





TOPIC PLAN					
Partn er orga nizati on	UNS				
Торіс	Function of Several Variables				
Less on title	Partial Derivatives				
Lear ning objec tives	 Students will be able to determine partial derivatives of functions of several variables; Students will acquire and deal with derivatives of a function; Students will be able to deal with different problems in everyday life, which require finding partial derivatives of a given function; Students are encouraged to use technology and different software in their work, while considering problem-based situations. 	Strategies/Acti vities Graphic Organizer Think/Pair/Shar e			
Aim of the lectu re / Desc riptio n of the pract ical	The aim of the lecture is to make students able to calculate partial derivatives of a function and apply the derivatives to calculate approximation of functions.	 Modeling Collaborative learning Discussion questions Project based learning Problem based learning 			
probl em Previ ous know ledge assu med:	 Functions algebraic equations differentiating techniques 	Assessment for learning Observations Conversation s Work sample Conference Check list Diagnostics			













we get $\frac{\partial w}{\partial x} = 2x - y$ To find $\frac{\partial w}{\partial y}$ we regard y as the variable and treat x and z as constants. We get $\frac{\partial w}{\partial y} = -x + 2y + 2z$ To find we regard z as the variable and treat x and y as constants. We get $\frac{\partial w}{\partial z} = 2y + 1$ Students can calculate these derivatives using Mathematica on the following way 🔅 Untitled-1 * - Wolfram Mathematica 10.0 File Edit Insert Format Cell Graphics Evaluation Palettes Window Help $n[1]:= w[x_, y_, z_] := x^2 - xy + y^2 + 2yz + z;$ in[3]:= D[w[x, y, z], x] Dut[3]= 2 x - y n[4]:= D[w[x, y, z], y] Out[4]= -x + 2 y + 2 z In[5]:= D[w[x, v, z], z] Out[5]= 1 + 2 y plot y derivative y integral zeros more... @ 🖨 📮 0 . **6** Quick Check 1 For $u = x^2 y^3 z^4$, find $\frac{\partial u}{\partial x}$, $\frac{\partial u}{\partial y}$, $\frac{\partial u}{\partial z}$. We will often make use of a simpler notation: f_x for the partial derivative of f with respect to x and f_y for the partial derivative of f with respect to y. Similarly, if z = f(x, y), then z_x represents the partial derivative of z with respect to x, and z_y represents the partial derivative of z with respect to y.

















Actio				
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Matan		1.0		
ials /	<u>The materials for learning</u> are given as a part of references of the of this tonic plan:	end from		
equip	<i>Equipment</i> : classroom, whiteboard, marker in different colours:			
ment	<u>Digital tools</u> : laptop, projector;			
1	Software: Geogebra, Mathematica.			
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Cons	With the given examples students can consider that the real functions and their derivatives are			
olidat	important for solving real life problems. Students will learn what is a partial derivative of a function and heavy to calculate it. They can be use heavy to camely differentiation and derivatives to			
	approximate functions. Students can use technology different digital tools and software as a			
	help for solving problems, but can also realize that even with	technology,	solving different	
	everyday problems is difficult without math knowledge.			
D (1)				
Reflect	lions and next steps			
Activit	es that worked	Parts to be	e revisited	
Problem	solving collaboration using technology	Depends on	the students in a	
Depends on conversatio		with students		
the teacher		will realize the		
difficulties th		hat students had		
		and then re	visit appropriate	
		parts.		
References				
[1] L Starrat Calarba Thomas Louis Chi 2006				
[1] J. Stewart, Calculus, 1 nomson Learning, China, 2006. [2] M. L. Bittinger, D. J. Ellenbogen and S. A. Surgent, "Calculus and its applications". Addison				
Wesley, 2012.				
[3] T. Došenović, A. Takači, D. Rakić, Udžbenik iz Matematike II za studente Tehnološkog				
fakulteta, Univerzitet u Novom Sadu, 2017.				
[4] https://tutorial.math.lamar.edu/classes/calciii/TangentPlanes.aspx				