<table>
<thead>
<tr>
<th><strong>Course Title</strong></th>
<th>Rehabilitation of Reinforced Concrete Structures (Assessment) - Part I</th>
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<tbody>
<tr>
<td><strong>Course Unit Code</strong></td>
<td>PPM 531</td>
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<tr>
<td><strong>Type of Course Unit</strong></td>
<td>Optional</td>
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<tr>
<td><strong>Level of Course Unit</strong></td>
<td>2nd and 3rd cycle</td>
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<tr>
<td><strong>Year of Study</strong></td>
<td>Graduate and Doctoral Levels</td>
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<td><strong>Semester when the Course Unit is Delivered</strong></td>
<td>Spring</td>
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<tr>
<td><strong>Number of ECTS Credits Allocated</strong></td>
<td>8</td>
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<tr>
<td><strong>Name of Lecturer(s)</strong></td>
<td>S. J. Pantazopoulou</td>
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**Learning Outcomes of the Course Unit**

The course introduces the students to advanced seismic design and assessment of reinforced concrete structures. After the end of the course the students will be in the position to determine the seismic behavior and pushover resistance curve of the structure, to carry out a complete scenario of seismic assessment of existing structures, and to be up to date with current earthquake engineering methods and philosophies (Performance based design and assessment).

**Prerequisites**

N/A

**Co-requisites**

N/A

**Course Contents**

The course deals with the strength and deformation capacity of reinforced concrete structures, hierarchy of mechanisms of resistance and failure of structures the effects of large amplitude cycling and consequent strength degradation of the hysteretic performance of structures. ADRS spectra – damping – local vs global demands. Chord rotation (relative drift ratio) in reinforced concrete structures. Typical deficiencies of old-type lightly reinforced construction. Available deformation capacity. Evaluation of beam-column joints, anchorages and lap-splices, short-columns, identification of the weak link in the structural system. Establishing the pushover (resistance) curve of the structure. Lateral stiffness, strength at yielding and at failure, examples of direct assessment of structures damaged in past earthquakes, forensic investigation of collapse. Maximum tolerable ground acceleration in existing structures limiting collapse.

**Required Reading**

Comprises primarily published literature

**Recommended Reading**

ASCE-41/FEMA440, and Greek Retrofit Code (KANEPE) / EC8-III

**Planned Learning Activities**

Homeworks and class project

**Teaching Methods**

Lectures (3 hours weekly)

**Assessment Methods and Criteria**

Final Project, homeworks

**Language of Instruction**

Greek

**Work Placement(s)**

N/A