

PGDFLP23:ADVANCED PLUMBING SERVICES – SYLLABUS

Module 1: Advanced Water Supply Systems

- Water demand estimation and fixture unit calculations
 - High-rise and complex building water supply design
 - Pressure zoning, booster pumping and break tanks
 - Gravity vs. pumped water supply systems
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Module 2: Plumbing Materials, Pipes and Fixtures

- Advanced piping materials: PPR, HDPE, CPVC, GI, stainless steel
 - Jointing techniques, corrosion control and durability
 - Selection of sanitary fixtures for performance and water efficiency
 - Codes and standards for materials and fixtures
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Module 3: Hot Water Supply and Distribution Systems

- Centralized and decentralized hot water systems
 - Solar water heating systems and heat pump technologies
 - Insulation, circulation systems and energy efficiency
 - Legionella control and safety considerations
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Module 4: Drainage and Sewerage Systems Design

- Soil, waste and vent pipe system design
 - Single stack, one-pipe and two-pipe systems
 - Drainage layouts for high-rise and large complexes
 - Prevention of siphonage, backflow and odour issues
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Module 5: Stormwater Management and Rainwater Harvesting

- Stormwater drainage design and site runoff calculations
- Sustainable Urban Drainage Systems (SUDS)

- Roof drainage, surface drainage and basement protection
 - Rainwater harvesting systems: collection, storage and reuse
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Module 6: Water Conservation and Sustainable Plumbing

- Low-flow fixtures, dual plumbing and water-efficient systems
 - Greywater recycling systems and applications
 - Treated wastewater reuse for flushing and landscaping
 - Plumbing provisions for green buildings (GRIHA, LEED)
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Module 7: Plumbing Systems for Special Buildings

- Plumbing requirements for hospitals and healthcare facilities
 - Plumbing systems in hotels, malls and airports
 - Industrial plumbing and process water systems
 - Plumbing considerations for fire and life safety integration
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Module 8: Plumbing Pumps, Controls and Automation

- Types of pumps used in plumbing systems
 - Variable frequency drives (VFDs) and pressure controls
 - Sensors, automation and smart plumbing systems
 - IoT-based monitoring of water consumption and leakage
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Module 9: Testing, Commissioning and Maintenance

- Testing of water supply and drainage systems
 - Commissioning procedures and documentation
 - Preventive maintenance and troubleshooting
 - Common failures, retrofitting and rehabilitation techniques
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Module 10: Codes, Regulations and Professional Practice

- NBC 2016 (Part 9 & Part 10) and local bye-laws
 - CPHEEO manual and relevant IS codes
 - Plumbing drawings, schematics and specifications
 - Coordination with architectural, fire and HVAC services
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Suggested Teaching Components

- Case studies of residential, institutional and high-rise buildings
- Practical exercises in plumbing design calculations
- Site visits to water treatment and plumbing installations
- Integration with fire-fighting and building services systems