Course code								
Type and description	Background Co	urse						
ECTS credit	2							
Course name	Computational methods in non-linear solid mechanics							
Course name in Polish	Podstawy metod obliczeniowych nieliniowej mechaniki ciała stałego							
Language of instruction	English	a obliozofiio		moj moonamik	olala olalo	<u>,, , , , , , , , , , , , , , , , , , ,</u>		
Course level	8 PRK							
Course coordinator	Ł. Domagalski Ł. Domagalski, P. Ostrowski							
Course instructors								
Delivery methods and								Total of
course duration		Lecture	Tutorials	Laboratory	Project	Seminar	Other	teaching hours during semester
	Contact hours	15					0	15
	E-learning	Yes	No	No	No	No	No	
	-	.00						
	Assessment criteria (weightage)	1,00					0,00	
Course objective	Ta	ant knowlad	ge on compi	itational mothe	nds of non-li	noar calid me	ochonice	
Learning outcomes	To present curre	the course	, a student v	vill be able to:				
Learning outcomes	After completing 1. recognize and 2. understand th 3. understand th U3, K1, K2).	the course d formulate the ne basic itera ne computat	, a student withe problems ative proceditional methology	rill be able to: s of non-linear ures of solving	mechanics non-linear	(W1 W4, U3, problems (W	K1, K2); 1 W4, U3,	
	After completing 1. recognize and 2. understand th 3. understand th U3, K1, K2). W1 W4, U3, K1 The final evalua	the course d formulate the ne basic itera ne computato , K2 – exam	, a student withe problems ative proced ional metho	rill be able to: s of non-linear ures of solving	mechanics non-linear	(W1 W4, U3, problems (W	K1, K2); 1 W4, U3,	
Learning outcomes  Assessment methods	After completing 1. recognize and 2. understand th 3. understand th U3, K1, K2). W1 W4, U3, K1	the course d formulate the ne basic itera ne computato , K2 – exam	, a student withe problems ative proced ional metho	rill be able to: s of non-linear ures of solving	mechanics non-linear	(W1 W4, U3, problems (W	K1, K2); 1 W4, U3,	
Learning outcomes  Assessment methods  Prerequisites	After completing 1. recognize and 2. understand th 3. understand th U3, K1, K2). W1 W4, U3, K1 The final evaluate Exam - 100%	the course d formulate the ne basic itera ne computato , K2 – exam	, a student withe problems ative proced ional metho	rill be able to: s of non-linear ures of solving	mechanics non-linear	(W1 W4, U3, problems (W	K1, K2); 1 W4, U3,	
Assessment methods  Prerequisites Course content with	After completing 1. recognize and 2. understand th 3. understand th U3, K1, K2). W1 W4, U3, K1 The final evaluatexam - 100%  LECTURE:	g the course d formulate the basic iterane computate , K2 – examettion is based	, a student v the problems ative proced iional metho	vill be able to: s of non-linear ures of solving ds applied to p	mechanics non-linear problems of	(W1 W4, U3, problems (W non-linear so	K1, K2); 1 W4, U3, olid mecha	nics (W1 W4,
Learning outcomes  Assessment methods  Prerequisites	After completing 1. recognize and 2. understand th 3. understand th U3, K1, K2). W1 W4, U3, K1 The final evalua Exam - 100%  LECTURE: Variational form	g the course of formulate the basic iteration is based and all the computation is based and all the course of the	, a student v the problems ative proced ional metho	vill be able to: s of non-linear ures of solving ds applied to p	mechanics non-linear problems of	(W1 W4, U3, problems (W non-linear so	K1, K2); 1 W4, U3, olid mecha	nics (W1 W4,
Assessment methods  Prerequisites Course content with	After completing 1. recognize and 2. understand th 3. understand th U3, K1, K2). W1 W4, U3, K1 The final evalua Exam - 100%  LECTURE: Variational form non-linearities:	g the course of formulate the basic iteration is based mulation of ne.g. plasticity	, a student v the problems ative proced ional metho d on:	vill be able to: s of non-linear ures of solving ds applied to p	mechanics non-linear problems of problems:	(W1 W4, U3, problems (W non-linear so	K1, K2); 1 W4, U3, olid mecha	nics (W1 W4,
Assessment methods  Prerequisites Course content with	After completing 1. recognize and 2. understand th 3. understand th U3, K1, K2). W1 W4, U3, K1 The final evaluatexam - 100%  LECTURE: Variational form non-linearities: Basic and advantage in the complete in	g the course of formulate the basic iteration is based mulation of ne.g. plasticity nced proced	, a student v the problems ative proced iional metho d on:	vill be able to: s of non-linear ures of solving ds applied to p lid mechanics al contact prol ng non-linear	mechanics non-linear problems of problems: plems. problems.	(W1 W4, U3, problems (W non-linear so	K1, K2); 1 W4, U3, olid mecha	nics (W1 W4,
Assessment methods  Prerequisites Course content with	After completing 1. recognize and 2. understand th 3. understand th U3, K1, K2). W1 W4, U3, K1 The final evalua Exam - 100%  LECTURE: Variational form non-linearities:	g the course of formulate the basic iteration is based mulation of ne.g. plasticity need proceding finite elem	, a student verthe problems the problems ative proced ional metho d on:  on-linear so y and friction lures of solvinent method	vill be able to: s of non-linear ures of solving ds applied to p lid mechanics al contact prol ng non-linear to non-linear	mechanics non-linear problems of problems: plems. problems. engineering	(W1 W4, U3, problems (W non-linear so	K1, K2); 1 W4, U3, olid mecha	rities, physical
