Fie	ld of study	y Oceanotechnika Specialisation Ocean Engineering								
Cour	rse unit tit	le			Env	ironment	al Protect	ion		
Cour	se unit co	de	Year of st	udy	Sem	ester	Number al	of ECTS credit located	יד	ype of course
			1			1		1		
Plann	ned learni	ng	Lecture	Tutorial	s Lat	oratory	Project	Semi	nar	Sum
teach	ing metho	u bds	45	15		0	0	0		60
Name	of lecture	er(s)			Roma	n Liberacki,	Zbigniew G	órski		
Learning outcomes of the course unit	The student lists environmental hazards associated with the operation of ships and other technical objects operating at sea. The student lists the most important conventions for the protection of the marine environment. The student lists the environmental equipment used on ships. The student describes the construction of environmental protection equipment such as oil separator from bilge water, sewage treatment plant, waste incinerator. Student mentions ways of disposing of living organisms in ballast water. A student discusses ways to reduce emissions to the atmosphere. The student selects the devices for the prevention of the marine environment. The student describes the principles of safe bunkering of fuels and oils on board. The student describes the procedures and design ways to prevent oil spillages from tankers and drilling platforms.									
Prereq and co	juisites)- ites	No	requirements.							
Course contents	Environmental hazards associated with the operation of ships and other technical objects operating at sea. The most important conventions for the protection of the marine environment (MARPOL, HELCOM). Construction, working principles and the methods of selecting the environmental protection equipment used on ships (oil separator from bilge water, sewage treatment plant, waste crambler and waste incinerator). Methods of disposing of living organisms in ballast water and selection of appropriate method for the ship. Principles of safe bunkering operations on the vessels and the technical means to prevent oil spills during these operations. Design solutions and procedures to be followed for safe operation of crude oil tankers and drilling platforms. Seminar: Selected problems of environmental management in the construction and repair of ships and ocean engineering units. The role and scope of interference of Classification Societies in maintaining the technical condition of units under their supervision. Systems inspection and repairs preventive and control. Ways to maintain the quality of hull corrosion protection. Environmental aspects in the rehabilitation and construction of ships and ocean engineering. Legal aspects of ecological docking process. Special Issues implementation of selected processes in the course of repairs. The seminar - drafting and review of the impact of work-related corrosion protection hull of the marine environmental aspects.									
	Basic lite	eratur	e							
commended and requiered reading	Basic literature1)Kaniewski E., Tymański S.: Ochrona środowiska. Gdynia, WSM, 1987. 2) Małaczyński M.: Ochrona środowiska morskiego przed zanieczyszczeniami ze statków. PG, Gdańsk, 1980. 3) Wiewióra A.: Ochrona środowiska morskiego w eksploatacji statków. WSM, Szczecin, 1999 r. 4) International Convention for the Prevention of Pollution from Ships MARPOL 73/78. 5) Konwencja o ochronie środowiska morskiego obszaru Morza Bałtyckiego. 6) PRS: Przepisy klasyfikacji i budowy statków morskich.7)A. Matuszak-Flejszman- Benefits of Environmental Management System in Polish Companies Compliant with ISO 14001 – Polish J. of Environ. Stud. Vol. 18, No. 3 (2009), 411-419; 8)Environmental management- The ISO 14000 family of International Standards; 9)www.epa.gov/sectors/sectorinfo/sectorprofiles/shipbu" EMS Implementation Guide for the Shipbuilding and Ship Repair Industry and 10) Findings and Recommendations on Lean Production and Environmental Management Systems in the Shipbuilding and Ship Repair Sector.									
Re	Supplem	entai	ry literature							
	No requ	iirem	ents.	• •	•				.	<i>6</i> 1 1
As	ssesment		Course	passing criter	na m	Passing 1	nreshold	Percenta	ige of the	e final grade
me	criteria		Power no	int presenta	tion	10	,,,,, 0%		50%	
			po			10			20,0	

Fie	ld of study	1	0	ceanotechn	ika	Spe	Specialisation Ocean Engineering					
Cour	rse unit tit	le			Marin	e and Inter	modal Tra	ansport				
Cour	se unit coo	de	Year of st	udy	Se	mester	Number	of ECTS cre located	edit	Type of course		
			1			T		5				
Plan	ned learniı ivities and	ng I	Lecture	Tutoria	s L	aboratory	Project	:	Seminar	Sum		
teach	ing metho	ds	30	15		-	-		30	75		
Name	of lecture	r(s)				Mirosła	w Gerigk					
Learning outcomes of the course unit	The learning outcomes of the course unit regarding the marine transport is to obtain the knowledge on the definitions, infrastructure, means and systems of the marine and intermodal transport. The first main part of the knowledge given to the students is connected with the infrastructure divided to marine transport infrastructure and intermodal transport infrastructure. The second main part concerns the means of transport concerning mainly the seagoing ships and inland ships including the intermodal means of transport. The third part is associated with the marine transport and intermodal transport systems. The final part of the course concerns the complex problems connected with the marine and intermodal transport.											
Prerequisites and co- requisitesA student should have a good level of general knowledge on the marine and intermodal transport including the infrastructure, means and systems. The knowledge on the general issues of transportation logistics, theory of systems, theory of safety, mathematical modeling, etc. are very important, too.								l transport of transportation ortant, too.	١,			
Course contents	The contents of the course are as follows: - marine and intermodal transport in development of economy, - definitions of the marine and intermodal transport, - system of marine and intermodal transport, system elements and interrelations between the elements, - infrastructure of the marine transport, - infrastructure of the intermodal transport, - means of marine transport (seagoing ships), - means of intermodal transport (inland ships, railway, road means of transport), - marine and intermodal transport systems including the management systems and safety assessment systems, - complex approach to solve the problems concerning the marine and intermodal transport,											
Recommended and requiered reading	Basic lite 1. Rydz naukowe 2. Kryst Wydawe Supplem 1. Jędrze 1999, 20 2. Matul Logistył 3. Niziń	eratur zkow e PW tek R nictw entar ejcza 002, 2 lewsl ki i N ński S	e ski W., Wojewó /N Sp. z o.o., War 2. et al. Zintegrov /a Komunikacji i ł y literature k Z. et al. Badania 2004. ki M. et al. Systen Jagazynowania, P S. et al. Logistyka	dzka-Król. szawa 1997 vany systen Łączności sp a operacyjne ny logistycz 'oznań 2008 dla inżynien	K. Transı , 2000, 20 1 bezpiecz D. z o.o., W e w przykła ne, kompo rów. Wyda	ort. Problem 05, 2009. eństwa trans arszawa 200 dach i zadan nenty, działa wnictwa kon	ny transport portu. Tom 9. iach. Wydav nia, przykłac nunikacji i Ł	u w rozs: I, II i III, vnictwo N ly. Bibliota ączności s	zerzonej Politech aukowe I eka Logis	UE. Wydawnic nika Gdańska 20 PWN SA, Warsza styka, Instytut Warszawa 2011	ztwo 009, awa	
A: me	ssesment thods and criteria	I	Course	passing crite	ria	Passing	threshold	Per	centage o	of the final grade		

Fie	ld of study		0	ceanotechni	chnika Specialisation Ocean Engineering					
Cour	rse unit title	è		Marine	Applied	nformatio	cs, CAE an	d Design To	ols I	
Cour	se unit code	e	Year of st	udy	Sem	lester	Number al	of ECTS credit located	т	ype of course
			1			1		5	-	MSc
Plan	ned learning	g	Lecture	Tutorial	s Lal	ooratory	Project	sen Sen	ninar	Sum
teach	ing method	ls	30			30				
Name	of lecturer	(s)			A.Kniat, J.	Kapcia, R. S	złapczyński	, T. Niksa		
student formulates algorithms to solve simple engineering problems student understands structural and object oriented programming student implements algorithms in a programming language student implements events handling in a window system student solves equations in Matlab student defines and solves optimization problems in Matlab										
and co- requisites proficiency in using PC computer, completed course of Mathematics for mechanical engineers										ers
Course contents	PROGRAI Progr Dialog File sy MATLAB: Solvin Vecto Interp Optim Graph Impor	MM amn am (g wit yster yster ng ec ors a poolat nizat nizat	ING: ning language syr design phases: alg th user : comman m (files & streams quation systems, nd matrices proce tion and approxin tion, esults presentatio g and exporting da	tax, orithm, imp d line, windo): types of f essing, nation, n: two and t ata.	lementatio bws interfac iles and stre	n, debuggin; :e, :ams, openii :sional grapl	g, ng, searchin ns,	g, reading/wr	iting, clo	sing.
	Basic liter	atur	e							
Recommended and requiered reading	Moler C., Petzold C Wirth N., Suppleme	Nu C., Pr Alg	merical Computin rogramming Winc orithms + Data St ry literature	g with MatL ows, Micros ructures = P	ab, Copyrig oft rograms, Pr	ht 2004, Cle entice Hall	ve Moler			
A	ssesment		Course	bassing criter	ia	Passing t	hreshold	Percent	age of th	e final grade
me	ethods and criteria									

