



## ECVET – Curriculum

### UNIT TEMPLATE

Institution:	Cyprus Productivity Center
Programme/Training Title:	Accelerated training course for plumbing and heating technician
Unit Title / Code:	Sewage, drainage and vent installations / NS/AT/PL / Unit 9
Unit Type (e.g. major, minor, elective):	Non-Formal
Unit Level:	N/A
Duration:	30 Hours
Pre-requisites:	N/A
Instructor:	Demetris Kitsios
Number of ECVET credits:	N/A

#### **Learning Outcomes: By the end of the module/unit the Trainee will be able to:**

**LO1:** Organize the work involved for the installation of internal sewage/drainage systems, according to building drawings and standard specifications

**LO2:** Describe the principles of Sanitary installation, pipes, fittings and their components according to technical specifications and mechanical drawings

**LO3:** Install different pipes, fittings sanitary ware, and other ancillary components according to standards of work and drawings

**LO4:** Modify the existing installations to prevent malfunction or health violation

**CYPRUS PRODUCTIVITY CENTRE**  
 Accelerated training course for plumbing and heating technician  
**Module No.9: Sewage, Drainage and Vent Installations**

Learning outcomes By the end of the module the trainee will be able to:	Method of assessment	ECVET System		Estimated student work time in hours
<b>LO1:</b> Organise the work involved for the installation of internal sewage/drainage systems, according to building drawings and standard specifications	<ul style="list-style-type: none"> <li>• Oral examination</li> <li>• Oral exercises</li> <li>• Class discussion</li> </ul>	<b>K</b>	<ul style="list-style-type: none"> <li>• Understand mechanical drainage drawings</li> <li>• Identify method of installation</li> <li>• Identify sanitary fittings, pipes and fittings</li> <li>• Define personal protective equipment required</li> </ul>	5 Hours
		<b>S</b>	<ul style="list-style-type: none"> <li>• Interpreted Mechanical drawings</li> <li>• Select pipes and fittings ancillary items</li> <li>• Communicate in writing or orally with Contractors.</li> </ul>	
		<b>C</b>	<ul style="list-style-type: none"> <li>• Modify drawings to be adapted on site</li> <li>• Coordinate his work with other Sub Contractors</li> </ul>	
<b>LO2:</b> Describe the principles of Sanitary installation, select pipes ,fittings and components according to technical specifications and mechanical drawings	<ul style="list-style-type: none"> <li>• Oral examination</li> <li>• Oral exercises</li> <li>• Written tests</li> <li>• Practical workshop tests</li> </ul>	<b>K</b>	<ul style="list-style-type: none"> <li>• Describe the various types of pipes, fittings required for the sewage and drainage installations</li> <li>• Identify the method of installation</li> <li>• Select the correct size, type and levelling of the soil and drainage piping.</li> <li>• Select the correct size of traps and their components</li> </ul>	5 Hours
		<b>S</b>	<ul style="list-style-type: none"> <li>• Calculate quantities of pipes, fittings from drawings and sketches</li> <li>• Compare various pipes between them</li> </ul>	

