Postgraduate Studies Program
«ENVIRONMENTAL ENGINEERING»

<table>
<thead>
<tr>
<th>Specialization:</th>
<th>2-WWT: WATER AND WASTE TREATMENT</th>
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<tr>
<td>Code:</td>
<td>WWT 204</td>
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<tr>
<td>Course:</td>
<td>Advanced Oxidation Processes in Water and Wastewater Treatment</td>
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<td>Required:</td>
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<td>Elective:</td>
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<td>1st semester:</td>
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Instructor: Assistant Professor Nikolaos Xekoukoulotakis

Bibliography

Course objectives
In the present course it will be presented in detail the main Advanced Oxidation Processes used in Water and Wastewater Treatment.

Syllabus
1st week:
Oxidation Processes in Water and Wastewater Treatment
2nd week:
Introduction to Advanced Oxidation Processes in Water and Wastewater Treatment
3rd - 4th week:
Ozonation, O₃
5th - 6th week:
Ultraviolet radiation, UV
7th week:
Ultraviolet radiation in the presence of hydrogen peroxide, UV/H₂O₂
8th week:
Oxidation in the presence of Iron(III) or Iron(II) salts and hydrogen peroxide, H₂O₂ (Fenton and photo-Fenton oxidation)
9th - 10th week:
Heterogeneous Photocatalysis
11th week:
Sonolysis and Sono-photocatalysis

12th week:
Electrochemical Oxidation

13th week:
Laboratory Exercises and Projects Presentation

**Work load**
A. Lab exercises
B. Projects

**Student evaluation**
1. Final exam (50%)
2. Written assignments and Project Presentation (40%)
3. Lab reports (10%)