Fie	ld of study	,	0	ceanotechni	ika	9 	pecialisa	tion	Ocea	an Engir	neering
Cour	se unit titl	e	-	Water	al Er	ngineering &	Ivianut	acturing	lechnolo	ogy	
Cour	se unit cod	le	Year of st	udy		Semester	N	umber of EC allocate	TS credit ed	Ocean Engineering chnology credit Type of course Seminar Sum - 60 I for shipping and ocean shipbuilding and ocean ng their production and ndustry. Student describes exact measurements as well poratory. arine engineers g in the closest decades. sering materials. The modern s use. Maraging steels . Duples alloys. Cobalt and cobalt alloys or plasticity alloys. Hard . Carbon materials. Ceramic tigations for marine licrostructures investigation of estructive (NDT) methods of ne technology. Investigation 18. Wiley-Vch, Verlag GmbH & design. published by Elsevie	ype of course
			1			1		6			
Plan	ned learnir	ng	Lecture	Tutorial	s	Laboratory	F	Project	Semi	nar	Sum
teach	ing metho	ds	30	-		30		-	-		60
Name	of lecture	r(s)				Dr hab. inż	M. Jaku	bowski			
The student describes new and technological advanced structural materials designed for shipping and ocean objects. Student names basic kinds of new structural materials It exchanges the for shipbuilding and ocean technology as well as their properties. Student explains basic physical principles during their production and processing. Student describes principle of acceptance of these materials applied in industry. Student describes principle their selection for ship and offshore structures. Student makes the safe and exact measurements as well as opinions of new structural materials dedicated for ocean and ship structures in laboratory.											
Prerect and co requis	luisites)- ites	Bas	sic knowledge of s	ubject: Mat	erials	Science for Nav	al Archi	tectures &	Marine en	gineers	
Course contents	The mos Historica material steels. C Alloys Cr magneti material technolo LABORA Microstr duplex s investiga of new a	t ess al de s for Copp r - Ni c ma s. Su pgy. TOR ructu teels ation	sential tasks to ac velopment of eng marine techniqu er alloys. Alloys o - N. Zinc, lead, tin aterials. Metallic g oper hard materia Y ures investigation s. New cast alloys in engineering. inium alloys for m	nievement b ineering ma e as well as f f aluminium n and their a lasses. Elect s. Composit of structural designed fo Investigatio arine techno	by mat terials their of and r lloys. ronic es. Th l ferrit r ship n of t ology.	terial science ar s. Prognosis of o development {S magnesium. Tita The metals with materials. Supe he present meth tic-martensitic a propellers. App itanium"s and t	d mater levelopn tructural n shape i rconduc ods of n nd mara lication tanium	ial enginee nent of eng steels of m and titaniu memory. Su tive materia naterials inv nging steels of new non alloys for m	ring in the ineering n nass use. N m alloys. C uper plasti als. Carbon vestigatior . Microstru - destructi harine tech	closest naterial: Aaragin Cobalt a city allo n mater ns for m uctures ve (NDT nology.	decades. s. The modern g steels . Duplex nd cobalt alloys. ys. Hard ials. Ceramic arine investigation of) methods of . Investigation
Recommended and requiered reading	Basic lite 1. RW. C Co, KGaA 2. ASM H 3. Ashby Ltd., 200 Supplement	ratur Cahn A, W Hand y M. 07, 2 entai	e , P. Haasen, E. J. I einheim 2005. Ibook. Volume 1 - ., Shercliff H., Ce 010 ry literature	Gramer: Mat 9. Edited by bon B, Mat	terials ASM terials	s science and te International. engineering, so	chnolog cience, p	7. Volume 2 rocessing a	1 - 18. Wil and design	ey-Vch, publis	Verlag GmbH &
As me	sessment thods and		Course	passing criter	na	Passir 1	g thresh 00.00%	DId	Percenta	ge of the 50.009	e final grade %
	criteria		Midter	m colloquium	า	e	0.00%			50.000	%

ŀ	(ierunek	0	ceanotechnik	a	Spe	cjalność	Oce	an Engir	neering	
Nazw	a przedmioti			esign and	Manufact	uring ree	chhology i	r		
Kod	przedmiotu	Rok studi	ów	Sem. s	tudiów	Liczba	a pkt. ECTS	Ту	/p przedmiotu	
			Oceanotechnika Specjalność Ocean Engineering Design and Manufacturing Technology I udiów Sem. studiów Liczba pkt. ECTS Typ przedmiotu udiów Sem. studiów Liczba pkt. ECTS Typ przedmiotu 1 3 MSC vo. Lab. Pr. Sem. Suma 15 15 - - 45 Wojciech Litwin							
Meto	dv nauczania	Wyk.	Ćw.		Lab.	Pr.	Sei	m.	Suma	
		15	15		15	-			45	
odpo	wiedzialny/a				Wojciech	Litwin				
 Student know and describe base manufacture technology's like forging, casting and machining. Student know, describe, calculate and is able to draw a rivet, different kinds of welding and screw coupling. Student is able to conduct a calculations of shafts and axles coupling. Student know, describe, calculate and is able to draw a different types of journal connections with hub. Student know, describe and is able to choose from catalogue different types of clutches. Student know, describe, calculate and is able to draw different kinds of sliding and ball bearings. Student understand differences between them and know main advantages and disadvantages. Student know, describe different types of gears. Student is able to prepare a drawings and conduct calculations. Student know how to use gears catalogue and choose proper type. Student recognize axial and planetary gears and is able to prepare drawings, know the limitations and advantages and disadvantages. Student know belt and chain drives. Student is able to conduct some calculations and prepare sketches. Student know ship shafting constructions and describe propulsion main parts like propeller, shafts, bearings, 										
Efekty ksz	Student know ship shafting constructions and describe propulsion main parts like propeller, shafts, bearings, clutches, sealings etc. Laboratory: Student recognize and describe main types of machine tools. Student is able to mount and dismount simple machines. Design: Student is able to design machine like gear etc. and conduct necessary calculations. Student is able to use CAx systems in practice. Wymagania On first semester – design in 3D CAX (NX Siemens software – licence available on Faculty)									
Wymagania wstępne i dodatkowe On first semester – design in 3D CAX (NX Siemens software – licence available on Faculty) Image: Complexity of the semester of the semister of the semester of the semister of t								e Hall; 8 edition		
Zalecana lista	Robert L. N Jack A. Co edition (O Literatura u	Norton: Machine De Ilins, Henry R. Busby Ctober 19, 2009) Izupełniająca	sign; ce Hall; /, George H. S	; 5th editio Staab: Me	n (2013) chanical Des	ign of Mac	hine Elements	and Ma	achines; Wiley; 2	
Meto	ody i kryteria ceniania	Kryteria od	eniania składo	we	Próg zalicz	zeniowy	Procent skł	adowej o	oceny końcowej	

K Nazwa	lierunek a przedmio	otu	0	ceanotechnika	eanotechnika Specjalność Ocean Engineering Marine Renewable Energies I						ering
Kod	przedmio	tu	Rok studi	ów	Sem. s	tudiów	Liczb	a pkt. E	ECTS	Тур	przedmiotu
			1	-		1		3		71	MSc
Mata	d		Wyk.	Ćw.		Lab.	Pr.		Sem.		Suma
wieto		IIId	30	-		15	-		-		45
odpov	wiedzialny	/a			Pro	f. dr hab. ir	nż. C. Dymar	ski			
Efekty kształcenia/uczenia się przedmiotu	Student wymienia postacie energii odnawialnej występujące w środowisku morskim, możliwe do komercyjnego pozyskiwania. Opisuje charakterystyczne cechy każdej z wymienionych postaci energii pod względem możliwości jej pozyskiwania. Wymienia stosowane dotychczas metody pozyskiwania wymienionych postaci energii. Potrafi rozróżnić i opisać te metody w zależności od sposobu pozyskiwania i rozwiązania konstrukcyjnego systemu Potrafi dokonać ogólnej oceny możliwości i efektywności stosowanych dotychczas metod pozyskiwania energii Potrafi także dostrzec i ocenić przewidywany wpływ poszczególnej metody na środowisko naturalne magania Mechanics Fundamentals of Electrotechnics										
Wymagania wstępne i dodatkowe Mechanics Fundamentals of Electrotechnics											
Treści przedmiotu	Forms Energy Wind Methoo other e regulat Tidal a Wave p recipro Marine turbine The pri Compa their in	of e of ener ds o quip ion nd c pow ocati e win es, g incip urisc npac	nergy in the m currents, tides rgy. Solar energy f obtaining the poment for proce and security . current power p er - coastal site ng or rotary pis nd turbines mo enerators , and ple of operation on of the effection	arine environ , wave and a gy se types of e essing and tr blants with tu ed and offsho ston motors a unted on sup control meth n of power p veness and to mment.	nment p lso diffe nergy: t ansmiss urbines i ore, floa and with porting nods . lants usi he varic	ossible fo rences of ypes of tu ion of ene n ducts of ting, surfa linear, r structures ng tempo us charac	r commerce water terr arbines or overgy; types r loose . ace, underwort otating or s erected a erature or a eteristics li	cial a pperat other s of ge water oscill nd flo salini sted p	cquisition ture and sa engines, u enerators a , with turb lating gen oating wit ty differen power plan	alinity used g and m oine ar erator h diffe nces o nt with	ears and ethods of nd s. erent types f the water. h respect to
Zalecana lista lektur	 their impact on the environment. Literatura podstawowa Krzyżanowski W.: Turbiny wodne. Konstrukcja i zasady regulacji. WNT Warszawa 1971 Wolańczyk F.: Elektrownie wiatrowe. Wydawnictwo KaBe. Krosno 2009 Bernhoff H., Sjosttedt E., Leijon M.: Wave energy resources in shelterd sea areas: A case study of the Baltic Sea. The Fifth European Wave Energy Conference, 17-20 September 2003, In Cork, Ireland Przepisy towarzystw klasyfikacyjnych, w tym PRS i DNV Literatura uzupełniająca http://www.renewableenergyworld.com/rea/home "Analysis of Wind Energy in the EU-25" (PDF). European Wind Energy Association. Retrieved 2007-03-11. Tidal power (PDF) retrieved 2010-03-20 										
Meto o	dy i krytei ceniania	ria	Kryteria oo	eniania składow	ve	Próg zal	iczeniowy	Pr	ocent składo	wej oce	ny końcowej

i											
Subject name	Power Transmission	Power Transmission Systems									
Subject code	O:096080										
Faculty	Department of Marir	ne Mechatronics									
Course name	Ocean Engineering										
Learning area				_			_				
Learning profile				Study y	/ear		1				
Type of subject	Obligatory			Study s	emester		1				
Study level	Full-time studies pos	stgraduate studie	es	ECTS			5				
ECTS details		Activity			gk	pw					
	Lecture				30						
	Excerciese				30						
	Laboratories				15						
	Consulation				10						
	Lecture studies					40					
	Sum				85	40					
	Parameter ECTS				25	25					
	ECTS components				3,4	1,6					
	ECTS sum				5						
Name of lecturer	prof. dr hab. inż. Cz mgr inż. Tomasz Pa	nof. dr hab. inż. Czesław Dymarski ngr inż. Tomasz Pająk									
	mgr inż. Jędrzej Żywicki										
	prof. dr hab. inż. Czesław Dymarski										
Subject objectives											
Learning outcomes	Course outcome		Subject out	come			Me	thod •	of veryfication		
	K_U01										
	K_U09										
	K_U11										
	K_U12										
	K_W04										
	K_W13										
	K_W14										
Mode of delivery	at the university										
Prerequisites											
Recommended components											
Subject contents											
Recommended and required reading	Required reading Recommended rea	ading									
Planned learning	Lecture	Exercise	Laboratory		Project	S	emina	r l	Sum		
activities	30	30	15		0		0		75		
	W tym nauczanie na	odleałość: 0.0	1 -	1		I		I			
Assesment methods and	Subject passing criteria Passing threshold Percentage of the fina grade							ntage of the final grade			
criteria						0.0			0.0		
	Frankla isovac (. d						
Language of	Polish	example quest	ions / tasks c	ompiete	ea						
work placement	пот аррисаріе										

