**SESSION TRANSACTION PLAN FOR TWO-DAY CAPACITY BUILDING PROGRAMME FOR**

**PUBLIC HEALTH ENGINEERING DEPARTMENT**

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| **SESSION NUMBER** | **SESSION TITLE AND DURATION** | **OBJECTIVE** | **SESSION TRANSACTION PLAN** | **EXPECTED OUTCOME****AND FOLLOW-UP RESOURCES** |
| SESSION 1 | **Session Title:**"Enhancing Building Utility: Good Practices for Water Supply, Drainage, and Sanitation"**Duration:**1 Hour 30 Minutes | **Objective:**To provide participants with comprehensive knowledge of best practices for water supply, drainage, and sanitation as outlined in the National Building Code of India 2016, focusing on design, installation, and maintenance for efficient and sustainable systems. | **Session Breakdown****1. Introduction (10 minutes)*** **Objective:** Introduce the session and highlight the importance of water supply, drainage, and sanitation in buildings.
* **Content:**
	+ Overview of the National Building Code (NBC) of India.
	+ Significance of water supply, drainage, and sanitation in building functionality and public health.
* **Methodology:**
	+ Presentation with an overview of session objectives and key terms.

**2. Overview of Relevant NBC Provisions (Part 9 of NBC 2016) (15 minutes)*** **Objective:** Familiarize participants with key provisions of the NBC related to water supply, drainage, and sanitation.
* **Content:**
	+ Summary of relevant sections from the NBC.
	+ Importance of adhering to these provisions for compliance and safety.
* **Methodology:**
	+ Interactive lecture with handouts summarizing NBC provisions.

**3. Water Supply System Design and Installation (15 minutes)*** **Objective:** Discuss good practices in the design and installation of water supply systems.
* **Content:**
	+ Components of a water supply system (e.g., pumps, pipes, tanks).
	+ Design considerations: water demand calculation, pressure management, and pipe material selection.
	+ Installation guidelines and common challenges.
* **Methodology:**
	+ Presentation with diagrams and real-world examples of water supply systems.

**4. Drainage System Design and Installation (15 minutes)*** **Objective:** Explain best practices for designing and installing drainage systems.
* **Content:**
	+ Components of a drainage system (e.g., pipes, traps, vents).
	+ Design considerations: slope, venting, and material selection.
	+ Installation practices to prevent blockages and leaks.
* **Methodology:**
	+ Slide presentation with examples and case studies.

**5. Sanitation System Design and Maintenance (15 minutes)*** **Objective:** Highlight good practices for sanitation system design and maintenance.
* **Content:**
	+ Types of sanitation systems (e.g., septic tanks, sewer systems).
	+ Design principles: capacity planning, treatment processes, and environmental considerations.
	+ Maintenance practices to ensure system efficiency and longevity.
* **Methodology:**
	+ Presentation with visual aids and maintenance checklists.

**6. Sustainable Practices and Innovations (10 minutes)*** **Objective:** Introduce sustainable practices and innovations in water supply, drainage, and sanitation.
* **Content:**
	+ Water-saving technologies (e.g., low-flow fixtures, rainwater harvesting).
	+ Wastewater recycling and reuse.
	+ Role of green building practices in promoting sustainability.
* **Methodology:**
	+ Lecture with examples of sustainable technologies and practices.

**7. Conclusion and Q&A (10 minutes)*** **Objective:** Recap key points and address participant questions.
* **Content:**
	+ Summary of good practices for water supply, drainage, and sanitation.
	+ Importance of compliance with NBC provisions.
	+ Open floor for questions and clarifications.
* **Methodology:**
	+ Facilitator-led summary and interactive Q&A session.
 | **Expected Outcomes:*** Understanding of the key provisions of the NBC related to water supply, drainage, and sanitation.
* Knowledge of best practices for designing, installing, and maintaining these systems.
* Awareness of sustainable practices and innovations in water management.

