

PC application calculating Shear Stress and Bending Moment in a solid beam

Made by Vitaly Okolelov

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Resize: Maximised

Help and instructions

Made by Vitaly Okolelov [\[Contact\]](#)

Structure parameters

Define structure

Change force units

Length: 10 m Support 1: 1 m Support 2: 3 m

External Forces

Add new force

Edit force

Remove force

Clear all

Concentrated forces:
F: down, magnitude: 23 kN, position: 4 m
Distributed forces:
f: up, magnitude: 5 kN/m, start: 7 m, end: 10 m

External Moments

Add new moment

Edit moment

Remove moment

Clear all

M: anticlockwise, magnitude: 90 kNm, position: 5 m

Results

Support 1 reaction: up, magnitude: 74.75 kN

Support 2 reaction: down, magnitude: 66.75 kN

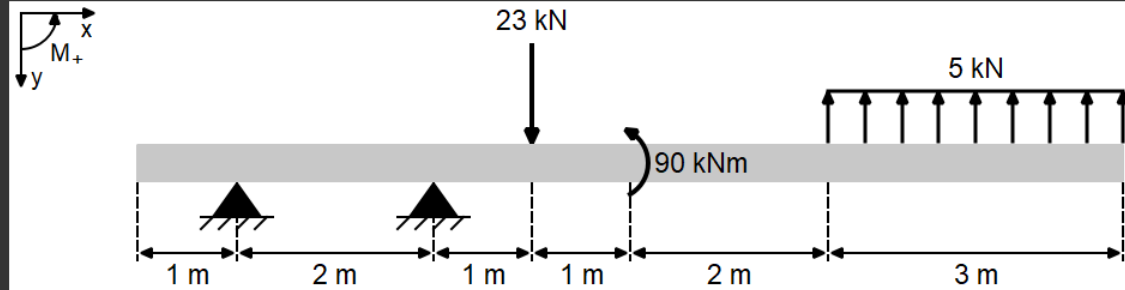
Section, m	Shear Stress, kN	Bending Moment, kNm
$0 < x < 1$	0	0
$1 < x < 3$	74.75	$74.75x - 74.75$
$3 < x < 4$	8	$8x + 125.5$
$4 < x < 5$	-15	$-15x + 217.5$
$5 < x < 7$	-15	$-15x + 127.5$
$7 < x < 10$	$5x - 50$	$2.5x^2 - 50x + 250$

Position, m	Shear Stress, kN	Bending Moment, kNm
$x = 0$	0	0
$x = 1 (-)$	0	0
$x = 1 (+)$	74.75	0
$x = 3 (-)$	74.75	149.5
$x = 3 (+)$	8	149.5
$x = 4 (-)$	8	157.5