Subject name	inance and Economy in Engineering Design									
Subject code	O:096100									
Faculty	Department of Energy and Industrial Apparatus									
Course name	Ocean Engineering									
Learning area	technical sciences									
Learning profile	general academic profile	Study y	'ear		1					
Type of subject	Obligatory	emester		2						
Study level	Full-time studies postgraduate studies	ECTS			3					
ECTS details	Activity		gk	pw						
	Lecture		15							
	Excerciese		30							
	Consulation		2							
	Lecture studies			6						
	Excerciese preparation			6						
	Test preparation			8	_					
	Final test preparation			8						
	Sum		47	28						
	Parameter ECTS		25	25						
	ECTS components		1,88	1,12						
	ECTS sum			3						
Name of lecturer	dr inż. Aleksandra Wiśniewska dr inż. Aleksandra Wiśniewska									
Subject objectives	The aim of the course is to acquaint students with modern methods of project management, supervision of them for the use of practical tools for project management and the achievement of the business objectives of the project. The issues of strategic project management, financial aspects of project management, organization and planning of the project, methods of team management and communication in project management are discussed during the course. The course should prepare students for effective participation in the team projects.									

Learning outcomes	Course outcome	Subject outcome	Method of veryfication
	К_К08	The student correctly identifies and resolves dilemmas related to the profession of engineer assesses the risks and able to assess the effects of the activity in the field of engineering profession. The student has an awareness of his own limitations and knows when to ask the experts	[SW1] Assessment of factual knowledge [SU2] Assessment of ability to analyze information [SK4] Assessment of communication skills
	К_К12	The student has a sense of the weight of social attitudes and personal qualities: teamwork, fair play, applying the principles of fair play, conscientiousness in work, responsibility, strength of purpose.	[SK1] Assessment of group work skills [SK4] Assessment of communication skills [SU1] Assessment of task fulfilment [SK3] Assessment of ability to organize work
	K_U11	The student can assess the suitability of methods and tools for solving engineering tasks involving the construction and operation of facilities and equipment of ocean, and recognize their limitations and choose and apply the right method and tools to solve complex design tasks associated with the economic analysis and financial control of the project.	[SW1] Assessment of factual knowledge [SU4] Assessment of ability to use methods and tools [SU3] Assessment of ability to use knowledge gained in the different modules [SK5] Assessment of ability to resolve work-related problems
	K_W10	The student has knowledge of the prospects for the development of facilities and equipment of ocean, and understand the new, the most important achievements in the field of Ocean. The student has extensive knowledge in the natural sciences possible an assessment of the design objects interact with their surroundings.	[SW1] Assessment of factual knowledge [SU4] Assessment of ability to use methods and tools [SU3] Assessment of ability to use knowledge gained in the different modules [SK5] Assessment of ability to resolve work-related problems [SU2] Assessment of ability to analyze information
	K_W12	The student has the mathematical knowledge relating to the description and analysis of the operation of machinery and equipment, as well as the associated technical processes, mastering the basics of diagnostics of technical equipment and security systems.	[SW1] Assessment of factual knowledge [SU4] Assessment of ability to use methods and tools [SU3] Assessment of ability to use knowledge gained in the different modules
Mode of delivery	at the university		
Prerequisites			
Recommended components			

Subject contents	1. Engineering Ecc transactions, invol loss of purchasing	pnomic: Establishin Iving interest, equi power.	g Economic Equiva valence calculation	alence, Interest: Th s, interest formula	ne cost of money, t is, nominal and eff	the elements of ective interest rates,				
	2. Measures of Pro rate of return ana	oject Worth: descri lysis, accept/reject	bing project cash f decision rules, mu	lows, present wort itually exclusive alt	h analysis, annual ternatives.	equivalent method,				
	3. Cash and Flow	Projections: operat	ing profit - net inc	ome, tax treatmen	t, effects of inflatio	on.				
	4. Sensitivity and	4. Sensitivity and Risk Analysis: project risk, risk analysis, expected value and variance, decision rule.								
	5. Design Economics: capital costs vs. operating costs, minimum-cost function									
	6. Project manage team building, pro	ment: Engineers, j ject control, estim	projects, managem ation and contracti	nent, planning and ing.	scheduling, staffin	g and organizing,				
	Exercises:									
	1. Team building: types of personality, effectiveness of the team.									
	2. Project Manage	ment: WBS, Gantt	, Earned Value Met	chod, Critical Path I	Method, risk mana	gement.				
Recommended and required reading	Required reading Peterson, S. J. Palmer, W., Pa Management" Pilcher, R., "Pi Gibson, C. H., Brigham, E. F. Dryden Press, PMBOK Recommended r Dell'Isola, A. " ", MRS. Means Kelly, J., Male Parker, D. E., Foundation, W Kumar, S., "Va Publishing Hou Barrie, D. S. a	g . "Construction Acco almer, W. J., Coom , McGraw Hill, New <i>inciples of Constru</i> <i>"Financial Stateme</i> , Gapenski, L. C. a 1999. eading Value Engineering: S. and Graham, D <i>"Management Apple</i> (ashington D.C., 199 alue Engineering: A use, 2004. nd Paulson, B. C.,	ounting and Finance bs, W. E. and Smir York, 1999. Section Management ent Analysis" Inter- nd Erhardt, M. C., Practical Applicat. 97. D. "Value Managem lication of Value Er 994. A Fast Track to Pro	cial Management", th, K. A., "Construct ", McGraw-Hill, 19 national Thomson F "Financial Manage ions for Design, Co nent of Construction agineering: For Bus fit Improvement an struction Manageme	Prentice Hall, New ction Accounting an 92. Publishing, 1998. ment: Theory and onstruction, Mainte onstruction, Mainte n Projects" Blackw siness and Govern nd Business Excelle ent", McGraw-Hill,	PYork, 2004. <i>Practice"</i> , The <i>nance and Operations</i> ell Sciences, 2004. <i>ment"</i> , The Value <i>ence"</i> , Narosa 1992.				
Planned learning	Lecture	Exercise	Laboratory	Project	Seminar	Sum				
activities	15	30	0	0	0	45				
	W tym nauczanie	na odległość: 0.0								

Assesment methods and	Subject passing criteria	Passing threshold	Percentage of the final grade					
criteria	Final test	49.0	100.0					
	Example issues / example questions / tasks completed 1. Team Building: Types of Personalities (2x2h), 2. Effectivness of the Team (2x2h). 3. Project Management: WBS (2x2h), 4. Gantt (1x2h), 5. Earned Value Method (2x2h), 6. Project's Nets 1&2 Method (Critical Path Method) (3x2), 7. Risk Management (2x2h).							
Language of instructions	English							
Work placement	Not applicable							

Field of study Oceanotechnika Specialisation Ocean Engineering							g			
Cou	rse unit tit	le		Mode	lling and	Simulatio	n in Ocea	n Engineerir	g	
Cour	se unit coo	de	Year of st	udy	Sem	ester	Number al	of ECTS credit located	Type of	course
			1			2		4	obliga	atory
Plan	ned learni	ng	Lecture	Tutorials	Lab	oratory	Project Sem		nar	Sum
act teach	ivities and ing metho	l ods	30	-		30	-	-		60
Name	of lecture	r(s)								
Learning outcomes of the course unit	student is able to explain mathematcal modelling role, student is able to formulate mathematical modelling principles, student is able to apply mathematical modelling methods,									
Prerequisites Knowledge of mathematics fundamentals and co- requisites Image: Co- requisites										
Course contents	Mathem Modellin Modellin	natica ng, M ng, R	al Modelling Princ 1athematical Moc andom Process N	iples, Inverse lel Equivalenc lodelling, Ma	e Problem ir ce, Paramet thematical	n Physics, N er Estimatio Model Sens	lodel Classi on, Model V itivity	fication, Lineari 'alidation, Distr	zation, Empir ibuted Param	ical .eter
	Basic lite	ratur	e							
and requiered ling	1.	Bab Uni of S Smi B.P	oatunde A. Ogun versity Press , O Signal and Syster ith P.: Mathema .: Signal Process	maike, W. 1 xford, New ns Analysis, tical Techni ing and Line	Harmon R York, 1994 Oxford Un iques, Oxfo ear Systems	ay: Proces d, 2. Coope niversity Pr ord Univer s, Berkeley	s Dynamic er G.R., Mo ess, Oxfor sity Press, Cambridge	s, Modelling, c Gillem C.D.: d, New York, Oxford, New e Press, 1998	and Contro Probabilistic 1999, 3. Jor York, 1998,	ol, Oxford c Methods dan D.W., 4. Lathi
ded read	Supplem	enta	ry literature		<u>au ~</u>		D 1 1 1 2	1.5	a	
Recommen	 Paulo S R. Diniz, Eduardo A.B. da Silva, Sergio L. Netto: Digital Signal Processing, System Analysis and Design, Cambridge University Press, 2002 									
A	ssesment		Course	passing criteria	а	Passing t	hreshold	Percenta	ge of the final	grade
me	thods and	I	Midt	erm colloqia		50	1%		50%	
	criteria			test		50	1%		50%	