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			<ul style="list-style-type: none"> <li>• Verify drawings on site and make adjustments</li> </ul>		
		<b>C</b>	<ul style="list-style-type: none"> <li>• Identify the different sanitary requirements of a house</li> </ul>		
<p><b>LO3:</b> Install different pipes, fittings sanitary ware, and other ancillary components according to standards of work and drawings</p>	<ul style="list-style-type: none"> <li>• Oral examination</li> <li>• Oral exercises</li> <li>• Practical workshop tests</li> </ul>	<b>K</b>	<ul style="list-style-type: none"> <li>• Understand different types of pipes, fittings wrt material, size and type</li> <li>• Describe the jointing method for various types of pipes</li> <li>• Describe principles of installation</li> <li>• Read mechanical drawings</li> <li>• Describe relative legislation</li> <li>• Recognise tools and jointing materials</li> </ul>	15 Hours	
			<b>S</b>		<ul style="list-style-type: none"> <li>• Apply knowledge to install pipes and fittings</li> <li>• Organise work in correct sequence according to mechanical drawings</li> <li>• Fix sanitary appliances and relative traps</li> </ul>
			<b>C</b>		<ul style="list-style-type: none"> <li>• Verify installations to follow standard specifications</li> <li>• Identify and solve problems</li> <li>• Set up maintenance work and corrections</li> <li>• Identify the remedial work for solving sewage blockage</li> </ul>
<p><b>LO4:</b> Modify the existing installations to prevent malfunction or health violation</p>	<ul style="list-style-type: none"> <li>• Oral examination</li> <li>• Oral exercises</li> <li>• Practical workshop tests</li> </ul>	<b>K</b>	<ul style="list-style-type: none"> <li>• Read and interpret drawings</li> <li>• Identify methods of maintenance</li> <li>• Describe health regulations</li> </ul>	5 Hours	
		<b>S</b>	<ul style="list-style-type: none"> <li>• Locate the malfunction of the installation</li> <li>• Select correct pipes, fittings and method of installation</li> <li>• Modify work as per site requirements</li> </ul>		



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		<b>C</b>	<ul style="list-style-type: none"> <li>• Coordinate the mechanical work with other sub-contractors</li> <li>• Communication in writing for any extra work done during the job</li> </ul>	
<b>TOTAL</b>				<b>30 Hours</b>

**Course Outline**

1. General concepts/ principles about drainage
  - Types and use of pipes for drainage and sewage (UPVC, PP, MS, CI etc)
  - Vertical stacks
  - Horizontal branches, inclination allowance
  - Drainage outlets
  - Venting pipes
  
2. Pipe fittings and other accessories
  - Methods of Connection of piping , fittings (solvent cement, ring etc)
  - Tools
  - Manholes
  
3. Sanitary fittings, accessories
  - WC traps, outlets vertical and concealed type, water tank, float valves etc
  - Wash basin (dimensions, traps, connection to system, mixers etc)
  - Bath (dimensions, trap, connection details, mounting procedures, earthing)
  - Showers, (dimensions, traps, connections mixers etc)
  - Urinals (types, mounting details valves)
  
- 4 Design parameters and basic principles of drainage installation

- Symbols, types of drawings, details of installations, sketches etc
  - Calculations for drainage installations
  - Contact technical specifications of drainage systems
  - External drainage and method of installation
  - Main sewers and pumping methods
5. Drainage installations in atypical house or a multi storey building
- Take – Off quantities, cost estimate of tender
  - List of work required and tools
  - Installation of drainage piping and connection of all Sis
  - Testing of drainage pipes
  - Protection of drainage pipes
  - Fire barriers to drainage pipes
  - Troubleshooting and repair work
6. sewage treatment plants
- Method of sewage treatments
  - Small and big sewage treatment plants
  - Grey water and their usage
  - Pumps for drainage / sewage installations
  - Installation of sewage pumps to a house

### **Teaching methods**

The whole module is divided into two parts, the theoretical and practical part.

- The theoretical part comprises of lectures conducted in the classroom and is about 10 Hours totally. The teaching methods used are

Power points presentations, demonstration units, video movies and discussions.

- The practical part is carried out in our specially designed workshops where every trainee is working independently to perform certain exercises.
- The practical exercises include inter –alia the installation of UPVC pipes to a typical house, installation of pipes for a multi storey building, provision of drainage pipes, connection of Sanitary Fittings with the system, testing and commissioning
- All the practical work is supervised by our certified trainer.

**Assessment methods**

The assessment method used are:

- Oral exercises and class discussions
- Class participation
- Written tests
- Practical exercises of different level of difficulty
- Observation work

**Required books**

Authors	Title	Editor	Year	ISBN

**Note:** It is not necessary to acquire any books, since all technical information, manuals, bulletins are given in print form

**Suggested books:**

Author	Title	Editor	Year	ISBN
Brickle Siegfried	Εγκαταστάσεις αποχετεύσεων	ΙΩΝ	1999	960-331-400-5



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