Save SS and BM equations in a file

Save SS and BM values in a file

Exit

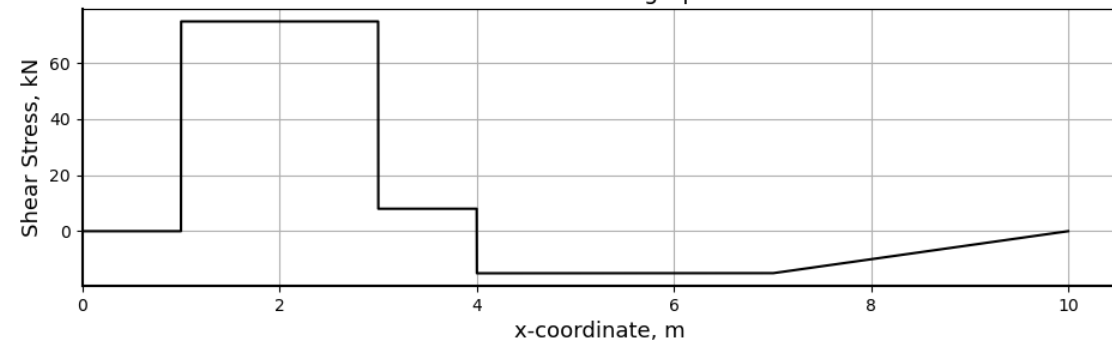


Expand diagram

Customise diagram

Save diagram as an image

Shear Stress graph

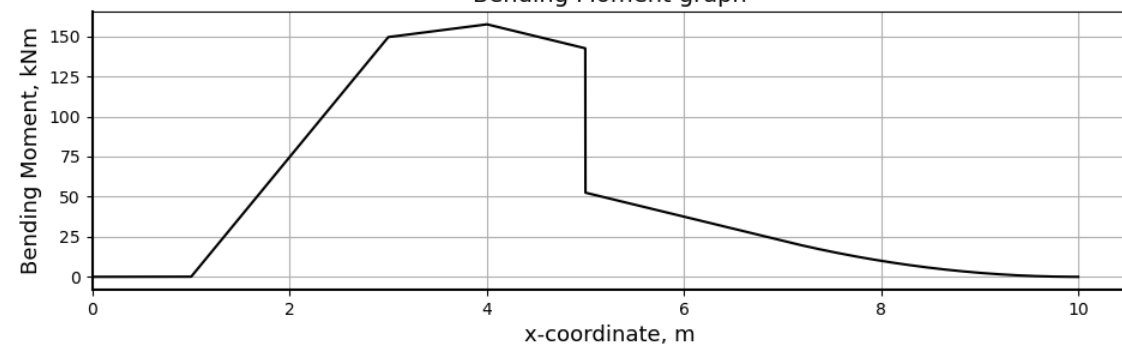


Expand Shear Stress graph

Save Shear Stress data in a file

Save Shear Stress graph as an image

Bending Moment graph



Expand Bending Moment graph

Save Bending Moment data in a file

Save Bending Moment graph as an image

General outlook

Resize: Full Screen

Help and instructions

Made by Vitaly Okolelov [\[Contact\]](#)

Structure parameters

Define structure

Change force units

The structure has not been defined

External Forces

Add new force

Edit force

No forces has been added...

Remove force

Clear all

External Moments

Add new moment

Edit moment

No moments has been added...