Fiel	ld of study		Oceanotechnika Specialisation Ocean Engineering								eering
Cour	rse unit title	e			R	Reliability, Safety	and Risk An	alysis	l		
Cour	se unit cod	e	Year of st	udy		Semester	Number a	r of ECT llocated	'S credit d	Ту	pe of course
			1			2		3			MSc
Plann	ned learnin	g	Lecture	Tutorial	s	Laboratory	Projec	t	Semir	nar	Sum
teach	ing metho	ds	30	15		-	-		-		45
Name	of lecturer	·(s)				Roman I	iberacki				
Learning outcomes of the course unit	The stud applicati simple an of assess Student operatio	ent on c nd c sing disc n. St	defines the term of basic mathem omplex structure the probabilities usses the proced cudent presents w	s of reliabilit atical mode s. Student d of human ures and te vays to redu	ty, saf ls in iscuss error: chnica ce the	ety and risk. The reliability studies es the criteria for s. The student us al means taken to e negative effects	student ide The stude acceptable ses the me ensure saf of the accid	ntifies nts cal risk lev thods p fety du ents at	and expla lculate th vel. The st prescribed ring the s sea.	ains the e reliat udent u d in the ships ar	e reasons for the pility indexes of uses the method e FSA and QRA. nd their systems
and co	ites	NO I	equirements								
Course contents	The main Empirica Risk and criteria f safety as security sea.	n te l ind reli or a sses duri	rms of reliability lexes of reliability ability analysis o cceptable risk. Th sment (FSA). Qu ng the operation	and safety. . Basic math f technical s e human fa antitative sa of ships an	Relial semat systen ctor a afety d the	bility of simple an ical models for te ns. The terms of nd the risk. Meth analysis (QRA). F ir systems. Ways	nd complex sting the re safety and ods of asse Procedures to reduce t	object liability risk. R ssing h and te he neg	ts. Physica and safe tisk as a r uman err echnical n gative effe	al aspect ty of co measure or prob means t ects of	cts of reliability. mplex systems e of safety. The abilities. Formal taken to ensure the accidents at
Recommended and requiered reading	Basic lite 1. Brande 2. Melr 3. Moda 4. Swain Applicati 5. IMO (f Supplem No regiu	eratu owsl nick arres A.E ons. VISC eenta rem	ire ki A.: Nauka o bez E.: Encycloped M.: What Eve D., Guttman H.E. Final Repor <u>66/INF.8): A met</u> ary literature ents	pieczeństwi Jia of Qu ry Engineer : Handbook t, prepare hodology fo	e. Pol antita Shou of H ed f r form	it. Warszawska 19 ative Risk Anal uld Know about Iuman Reliability for U.S. Nuck nal safety assessm	993. ysis and Reliability Analysis w ear Regul ent of shipp	Assess and F ith Em atory bing. 19	iment. V Risk Anal Iphasis or Commis 996.	/iley 8 ysis. No n Nucle	& Sons. 2008. ew York, 1993. ear Power Plant August, 1983.
As	ssesment		Course	passing criter	ria m	Passing	threshold		Percentag	ge of the	e final grade
me	criteria		whater	Reports		10	0%			50%	

ŀ	Kierunek		00	ceanotechni	ka	Spe	cjalność		Ocea	n Engin	neering
Nazw	a przedmio	tu		D	esign and	Manufact	uring Teo	chnol	ogy II		
Kod	przedmiot	u	Rok studi	ów	Sem. s	tudiów	Liczb	a pkt. E	ECTS	Ту	p przedmiotu
			I			2		3			MSC
Meto	dy nauczan	ia	Wyk.	Ćw.		Lab.	Pr.		Sem		Suma
Wieto			-	-		-	45		-		45
odpo	wiedzialny/	/a				Wojciech	Litwin				
	Lecture a	and p	ractice:								
	Student l	know	and describe bas	se manufact	ure technol	ogy's like for	ging, casti	ng and	l machinin	ig.	ounling
	Student i	know is able	e to conduct a ca	lculations o	f shafts and	a rivet, differ avles counlir	rent kinds (ng	or weig	ang and s	crew co	oupling.
Э	Student k	know	describe calcul	ate and is al	ble to draw	a different ty	nes of iou	rnal co	nnections	with h	ub
nio	Student l	know	, describe and is	able to cho	ose from cat	alogue diffei	rent types (of clut	ches.		
zedi	Student k	know	, describe, calcul	ate and is al	ole to draw	different kind	ds of sliding	g and l	ball bearir	ngs. Stu	dent
5 br	understa	nd di	fferences betwe	en them and	d know mair	advantages	and disad	vantag	ges.		
a sie	Student l	know	, describe differe	ent types of	gears. Stude	nt is able to	prepare a	drawir	ngs and co	onduct	calculations.
Student know how to use gears catalogue and choose proper type. Student recognize axial and planetary gears and is able to prepare drawings, know the limitations and advantages											
Student know how to use gears catalogue and choose proper type. Student recognize axial and planetary gears and is able to prepare drawings, know the limitations and advantages and disadvantages. Student know holt and chain drives. Student is able to conduct some calculations and propers sketches											
enia	Student k	know	.ages. belt and chain d	rives Stude	nt is ahle to	conduct son	ne calculati	ions ar	nd nrenar	a skatri	hes
tatce	Student l	know	ship shafting co	nstructions a	and describe	e propulsion	main parts	like p	ropeller, s	hafts.	bearings.
kszt	clutches,	seali	ngs etc.					- 1-	, -	,	0.,
ikty	Laborato	ory:									
Efe	Student r	recog	nize and describ	e main type	s of machine	e tools. Stude	ent is able	to moi	unt and di	smoun	t simple
	machines	s.									
	Design:	ic abl	la ta dasiga mach	nina lika gan	rate and e	nduct naco	sany calcul	ations	Student	ic abla	to use CAy
	systems i	is abi	actice	inte like gea			saly calcul	ations	. Student	is able	to use CAX
Wyma	agania	On fi	rst semester – de	sign in 3D C	CAX (NX Si	emens softw	are – licen	ce ava	ilable on H	Faculty)
wstęp	ne i										
uouau	1.	Lectu	ire and practice:								
	1.1.	Forgi	ng, casing and m	nachining in	machine de	esign.					
	1.2.	Coup	ling. Riveting, we	elding, screv	vs. Shaft cou	pling.					
	1.3.	Slidin	ig bearings. Type	s, calculatio	ns.						
_	1.4.	Rolle	r bearings. Types	, calculatior	IS.						
liott	1.5. 1.6	Gears	s. Types, calculat	ions.							
edm	1.0.	Belt a	and chain gears.	ai 5.							
brz	1.8.	Ship s	shafting. Shafts, I	pearings, se	alings.						
eści	2.	Laboı	ratory:								
μ	2.1.	Mach	nining (turning, m	nilling, drillir	ig, szlifierka						
	2.2.	Coup	ling (glue, weldin	ng, screw, riv	/eting) – sar	nple prepara	tions by st	udent	s.		
	2.3. 2 4 ∸2 8	Coup Dism	ounting and mou	is. Inting of ma	chines 1 ÷ 5						
	3.	Desig	in:								
		Durir	ng a semester stu	idents cond	uct one bigg	er or two sm	aller desig	n exer	cises.		
	Literatura	pods	stawowa	·	F 11 1		-6.84				
iktu	iviernyle	н. Sp 1. 2и п	DOTTS, TERRY E. S	moup, Lee	ь. Hornberg	er, Design	ot Machin	e Elen	nents; F	rentice	e Hall; 8 edition
ta le	Bobert L. Norton: Machine Design: ce Hall: 5th edition (2013)										
a list	Jack A. C	ollins	, Henry R. Busby	, George H.	Staab: Me	chanical Des	ign of Mac	hine E	elements a	and Ma	chines; Wiley; 2
cana	edition (0	Octob	ber 19, 2009)				-				
Zale	Literatura	uzup	ełniająca								
Meto	ody i krvteri	ia	Kryteria oc	eniania skład	owe	Próg zalic	zeniowy	Pr	ocent skład	dowej o	ceny końcowej
0	ceniania	-									

k	Kierunek	0	ceanotechnika	s d Offek ere St	pecjalność	Ocea	an Engir	neering
Nazwa	a przedmiotu		Marine a	nd Offshore Sy	stems and	Equipmen		
Kod	przedmiotu	Rok studi	ów	Sem. studiów	Liczba	pkt. ECTS	Ту	p przedmiotu
		1		2	 T	3		IVISC
Meto	dy nauczania	Wyk.	Ćw.	Lab.	Pr.	Sen	n.	Suma
		30	-	15	-	-		45
odpo	wiedzialny/a	-		Prof. dr hab.	nż. C. Dymarsł	ki 🛛		
Efekty kształcenia/uczenia się przedmiotu	Student wyn Student opis Potrafi rozr Student potr oceanotechr Potrafi także	nienia podstawowe sy suje funkcje i zasadę o óżnić odmiany konstr rafi dobrać rodzaj poć nicznego (offschore). e wyznaczyć podstawo	stemy i urządzen działania i rozmie ukcyjnych rozwią lstawowych syste owe parametry teo	ia okrętów i obiektów eszczenie tych system ązań poszczególnych mów i niezbędne wy chniczne dobranego s	v oceanotechnicz ów na statku luł systemów i wyn posażenie dla ok ystemu lub urzą	znych. o określonym ob nienić istotne ce creślonego typu dzenia.	piekcie. echy każc statku lu	dego z nich. b innego obiektu
Wyma wstępi dodati	agania M ne i Po kowe	lechanika odstawy konstrukcji	maszyn					
Treści przedmiotu	The func of ships a 1 Moorir catenary 2 Steerin thrusters 3 Handlir 4 Emerge 5 Ramp, 6 Fire, ba 7 Special 8 Dynam	tions, principles and ocean engine ag and anchor, w systems. ng systems with ng with different ency and rescue cargo port, wate allast, bilge and o lized and technol ic Positioning S	of operation vering objects ith the tendor various types design soluti rtight doors, I other systems ogical equipt ystems	and the determi including: ns chain, rope, v of rudders and ions and propuls hatches. etc. ment, including:	nation of ess vire rope – c steering gea sion and con drilling, mi	ential equip hain; tension r; bow thrus trol systems ning and oth	oment a n, sem sters an s of the her	and systems i tension and ad azimuth ese devices
Zalecana lista lektur	Literatura p 1. Subra 2. Youn 3. Przep Literatura u 1. Cudn 2. Perep 3. Paw 4. Stryc 5. Szela pływa	vodstawowa ita K. Chakrabarti: I g Bai, Qiang Bai; S pisy towarzystw klas zupełniająca y K.: Linie wałów c peczko A.: Okrętowa licki K.: Elemen zek S.: Napęd hydro ngiewiczT.: Podstaw ających. Okrętownio	Handbook of O ubsea Engineeri yfikacyjnych, v krętowych. Kor urządzenia ste ty dźwignic. statyczny. Elen wy teorii projek xtwo i Żegluga,	ffshore Engineerin ing. Hamdbook. El v tym PRS i DNV nstrukcja i obliczer rowe. PWN, Warszaw nenty i układy. WN towania kotwiczny Gdańsk 2003	g. New York 2 sevier New Yo ia. Wydawnic a, 1982 T Warszawa ch systemów U	2005 ork 2012 two Morskie, (Jtrzymywania	Gdansk, pozycji	1990. jednostek
Meto o	ody i kryteria oceniania	Kryteria oc	eniania składow	e Próg za	liczeniowy	Procent skła	idowej o	ceny końcowej

