbar stability test

2 STAGE 2 · SCADA & PRIMARY EQUIPMENT

Basic Digital Substation (IEC 61850) — 2 Days
IEC 61850 architecture, IEDs, GOOSE, Sampled Values, station & process bus

Lines & Cable Module — 2 Days
OHL & UGC components, construction, common defects, inspection & maintenance

132kV Transformer Design & Maintenance — 2 Days
Design principles, cooling & tap changer, testing, condition monitoring, DGA

3 STAGE 3 · MAINTENANCE

Secondary Protection Maintenance — 3 Days
ESA 1990, method statements, isolation & live works, relay testing, DC system

Secondary (SCADA System) Maintenance — 2 Days
SCADA communication & signal testing, fault troubleshooting, test records

Primary Maintenance (Transformer) — 2 Days
Preventive maintenance, oil testing, condition monitoring, defects & reporting

Primary Maintenance (SA, CVT, CT, CB) — 2 Days
Inspection, testing & condition assessment, failure modes, troubleshooting

★ SPECIAL COURSES

ST JEK Preparation (132kV & 275kV) — 4 Days (2+2)
Switching operations, Permit to Work, ESA 1990, mock competency interview

Road to Professional Engineer (Ir.) — 4 Days
BEM pathway & PEA 2015, T&E report, PI presentation, mock interview

COMPETENCY CERTIFICATION

Complete all Stage 1–3 modules, then sit a TNB-standard technical assessment and competency interview for an internal certificate in Substation, Line & Cable, Protection or SCADA (132kV / 275kV).

WHO SHOULD ATTEND

- Consultants & EPCC
- Substation O&M Teams
- Data Centre Operators
- Solar Developers
- Railway Electrification
- T&C Providers

YOUR TRAINERS · PROFESSIONAL ENGINEERS, EX-TNB, 18+ YEARS IN GRID SYSTEMS

Ir. Ts. Mohd Azhar bin Abdul Majid
275kV Competent Engineer · Protection Systems · HRD Corp Accredited Trainer

Ir. Mohd Fairuz bin Abd Razak
132kV Competent Engineer · Primary Equipment & HV Systems

Ir. Mohd Hafiz Fikri bin Mat Desa @ Ismail
132kV Competent Engineer · TNB QP Protection up to 500kV

Alpha Ampere Sdn. Bhd.
HRD Corp claimable · In-house & open runs · We assist with grant paperwork

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