Remove moment

Clear all

Results

Section, m

Shear Stress, kN

Bending Moment, kNm

Position, m

Shear Stress, kN

Bending Moment, kNm

Save SS and BM equations in a file

Save SS and BM values in a file

Exit

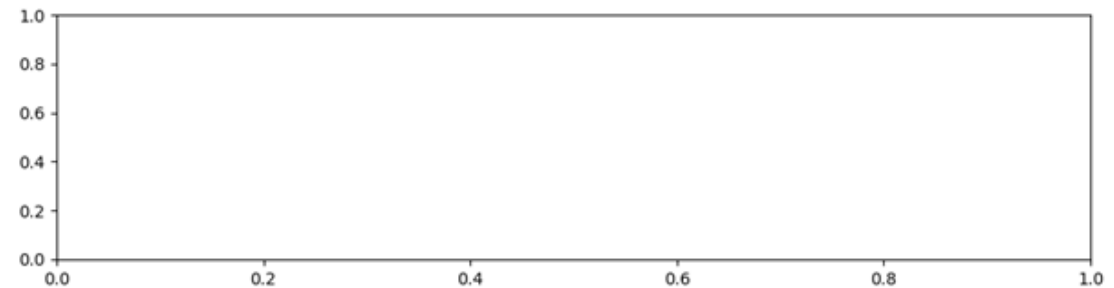


Structure not defined

Expand diagram

Customise diagram

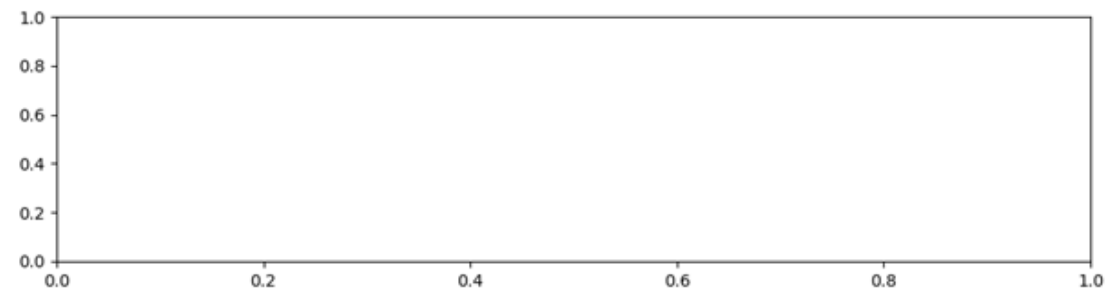
Save diagram as an image



Expand Shear Stress graph

Save Shear Stress data in a file

Save Shear Stress graph as an image



Expand Bending Moment graph

Save Bending Moment data in a file

Save Bending Moment graph as an image

Starting Screen



Adding new force

Resize: Full Screen

Help and instructions

Made by Vitaly Okolelov [Contact]

Structure parameters

Define structure

Change force units

Length: 10 m Support 1: 1 m Support 2: 3 m

External Forces

Add new force

Edit force

Remove force

Clear all

Concentrated forces:

F: down, magnitude: 23 kN, position: 4 m

Distributed forces:

f: up, magnitude: 5 kN/m, start: 7 m, end: 10 m

External Moments

Add new moment

Remove moment

Support 1 reaction: up, 1

Section, m

 $0 < x < 1$ $1 < x < 3$ $3 < x < 4$ $4 < x < 5$ $5 < x < 7$

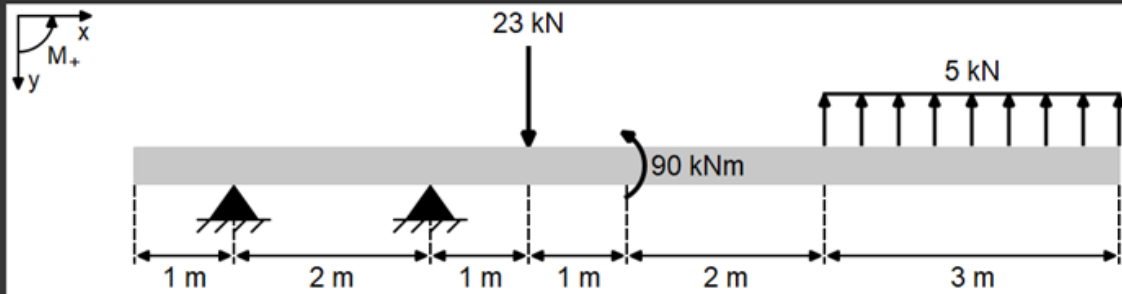
Position, m

$x = 0$	0	0
$x = 1 (-)$	0	0
$x = 1 (+)$	74.75	0
$x = 3 (-)$	74.75	149.5
$x = 3 (+)$	8	149.5

