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	[GMA303] S	STATISTICS					
	GENERAL IN	FORMATION					
Studios DECREE IN ME		Subject		20			
Studies DEGREE IN ME		Subject Montion / Field of					
Semester DACIC TRAININ		specialisation					
	G Madality Face to face	Leneurone		OTELL			
	Modality Face-to-face	Language	EUSKARA/CA	ASTELL	ANO .		
Credits 6	Hours/week 4	I otal hours	72 class hours	s + 78 r	ion-clas	ss hours :	= <u>150 tota</u>
	2030 AGEN	DA GOALS	<u>ineure</u>				
ECENT WORK AND O NOUSIRY INVIATION	2030 AGEN	DA OUALO					
	PROFE	SSORS					
FRAILE SANTAMARIA ITZI	AR						
	OR IA						
			05				
			GE				
Subje	ects		Knov	vledge		0	
		(/	No previous kn	owieag	e requii	rea)	
	LEARNING	RESULTS					
	<u> </u>		<u> </u>	KC	SK	AB	ECTS
SMR202 - 10 solve mathematical pr	roblems that may arise in engineering	ng. Ability to apply kn	owledge			x	5,4
3-RTR1 - To develop interdisciplina	ry projects specific to their specialty	and of gradual com	olexity, -		x		0,36
becoming aware of respect for hum	nan rights and fundamental rights, a	ind analyzing and ass	essing the				
mpact of the proposed solutions or	the SDGs - to acquire and/or appl	y basic, advanced an	d/or				
with a high degree of autonomy	ing to work in multidisciplinary team	is and/or undertake it	inther studies				
3-RTR2 - To express information, ic	leas and the arguments that suppo	rt them in an orderly,	clear and		x		0,24
oherent manner, orally and in writi	ng, based on quality information, se	elf-made or obtained	from different				
sources, using inclusive and non-di	scriminatory language						
						Total:	6
C: Knowledge or Content / SK: Skills / AB:	Abilities						
ENAEE LEARNING RESULTS							
ENA101 - Knowledge and compreh	ension: Knowledge and understand	ding of mathematics a	and other basic	scienc	es inhe	rent in th	em
Engineering speciality, at a level the	at allows them to acquire the other	competencies of the	degree.				
ENA103 - Knowledge and compreh	The ability to analyse complex prod	lucts processes and	uneering.	ir fiold c	fetudy	· choose	and annly
relevant analytical, calculation and	experimental methods in a suitable	e way; and correctly in	nterpret the res	sults of s	such ar	alyses.	and apply
ENA106 - Engineering projects: Abi	ility to project, design and develop	complex products (pa	rts, componen	ts, finisl	hed pro	ducts, et	c.),
	an ality which most the established			of the	social, l	health an	d cofoty
processes and systems of their spe	eciality, which meet the established	requirements, includ	ing awareness				a salety,
processes and systems of their spe environmental, economic and indu	strial aspects, as well as selecting a	I requirements, includ and applying appropri	ing awareness ate project me	thods.			u salety,
processes and systems of their spe environmental, economic and indu: ENA111 - Practical application of er	strial aspects, as well as selecting a ngineering: Understanding of the ap	I requirements, includ and applying appropri oplicable techniques a	ing awareness ate project me and methods fr	thods.	is, desi	gn and re	search ar
processes and systems of their spe environmental, economic and indu- ENA111 - Practical application of er their limitations in the field of their s	strial aspects, as well as selecting a ngineering: Understanding of the ap speciality.	I requirements, includ and applying appropri oplicable techniques a	ing awareness ate project me and methods fr	thods.	is, desi	gn and re	search ar
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					Superior	
Tutoring sessions and monitoring of training activities			,75 h.	,75 h.	1,5 h.	
EVALUATION SYSTEM	w	MAKE-UP MECHANI	SWS			
Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems Comments: Continuous evaluation. FEEDBACK received tutor and the experts in the project follow-up meetings	100%	Comments: Continuo tutor and the experts in	(No mecha ous evaluation the project fo	anisms) . FEEDBACK Illow-up meetir	received from t ngs	the
CH - Class hours: 1,5 h. NCH - Non-class hours: 1,5 h. TH - Total hours: 3 h.						
1RGM293 (1 sem)						
LEARNING ACTIVITIES			СН	NCH	тн	
Development and writing of records, reports, presentation projects/work experience/challenges/case studies/experim individually, and/or in teams	s, audiovis nental inve	sual material, etc. on stigations carried out	,75 h.	,75 h.	1,5 h.	
Tutoring sessions and monitoring of training activities			,75 h.	,75 h.	1,5 h.	
EVALUATION SYSTEM	w	MAKE-UP MECHANI	SWS			
Reports on the completion of exercises, case studies	100%	WARE-OF MECHANI	(No mecha	nisms)		
computer exercises, simulation exercises, laboratory		Comments: Continuo	us evaluation	. FEEDBACK	received from t	the
exercises, term projects, challenges and problems		tutor and the experts in	the project for	llow-up meetir	ngs	
Comments: Continuous evaluation. FEEDBACK received	from the					
tator and the experts in the project follow-up meetings						
CH - Class hours: 1,5 h.						
TH - Total hours: 3 h.						
1RGM294 (1 sem)						
·						
LEARNING ACTIVITIES			СН	NCH	TH	
Carrying out/resolving projects/challenges/cases, etc. to p	rovide sol	utions to problems in	1 h.	1 h.	2 h.	
Tutoring sessions and monitoring of training activities	iy anu/or ii	liteans	1 h.		1 h.	
EVALUATION SYSTEM	W	MAKE-UP MECHANI	SMS			
computer practical work, simulation practical work.	50%	Comments: Continuo	(IVO mecha)	FEEDBACK	received from t	the
laboratory practical work, term projects, end of degree		tutor and the experts in	the project for	llow-up meetir	ngs	
project, master's thesis, challenges and problems						
Observation (technical capacity, attitude and participation)	from the					
tutor and the experts in the project follow-up meetings	nom me					
CH - Class hours: 2 h						
NCH - Non-class hours: 1 h.						
TH - Total hours: 3 h.						
1RGM292 (1 sem)						
LEARNING ACTIVITIES			СН	NCH	тн	
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Course: 2024 / 2025 - Course planning



