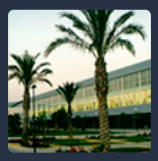

PORT AND COASTAL ENGINEERING

Universitat d'Alacant
Universidad de Alicante

33532 - PORT AND COASTAL ENGINEERING (2024-25)

General

Code: 33532
Lecturer responsible:
ARAGONES POMARES, LUIS

Credits ECTS:	**6,00**
Theoretical credits:	1,20
Practical credits:	1,20
Distance-base hours:	3,60

Departments involved

- **Dept:** ARCHITECTURAL CONSTRUCTIONS
  Area: ARCHITECTURAL CONSTRUCTIONS
  Theoretical credits: 0
  Practical credits: 0
- **Dept:** CIVIL ENGINEERING
  Area: INFRAESTRUCTURE AND TRANSPORT ENGINEERING
  Theoretical credits: 1,2
  Practical credits: 1,2
  This Dept. is responsible for the course.
  This Dept. is responsible for the final mark record.

Study programmes where this course is taught

- DEGREE IN CIVIL ENGINEERING
  Course type: OPTIONAL (Year: 4)

Competencies and objectives

Course context for academic year 2024-25

The subject of Port and Coastal Engineering is in the 1st quarter of the fourth year of the Degree in Civil Engineering.
Its purpose is to enable and train students in the necessary techniques for the project, construction and conservation of maritime works.
The development of the subject is carried out through theoretical classes, practical problems, computer practices and field visits.
The adequate learning process on the part of the student requires a previous solid training in Construction Materials, Geotechnics and Foundations, Materials Resistance, Calculation of Structures, etc., and in basic sciences and techniques, mainly Mathematics, Chemistry, Physics and Computing.

Course content (verified by ANECA in official undergraduate and Master's degrees) for academic year {0}

UA Basic Transversal Competences

- **CT10 :** Capacitat d'enfrontar, projectar i resoldre problemes reals demandats per la societat en l'àmbit de l'enginyeria.
- **CT11 :** Capacitat d'aprendre i aplicar, de forma autònoma i interdisciplinària, nous conceptes i mètodes.
- **CT12 :** Capacitat d'assimilar i adaptar-se a l'evolució contínua de la tecnologia en l'àmbit de desenvolupament professional.
- **CT13 :** Capacitat d'adoptar el mètode científic en el plantejament i realització de treballs diversos tant a nivell acadèmic com a professional.
- **CT14 :** Capacitat d'autocrítica necessària per a l'anàlisi i millora de la qualitat d'un projecte.
- **CT7 :** Capacitat d'exposició oral i escrita.
- **CT8 :** Capacitat de planificar tasques i comprometre's en el compliment d'objectius i terminis.
- **CT9 :** Capacitat de treball en grup.

Specific Competences (Civil Branch)

- **CE12 :** Coneixement dels procediments constructius, la maquinària de construcció i les tècniques de planificació, organització, mesurament i valoració d'obres.

Specific Competences (Specific Technology):>>Civil Construction

- **CEC3 :** Capacitat per al projecte, construcció i conservació d'obres marítimes.
- **CEC6 :** Capacitat d'aplicar els procediments constructius, la maquinària de construcció i les tècniques de planificació d'obres.

Basic Transversal Competences

- **CB2 :** Que els estudiants sàpien aplicar els seus coneixements al seu treball o vocació d'una manera professional i tinguen les competències que se solen demostrar a través de l'elaboració i defensa d'arguments i la resolució de problemes dins de la seua àrea d'estudi.
- **CB3 :** Que els estudiants tinguen la capacitat de reunir i interpretar dades rellevants (normalment dins de la seua àrea d'estudi) per a emetre judicis que incloguen una reflexió sobre temes rellevants d'índole social, científica o ètica.
- **CB4 :** Que els estudiants puguen transmetre informació, idees, problemes i solucions a un públic tant especialitzat com no especialitzat.
- **CB5 :** Que els estudiants hagen desenvolupat les habilitats d'aprenentatge necessàries per a emprendre estudis posteriors amb un alt grau d'autonomia.

Exclusive skill taught in this course

No data

Learning outcomes (Training objectives)

No data

Specific objectives stated by the academic staff for academic year 2024-25

The student is expected to familiarize himself with the maritime environment and its terminology as well as the approach to the tools with which to understand and determine the natural phenomena of the maritime environment.
To provide the student with the necessary information for the design and calculation of maritime works and the different existing regulations on the subject.
To ensure that the student adapts this information and technical knowledge to the maritime installations and the port, its functionality, typologies and design.
On the other hand, the student is also initiated in specific aspects related to coastal engineering such as coastal processes, coastal morphodynamics, port-beach interaction, coastal erosion problems and coastal protection systems.