**Follow-up Resources:*** Access to relevant sections of the NBC.
* Contact information for further queries or guidance.
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| SESSION 2 | **Session Title:** “Optimizing Services and Resources: Drinking Water Supply Services and Asset Management System”**Duration:**1 Hour 30 Minutes | **Objective:** To equip participants with the knowledge and skills necessary for the effective management of assets in drinking water supply systems, focusing on BIS standards, asset management, and best practices for sustainability and efficiency.   | **Session Breakdown****1. Introduction (5 minutes)** * + **Objective:** Introduce the concept of potable water and importance of asset management in drinking water supply systems.
	+ **Content:**
		- Introduction to Drinking Water Management
		- Global and National Water Challenges
		- Opportunities and Standards in Water Management
	+ **Methodology:**
		- Presentation with an overview of session objectives and key terms.

 **2. Overview of BIS Standards and Guidelines (10 minutes)** * + **Objective:** Familiarize participants with relevant BIS standards and guidelines.
	+ **Content:**
		- Key standards for water supply system assets (e.g., IS 17482 and IS 18182).
		- Importance of compliance with BIS standards in asset management.
	+ **Methodology:**
		- Interactive lecture with diagrams/ figures, Tables and handouts summarizing key standards.

**3. Requirement of Piped Drinking Water supply services (35 minutes)** * + **Objective:** To brief about Requirement and working of piped Drinking Water supply services with a Case study approach
	+ **Content:**
		- Overview and Framework of IS 17482:2020
		- Key Requirements and Management System Clauses
		- Operational Guidelines and Performance Evaluation
		- Implementation and Compliance
	+ **Methodology:**
		- Presentation with diagrams/figures, Tables, practical examples and case studies.

**4. Management of Assets in Drinking Water Supply System** **(30 minutes)** * + **Objective:** Explain Management strategies and management for water supply system assets.
	+ **Contents:**
		- Overview and Framework of IS 18182:2023; its scope and key aspects
		- Investigation Techniques for Water Supply Systems
		- Assessment and Performance Evaluation
		- To describe the Strategic Planning for Water Supply Systems
		- Implementation and Continuous Improvement for water supply system assets.
	+ **Methodology:**
		- Slide presentation with diagrams/ figures, Tables and examples of strategies of asset management

**5. Conclusion and Q&A (10 minutes)** * + **Objective:** Recap key points and provide an opportunity for participant questions.
	+ **Content:**
		- Summary of asset management practices for drinking water supply systems.
		- Importance of adherence to BIS standards for system efficiency and sustainability.
		- Open floor for discussions, participant questions and clarifications.
	+ **Methodology:**
		- Facilitator-led summary and interactive Q&A session.
 | **Expected Outcomes:*** Understanding of the drinking water supply service management, asset management for drinking water supply systems.
* Familiarity with BIS standards and guidelines for asset management.
* Knowledge of best practices for maintaining and upgrading water supply system assets.