Fie Cour	ld of study rse unit tit	y :le	0	ceanotechni Marine	ika • Applied I	Specialisation Ocean Engineering Informatics, CAE and Design Tools II						
Cour	se unit co	de	Year of st	udy	Sen	nester	Number al	of ECTS credit located	Ту	pe of course		
			2			3		5		MSc		
Plan	ned learni	ng	Lecture	Tutoria	s La	boratory	Project	Semi	nar	Sum		
act teach	tivities and ing metho	d Sds	15	-		45	-	-		60		
Name	of lecture	er(s)		C	. Żrodowski	. K. Niklas. P.	Dvmarski.	P. Flaszvński				
Student builds geometric models of real objects for numerical analysis Student exports different forms of discretized models to a FEA program Student understands and applies boundary conditions and loads to the model Student performs FEM calculations Student visualize and assesses results of FEM calculations												
Prerect and co requis	Prerequisites and co- ??? requisites											
Course contents	Exercisi • • • • •	ng nc crea calc opti prot para mar real	ivel strength analy itive design conce ulations results as mization totyping ametric design of hufacturing and lif istic visualizations	ysis, fatigue pts sessment series of pro e-cycle anal	and CFD so oducts ysis	ftware studei	nts will gaiı	n practice in:				
and requiered ing	Basic lite	nic an	ę id on-line manuals	s for NX, Cre	eo-Parametr	ic, Finemarin	e, ANSYS, I	Fluent, NASTRA	N			
ded ead	Supplementary literaturę											
Recommend	Recommend											
A	ssesment		Course	passing criter	ria	Passing th	reshold	Percenta	ge of the	final grade		
me	ethods and criteria	ł										

Kierunek Oceanotechnika Specjalność Ocean Engineering Nazwa przedmiotu Marine Renewable Energies II						sp Renewa	ecjalność Ible Energ	gies	Ocean	Engine	eering
Kod	przedmio	tu	Rok studi	ów	Sem. s	tudiów	Liczb	a pkt.	ECTS	Тур	przedmiotu
	•		1			2		5			MSc
Moto	dy paucza	nia	Wyk.	Ćw.		Lab.	Pr.		Sem.		Suma
IVIELO	uy naucza	IIId	15	-		-	45		-		45
odpov	wiedzialny	//a			Pro	f. dr hab. in	iż. C. Dymars	ski			
Efekty kształcenia/uczenia się przedmiotu	Student v pozyskiv Opisuje Wymien Potrafi r Potrafi c Potrafi t	wymie wania char nia ste ozró doko zakże	enia postacie energi a. akterystyczne cec osowane dotychc żnić i opisać te mo nać ogólnej oceny dostrzec i ocenić	i odnawialnej wy hy każdej z wy zas metody po etody w zależn y możliwości i e przewidywany	ystępujące mieniony zyskiwani ości od sp efektywno / wpływ po	w środowis ch postaci e a wymienic osobu pozy ści stosowa oszczególne	ku morskim energii pod v onych postac vskiwania i ro nych dotych ej metody na	, możl wzglęc ci ener ozwią: nczas i a środ	liwe do kom dem możliw rgii. zania konstr metod pozy owisko natu	iercyjn ości jej rukcyjn skiwan iralne	ego pozyskiwania. iego systemu iia energii
Wyma wstępi dodatł	Wymagania Mechanics vstępne i Fundamentals of Electrotechnics Iodatkowe Farma of energy in the marine environment possible for commercial convisition										
Treści przedmiotu	Forms Energy Wind Method other e regulat Tidal a Wave p recipro Marine turbine The pr Compa their in	of e of ener ds o quip ion nd c pow ocati e win es, g incip arisc npac	nergy in the m currents, tides gy. Solar energy f obtaining the oment for proce and security . current power p er - coastal site ng or rotary pis nd turbines mo enerators , and ple of operation on of the effection	arine environ , wave and a gy se types of e essing and tr blants with tr ed and offsho ston motors unted on sup control meth n of power p veness and to mment.	nment p llso diffe energy: t cansmiss urbines i ore, float and with oporting hods . lants usi the vario	possible fo rences of tu on of ene ing, surfa linear, r structures ng tempe us charac	r commerce water tem rbines or of ergy; types r loose . ace, underv otating or s erected a erature or s teristics li	cial a operation other of g water oscil nd fl salini sted	equisition ture and s engines, u generators r, with turk llating gen oating with ity differe power pla	alinity alinity used g and m bine a bine a bine a bine a th diff nces o nt wit	y. gears and nethods of and rs. Ferent types of the water. th respect to
Zalecana lista lektur	Literatur 1. Kr 2. Wo 3. Be Sea 4. Prz Literatur 1. 2. 3.	a poc zyża: olańc rnho a. Tl zepis a uzu http "A1 Ret <u>Tid</u>	Istawowa nowski W.: Turbi zyk F.: Elektrown ff H., Sjosttedt E ne Fifth European y towarzystw klas pełniająca ://www.renewable nalysis of Wind rrieved 2007-03 <i>al power</i> (PDF	ny wodne. Kor nie wiatrowe. V ., Leijon M.: V Wave Energy yfikacyjnych, <u>eenergyworld.c</u> <u>1 Energy in t</u> 3-11. (), retrieved 2	nstrukcja i Wydawnic Wave ener Conferen w tym PF com/rea/ho the EU-2 2010-03	zasady reg two KaBe. gy resource ce, 17-20 S S i DNV <u>ome</u> <u>5"</u> (PDF)	ulacji. WNT Krosno 2009 es in shelter eptember 20 . Europeat	² Wars 9 d sea 003, In n Wi	szawa 1971 areas: A ca n Cork, Irela nd Energy	se stud nd 7 Asso	ly of the Baltic
Meto o	ody i kryte ceniania	ria	Kryteria oo	eniania składov	ve	Próg zali	czeniowy	Pı	rocent składo	owej oc	eny końcowej

Field of study Oceanotechnika Specialisation Ocean Engineering						neering				
Cour	rse unit titl	le			Ship and	Offshore Po	wer System	s Design I		
Cour	se unit coo	de	Year of st	udy	Se	emester	Number	of ECTS credit	עד (ype of course
			1			2		4		MSc
Plan	ned learnir	ng	Lecture	Tutoria	ls L	aboratory.	Project	: Semi	nar	Sum
act teach	ivities and	ds	30	-		15	-	-		45
Name	of lecture	r(s)			Bom	an Liberacki [amian Boc	hoński		
Name	or lecture	(3)			Konna	an Liberacki, L		пензкі		
Learning outcomes of the course unit	The stud systems selects s gas fuel system, electricit	dent on p stean syste bilge ty an	uses available co platforms . The stu n boilers. The studer em , starting air st water system, d heat supply sys	mputer pro udent sets tl dent designs ystem, stear fire fighting tems, auxilia	grams use ne configu s auxiliary n heating s system, ary system	ed in the designation of the systems: cool system. The system. The shydrophore a system, safety system.	gning of the propulsion s ing water sy tudent desi nd sanitary ems and livi	e ship power p system, electric ystem, lubricati gns general shi y water system ng systems for o	lants an ity gene ng oil sy p syster n. The s offshore	d energy supply erating plant and estem, liquid and ns: ballast water tudent designes e drilling plants.
Prerect and co requis	quisites)- ites	Kno	wledge of subject	s: Environm	ental Prot	ection, Propu	lsion and Po	ower Transmisio	on syste	ms.
Course contents	The use Determi plant. Se gas fuel ballast v electricit	of co ning elect syste vater ty an	omputer program the configuration ion of boilers. De em, starting air sy system, bilge wa d heat supply sys	s used in th n of the pro esigning of a ystem, exha ater system, tems, auxilia	e designin pulsion sy uxiliary sy ust gas sys fire fighti ary system	g of ship pow stem. Determ stems: coolin stem, steam h ng system, hy s, safety syste	er plants ar ination the g water sys leating syst drophore a ems and livi	nd energy supple configuration stem, lubricatin em. Designing nd sanitary wa ng systems for t	y syster of elect og oil sy of gener ter syste offshore	ns on platforms. ricity generating stem, liquid and ral ship systems: em. Designing of e drilling plants.
commended and requiered reading	Basic lite 1. Jamro R.:Siłow PRS: Prz www.alf Supplem No reqiu	ratur oż J., nie o episy falava falava enta r urem	e , Wieszczeczyńsk krętowe. PSz, Szc / klasyfikacji i buo al.com; www.imo ry literature ents.	i T.,Swolkie zecin, 1987 dowy statkó .org	ń T.:Projel . 3. Wojno w morskic	ktowanie siło wski W.:Okrę h. Witryny in	wni okręto cowe siłowr ternetowe:	wych. PG, Gda nie spalinowe. C www.manbw.c	ńsk, 19 Żzęść III. com; ww	97. 2. Michalski Gdańsk, 1992. 4. /w.wartsila.com;
Š A:	ssesment		Course	passing criter	ria	Passing	hreshold	Percenta	ge of the	e final grade
me	thods and		Midter	m colloquiu	m	60)%	100%	6 (2 nd se	mester)
	criteria			Project		10	0%	100%	6 (3' se	mester)