Content and bibliography

Content for academic year 2024-25

A. TYPES OF WAVES IN THE SEA

Unit 0. Introduction

Unit 1. Description of the climatic agents. Wind and atmospheric pressure at the sea surface

B. WAVES AT SEA

Unit 2. Types of Waves in the Sea. Data Sources

Unit 3. Wave Theories. Classification of the areas in which the waves spread

Unit 4. Shoaling, refraction and diffraction (intermediate waters). The phenomenon of reverse propagation

C. FUNCTION AND MORPHOLOGY OF MARITIME WORKS

Unit 5. ROM Program. General Conditions of the Works

Unit 6. Shelter works, breakwater dykes or breakwaters

Unit 7. Vertical Dikes. Other Type of Dykes

D. DREDGING AND DREDGING

Unit 8. Classification and Characteristics. Classes and Types of Dredges

Unit 9. Transport elements. Organization, performance and control. Costs and prices

E. DIKE DESIGN

Unit 10. Rubble mound

Unit 11. Vertical Dikes

F. COASTS

Unit 12. Coastline. Coastal Law. Coastal Morphology. Coastal dynamics

Unit 13. Sedimentary balance and coastal stability. Defense and Coastal nourishment

G. COASTAL ZONE PLANNING AND MANAGEMENT

Unit 14. Environmental aspects. Environmental Impact Assessment (EIA)

Unit 15. Marine vegetation. Water Quality. European Directive. Repair of Dunnar Areas

Related links

No data

Bibliography

Diseño de diques rompeolas : conceptos generales, comportamiento estructural y funcional, proceso constructivo	
Author(s):	NEGRO VALDECANTOS, Vicente ; VARELA CARNERO, Ovidio
Issue:	Madrid : Colegio de Ingenieros de Caminos, Canales y Puertos, 2008;
ISBN:	978-84-380-0402-9
Category:	Básico

Problemas de ingeniería portuaria y costera	
Author(s):	Aragonés Pomares, Luis
Issue:	San Vicente del Raspeig : Editorial Club Universitario, 2017;
ISBN:	978-84-16966-48-6
Category:	Básico

Problemas de ingeniería marítima	
Author(s):	ARAGONES, Luis ; LÓPEZ, Isabel ; GÓMEZ MARTÍN, Mª Esther
Issue:	San Vicente del Raspeig : Editorial Club Universitario, 2017;
ISBN:	978-84-16966-49-3
Category:	Básico

Ingeniería marítima I	
Author(s):	Aaragonés, Luis
Issue:	San Vicente del Raspeig : Editorial Club Universitario, 2017;
ISBN:	978-84-16966-47-9
Category:	Básico

Beach management tools - Concepts, methodologies and case studies

Author(s):	Botero, Camilo M.
Issue:	Cham : Springer, 2018;
ISBN:	3-319-58304-2 (libro e.)
Category:	Complementario

Shore protection manual	
Author(s):	COASTAL ENGINEERING RESEARCH CENTER (U.S.)
Issue:	New York : Books for Business, 2001;
ISBN:	0-89499-092-6 (v.1) - 0-89499-176-0 (v.2) - 0-89499-099-3 (v.3)
Category:	Complementario

Diseño de diques verticales	
Author(s):	Vicente NegroValdecantos... [et al.]
Issue:	Madrid : Colegio de Ingenieros de Caminos, Canales y Puertos, D. L. 2001;
ISBN:	84-380-0182-3
Category:	Complementario

ROM 1.0-09 : Recomendaciones del diseño y ejecución de las Obras de Abrigo (Parte 1ª. Bases y Factores para el proyecto. Agentes climáticos)	
Author(s):	Losada Rodríguez, Miguel Ángel
Issue:	Madrid : Puertos del Estado, 2010;
ISBN:	978-84-88975-73-7
Category:	Básico

Problemas resueltos de Obras Marítimas	
Author(s):	NEGRO VALDECANTOS, V. ; LÓPEZ GUTIÉRREZ, J. S. y ESTEBAN PÉREZ, M. D.
Issue:	- : Ibergarceta ; Colegio de Ingenieros de Caminos, Canales y Puertos, 2014;
ISBN:	978-84-1545-286-7