**Follow-up Resources:** * Access to relevant BIS documents and standards.
* Contact information for further queries or guidance.
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| SESSION 3 | **Session Title:** "Ensuring Safe Water: The Role of Standards in Drinking Water Quality, Sampling, and Testing"**Duration:**1 Hour 30 Minutes | **Objective:**To educate participants on the role of BIS standards in ensuring the quality of drinking water, with a focus on sampling and testing methods to ensure public health and safety. | **Session Breakdown****1. Introduction (5 minutes)*** + **Objective:** Introduce the importance of drinking water quality and the role of standards.
	+ **Content:**
		- Overview of the significance of drinking water quality.
		- The role of BIS standards in ensuring safe and potable water.
		- Objectives of the session.
	+ **Methodology:**
		- Presentation with an overview of session objectives and key concepts.
1. **Overview of BIS Standards for Drinking Water Quality (25 minutes)**
	* **Objective:** Familiarize participants with relevant BIS standards for drinking water quality.
	* **Content:**
		+ Key standard (e.g., IS 10500: Drinking Water Specification).
		+ Defining acceptable and permissible limits in IS 10500.
		+ Parameters covered: physical, chemical, microbiological, and radiological.
		+ Importance of compliance with these standards for public health.
		+ Other Indian Standards related to Drinking Water (IS 14543, IS 13428)
	* **Methodology:**
		+ Interactive lecture summarizing key standards and parameters.
2. **Drinking Water Sampling Techniques (25 minutes)**
	* **Objective:** Explain the best practices for water sampling to ensure accurate testing.
	* **Content:**
		+ Importance of proper sampling techniques.
		+ Overview of Indian Standards related to sampling of drinking water from different sources [IS 17614 (Part 5), IS 17614 (Part 21)]
		+ Types of samples: grab samples, composite samples.
		+ Guidelines for identification of sampling location, order of sampling collecting, handling water samples.
		+ Overview of sampling manual, and training of samplers
	* **Methodology:**
		+ Presentation summarizing sampling techniques.
3. **Water Quality Testing Methods (25 minutes)**
	* **Objective:** Discuss various methods for testing drinking water quality.
	* **Content:**
* Overview of laboratory and field testing methods.
* Testing for physical parameters (e.g., pH, turbidity), chemical parameters (e.g., fluoride, nitrates), and microbiological parameters (e.g., coliform bacteria).
* Use of standard test kits and advanced laboratory equipment.
* **Methodology:**
	+ Presentation with examples of testing methods and equipment.
1. **Conclusion and Q&A (10 minutes)**
	* **Objective:** Recap key points and address participant questions.
	* **Content:**
		+ Summary of the role of BIS standards in drinking water quality, sampling, and testing.
		+ Importance of continuous monitoring and adherence to standards.
		+ Open floor for participant questions and clarifications.
	* **Methodology:**
* Facilitator-led summary and interactive Q&A session.
 | **Expected Outcomes:*** Understanding of BIS standards for drinking water quality.
* Knowledge of best practices for sampling and testing drinking water.
* Ability to interpret test

results and ensure compliance with standards.**Follow-up Resources:*** Access to relevant BIS documents and standards.

Contact information for further queries or guidance. |
| SESSION 4 | **Session Title:**"Harvesting Sustainability: The Role of BIS Standards in Rainwater Management"**Duration:**1 Hour 30 Minutes | **Objective:**To provide participants with an in-depth understanding of sustainable water management through rainwater harvesting, emphasizing the role of BIS standards IS 15792, IS 15797, and IS 14961 in designing, implementing, and maintaining efficient rainwater harvesting systems. | **Session Breakdown****1. Introduction (10 minutes)*** **Objective:** Introduce the concept of rainwater harvesting (RWH) and its importance in sustainable water management.
* **Content:**
	+ Overview of water scarcity and the role of RWH in mitigating it.
	+ Benefits of RWH: water conservation, groundwater recharge, and reduced dependency on traditional water sources.
	+ Objectives of the session.
* **Methodology:**
	+ Presentation with an overview of session objectives and key concepts.

**2. Overview of Relevant BIS Standards (15 minutes)*** **Objective:** Familiarize participants with key BIS standards for rainwater harvesting.
* **Content:**
	+ IS 15792: Artificial Recharge to Groundwater
	+ IS 15797: Roof Top Rainwater Harvesting
	+ IS 14961: Roof Top Rainwater Harvesting for Hilly Areas
	+ Importance of adhering to these standards for system efficiency and safety.
* **Methodology:**
	+ Interactive lecture with handouts summarizing key standards.

**3. Design and Implementation of RWH Systems (20 minutes)*** **Objective:** Discuss best practices in the design and implementation of RWH systems.
* **Content:**
	+ Key components of an RWH system (e.g., catchment area, conveyance system, storage, and filtration).
	+ Design considerations: site assessment, system sizing, and material selection.
	+ Implementation guidelines standards
* **Methodology:**
	+ Presentation with diagrams and real-world examples of RWH systems.