Carrying out/resolving projects/challenges/cases, etc. to provide solutions to problems in ,75 h. ,75 h. 1,5 h. interdisciplinary contexts, real and/or simulated, individually and/or in teams ,75 h. ,75 h. Tutoring sessions and monitoring of training activities 1,5 h. w **EVALUATION SYSTEM** MAKE-UP MECHANISMS Presentation and defence of exercises, case studies, 20% (No mechanisms) computer practical work, simulation practical work, Comments: Continuous evaluation. FEEDBACK received from the laboratory practical work, term projects, end of degree tutor and the experts in the project follow-up meetings project, master's thesis, challenges and problems Self-assessment 50% Observation (technical capacity, attitude and participation) 30% Comments: Continuous evaluation. FEEDBACK received from the tutor and the experts in the project follow-up meetings CH - Class hours: 1,5 h. NCH - Non-class hours: 1,5 h. TH - Total hours: 3 h.

Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints Carrying out/resolving projects/challenges/cases, etc. to provide solutions to problems in interdisciplinary contexts, real and/or simulated, individually and/or in teams Computer simulation exercises, individually and/or in teams	2 h.	4 h.	6 h.	
Carrying out/resolving projects/challenges/cases, etc. to provide solutions to problems in interdisciplinary contexts, real and/or simulated, individually and/or in teams Computer simulation exercises, individually and/or in teams				
Computer simulation exercises, individually and/or in teams		20 h.	20 h.	
	2 h.		2 h.	
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	2 h.		2 h.	
Comments: The simulation exercises are carried out using the latest version of MATLAB softw	/are.			
EVALUATION SYSTEM W MAKE-UP MECHANIS	MS			
Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems 67% Individual written and/or coding/programming test coding/programming tes	Individual written and/or oral tests or individual coding/programming tests Comments: The evaluation of the semester project will be			
Individual written and/or oral tests or individual 33% continuous and is based on the meetings that the teams w with the tutors and experts. One week before the final deliver to identify the as				
Comments: The 33 % of the grade will be evaluated with an individual practice. The rest with the technical grade of the project. The vork will be analyzed together to identify the aspetise improved and communicated to the team. The final version report with the corrected aspects to be improved will be the report with the corrected aspects to be improved will be the report.				
CH - Class hours: 6 h. NCH - Non-class hours: 24 h.				

LEARNING ACTIVITIES			СН	NCH	тн
Carrying out/resolving projects/challenges/cases, etc. to pro interdisciplinary contexts, real and/or simulated, individually	lutions to problems in in teams	,75 h.	,75 h.	1,5 h.	
Tutoring sessions and monitoring of training activities			,75 h.	,75 h.	1,5 h.
EVALUATION SYSTEM	W	MAKE-UP MECHANI	SMS		
Presentation and defence of exercises, case studies, computer practical work, simulation practical work, laboratory practical work, term projects, end of degree project, master's thesis, challenges and problems	20%	Comments: Continuo tutor and the experts in	<i>(No mecha</i> ous evaluatior the project fo	anisms) n. FEEDBACK bllow-up meeti	received from the ngs
Self-assessment	50%				
Observation (technical capacity, attitude and participation) Comments: Continuous evaluation. FEEDBACK received fit tutor and the experts in the project follow-up meetings	30% rom the				





CH - Class hours: 1,5 h. NCH - Non-class hours: 1,5 h. TH - Total hours: 3 h.