Subject name	Project Management												
Subject code	O:096160												
Faculty	Department of Ship	Manufacturing Technology, Qua	lity Syst	ems and M	aterials S	Science							
Course name	Ocean Engineering												
Learning area	technical sciences												
Learning profile	deperal academic pr	ofile	Study y	oar		2							
		ome	Study y	omostor		2							
Type of subject		tereducto studios		emester									
	ruii-time studies pos		ECIS	. 1									
		Activity		gk	pw	-							
	Lecture			30									
	Project			45									
	Consulation			5	25	4							
	Lecture studies			-	25	-							
	Homework creation			00	20	-							
				80	45	-							
	ECTS components 3,2 1,8												
	ECTS sum 5												
		/		5		1							
Name of lecturer	ngr inż. Zbigniew Górski												
Subject objectives	roject Management- scope of the project and its organizational structure. Presentation of the methodology of roject management with its practical application												
Learning outcomes	Course outcome	Course outcome Subject outcome Method of veryfication											
	K_K01	K01 Student is able to think and act in a creative manner, has the ability to learn himself [SK5] Assessment of ability to resolve work-related problems											
	K_W07	Understand project managen and specific expressions • methods characteristic for ea life cycle • Understand t management knowledge ar project scope management Know the project time manage • Know the project cost topics • Know the project selected topics • Know resources management select the project communication r topics • Know the pro- management related topics • stakeholder management Understand the strategic of managem Student is able to distinguish organisation structure. Stud project realisation and prep documentation needed for pro- is worked out by student as evaluation. Student is able to managem	nent relat Know t ich phase he conce eas • selected managem t quality the proj ted topic nanagem oject proo related to imension ent project s ent plans ares spe oject. Pro s well as o use rule	ed dictiona the tools are of a project Master the topics • elected top nent selected curement w the project tages, proj s methods of cification of pict schedurisk project	ect [SK of wor fulle ct	wledge gained in the different dules 2] Assessment of progress of k							
Mode of delivery	at the university												
Prerequisites													
Recommended													
Subject contents	Definition of PROJECT. Rules of project management Project budget, cost control and response for critical situationProject planning and documentation. Management of risk project .Project management process. Project stages:•Initiation,• Planning,• Realizations,• Monitoring and project controlling,• Validation,• Project completion –closing validation .Resume of good project management practice Project: Planning process of project. Individual preparation of project card, project schedule, project costs. Estimation of project risk. Preparation of project specification. Report of chosen project connected with project mile stone. Closing report.												

Recommended	Required reading	1									
reading	A Guide to the Pro	ject Management I	Body of Knowledge	(PMBOK [®] Guide)	–Fifth Editi	on					
	• The Scrum G	Guide™, The Defini	tive Guide to Scrur	n: The Rules of th	e Game, Ju	y 2013					
	• Project Mana 11th Edition	igement: A Systen	ns Approach to Plar	nning, Scheduling,	and Contro	olling, H	larold R. Kerzner,				
	Linking Proje	ect Management to	Business Strategy	Hardcover, Aaror	ı J Shenhar	– Octol	ber 1, 2007				
	PMP Exam P	rep, Eighth Edition	- Updated: Rita's (Course in a Book f	or Passing I	he PMF:	PExam Eighth Edition				
Recommended reading											
	Literature in the Po	olish language:									
	 Michał Trocki, Bartosz Grucza, Krzysztof Ogonek, Zarządzanie Projektami Trevor L.Young "Skuteczne zarządzanie projektami"; Marek Pawlak "Zarządzanie projektami"; Patrick Lencioni "Pięć dysfunkcji pracy zespołowej'; Scott Berkun "Sztuka zarządzania projektami" 										
Planned learning	Lecture	Exercise	Laboratory	Project	Semir	ar	Sum				
activities	30	0	0	45	0		75				
	W tym nauczanie r	na odległość: 0.0									
Assesment methods and	5	Subject passing cri	teria	Passing th	reshold	Perce	ntage of the final grade				
criteria	Midterm colloquiu	m		60.	0		50.0				
	Project			80.	0		50.0				
	Example issues / example questions / tasks completed										
Language of instructions	English										
Work placement	Not applicable										

Fie	ld of study		0 •	ceanotechni	ka Maintan	Spe	cialisation	Oce	an Engir	neering
Cour	se unit code	e	Year of st		Sem	nester	Number al	of ECTS credit	τ _γ	ype of course
			2			3		4		MSc
Plan	ned learning	g	Lecture	Tutorial	s Lal	poratory	Project	Semi	nar	Sum
act teach	ivities and ing method	ds	15	15		15	-	-		4
Name	of lecturer	(s)				Jacek Ru	ıdnicki			
Learning outcomes of the course unit										
Prerequisites and co- reguisites										
Course contents	 The bas Effective Potentia Technic Lube oil maintena 6. Stability basics o misalign Use of t Endosce 	sic fu e Ma al fail cal di ance ance v eva of vibu men therm opic	nctional structures of intenance, the type: ures, causes of failu agnostics as a tool t lysis as an instrume e and contamination :: gearboxes, hydrau luation of the marine ration, data collectio t, analysis of rolling nography for predict examinations of ma	of marine pow s of maintenau ire, conseque o ensure avai ont for conditic control, mach lic systems, t e propulsion u n, data analys element bear rive maintenar rine engines.	er and energy nee strategies nees of failure lability of syst n monitoring t ine wear and bearings, diese nit's mechanie sis, vibration s ngs, analysis ice.	 and risk in m ems. analysing wea el engines cal system by ignature analy of gears and s 	arine power a sampling pri ar modes: the means of vib /sis to diagno gear drives e	and energy syste nciples, fluid prop problems of con ration measurem ose: mass unbala tc.	ms. erty anal taminatic ents and nce, bent	ysis, pro-active on and inadequate their analysis - : shafts,
Recommended and requiered reading	Basic liter 1. D.A. Ta 2. H.D. Mo 3. V. Wow 4. R.W. Ru 5. H. Kapla 6. M.J. Mo Suppleme	atur ylor cGeo k "M uddo an "F oran '	e "Introduction to Mari orge "Marine Auxiliar achinery Vibration: 1 ck "Basic Infrared T Practical Application "Availability Analysis ry literature	ne Engineerir y Machinery", Measurement hermography s of Infrared T :: A Guide to I	ig", Elsevier I Butterworth- and Analysis", I hermal Sensi Efficient Energ	Butterworth-H Heinemann, 2 ", McGraw-Hi Reliabilityweb. ng and Imagir yy Use", Amer	einemann, 20 000. Il Professiona com Press 2 g Equipment Society of M	003. al 1991. 010. t', SPIE Publicati lechanical 1990.	ons 2007	7.
A	ssesment		Course	passing criter	ia	Passing t	hreshold	shold Percentage of the fina		
me	thods and criteria									

Subject name	Engineering Design - group project									
Subject code	O:096190									
Faculty										
Course name	Ocean Engineering									
Learning area										
Learning profile				Study	year		2			
Type of subject	Obligatory			Study s	semester		3			
Study level	Full-time studies po	ostgraduate studie	es	ECTS			2			
ECTS details		Activity			ak	pw				
	Project	,			30	1-				
	Consulation				5					
	Lecture studies					15				
	Sum				35	15				
	Parameter ECTS				25	25				
	ECTS components				1,4	0,6				
	ECTS sum				2					
Name of lecturer										
Subject objectives										
Learning outcomes	Course outcome		Subject out	come			Met	thod (of veryfication	
	K_K01		5						,	
	K_K03									
	K_K04									
	K_K05									
	К_КО6									
	K_K09									
	K_U11									
	K_U12									
	K_U13									
	K_U14									
	K_U15	_								
	K_W06									
Mode of delivery	at the university									
Prerequisites										
Recommended components										
Subject contents										
Recommended and required reading	Required reading Recommended re	ading								
Planned learning	Lecture	Exercise	Laboratorv		Proiect	Se	eminar		Sum	
activities	0	0	0		30		0		30	
	W tym nauczanie n	a odległość: 0.0				I				
Assesment methods and	S	ubject passing cri	teria		Passing	threshold	I F	'ercer	ntage of the final grade	
criteria						0.0			0.0	
	Evample issue (overale	ana / tasta							
Language of	Polish	example quest	ions / tasks co	omplet	ed					
instructions										
Work placement	Not applicable									