**4. Maintenance and Sustainability (15 minutes)*** **Objective:** Explain the importance of maintenance for the sustainability of RWH systems.
* **Content:**
	+ Regular maintenance tasks: cleaning, inspection, and repairs.
	+ Sustainable practices: water quality monitoring, reusing harvested water, and system upgrades.
* **Methodology:**
	+ Presentation with case studies and maintenance checklists.

**5. Case Studies and Success Stories (15 minutes)*** **Objective:** Provide practical examples of successful RWH implementations.
* **Content:**
	+ Case studies of RWH projects in urban and rural settings.
	+ Impact of these projects on water conservation and community benefits.
	+ Lessons learned and best practices from these implementations.
* **Methodology:**
	+ Lecture with case study presentations and participant discussions.

**6. Emerging Trends and Innovations (10 minutes)*** **Objective:** Highlight emerging trends and innovations in RWH.
* **Content:**
	+ Advances in RWH technology: smart monitoring systems, automated controls.
	+ Integration of RWH with other water management systems.
	+ Role of standards in supporting innovation and sustainability.
* **Methodology:**
	+ Lecture with examples of innovative technologies and practices.

**7. Conclusion and Q&A (10 minutes)*** **Objective:** Recap key points and address participant questions.
* **Content:**
	+ Summary of the role of BIS standards in RWH.
	+ Importance of sustainable practices in water management.
	+ Open floor for participant questions and clarifications.
* **Methodology:**
	+ Facilitator-led summary and interactive Q&A session.
 | **Expected Outcomes:*** Understanding of BIS standards IS 15792, IS 15797, and IS 14961 for RWH.
* Knowledge of best practices for designing, implementing, and maintaining RWH systems.
* Awareness of emerging trends and innovations in sustainable water management.

**Follow-up Resources:*** Access to relevant BIS documents and standards.
* Contact information for further queries or guidance.
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| SESSION 5 | **Session Title:** "Optimizing Efficiency: Asset Management in Wastewater Supply Networks" **Duration:**1 Hour 15 Minutes | **Objective:** To equip participants with the knowledge and skills needed for effective management of assets in wastewater supply networks, focusing on best practices, management, and rehabilitation.  | **Session Breakdown****1. Introduction to Wastewater Asset Management (10 minutes)** * **Objective:** Introduce the concept of asset management in wastewater supply networks.
* **Content:**
* Definition and importance of asset management
* Key components of wastewater supply networks (e.g., pipelines, treatment plants, pumping stations).
* **Methodology:**
	+ Presentation with an overview of WW Asset Management.

**2. Objectives, Performance, and Functional Requirements (15 minutes)*** **Objective**: Explain the purpose of setting clear objectives, performance metrics, and functional requirements in wastewater asset management in an interactive manner.
* **Content:**
	+ Meeting environmental and user expectations.
	+ Promoting sustainability and resilience.
	+ Measurable indicators (e.g., flow efficiency, leak management).
	+ Addressing issues like flooding, odour, and structural integrity.
* **Methodology:**
	+ Real world examples and use of chart and questions to demonstrate the link between objectives, functional requirements.

**3. Asset Investigation and Assessment (15 minutes)*** **Objective:** Highlight the need for detailed investigation and assessment to understand the condition and performance of wastewater assets.
* **Content:**
	+ Hydraulic, Environmental, Structural (e.g., inspections for damages or aging), Operational (e.g., maintenance history, failure data).
	+ Data Types and its importance
	+ Framework of Assessment
* **Methodology:**
	+ Case study relating problems and how to implement investigation.
	+ Use diagrams to show the investigation workflow.

**4. Planning and Implementation (10 minutes)*** **Objective**: Introduce strategies for planning and implementing solutions to optimize wastewater asset management.
* **Content:**
	+ Strategic Planning
	+ Tactical Planning
	+ Operational Planning
* **Methodology:**
	+ Discuss examples of planning outcomes.