LEARNING ACTIVITIES			СН	NCH	ТН
Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints			2 h.	3 h.	5 h.
Carrying out/resolving projects/challenges/cases, etc. to interdisciplinary contexts, real and/or simulated, individual		10 h.	10 h.		
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects			6 h.		6 h.
Carrying out exercises and solving problems individually	and/or in te	eams	9 h.	8 h.	17 h.
EVALUATION SYSTEM	W	MAKE-UP MECHANISM	IS		
Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	26%	Individual written and/or oral tests or individual coding/programming tests Comments: The evaluation of the semester project will be			ect will be
Individual written and/or oral tests or individual coding/programming tests Comments: 74 % of the grade will be evaluated with an	74% individual	74% continuous and is based on the meetings that the teams will with the tutors and experts, and one week before the final de the report, the work will be analyzed together to identify the analyzed together t			teams will have he final delivery entify the aspec
test. The rest with the technical grade of the project. report with the corrected aspects to be improved will be recovery.				Il version of the vill be the	
CH - Class hours: 17 h. NCH - Non-class hours: 21 h.					

RGM206 [!] Comprende y utiliza el concepto de probabilidad. Conoce los teoremas de los espacios probabilísticos y los utiliza para analizar y predecir resultados de un experimento aleatorio

LEARNING ACTIVITIES			СН	NCH	ТН
Conducting tests, giving presentations, presenting defend checkpoints	2 h.	4 h.	6 h.		
Presentation by the teacher in the classroom, in participa procedures associated with the subjects	6 h.	2 h.	8 h.		
Carrying out exercises and solving problems individually and/or in teams			9 h.	5 h.	14 h.
EVALUATION SYSTEM	W	MAKE-UP MECHANISN	IS		
Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	25%	Individual written and/or oral tests or individual coding/programming tests Comments: First test 25%, second if necessary 75%.			
Individual written and/or oral tests or individual coding/programming tests	75%				
CH - Class hours: 17 h. NCH - Non-class hours: 11 h. IFH - Total hours: 28 h.					

RGM207 [!] Comprende y utiliza las principales distribuciones de variables aleatorias, di	scretas y con	ntinuas	
LEARNING ACTIVITIES	СН	NCH	тн



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Course: 2024 / 2025 - Course planning



Conducting tests, giving presentations, presenting defend checkpoints	ces, taking	examinations and/or doi	ing ^{2 h.}	6 h.	8 h.
Computer simulation exercises, individually and/or in teams				2 h.	4 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects			10 h.		10 h.
Carrying out exercises and solving problems individually Comments: The simulation exercises are carried out using the second s	and/or in to ng the late	eams st version of MATLAB so	10 h. oftware.	7 h.	17 h.
EVALUATION SYSTEM	W	MAKE-UP MECHAN	ISMS		
Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	25%	Individual written and/or oral tests or individual coding/programming tests Comments: First test 25%, second if necessary 75%.			75%.
Individual written and/or oral tests or individual coding/programming tests	75%				
CH - Class hours: 24 h. NCH - Non-class hours: 15 h. TH - Total hours: 39 h.					

CONTENTS

1. Descriptive statistics

Frequency tables Centralisation and dispersion parameters Statistical graphs with computer support

2. Probability

Counting theory Basic concepts. Definition of Probability Total Probability Theorem and Bayes Theorem.

3. Random variable

Probability distribution and density function Mathematical expectation, mean standard deviation Discrete random variables. Bernoulli, Binomial, Poisson, discrete uniform Continuous random variables. Normal, Central Limit Theorem, Exponential, Uniform Continuous.

4. Statistical inference

Point estimators, confidence interval estimation. Statistical theory of decision making

5. Linear regression

LEARNING RESOURCES AND BIBLIOGRAPHY					
Learning resources	Bibliography				
Moodle Platform Technical articles Class presentations Slides of the subject Video projections Computer practical training Subject notes Lab practical training	Gurrutxaga, Itziar. Estatistika. Elhuyar Aguirre, Elena. Estatistikaren Oinarriak (Ariketak). Udako Euskal Unibertsitatea. Navidi, W. C. Estadística para ingenieros y científicos. (McGraw-Hill: 2006) Walpole, R. E., Myers, R. H. & Myers, S. L. Probabilidad y estadística para ingenieros, 6a. ed. (Prentice Hall:) MONTGOMERY, D. C. & RUNGER, G. C. Probabilidad y estadística aplicadas a la inegeniería. (McGraw-Hill:) CAO, R. et al. Introducción a la estadística y sus aplicaciones. (Ediciones Piramide: 2001) Cuadras, C. M. Problemas de probabilidades y estadística VOL. 1. (PPU:) Soler, D. Probabilidad y Estadística. Mondragon Unibertsitateko Zerbitzu editoriala.				