Assessment methods  Prerequisites Course content with delivery methods	After completing 1. recognize and 2. understand th 3. understand th U3, K1, K2). W1 W4, U3, K1 The final evaluate Exam - 100%  LECTURE: Variational form non-linearities: Basic and advardance Application of th 1. O. C. Zienkie edition, 2000.	g the course of formulate the basic iteration is based mulation of ne.g. plasticity need procedure finite elements.	, a student verthe problems ative procedional methodional methodional methodional methodional methodional methodional methodional methodic L. Taylor, T	vill be able to: s of non-linear ures of solving ds applied to p lid mechanics al contact protong non-linear to non-linear he Finite Elem	mechanics non-linear problems of problems: problems. problems. engineering lent Method	(W1 W4, U3, problems (W non-linear so	K1, K2); 1 W4, U3, blid mecha non-linear	rities, physical
Assessment methods  Prerequisites Course content with delivery methods	After completing 1. recognize and 2. understand th 3. understand th U3, K1, K2). W1 W4, U3, K1 The final evaluatexam - 100%  LECTURE: Variational form non-linearities: Basic and advate Application of th 1. O. C. Zienkie edition, 2000. 2. O. C. Zienkie	g the course of formulate the basic iteration is based mulation of ne.g. plasticity need procedure finite elements.	, a student verthe problems ative procedional methodional methodional methodional methodional methodional methodional methodional methodic L. Taylor, T	vill be able to: s of non-linear ures of solving ds applied to p lid mechanics al contact protong non-linear to non-linear he Finite Elem	mechanics non-linear problems of problems: problems. problems. engineering lent Method	(W1 W4, U3, problems (W non-linear so	K1, K2); 1 W4, U3, blid mecha non-linear	rities, physical
Assessment methods  Prerequisites Course content with delivery methods	After completing 1. recognize and 2. understand th 3. understand th U3, K1, K2). W1 W4, U3, K1 The final evaluate Exam - 100%  LECTURE: Variational form non-linearities: Basic and advaluate Application of th 1. O. C. Zienkie edition, 2000. 2. O. C. Zienkie edition, 2000.	g the course of formulate the basic iteration is based mulation of ne.g. plasticity need procedule finite eleminical and R.	, a student verthe problems ative procedional methodional methodio	vill be able to: s of non-linear ures of solving ds applied to p lid mechanics al contact prol ng non-linear to non-linear e he Finite Elem	problems: problems. problems. problems. problems. problems. problems. engineering ent Method	geometrical problems , volume II. N	K1, K2); 1 W4, U3, blid mecha non-linear	rities, physical
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Assessment methods  Prerequisites Course content with delivery methods	After completing 1. recognize and 2. understand th 3. understand th U3, K1, K2). W1 W4, U3, K1 The final evaluation Exam - 100%  LECTURE: Variational form non-linearities: Basic and advant Application of th 1. O. C. Zienkie edition, 2000. 2. O. C. Zienkie edition, 2000. 3. K-J. Bathe, Fi 4. G. Dhatt and	g the course of formulate the basic iterate he computated and the computated are computated. The computation is based and the computation of neargh plasticity and procedule finite elements and R. wicz and R. mite Element G. Touzot, T	, a student verthe problems ative proceditional method don:  don-linear so y and friction lures of solvinent method L. Taylor, Telesconding the procedures the Finite Electory.	vill be able to: s of non-linear ures of solving ds applied to p lid mechanics al contact prol ng non-linear to non-linear he Finite Elem s in Engineering ement Method	problems: problems.	geometrical  problems , volume II. N  Prentice-Hall, lohn Wiley &	K1, K2); 1 W4, U3, blid mecha non-linear lcGraw-Hi Englewoo Sons, Chi	rities, physical II, London, 5th II, London, 5th ad Cliffs, 1982.
Assessment methods  Prerequisites Course content with delivery methods  Basic reference materials	After completing 1. recognize and 2. understand th 3. understand th U3, K1, K2). W1 W4, U3, K1 The final evaluat Exam - 100%  LECTURE: Variational form non-linearities: Basic and advant Application of th 1. O. C. Zienkie edition, 2000. 2. O. C. Zienkie edition, 2000. 3. K-J. Bathe, Fi	g the course of formulate the basic iterate he computate of the computate of the computation of the computat	, a student verthe problems ative proceditional method don:  don-linear so y and friction lures of solvinent method L. Taylor, Telesconding the Finite Element of Element method the Finite Element meth	vill be able to: s of non-linear ures of solving ds applied to p lid mechanics al contact prol ng non-linear to non-linear he Finite Elem in Engineering ement Method Method: Line	problems: problems.	geometrical  problems , volume II. N  Prentice-Hall, lohn Wiley &	K1, K2); 1 W4, U3, blid mecha non-linear lcGraw-Hi Englewoo Sons, Chi	rities, physical II, London, 5th II, London, 5th ad Cliffs, 1982.