**5. Operation and Monitoring (5 minutes)*** **Objective**: Emphasize the importance of operational efficiency and continuous monitoring in asset management.
* **Content:**
	+ Preventive and corrective.
	+ Incident response and service restoration.
	+ Regular inspections.
* **Methodology:**
	+ Display a dashboard mock-up of operational performance metrics.

**6. Rehabilitation (10 minutes)*** **Objective:** Explain the significance of rehabilitation in extending asset life and minimizing lifecycle costs.
* **Content:**
	+ Rehabilitation Approaches:
	+ Prioritization Factors:
	+ Risk assessment outcomes (e.g., failure risks, user impact).
* **Methodology:**
	+ Comparative chart for different approach.

**7. Conclusion and Q&A (10 minutes)** * **Objective:** Recap key points and provide an opportunity for participant questions.
* **Content:**
	+ Summary of asset management practices for drinking water supply systems.
	+ Importance of adherence to BIS standards for system efficiency and sustainability.
	+ Open floor for participant questions and clarifications.
* **Methodology:**

o Facilitator-led summary and interactive Q&A session.  | **Expected Outcomes:** * Understanding of the key components and wastewater assets.
* Knowledge of assessment techniques and maintenance strategies.
* Awareness of sustainability and risk management practices in asset management.

**Follow-up Resources:** * Access to relevant BIS guidelines and documents.
* Contact information for further queries or guidance.
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| SESSION 6 | **Session Title:**"Sustainable Sanitation Solutions: Biodigestors as per IS 18150"**Duration:**1 Hour | **Objective:**To provide participants with an understanding of non-sewered sanitation systems, focusing on the design, implementation, and maintenance of biodigestors as outlined in Indian Standard, IS 18150. | **Session Breakdown*** 1. **Introduction to Non-Sewered Sanitation Systems (10 minutes)**
* **Objective:** Introduce the concept and importance of non-sewered sanitation systems.
* **Content:**
	+ Definition and benefits of non-sewered sanitation.
	+ Importance of such systems in areas lacking centralized sewage networks.
	+ Overview of biodigesters as a sustainable solution.
* **Methodology:**
	+ Presentation with an overview of session objectives and key concepts.

**2. Overview of IS 18150 and Biodigesters (15 minutes)*** **Objective:** Familiarize participants with the key provisions of IS 18150 related to biodigesters.
* **Content:**
	+ Key components and functionalities of a biodigester.
	+ Design requirements as per IS 18150.
	+ Standards for materials for construction.
* **Methodology:**
	+ Interactive lecture with handouts summarizing key standards and guidelines.

**3. Site selection and Installation of Biodigesters (15 minutes)*** **Objective:** Explain the design and installation process of biodigesters.
* **Content:**
	+ Site selection and preparation.
	+ Design considerations: capacity, loading rates, and material selection.
	+ Installation steps and best practices.
* **Methodology:**
	+ Presentation with diagrams and real-world examples of biodigester installations.

**4. Operation and Maintenance (10 minutes)*** **Objective:** Discuss the operation and maintenance of biodigesters to ensure longevity and efficiency.
* **Content:**
	+ Start-Up of Biodigesters.
	+ Use of Detergents and Disinfectants
	+ General Maintenance Practices
* **Methodology:**
	+ Lecture with practical examples and maintenance checklists.

**5. Benefits and Challenges (5 minutes)*** **Objective:** Highlight the benefits and potential challenges of using biodigesters.
* **Content:**
	+ Environmental and economic benefits: waste reduction, biogas production, and cost savings.
	+ Challenges: technical issues, community acceptance, and initial capital.
* **Methodology:**
	+ Presentation with a comparison of benefits and challenges.