k	(ierunek	0	ceanotechnika	s offebore Su	pecjalność	Oce	an Engir	ieering
INd2W								
Kod	przedmiotu	Rok stud	ow	Sem. studiow	Liczba	5 S	Ту	p przedmiotu MSc
-			4					NISC .
Meto	dy nauczani	ia Wyk.	Cw.	Lab.	Pr.	Sei	m.	Suma
		15	-		00			/3
odpo	wiedzialny/	a		Prof. dr hab.	nz. C. Dymars	ski		
Efekty kształcenia/uczenia się przedmiotu	Student wy Student op Potrafi roz Student po oceanotech Potrafi tak	ymenia podstawowe sy visuje funkcje i zasadę zróżnić odmiany konstr trafi dobrać rodzaj pod nnicznego (offschore). że wyznaczyć podstawo	stemy i urządzen działania i rozmie ukcyjnych rozwia lstawowych syste owe parametry te	na okrętow i obiektov eszczenie tych system ązań poszczególnych emów i niezbędne wy chniczne dobranego s	ý oceanotechní ów na statku lu systemów i wy posażenie dla o ystemu lub urz	znych. ib określonym o mienić istotne c kreślonego typu ądzenia.	biekcie. echy każc 1 statku lu	łego z nich. b innego obiektu
Wyma wstępi dodat	ngania M ne i M kowe	Mechanika Podstawy konstrukcji	maszyn					
Treści przedmiotu	The fun of ships 1 Moori catenary 2 Steern thrusters 3 Handl 4 Emerg 5 Ramp 6 Fire, b 7 Specia 8 Dynar	ctions, principles and ocean engine ing and anchor, w y systems. ing systems with s ing with different gency and rescue , cargo port, wate pallast, bilge and o alized and technol nic Positioning S	of operation eering objects ith the tendor various types design solut rtight doors, other systems logical equip	and the determi s including: ns chain, rope, v s of rudders and ions and propuls hatches. s etc. ment, including:	nation of es vire rope – o steering gea sion and con drilling, m	ssential equip chain; tensic ar; bow thru ntrol system ining and ot	pment a on, sem sters an s of the her	and systems i tension and id azimuth ese devices
Zalecana lista lektur	Literatura 1. Subi 2. You 3. Prze Literatura 1. Cud 2. Pere 3. Pav 4. Stry 5. Szel pływ	podstawowa rata K. Chakrabarti: I ng Bai, Qiang Bai; S pisy towarzystw klas uzupełniająca ny K.: Linie wałów o peczko A.: Okrętowo vlicki K.: Elemen czek S.: Napęd hydro angiewiczT.: Podsta vających. Okretownio	Handbook of O ubsea Engineer syfikacyjnych, w okrętowych. Ko e urządzenia ste ty dźwignic. ostatyczny. Eler wy teorii projek ctwo i Żegluga.	offshore Engineerin, ing. Hamdbook. El w tym PRS i DNV nstrukcja i obliczer crowe. PWN, Warszaw nenty i układy. WN towania kotwiczny Gdańsk 2003	g. New York sevier New Y ia. Wydawnio a, 1982 IT Warszawa ch systemów	2005 ork 2012 ctwo Morskie, Utrzymywania	Gdansk, 1 pozycji	jednostek
Meto o	ody i kryteria ceniania	a Kryteria oo	ceniania składow	re Próg za	liczeniowy	Procent skł	adowej o	ceny końcowej

Fie Cour	ld of study rse unit tit	y :le	0	ceanotechni Marine	ika • Applied I	Specialisation Ocean Engineering Informatics, CAE and Design Tools II						
Cour	se unit co	de	Year of st	udy	Sen	nester	Number al	of ECTS credit located	Ту	pe of course		
			2			3		5		MSc		
Plan	ned learni	ng	Lecture	Tutoria	s La	boratory	Project	Semi	nar	Sum		
act teach	tivities and ning methor	d Sds	15	-		45	-	-		60		
Name	oflecture	er(s)		C	. Żrodowski	. K. Niklas. P.	Dvmarski.	P. Flaszvński				
Student builds geometric models of real objects for numerical analysis Student exports different forms of discretized models to a FEA program Student understands and applies boundary conditions and loads to the model Student performs FEM calculations Student visualize and assesses results of FEM calculations												
Prerect and co requis	Prerequisites and co- requisites											
Course contents	Exercisi • • • • •	ng nc crea calc opti prot para mar real	ivel strength analy itive design conce ulations results as mization totyping ametric design of hufacturing and lif istic visualizations	ysis, fatigue pts sessment series of pro e-cycle anal	and CFD so oducts ysis	ftware studei	nts will gaiı	n practice in:				
and requiered ing	Basic lite	nic an	ę id on-line manuals	s for NX, Cre	eo-Parametr	ic, Finemarin	e, ANSYS, I	Fluent, NASTRA	N			
ded ead	Supplementary literaturę											
Recommend	Recommend											
A	ssesment		Course	passing criter	ria	Passing th	reshold	Percenta	ge of the	final grade		
me	ethods and criteria	ł										

Subject name	Modelling and Simulation in Ocean Engineering II											
Subject code	lodelling and Simulation in Ocean Engineering II 0:096111											
Faculty	Department of Contr	:096111 epartment of Control and Power Engineering										
Course name	Ocean Engineering	cean Engineering										
Learning area	cechnical sciences											
Learning profile	general academic pr	2										
Type of subject	Obligatory		Study s	emester		3						
Study level	Full-time studies pos	taraduate studies	ECTS			3						
ECTS details		Activity		ak	nw							
	 Lecture	receivicy		15	pm	-						
	Laboratories			30								
	Consulation			5								
	Lecture studies				5	-						
	Test preparation				10							
	Laboratories prepara	ation			10							
	Sum			50	25							
	Parameter ECTS			25	25							
	ECTS components			2	1							
	ECTS sum			3								
Name of lecturer	prof. dr hab. inż. Zyg mgr inż. Natalia Sze	gfryd Domachowski, prof. zw. F wczuk-Krypa	۶G									
	prof. dr nab. inz. Zy	gfryd Domachowski, prof. zw. I	PG									
Subject objectives	mathematical modelling of wind, and wind-induced waves, and currets onto marine structures, mathematical modelling of marine stucture response to ocean disturbances											
Learning outcomes	Course outcome	Subject out		Method of veryfication								
	K_U02	student applies all accessible professional and social	s in [Sk ski [Sl [Sk [Sk ski [Sk org	[SK1] Assessment of group work skills [SU4] Assessment of ability to use methods and tools [SK4] Assessment of communication skills [SK3] Assessment of ability to organize work								
	K_U05	student is able to model and of wind, and wind-induced w marine structures, student i response of marine structure	simulate aves, and s able to to ocear	nce [Sl on me le [Sl ces kno [Sk res [Sl ana	J4] Assessment of ability to use thods and tools J3] Assessment of ability to use owledge gained in the different dules (5] Assessment of ability to olve work-related problems J2] Assessment of ability to alyze information							
	K_W01	student is able to apply mathe simulation in design, optimiz of technical s	and [Sl nics me [Sl mo [Sł res [Sl ana	J4] Assessment of ability to use thods and tools J3] Assessment of ability to use owledge gained in the different dules (5] Assessment of ability to olve work-related problems J2] Assessment of ability to alyze information								
	K_W02	student is conscious of oc inffluenc	[SV kna [SU mo [SU ana	[SW1] Assessment of factual knowledge [SU3] Assessment of ability to use knowledge gained in the different modules [SU2] Assessment of ability to analyze information								
Mode of delivery	at the university											
Prerequisites	mathematical model	ling background, stochastic pro	cess bac	kground								

Recommended components	marine structures review									
Subject contents	environmental dis moments, eqution method, fatigue d	environmental disturbances (wind, wind-generated waves, currents), stochastic spectra, induced forces and noments, equtions of motion for dynamic structures, loads responses of dynamic stuctures, fatgue design nethod, fatigue damage								
Recommended and required reading	 Required reading 1. Fossen T.I. : Guidance and Control of Ocean Vehicles. John Wiley and Sons, Chichester, New York, Brisbane, Toronto, Singapore, 1994, 2. Hogben N., Dacunha N.M.C. : Global Waves Statistcs. British Maritime Technology Ltd, 1986, 3. Naess A., Moan T. : Stochastic dynamics of marine structures. Cambridge University Press, New York, 2013, 4. Spanos P.D (Editor) . : Probabilistic Offshore Mechanics. A Computational Mechanics Publication, 1985. Recommended reading Cooper G.R.: Probabilistic Methods of Signal and System Analysis 									
Planned learning	Lecture	Exercise	Laboratory	Project	Semin	inar Sum				
activities	15 W tym nauczanie	0 na odległość: 0.0	30	0	0	0 45				
Assesment methods and		Passing threshold		Percentage of the final grade						
criteria	lecture - test, lab	oratory - reports		50.0		100.0				
	Example issues / example questions / tasks completed									
Language of instructions	Polish									
Work placement	Not applicable									

Fiel	ld of study		Oceanotechnika Specialisation Ocean Engineering					neering			
Cour	se unit titl	e			ĸ	Reliability, Safety and Risk Analysis II Number of ECTS credit					
Course unit code		le	Year of study			Semester		Number of ECTS credit allocated		Type of course	
			2		-	3		2		-	MSc
Planned learning			Lecture	Tutorial	s	Laboratory	Proje	ct	Semii	nar	Sum
teach	ing metho	ds	15	-		-	15		-		30
Name	of lecture	r(s)				Roman I	iberacki				
Learning outcomes of the course unit	The student defines the terms of reliability, safety and risk. The student identifies and explains the reasons for the application of basic mathematical models in reliability studies. The students calculate the reliability indexes of simple and complex structures. Student discusses the criteria for acceptable risk level. The student uses the method of assessing the probabilities of human errors. The student uses the methods prescribed in the FSA and QRA. Student discusses the procedures and technical means taken to ensure safety during the ships and their systems operation. Student presents ways to reduce the negative effects of the accidents at sea.										
Prereq and co requis	juisites - ites	No r	requirements								
Course contents	The main terms of reliability and safety. Reliability of simple and complex objects. Physical aspects of reliability. Empirical indexes of reliability. Basic mathematical models for testing the reliability and safety of complex systems Risk and reliability analysis of technical systems. The terms of safety and risk. Risk as a measure of safety. The criteria for acceptable risk. The human factor and the risk. Methods of assessing human error probabilities. Formal safety assessment (FSA). Quantitative safety analysis (QRA). Procedures and technical means taken to ensure security during the operation of ships and their systems. Ways to reduce the negative effects of the accidents at sea.										
Recommended and requiered reading	Basic literature 1. Brandowski A.: Nauka o bezpieczeństwie. Polit. Warszawska 1993. 2. Melnick E.: Encyclopedia of Quantitative Risk Analysis and Assessment. Viley & Sons. 2008. 3. Modarres M.: What Every Engineer Should Know about Reliability and Risk Analysis. New York, 1993. 4. Swain A.D., Guttman H.E.: Handbook of Human Reliability Analysis with Emphasis on Nuclear Power Plant Applications. Final Report, prepared for U.S. Nuclear Regulatory Commision. August, 1983. 5. IMO (MSC 66/INF.8): A methodology for formal safety assessment of shipping. 1996. Supplementary literature No reqiurements										
As	sesment		Course	passing criter	'ia	Passing	threshold		Percenta	ge of the	e final grade
me	criteria		wildter	Reports		10	0% 10%		50%		