Category:	Complementario

Problemas de ingeniería marítima	
Author(s):	ARAGONES POMARES, Luis ; LÓPEZ ÚBEDA, Isabel ; GÓMEZ ÚBEDA, Esther
Issue:	Alicante : 􀀃Ramón􀀃 Torres 􀀃Gosalvez􀀃, 2016;
ISBN:	978-84-945090-2-5
Category:	Básico

Guía técnica de estudios litorales : (manual de costas)	
Author(s):	Peña Olivas, José Manuel de la
Issue:	Madrid : Colegio de Ingenieros de Caminos, Canales y Puertos, 2007;
ISBN:	9788438003428
Category:	Complementario

Guía de buenas prácticas para la ejecución de obras marítimas	
Author(s):	Puertos del Estado (España)
Issue:	[Madrid] : Puertos del Estado, 2008;
ISBN:	978-84-88975-68-6
Category:	Básico

Directrices para la caracterización del material dragado y su reubicación en aguas del dominio público marítimo-terrestre	
Author(s):	Comisión Interministerial de estrategias marinas
Issue:	[Madrid] : -, 2015;
ISBN:	-
Category:	Complementario

Rom 0.0 : procedimiento general y bases de cálculo en el proyecto de obras marítimas y portuarias Parte I	
Author(s):	Losada Rodríguez, Miguel Ángel

Issue:	Madrid : Puertos del estado, 2001;
ISBN:	84-88975-30-9
Category:	Básico

ROM 0.5-05, Recomendaciones geotécnicas para obras marítimas y portuarias	
Author(s):	Puertos del Estado
Issue:	Madrid : Puertos del Estado, 2006;
ISBN:	978-84-88975-52-2
Category:	Básico

ROM 0.4-95, Acciones Climáticas para el Proyecto de las Obras Marítimas y Portuarias (II): Viento	
Author(s):	Puertos del Estado
Issue:	- : Ministerio de Fomento, 1995;
ISBN:	-
Category:	Básico

Basic coastal engineering	
Author(s):	Sorensen, Robert C.
Issue:	New York : Springer, 2010;
ISBN:	978-0-387-23333-8
Category:	Complementario

Obras Marítimas	
Author(s):	ESTEBAN CHAPAPRÍA, Vicente
Issue:	- : Universidad Politécnica de Valencia, 2004;
ISBN:	9788497057134
Category:	Complementario

Random seas and design of maritime structures	
Author(s):	GODA, Yoshimi

Issue:	- : Tokyo Press. Yokohama University. World Scientific, 2010;
ISBN:	9789814282406
Category:	Complementario

Water wave mechanics for engineers and scientists	
Author(s):	DEAN, Robert G. y DALRYMPLE, Robert A.
Issue:	Singapore : World Scientific , 1991;
ISBN:	9789810204211
Category:	Complementario

Problemas de ingeniería marítima II	
Author(s):	LÓPEZ ÚBEDA, Isabel ; ARAGONÉS POMARES, Luis ; PAGÁN CONESA, José Ignacio
Issue:	Alicante : Editorial Club Universitario, 2019;
ISBN:	978-84-17577-47-6
Category:	Básico

Assessment

Assessment procedures and criteria 2024-25

"The theoretical / practical work done must be original. The detection of copy or plagiarism will qualify as "0" in the test corresponding. The Department's management and the EPS will be informed about this incident. The reiteration in the conduct in this or other subject will entail the notification to the corresponding vice-rector of the faults committed so that they study the case and sanction according to the legislation (Regulation of academic discipline of the Official Centers of Higher Education and of Technical Education dependent of the Ministry of National Education BOE 12/10/1954)."

There will be 2 theoretical-practical tests throughout the course: one in the partial (20%) and another in the final (50%). Both are recoverable in the extraordinary call of July. It is necessary to obtain a minimum grade of 3.5 over 10.0 to compensate both in a weighted way.

There will be 3 compulsory computer practices that will weigh a total of 10% (3x33,33%). The qualification obtained in the IT practices won't be recoverable in the extraordinary call and will only be saved during the academic year.

A group work will be done with oral exposure of the same weighted to 10%. The grade obtained in the work is only recoverable in 5% that will be the work and will only be saved during the academic year.

Recoverable classroom practices will be performed, which will weigh 10% of the final grade.