**6. Conclusion and Q&A (5 minutes)*** **Objective:** Recap key points and address participant questions.
* **Content:**
	+ Summary of the role of IS 18150 in promoting sustainable sanitation through biodigesters.
	+ Importance of adherence to standards for system effectiveness.
	+ Open floor for participant questions and clarifications.
* **Methodology:**
	+ Facilitator-led summary and interactive Q&A session.
 | **Expected Outcomes:*** Understanding of non-sewered sanitation systems and biodigestors.
* Familiarity with IS 18150 standards and their application in biodigestor design and maintenance.
* Awareness of the benefits and challenges associated with biodigestor systems.

**Follow-up Resources:*** Access to IS 18150 and related BIS documents.
* Contact information for further queries or guidance.
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| SESSION 7 | **Session Title:**"Advanced Sanitation Solutions: Packaged Sewage Treatment Plants as per IS 18797"**Duration:**1 Hour | **Objective:**To provide participants with a comprehensive understanding of packaged sewage treatment plants (PSTPs) as per Indian Standard IS 18797, focusing on their design, implementation, and maintenance. | **Session Breakdown**1. **Introduction to Packaged Sewage Treatment Plants (10 minutes)**
* **Objective:** Introduce the concept and significance of packaged sewage treatment plants (PSTPs).
* **Content:**
	+ Definition and advantages of PSTPs.
	+ Application in areas without centralized sewage systems.
	+ Overview of session objectives.
* **Methodology:**
	+ - Presentation with an introduction to PSTPs and their role in non- sewered sanitation.
1. **Overview of IS 18797 and PSTP Components (15 minutes)**
* **Objective:** Explain the key provisions of IS 18797 related to PSTPs.
* **Content:**
	+ Standards for design, materials, and construction of PSTPs.
	+ Key components: primary treatment, secondary treatment, tertiary treatment, and sludge management.
	+ Importance of compliance with IS 18797 for system efficiency and safety.
* **Methodology:**
	+ Interactive lecture with handouts summarizing IS 18797.
1. **Design and Installation Guidelines (10 minutes)**
* **Objective:** Detail the design and installation processes for PSTPs.
* **Content:**
	+ Design considerations: capacity, inflow characteristics, and effluent quality.
	+ Installation steps and best practices.
* **Methodology:**
	+ Presentation with diagrams and case studies of PSTP installations.
1. **Operation, Maintenance, and Performance Monitoring (10 minutes)**
* **Objective:** Discuss the operation, maintenance, and performance monitoring of PSTPs.
* **Content:**
	+ Daily operational practices and safety protocols.
	+ Routine maintenance tasks: component checks, sludge management, and system cleaning.
		- Techniques for monitoring performance and ensuring compliance with discharge standards.
* **Methodology:**
	+ Lecture with practical examples and maintenance schedules.
1. **Benefits and Challenges (10 minutes)**
* **Objective:** Highlight the benefits, challenges, and real-world applications of PSTPs.
* **Content:**
	+ Benefits: space-saving, cost-effective, and eco-friendly solutions.
	+ Challenges: operational issues, community acceptance, and maintenance.
* **Methodology:**
	+ Presentation and participant discussions.
1. **Conclusion and Q&A (5 minutes)**
* **Objective:** Recap key points and address participant questions.
* **Content:**
	+ Summary of IS 18797 and its application in PSTPs.
	+ Importance of proper design, operation, and maintenance for system longevity.
	+ Open floor for participant questions and clarifications.
* **Methodology:**
	+ Facilitator-led summary and interactive Q&A session.
 | **Expected Outcomes:*** Understanding of the structure and function of PSTPs.
* Familiarity with IS 18797 standards and their application in PSTP design and maintenance.
* Awareness of the benefits, challenges, and practical applications of PSTPs.