Field of study Oceanotechnika Specialisation Ocean Engineeri						neering						
Cour	rse unit tit	le			Ship and O	ffshore Pov	ver System	s Design II				
Cour	se unit co	de	Year of st	udy	Sem	ester	Number	Number of ECTS credit allocated		ype of course		
			2			3		4	MSc			
Planı	ned learni	ng	Lecture	Tutorials	s Lat	oratory	Project	Sem	inar	Sum		
activities and teaching methods			-	-		-	45	-		45		
Name of lecturer(s) Roman Liberacki, Damian Bocheński												
		()				,						
Learning outcomes of the course unit	The student uses available computer programs used in the designing of the ship power plants and energy supply systems on platforms . The student sets the configuration of the propulsion system, electricity generating plant and selects steam boilers. The student designs auxiliary systems: cooling water system, lubricating oil system, liquid and gas fuel system , starting air system, steam heating system. The student designs general ship systems: ballast water system, bilge water system, fire fighting system, hydrophore and sanitary water system. The student designes electricity and heat supply systems, auxiliary systems, safety systems and living systems for offshore drilling plants.											
Prerec and co requis	luisites)- ites	Kno	wledge of subject	s: Environme	ental Protec	tion, Propu	sion and Po	ower Transmisi	on syste	ms.		
Course contents	The use of computer programs used in the designing of ship power plants and energy supply systems on platforms. Determining the configuration of the propulsion system. Determination the configuration of electricity generating plant. Selection of boilers. Designing of auxiliary systems: cooling water system, lubricating oil system, liquid and gas fuel system, starting air system, exhaust gas system, steam heating system. Designing of general ship systems: ballast water system, bilge water system, fire fighting system, hydrophore and sanitary water system. Designing of electricity and heat supply systems, auxiliary systems, safety systems and living systems for offshore drilling plants.											
ded and requiered reading	Basic literature 1. Jamroż J., Wieszczeczyński T.,Swolkień T.:Projektowanie siłowni okrętowych. PG, Gdańsk, 1997. 2. Michalski R.:Siłownie okrętowe. PSz, Szczecin, 1987. 3. Wojnowski W.:Okrętowe siłownie spalinowe. Część III.Gdańsk, 1992. 4. PRS: Przepisy klasyfikacji i budowy statków morskich. Witryny internetowe: www.manbw.com; www.wartsila.com; www.alfalaval.com; www.imo.org 20											
Recommen	No reqi	urem	ents.									
As	ssesment		Course	passing criter	ia	Passing t	hreshold	Percenta	age of the	e final grade		
me	thods and criteria		Midter	m colloquiur Proiect	n	60 10)% 0%	1009	% (2 [™] se % (3 rd se	6 (2 ^{'''} semester)		

Subject name	Professional Communication								
Subject code	0:096210								
Faculty	Language Centre								
Course name	Dcean Engineering								
Learning area	technical sciences								
Learning profile	ieneral academic profile								
Type of subject	Obligatory		Study ye	mester		4			
Study level	Full-time studies nos	toraduate studies	FCTS	incotor		4			
ECTS details		Activity	2010	ak	DW/				
	Project	Activity		9K 60	μw	-			
	Project consultation			5					
	Report creation			5	5	-			
	Project creation				30	-			
	Sum			65	35	-			
	Parameter ECTS			25	25				
	ECTS components			2,6	1,4				
	ECTS sum			4					
Name of lecturer	mgr Agnieszka Jacho mgr Agnieszka Jacho	wicz owicz	<u> </u>						
Subject objectives	The seminar aims to environment where E the linguistic, commu- their professional and	The seminar aims to provide the opportunity to gain confidence and competence in working in a professional environment where English is the language of communication. The aim of the seminar is to help students acquire the linquistic, communicative and socio-cultural skills needed to function comfortably in English in relation to							
					minumea	tive competence.			
Learning outcomes	Course outcome	Subject out	come			Method of veryfication			
			[Sk	K1] Assessment of group work					
		skills							
	[SW2] Assessment of presentat								
			[SU	5U1] Assessment of task fulfilment 5K3] Assessment of ability to					
					org	anize work			
Mode of delivery	at the university								
Prerequisites	, , , , , , , , , , , , , , , , , , ,								
	Students must have	already attained at least the B	1 level of	their Gene	eral Engli	ish course.			
Recommended									
components	English Language Cir	cle, Debates in English, Englis	h Languag	je Olympia	ad for Sti	udents of Technical Universities			
Subject contents	Preparing presentation a job interview. Varion personality types and and manipulations. Co and debates. Dress co	ons, writing various kinds of bu ous topics from the field of psy d psychological tests, risk in bu communication on the Internet ode, social events, cultural dif	usiness let chology, s usiness, et and othe ferences,	ters, inclu such as ve hics in bu r electroni business t	ding CV rbal and siness, c c media: rips.	and covering letter. Preparing for non-verbal communication, onflicts, negotiations, persuasions Netiquette. Types of discussions			
Recommended and required	Required reading								
reading	P. Domański, English	in Science and Technology. W	/ydawnictv	wo Naukov	wo-Techr	niczne, Warszawa, 1996			
	S. Taylor, Model Busi	S. Taylor, Model Business Letters, E-mails & Other Business Documents. Pearson, 2004							
	R. Lewis, When Cultu	R. Lewis, When Cultures Collide, Nicholas Brealey Publishing, 2006							
	R. A. Day, How to W	rite & Publish a Scientific Pape	r. Cambrid	lge Univer	sity Pres	s, 1993			
	Recommended rea	dina		-	·				
	J. Bralczyk: "Wiem,	co mówię, czyli o dobrej komu	ınikacji." (Dficyna Wy	/dawnicz	a Branta, Bydgoszcz-Warszawa,			
	Academic publication	s, dictionaries, scientific and s	cience ma	igazine arl	icles. Or	line resources.			

Planned learning	Lecture	Exercise	Laboratory	Project	Semina	r Sum			
activities	0	0	0	60	0	60			
	W tym nauczanie i	na odległość: 0.0							
Assesment methods and	9	Subject passing cri	teria	Passing th	reshold	Percentage of the final grade			
criteria	speaking, coopera	tion within the gro	oup	60.	0	20.0			
	presentations			60.	0	20.0			
	Example issues / example questions / tasks completed Preparing for the topic of a presentation, and participation in it; discussing the given topic in the group; debate; discussing particular linquistic problems; role-playing; report.								
Language of instructions	English								
Work placement	Not applicable								

Subject name	Engineering Design - group project II									
Subject code	0:096191									
Faculty										
Course name	Dcean Engineering									
Learning area										
Learning profile	Study year 2									
Type of subject	true			Study seme	ester	4				
Study level	postgraduate studies			ECTS		6.0				
Number of ECTS	Learning activity of student			-		ak		nw		
credits	Participation in didactic class	ses inclu	ded in studv pl	an		75		P		
	Participation in consultation I	hours				20				
	Self-study hours							55		
	Sum					95		55		
	Total number of study hours	5					150			
	Number of ECTS credits						6.0			
Name of lecturer										
Subject objectives										
Learning outcomes			Subject oute		Ma	thad of	Evention	tion		
Learning outcomes			Subject outc	ome	IME		verynca	ation		
	K_K03									
	K_K04									
	K K05									
	K K06									
	K K09									
	K U11									
	K U12									
	 K_U13									
	K_U14									
	K_U15									
	K_W06									
Mode of delivery	at the university									
Prerequisites										
Recommended components										
Subject contents										
Recommended and required	Required reading									
reading	Recommeded reading									
Lesson type and	Lesson type		Lecture	Tutorial	Laboratory	Pro	oject	Seminar		
method of	Number of study hours		0.0	0.0	0.0	7	5.0	0.0		
Instruction	Total number of study hours	s per			75.0					
	semester included in study plan									
	a lastring hours included: 0.0									
Assesment		.0	., .		<u> </u>					
methods and	Subject p	bassing c	riteria		Passing thresh	nold	Percer	al grade		
criteria					0.0			0.0		
	Example issues / example	e questi	ons / tasks b	eing comp	ietea					
Language of instructions	Polish									
Work placement	Not applicable									

Subject name	MSc Thesis								
Subject code	0:096220								
Faculty									
Course name	Dcean Engineering								
Learning area									
Learning profile	Study year 2								
Type of subject	true			Study seme	ester	4			
Study level	postgraduate studies			ECTS		20.0			
Number of ECTS	Learning activity of student					ak		nw	
credits	Participation in didactic class	ses inclu	ided in study pl	an					
	Participation in consultation	hours				30			
	Self-study hours							470	
	Sum					30		470	
	Total number of study hours	;					500		
	Number of ECTS credits						20.0		
Namo of locturor									
Subject objectives									
Learning outcomes	Course outcome		Subject outc	ome		Method o	of veryfic	ation	
	K_K03								
	K_K04								
	K_K13								
	K_004								
	K_009								
	K_010								
	K_011								
	K U16								
	K_010								
	K W14								
	K W15								
Modo of dolivory	at the university								
Processition									
Prerequisites									
components									
Subject contents									
Recommended	Required reading								
reading	Recommeded reading								
								1	
method of	Lesson type		Lecture	Tutorial	Laborato	ry Pi	roject	Seminar	
instruction	Number of study hours		0.0	0.0	0.0		0.0	0.0	
	semester included in study hours	s per olan			0.0				
	e-learning hours included: 0.	.0							
Assesment	Subject p	assing	criteria		Passing th	reshold	Perce	ntage of the	
methods and					-		fir	nal grade	
chicha	0.0 0.0						0.0		
	Example issues / example questions / tasks being completed								
	Dalich	•	-						
Language of instructions	POIISN								
Work placement	Not applicable								