

Data Center Infrastructure Fundamentals
(A 3-day Instructor led Program)

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Training Summary

Global Solution Partners LLC is pleased to deliver a comprehensive **3-Day Data Center Infrastructure Fundamentals** Training for your DC team. This **instructor-led program** will equip your data center operations team with essential knowledge of *power systems, cooling, fire protection, physical security, and monitoring systems* that underpin high availability.

The course is **vendor-neutral and aligned with international best practices** (Uptime Institute, EPI frameworks), ensuring the content meets global standards of excellence. Through interactive lectures, hands-on exercises, and real-world case studies, participants will learn how to **maintain 24/7 uptime and reliability** of critical infrastructure. The training culminates in an **assessment activity** to validate learning, providing participants with confident, certified professionals ready to apply best practices in your facilities. We are committed to delivering a high-quality training experience that drives operational excellence and measurable ROI for you.

Course Objectives and Learning Outcomes

By the end of this training program, participants will be able to:

1. **Identify Key Infrastructure Components:** Recognize core data center systems—power supplies (UPS, generators, PDUs), cooling, fire suppression, security, and monitoring—and their impact on uptime.
2. **Understand High Availability Principles:** Describe the importance of continuous operations and how redundancy (N+1, 2N, Tier standards) reduces downtime.
3. **Operate and Maintain Power Systems:** Demonstrate basic UPS and generator procedures, including routine maintenance, to ensure constant IT power.
4. **Manage Cooling and Environmental Controls:** Apply key practices for controlling temperature, humidity, and fire detection/suppression to prevent outages.
5. **Implement Physical Security Measures:** Enforce strong physical security and access controls (e.g., surveillance, biometrics, mantraps) to protect infrastructure.
6. **Utilize Monitoring and DCIM Tools:** Use monitoring systems (BMS/DCIM) to track and manage power, environment, and security alerts in real time.
7. **Align with Industry Best Practices:** Operate in line with international standards (Uptime Institute, TIA-942,) to meet recognized excellence and safety benchmarks.
8. **Achieve Certification:** Pass the final open-book assessment program on proficiency in data center infrastructure basics.

Day-Wise Curriculum

Day	Focus Area	Topics & Activities	Learning Outcomes
Day 1	Data Center Fundamentals & Power Systems	<p>Introduction to Data Centers: Definition, core components, business impact of uptime, Tier I–IV classification, key standards (Uptime Institute, ANSI/TIA-942,).</p> <p>Electrical Power Supply Chain: Power flow from grid to IT, stages (utility, switchgear/ATS, UPS, PDUs, rack strips), illustrated with one-line diagrams.</p> <p>Power Redundancy: N, N+1, 2N, 2N+1 concepts, dual feeds, backup generators, and alignment with Tier requirements.</p> <p>UPS Systems: Topologies, components, failure modes, maintenance best practices.</p> <p>Diesel Generators: Components, AMF response, operational considerations, testing, and fuel management.</p> <p>End-of-Day: Quiz and case study on power failure response.</p>	<p>Understand data center architecture, business-critical nature of uptime, and power redundancy principles. Gain knowledge of UPS and generator operation and maintenance. Apply concepts via practical failure scenario analysis.</p>

Day	Focus Area	Topics & Activities	Learning Outcomes
Day 2	Cooling, Fire Protection, Physical Security	<p>Data Center Cooling: Importance of thermal management, ASHRAE guidelines, cooling performance metrics, equipment (CRAC/CRAH, chillers), redundancy, failure scenarios/mitigation.</p> <p>Fire Detection & Suppression: Smoke, heat, VESDA systems; gas/sprinkler/mist suppression; best practices and safety interlocks.</p> <p>Physical Security: Perimeter/building/internal controls (fencing, mantraps, biometrics, CCTV), policies, layered security approach.</p> <p>End-of-Day: Quiz and tabletop incident response exercise (e.g., cooling failure, fire alarm).</p>	<p>Learn to maintain datacenter cooling as per the requirement, optimal environmental conditions, implement robust fire safety, and enforce physical security. Practice incident response in simulated scenarios.</p>
Day 3	Monitoring, Operations, Certification	<p>Monitoring & DCIM: BMS/DCIM tools, real-time tracking of power, cooling, security, and environmental parameters; threshold alarms, integration with IT.</p> <p>Operations Best Practices: Change management, preventive maintenance, documentation, staff training, incident response, audits, industry benchmarks.</p> <p>Course Recap: Consolidate knowledge, clarify doubts.</p>	<p>Master use of monitoring tools for proactive management. Adopt industry best practices for daily operations.</p> <p>Validate knowledge via assessment program</p>

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Day	Focus Area	Topics & Activities	Learning Outcomes
		Certification Exam: 1-hour, scenario-based assessment. Certificate of Completion/Scorecard awarded upon passing.	

Training Methodology and Format

Our program maximizes engagement and retention by blending expert instruction with hands-on, interactive learning tailored to Client's operations.

- ✓ **Instructor-Led Presentations:** Experienced trainers deliver clear, interactive lectures using slides, real-world examples, and analogies to demystify complex topics.
- ✓ **Hands-On Demonstrations:** Where possible, sessions include direct interaction with equipment (e.g., UPS, PDUs) and simulated procedures, linking theory to practice.
- ✓ **Group Discussions & Q&A:** Open dialogue is encouraged participants share experiences and collaborate on solutions, making lessons directly relevant to their work environment.
- ✓ **Case Studies & Scenarios:** Real incident-based case studies are analyzed in groups, building problem-solving skills and confidence for potential on-the-job issues.
- ✓ **Daily Quizzes:** Short quizzes at the end of Days 1 and 2 reinforce key concepts, provide immediate feedback, and boost retention.
- ✓ **Assessment program:** The course concludes with a supervised exam (Day 3) to validate comprehension and readiness. Passing earns an appreciation certificate.
- ✓ **Comprehensive Materials:** Participants receive up-to-date printouts, handouts, and reference materials aligned with global standards, for use during and after training.

This blended, practical approach ensures attendees gain not only knowledge but also the confidence and skills to apply best practices in team's daily operations.

Deliverables

- ✓ **Three Days of Expert Instruction:** On-site, 3-day training led by a certified instructor, adaptable to Client's schedule (about 7 hours/day, including breaks) for minimal operational impact.
- ✓ **Course Materials:** Comprehensive printed materials for each participant—presentation slides, module notes, reference standards (as allowed), worksheets, and case study handouts—all for future use.
- ✓ **Hands-On and Interactive Exercises:** In-class demonstrations with tools/props (e.g., equipment diagrams, DCIM software).
- ✓ **Assessment Program:** Open-book exam provided and graded by Global Solution Partners LLC & Triente Technologies; a personalized Certificate of Completion issued to all passing participants.
- ✓ **Training Report:** A summary report for management, covering training scope, attendee engagement, assessment overview, participant feedback, and recommendations.
- ✓ **Post-Training Support:** 30 days of email/phone support for questions and clarifications, helping apply knowledge to real-world operations.