**Follow-up Resources:*** Access to IS 18797 and related BIS documents.
* Contact information for further queries or guidance.
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| session 8 | **Session Title:**"Modern Sanitation Solutions: Rotationally Moulded Polyethylene Septic Tanks and IS 18666"**Duration:**1 Hour | **Objective:**To provide participants with an in-depth understanding of rotationally moulded polyethylene septic tanks, focusing on their design, manufacturing, and maintenance as per Indian Standard IS 18666. | **Session Breakdown**1. **Introduction to Polyethylene Septic Tanks (5 minutes)**
* **Objective:** Introduce the concept and advantages of rotationally moulded polyethylene septic tanks.
* **Content:**
	+ Definition and basic function of septic tanks.
	+ Benefits of polyethylene tanks: durability, cost-effectiveness, and ease of installation.
	+ Overview of session objectives.
* **Methodology:**
	+ Presentation with an introduction to polyethylene septic tanks.
1. **Overview of IS 18666 Standards (15 minutes)**
* **Objective:** Familiarize participants with the key provisions of IS 18666.
* **Content:**
	+ Scope and applicability of IS 18666.
	+ Standards for design, material specifications, and construction requirements.
	+ Compliance importance for product quality and environmental safety.
* **Methodology:**
	+ Interactive lecture with handouts summarizing IS 18666.
1. **Design and Manufacturing Process (15 minutes)**
* **Objective:** Explain the design principles and manufacturing process for polyethylene septic tanks.
* **Content:**
	+ Design considerations: capacity, load-bearing requirements, and environmental impact.
	+ Rotational moulding process: steps involved, quality control, and testing.
	+ Advantages of rotational moulding for septic tanks.
* **Methodology:**
	+ Presentation with diagrams and examples of the manufacturing process.
1. **Installation and Maintenance Guidelines (10 minutes)**
* **Objective:** Provide practical guidance on the installation and maintenance of polyethylene septic tanks.
* **Content:**
	+ installation steps, and best practices.
	+ Routine maintenance tasks: sludge removal, component checks, and system cleaning.
	+ Troubleshooting common issues.
* **Methodology:**
	+ Lecture with practical tips and maintenance schedules.
1. **Environmental and Economic Benefits (5 minutes)**
* **Objective:** Highlight the environmental and economic benefits of using polyethylene septic tanks.
* **Content:**
	+ Eco-friendly material properties and reduced environmental footprint.
	+ Cost savings in installation and maintenance.
	+ Long-term benefits for rural and urban sanitation projects.
* **Methodology:**
	+ Presentation with comparison charts and participant discussions.
1. **Conclusion and Q&A (10 minutes)**
* **Objective:** Recap key points and address participant questions.
* **Content:**
	+ Summary of IS 18666 and its role in ensuring quality septic tanks.
	+ Importance of adherence to standards for system effectiveness.
	+ Open floor for participant questions and clarifications.
* **Methodology:**
	+ Facilitator-led summary and interactive Q&A session.
 | **Expected Outcomes:*** Understanding of rotationally moulded polyethylene septic tanks and their benefits.
* Familiarity with IS 18666 standards and their application in design and maintenance.
* Awareness of the environmental and economic advantages of using polyethylene septic tanks.