Assessment methods  Prerequisites Course content with delivery methods  Basic reference materials	After completing 1. recognize and 2. understand th 3. understand th U3, K1, K2). W1 W4, U3, K1 The final evaluate Exam - 100%  LECTURE: Variational form non-linearities: Basic and advant Application of th 1. O. C. Zienkie edition, 2000. 2. O. C. Zienkie edition, 2000. 3. K-J. Bathe, Fi 4. G. Dhatt and 5. T. J. R. Hug Prentice-Hall In	g the course of formulate the basic iterate he computate of the computate of the computation of the computat	, a student verthe problems ative proceditional method don:  don-linear so y and friction lures of solvinent method L. Taylor, Telesconding the Finite Element of Element method the Finite Element meth	vill be able to: s of non-linear ures of solving ds applied to p lid mechanics al contact prol ng non-linear to non-linear he Finite Elem in Engineering ement Method Method: Line	problems: problems.	geometrical  problems , volume II. N  Prentice-Hall, lohn Wiley &	K1, K2); 1 W4, U3, blid mecha non-linear lcGraw-Hi Englewoo Sons, Chi	rities, physical II, London, 5th II, London, 5th ad Cliffs, 1982.
Assessment methods  Prerequisites Course content with delivery methods  Basic reference materials  Other reference materials  Average student workload	After completing 1. recognize and 2. understand th 3. understand th U3, K1, K2). W1 W4, U3, K1 The final evaluation of th LECTURE: Variational form non-linearities: Basic and advarance	g the course of formulate the basic iterate he computate of the computate of the computation of the computat	, a student verthe problems ative proceditional method don:  don-linear so y and friction lures of solvinent method L. Taylor, Telesconding the Finite Element of Element method the Finite Element meth	vill be able to: s of non-linear ures of solving ds applied to p lid mechanics al contact prol ng non-linear to non-linear he Finite Elem in Engineering ement Method Method: Line	problems: problems.	geometrical  problems , volume II. N  Prentice-Hall, lohn Wiley &	K1, K2); 1 W4, U3, blid mecha non-linear lcGraw-Hi Englewoo Sons, Chi	rities, physical II, London, 5th II, London, 5th ad Cliffs, 1982.
Assessment methods  Prerequisites Course content with delivery methods  Basic reference materials  Other reference materials Average student workload outside classroom	After completing 1. recognize and 2. understand th 3. understand th U3, K1, K2). W1 W4, U3, K1 The final evaluate Exam - 100%  LECTURE: Variational form non-linearities: Basic and advant Application of th 1. O. C. Zienkie edition, 2000. 2. O. C. Zienkie edition, 2000. 3. K-J. Bathe, Fi 4. G. Dhatt and 5. T. J. R. Hug Prentice-Hall In	g the course of formulate the basic iterate he computate of the computate of the computation of the computat	, a student verthe problems ative proceditional method don:  don-linear so y and friction lures of solvinent method L. Taylor, Telesconding the Finite Element of Element method the Finite Element meth	vill be able to: s of non-linear ures of solving ds applied to p lid mechanics al contact prol ng non-linear to non-linear he Finite Elem in Engineering ement Method Method: Line	problems: problems.	geometrical  problems , volume II. N  Prentice-Hall, lohn Wiley &	K1, K2); 1 W4, U3, blid mecha non-linear lcGraw-Hi Englewoo Sons, Chi	rities, physical II, London, 5th II, London, 5th ad Cliffs, 1982.
Assessment methods  Prerequisites Course content with delivery methods  Basic reference materials  Other reference materials  Average student workload	After completing 1. recognize and 2. understand th 3. understand th U3, K1, K2). W1 W4, U3, K1 The final evaluate Exam - 100%  LECTURE: Variational form non-linearities: Basic and advant Application of th 1. O. C. Zienkie edition, 2000. 2. O. C. Zienkie edition, 2000. 3. K-J. Bathe, Fi 4. G. Dhatt and 5. T. J. R. Hug Prentice-Hall In	g the course of formulate the basic iterate he computate of the computate of the computation of the computat	, a student verthe problems ative proceditional method don:  don-linear so y and friction lures of solvinent method L. Taylor, Telesconding the Finite Element of Element method the Finite Element meth	vill be able to: s of non-linear ures of solving ds applied to p lid mechanics al contact prol ng non-linear to non-linear he Finite Elem in Engineering ement Method Method: Line	problems: problems.	geometrical  problems , volume II. N  Prentice-Hall, lohn Wiley &	K1, K2); 1 W4, U3, blid mecha non-linear lcGraw-Hi Englewoo Sons, Chi	rities, physical II, London, 5th II, London, 5th ad Cliffs, 1982.