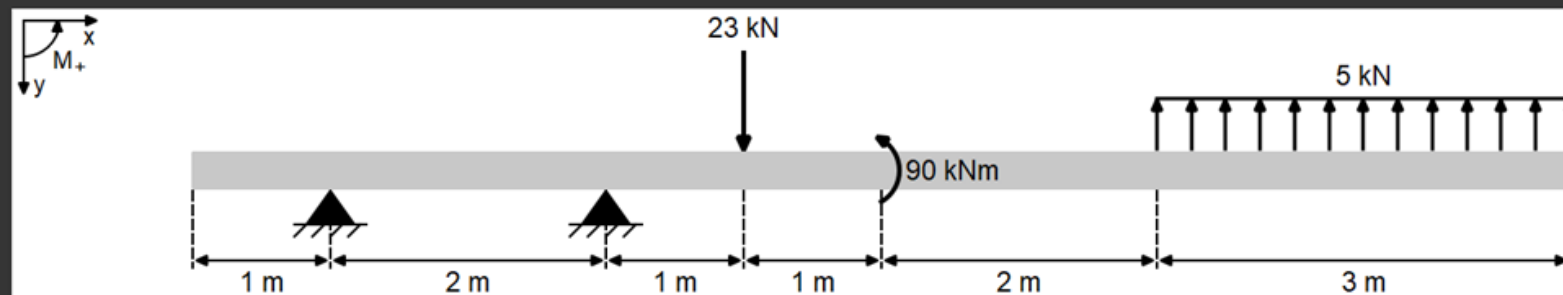
Save SS and BM equations in a file

Save SS and BM values in a file

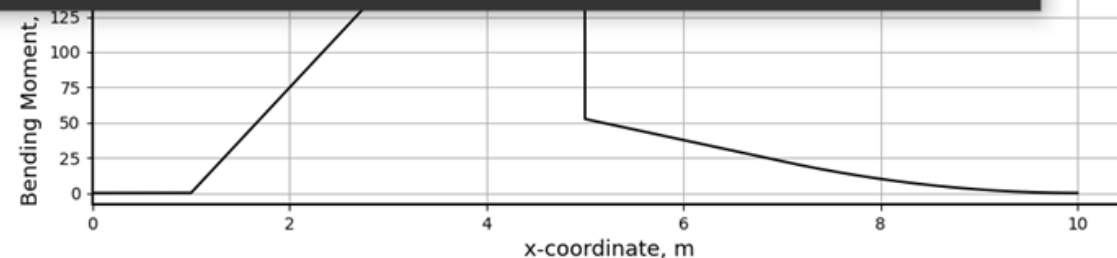
Exit