Students who obtain in the partial test and / or the final test a grade lower than 3.5 points out of 10 will be able to recover it in the extraordinary exam in July. As well, students who do not reach a weighted final grade greater than or equal to 5.0 out of 10.0.

There will only be an examination with all the contents of the subject in the extraordinary call, which will consist of a theoretical part and another practice (problems), each having a weight of 50% and 50% respectively. In this extraordinary examination it is required to obtain a minimum grade equivalent to 3.5 out of 10 in each part to compensate both.

Description	Criteria	Type	Weighting system
DELIVERY OF WORK (NOT RECOVERABLE)	A delivery and oral presentation of the group work at the end of the semester (1x10%). Mandatory attendance on exhibition days. Unrecoverable	ACTIVITIES OF EVALUATION DURING THE SEMESTER	20
PRACTICES WITH COMPUTER (RECOVERABLE)	Three informatics practices of compulsory attendance on practical aspects to be developed by the student. It is mandatory to submit the 3 reports on the practical issues raised, which will be evaluated. Recoverable.	ACTIVITIES OF EVALUATION DURING THE SEMESTER	10
CLASSROOM PRACTICES (RECOVERABLE)	Classroom practices will be conducted throughout the semester with delivery and evaluation. Recoverable.	ACTIVITIES OF EVALUATION DURING THE SEMESTER	20
Theoretical-practical test (RECOVERABLE)	It includes contents not evaluated in the partial assessment of continuous assessment. It is necessary to obtain a minimum grade of 3.5 over 10.0 to compensate with the partial. The theory assumes 50% and problems 50%. It is recoverable in the extraordinary exam July.	FINAL TEST	50

Official exam dates for academic year 2024-25

Exam session	Date	Time	Group - Classroom(s) allocated	Comments
(C2) Periodo ordinario para asignaturas de primer semestre	22/01/2025			Teoría
(C4) Pruebas extraordinarias para asignaturas de grado y máster	26/06/2025			Teoría

Academic staff

ARAGONES POMARES, LUIS
Lecturer responsible

THEORY CLASS: Groups: 1
FIELD WORK PRACTICALS: Groups: 1
PROBLEM PRACTICALS / WORKSHOP: Groups: 1
COMPUTER PRACTICALS: Groups: 1

LOPEZ UBEDA, ISABEL

THEORY CLASS: Groups: 2
FIELD WORK PRACTICALS: Groups: 2
PROBLEM PRACTICALS / WORKSHOP: Groups: 2
COMPUTER PRACTICALS: Groups: 2

Groups

THEORY CLASS

Group	Semester	Morning or afternoon session	Language	No. of enrolled students	
Gr. 1 (THEORY CLASS) : 1	1S	Afternoon	Spanish	10	▪ Allowed DEGREE IN CIVIL ENGINEERING ▪ Allowed VISITING STUDENT NO EEES ▪ Allowed INTERNATIONAL MOBILITY PROGRAMME
Gr. 2 (THEORY CLASS) : 2 ENG	1S	Morning	English	0	▪ Allowed VISITING STUDENT NO EEES ▪ Allowed INTERNATIONAL MOBILITY PROGRAMME

FIELD WORK PRACTICALS

Group	Semester	Morning or afternoon session	Language	No. of enrolled students	
Gr. 1 (FIELD WORK PRACTICALS) : 1	1S	Morning	Spanish	10	▪ Allowed INTERNATIONAL MOBILITY PROGRAMME ▪ Allowed VISITING STUDENT NO EEES ▪ Allowed DEGREE IN CIVIL ENGINEERING
Gr. 2 (FIELD WORK PRACTICALS) : 2 ENG	1S	Morning	English	0	▪ Allowed INTERNATIONAL MOBILITY PROGRAMME ▪ Allowed VISITING STUDENT NO EEES ▪ Allowed DEGREE IN CIVIL ENGINEERING

PROBLEM PRACTICALS / WORKSHOP

Group	Semester	Morning or afternoon session	Language	No. of enrolled students	
Gr. 1 (PROBLEM PRACTICALS / WORKSHOP) : 1	1S	Afternoon	Spanish	10	▪ Allowed INTERNATIONAL MOBILITY PROGRAMME ▪ Allowed DEGREE IN CIVIL ENGINEERING ▪ Allowed VISITING STUDENT NO EEES
Gr. 2 (PROBLEM PRACTICALS / WORKSHOP) : 2 ENG	1S	Morning	English	0	▪ Allowed DEGREE IN CIVIL ENGINEERING ▪ Allowed VISITING STUDENT NO EEES ▪ Allowed INTERNATIONAL MOBILITY PROGRAMME