**Follow-up Resources:*** Access to IS 18666 and related BIS documents.
* Contact information for further queries or guidance.
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| SESSION 9 | **Session Title:**"Standardization in Sewer Rehabilitation: Leading Steps and Best Practices"**Duration:**1 Hour | **Objective:**To introduce participants to the critical aspects of sewer rehabilitation and the leading steps towards developing and implementing standardization in this field by BIS. | **Session Breakdown**1. **Introduction to Sewer Rehabilitation (10 Minutes)**
	* **Objective:** Provide an overview of the need for sewer rehabilitation and its importance.
	* **Content:**
	* Definition and scope of sewer rehabilitation.
	* Challenges in aging sewer systems and available technologies.
	* Overview of session objectives.
	* **Methodology:**
	* Presentation with introduction to sewer rehabilitation and various technologies.
2. **Prime Objectives of Rehabilitation (5 Minutes)**
* **Objective:** Familiarize participants with basic objectives.
* **Content:**
	+ Occurrence of defects in aging technologies.
	+ How sewer rehabilitation takes care of the defects.
* **Methodology:**
	+ Interactive session with images of defects.
1. **Sewer Rehabilitation Technologies (15 Minutes)**
* **Objective:** Explain few sewer rehabilitation technologies being followed in India.
* **Content:**
	+ Brief of few sewer rehabilitation technologies like CIPP, Spiral wound liner, etc.
	+ Process, application and other features of such technologies.
* **Methodology:**
	+ Presentation with graphical images and videos.
1. **Present Status of Standards for Sewer Rehabilitation Technologies (10 Minutes)**
* **Objective:** Highlighting the important standards and their relevance.
* **Content:**
	+ List of various standards published by ISO.
	+ List of various standards and publications used in other countries.
* **Methodology:**
	+ Interactive discussion regarding the guiding documents being used in India and other countries.
1. **Way Forward (5 Minutes)**
* **Objective:** Discussion on the next steps in standardization
* **Content:**
	+ Various technologies to be looked at for standardization in India.
	+ Committee’s views and the steps taken.
	+ Comprehensive approach.
* **Methodology:**
	+ Presentation on the recent steps taken.
1. **Conclusion and Q&A (15 minutes)**
* **Objective:** Recap key points and address participant questions.
* **Content:**
	+ Summary of sewer rehabilitation technologies and their role.
	+ Importance of adherence to standards for system effectiveness.
	+ Open floor for participant questions and clarifications.
* **Methodology:**
	+ Facilitator-led summary and interactive Q&A session.
 | **Expected Outcomes:*** Understanding of the need for sewer rehabilitation and its challenges.
* Familiarity with current standards and practices in sewer rehabilitation.
* Awareness of the steps and importance of developing standardization in this field.

**Follow-up Resources:*** Access to relevant BIS documents and standards.
* Contact information for further queries or guidance.
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| SESSION 10 | **Session Title:**"Achieving Excellence: Standardization in Pumping Systems"**Duration:**1 Hour | **Objective:**To educate participants on the importance, and benefits of standardization in pumping systems, focusing on the relevant standards established by the Bureau of Indian Standards (BIS). | **Session Breakdown****1. Introduction to Pumping Systems (10 minutes)*** **Objective:** Provide an overview of pumps and their significance.
* **Content:**
	+ Types of pumps and their applications in agricultural purpose.
	+ Brief introduction to the role of standardization.
* **Methodology:**
	+ Presentation with diagrams and examples of different types of pumps.

**2. Importance of Standardization in Pumps (15 minutes)*** **Objective:** Highlight the benefits of standardization in ensuring efficiency, safety, and reliability.
* **Content:**
	+ Key objectives of standardization: uniformity, interoperability, and quality assurance.
	+ Impact of standards on performance, maintenance, and lifecycle of pumping systems.
* **Methodology:**
	+ Interactive presentation.

**3. Overview of BIS Standards for Pumps and Pumping Systems (30 minutes)*** **Objective:** Familiarize participants with the specific BIS standards related to different pumps.
* **Content:**
	+ Detailed review of key BIS standards (e.g., IS 8034 for submersible pumps, IS 9079 for monoblock pumps, IS 17018 (Part 1) for solar photovoltaic water pumping system).
	+ Explanation of criteria covered in standards: materials, design, testing, and performance.
	+ Procedures for compliance and certification.
* **Methodology:**
	+ Presentation with handouts summarizing BIS standards and their applications.

 **4. Conclusion and Q&A (5 minutes)** * **Objective:** Recap the key points and address participant queries.
* **Methodology:**

o Facilitator-led summary and interactive Q&A session. | **Expected Outcomes:*** Understanding of the importance and benefits of standardization in pumping systems.
* Familiarity with relevant BIS standards and their application.

**Follow-up Resources:*** Access to relevant BIS standards and documents.
* Contact information for further queries or guidance.
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