Beam Diagram



Close

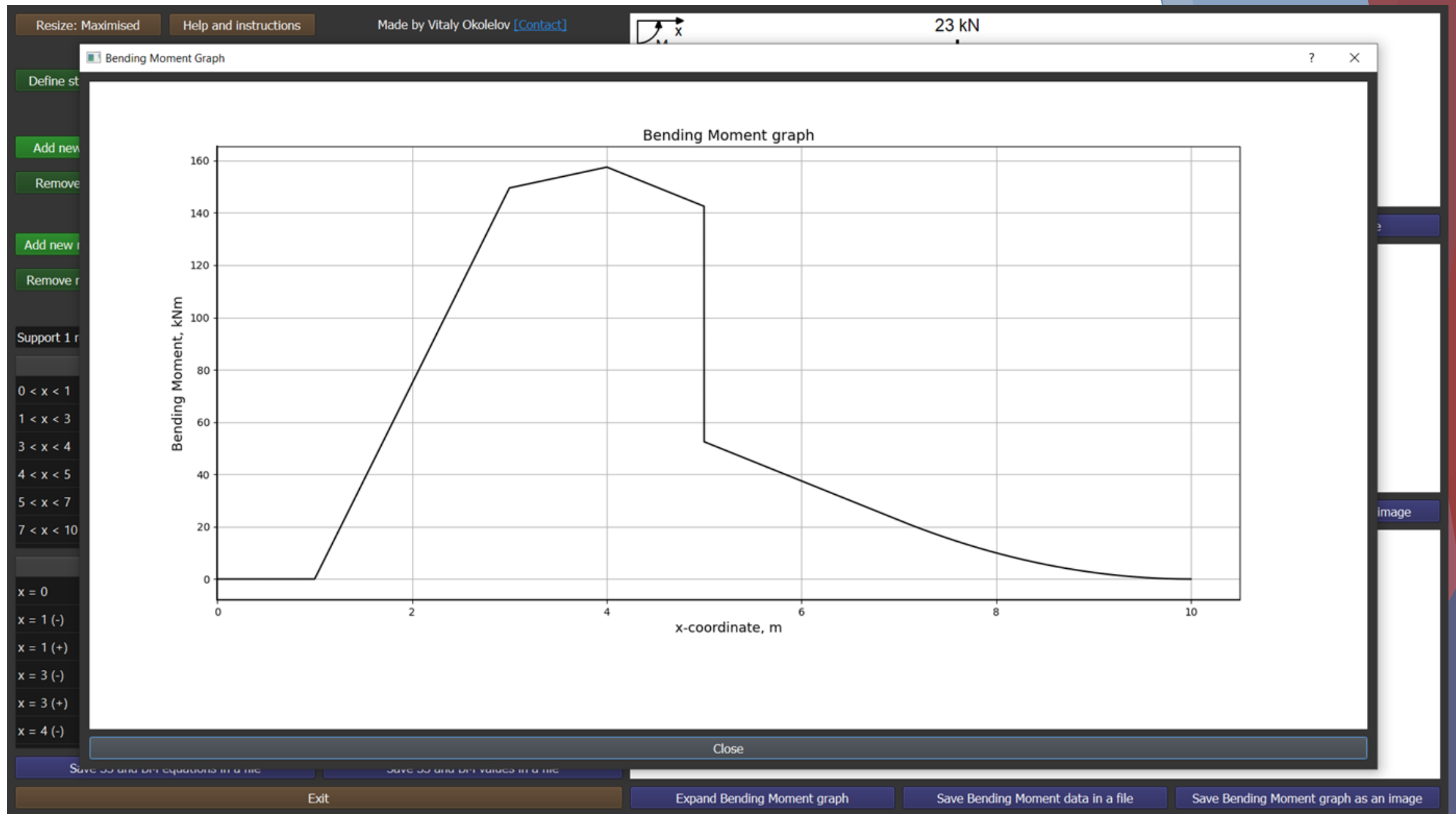


Expand Bending Moment graph

Save Bending Moment data in a file

Save Bending Moment graph as an image

