DE6205 WATER AND WASTEWATER SYSTEMS

Level 6 Credits 15

LEARNING TIME

<table>
<thead>
<tr>
<th>Indicative Directed Hours</th>
<th>Self-Directed Hours</th>
<th>Total Hours</th>
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<tr>
<td>90</td>
<td>60</td>
<td>150</td>
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RECOMMENDED PRE-REQUISITE

DE5203 Hydraulics (Civil)

RECOMMENDED CO-REQUISITE

Nil

AIM/PURPOSE

To evaluate the requirements of, and design water, waste water and storm water reticulation systems.

LEARNING OUTCOMES

On successful completion of this course, the student should be able to:

1. Analyse water supply and demand requirements, and design a small water reticulation system.
2. Evaluate hydrological parameters and design an urban storm water management system.
3. Determine waste water quantities and design a waste water reticulation system.
4. Appraise the requirements of water and waste water pumping installations and optimise design.
5. Understand integrated water management approaches.

INDICATIVE CONTENT

- Water supply sources; Water demand; Water reticulation system components; Water reticulation analysis; Reticulation installation and maintenance; Water reservoirs.
- Hydrological cycle; Surface run-off determination; Infiltration; Storm water reticulation components and design; Storm water buffering; Storm water disposal; Impact of storm water run-off.
- Waste water sources and quantities; Waste water collection and reticulation system components design and maintenance.
- More efficient use of water, water metering, recycled water.
- Pump station layout and components; Variable capacity requirements; Sump capacity Series, parallel and variable pump operation; Pump system (sump, pump and rising main) optimisation.
RECOMMENDED ASSESSMENT

<table>
<thead>
<tr>
<th>Assessment Type</th>
<th>Weighting</th>
<th>Outcomes Assessed</th>
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<tbody>
<tr>
<td>Assignments/Projects</td>
<td>40%</td>
<td>1, 2, 3, 4, 5</td>
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<tr>
<td>Tests</td>
<td>10%</td>
<td>1, 2, 3, 4</td>
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<tr>
<td>Examination</td>
<td>50%</td>
<td>1, 2, 3, 4, 5</td>
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*See Section 3.5 of Regulations

IPENZ TECHNICIAN ATTRIBUTES

<table>
<thead>
<tr>
<th>IEA Graduate Attributes</th>
<th>Outcome</th>
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<tbody>
<tr>
<td>1. Engineering Knowledge</td>
<td>✓</td>
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<tr>
<td>2. Problem Solving</td>
<td>✓</td>
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<tr>
<td>3. Design/Development of Solutions</td>
<td>✓</td>
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<td>4. Investigation</td>
<td>✓</td>
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<td>5. Modern Tool Usage</td>
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<td>6. The Engineer and Society</td>
<td>✓</td>
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<td>7. Environment and Sustainability</td>
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<td>8. Ethics</td>
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<td>9. Individual and Team Work</td>
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<tr>
<td>10. Communication</td>
<td>✓</td>
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<td>11. Project Management and Finance</td>
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<td>12. Lifelong Learning</td>
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