COMPUTER PRACTICALS

Group	Semester	Morning or afternoon session	Language	No. of enrolled students	
Gr. 1 (COMPUTER PRACTICALS) : 1	1S	Afternoon	Spanish	10	▪ Allowed DEGREE IN CIVIL ENGINEERING ▪ Allowed VISITING STUDENT NO EEES ▪ Allowed INTERNATIONAL MOBILITY PROGRAMME
Gr. 2 (COMPUTER PRACTICALS) : 2 ENG	1S	Morning	English	0	▪ Allowed DEGREE IN CIVIL ENGINEERING ▪ Allowed VISITING STUDENT NO EEES ▪ Allowed INTERNATIONAL MOBILITY PROGRAMME

Timetables

THEORY CLASS

Group	Start date	End date	Day	Start time	End time	Lecture room
1	09/09/2024	20/12/2024	MAR	15:00	17:00	A2/E13
2	09/09/2024	20/12/2024	JUE	08:00	10:00	0015P1061

FIELD WORK PRACTICALS

Group	Start date	End date	Day	Start time	End time	Lecture room
1	11/10/2024	11/10/2024	VIE	08:00	12:00	9901CALLE
1	22/11/2024	22/11/2024	VIE	08:00	11:30	9901CALLE
2	11/10/2024	11/10/2024	VIE	08:00	12:00	9901CALLE
2	22/11/2024	22/11/2024	VIE	08:00	11:30	9901CALLE

PROBLEM PRACTICALS / WORKSHOP

Group	Start date	End date	Day	Start time	End time	Lecture room
1	10/09/2024	10/09/2024	MAR	17:00	19:00	A2/E13
1	24/09/2024	24/09/2024	MAR	17:00	19:00	A2/E13
1	22/10/2024	22/10/2024	MAR	17:00	19:00	A2/E13
1	05/11/2024	05/11/2024	MAR	17:00	19:00	A2/E13
1	05/11/2024	05/11/2024	MAR	19:00	20:00	A2/E13
1	19/11/2024	19/11/2024	MAR	17:00	19:00	A2/E13
1	03/12/2024	03/12/2024	MAR	17:00	19:00	A2/E13
1	17/12/2024	17/12/2024	MAR	17:00	19:00	A2/E13
2	12/09/2024	12/09/2024	JUE	10:00	11:00	0015P1061
2	19/09/2024	19/09/2024	JUE	10:00	11:00	0015P1061
2	26/09/2024	26/09/2024	JUE	10:00	11:00	0015P1061

Group	Start date	End date	Day	Start time	End time	Lecture room
2	17/10/2024	17/10/2024	JUE	10:00	11:00	0015P1061
2	17/10/2024	17/10/2024	JUE	11:00	12:00	0015P1061
2	24/10/2024	24/10/2024	JUE	10:00	11:00	0015P1061
2	24/10/2024	24/10/2024	JUE	11:00	12:00	0015P1061
2	07/11/2024	07/11/2024	JUE	10:00	11:00	0015P1061
2	07/11/2024	07/11/2024	JUE	11:00	12:00	0015P1061
2	14/11/2024	14/11/2024	JUE	11:00	12:00	0015P1061
2	14/11/2024	14/11/2024	JUE	10:00	11:00	0015P1061
2	21/11/2024	21/11/2024	JUE	11:00	12:00	0015P1061
2	21/11/2024	21/11/2024	JUE	10:00	11:00	0015P1061
2	19/12/2024	19/12/2024	JUE	10:00	11:00	0015P1061
2	19/12/2024	19/12/2024	JUE	11:00	12:00	0015P1061

COMPUTER PRACTICALS

Group	Start date	End date	Day	Start time	End time	Lecture room
1	01/10/2024	01/10/2024	MAR	17:00	19:30	0016PB064
1	12/11/2024	12/11/2024	MAR	17:00	19:30	0016P1003
1	26/11/2024	26/11/2024	MAR	17:00	19:30	0016PB064
2	03/10/2024	03/10/2024	JUE	10:00	12:30	0015P1061
2	31/10/2024	31/10/2024	JUE	10:00	12:30	0015P1061
2	28/11/2024	28/11/2024	JUE	10:00	12:30	0015P1061