

**Appendix A-15 Design-related practical components that students must complete
before graduation**

Design Name	Content and workload requirements	Credits / (Class hours or weeks)	Assessment and grading methods
Pump and Pump Station Course Design	<p>Content: Perform calculations for pump station flow and head; select pump units; layout of units, pipelines, and other auxiliary equipment.</p> <p>Workload requirements: Submit one preliminary design drawing of the pump station (including a floor plan and a section view), along with a calculation report.</p>	1.0/1 week	Comprehensive evaluation by the instructor based on the student's performance and design results in the project
Water Supply Pipeline Network Course Design	<p>Content: Layout forms of the water supply pipeline network system and the layout of the pipeline network system, hydraulic calculations, pipeline network verification, and pump selection (water tower height), selection of pipe materials, selection and calculation of pipeline accessories and their auxiliary structures;</p> <p>Workload requirements: A hydraulic calculation and verification result chart for the water supply pipeline network, along with a calculation report.</p>	2.0/2 weeks	Comprehensive evaluation by the instructor based on the student's performance and design results in the project
Drainage Pipe Network Course Design	<p>Content: Determination of the location of the sewage treatment plant; design calculations for the sewage pipeline system; design calculations for the rainwater pipeline system and watershed area division.</p> <p>Workload requirements: Three preliminary design drawings for No. 1 and one calculation specification.</p>	2.0/2 weeks	Comprehensive evaluation by the instructor based on the student's performance and design results in the project
Building Water Supply and Drainage Course Design	<p>Content: Design calculations for water supply systems, wastewater drainage systems, and fire water supply systems in high-rise residential buildings.</p> <p>Workload requirements: Several preliminary design drawings and one calculation specification.</p>	2.0/2 weeks	Comprehensive evaluation by the instructor based on the student's performance and design results in the project
Water Treatment Course Design	<p>Content: Selection of water treatment process flow; design calculations for each treatment structure of the water supply plant; layout, elevation layout, and design calculations of the water treatment plant.</p> <p>Workload requirements: Several preliminary design drawings for the sewage treatment plant and one calculation report.</p>	2.0/2 weeks	Comprehensive evaluation by the instructor based on the student's performance and design results in the project
Sewage Treatment Course Design	<p>Content: Selection of process flow for wastewater treatment plants; design calculations for various structures of wastewater treatment plants; layout, elevation</p>	2.0/2 weeks	Comprehensive evaluation by the instructor based on the student's

	<p>layout, and design calculations of wastewater treatment plants.</p> <p>Workload requirements:Several preliminary design drawings for the sewage treatment plant and one calculation report.</p>		<p>performance and design results in the project</p>
<p>Water Engineering Economics and Budgeting Course Design</p>	<p>Content:Measurement of municipal road drainage systems; measurement of municipal road drainage systems; preparation of bill of quantities text; design report and defense.</p> <p>Workload requirements:One copy of the itemized pricing text and one copy of the calculation instructions.</p>	<p>1.0/1 week</p>	<p>Comprehensive evaluation by the instructor based on the student's performance and design results in the project</p>