Expanding diagram



Expanding Bending Moment Graph

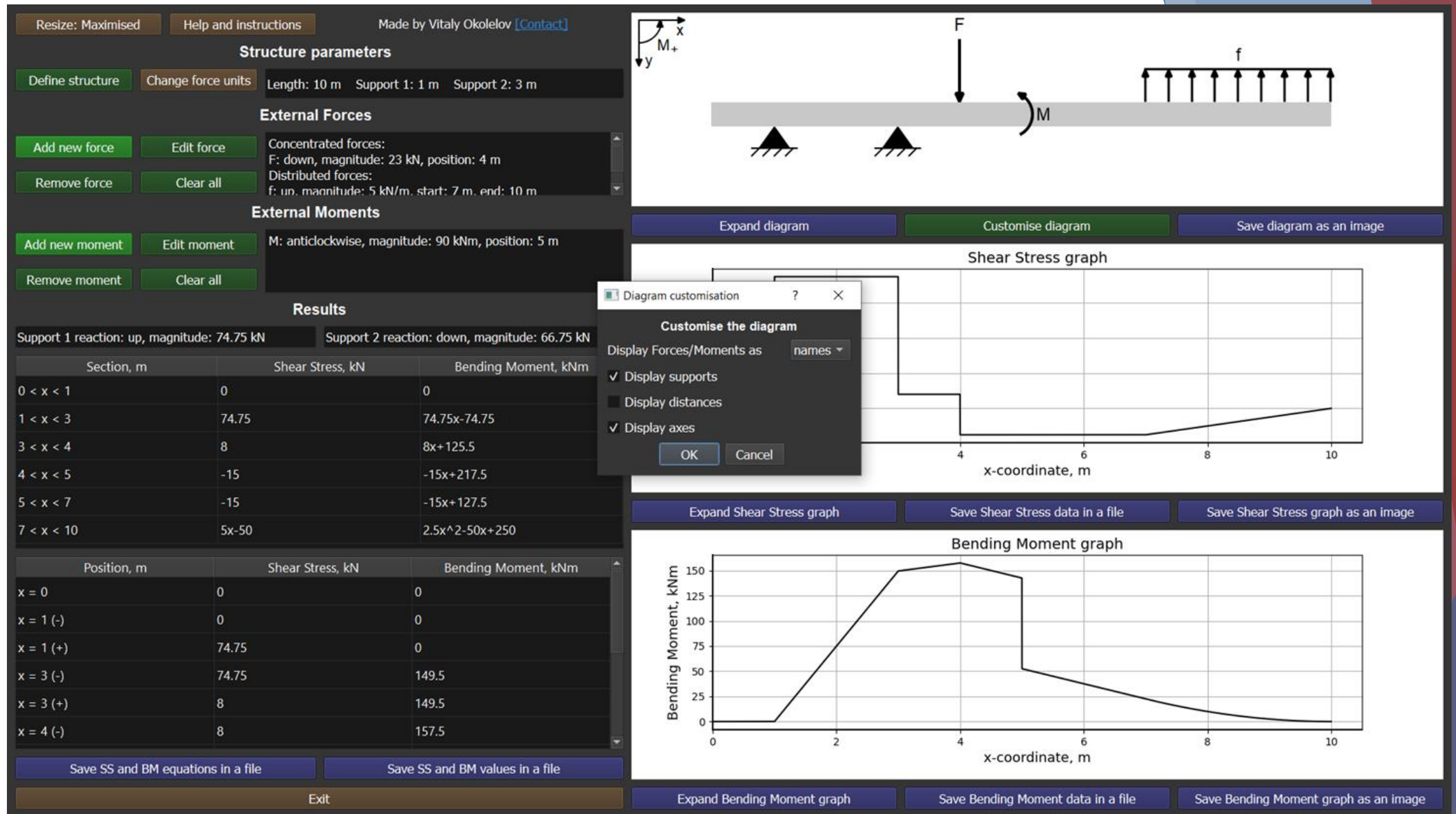
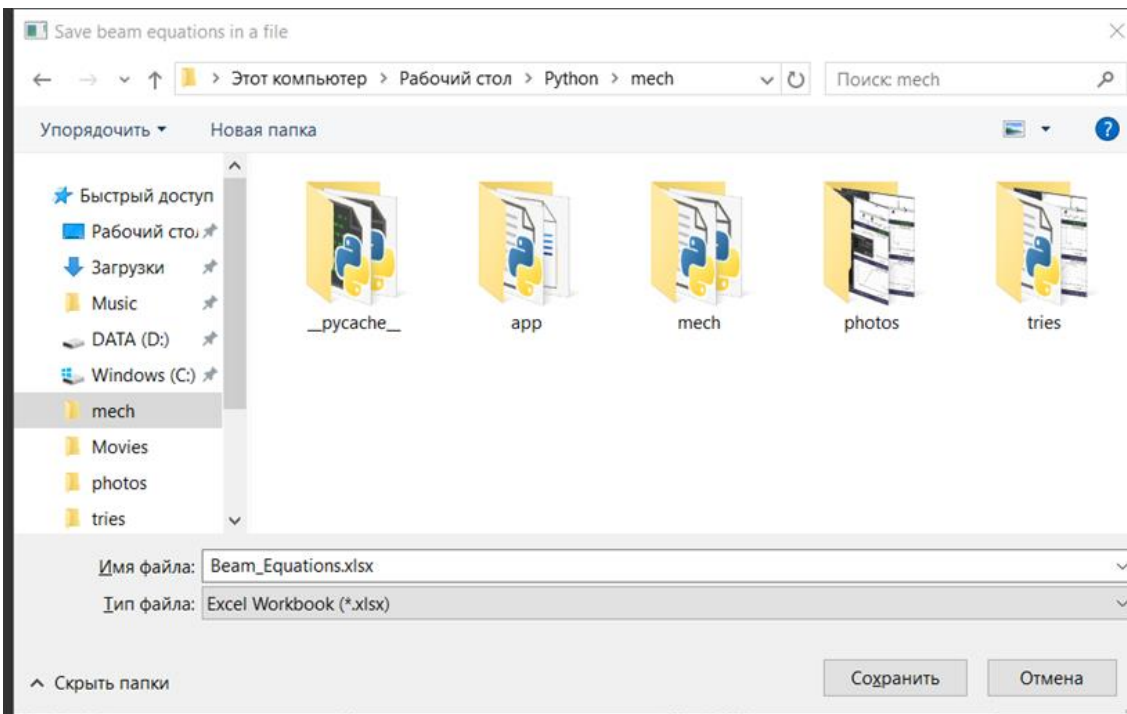


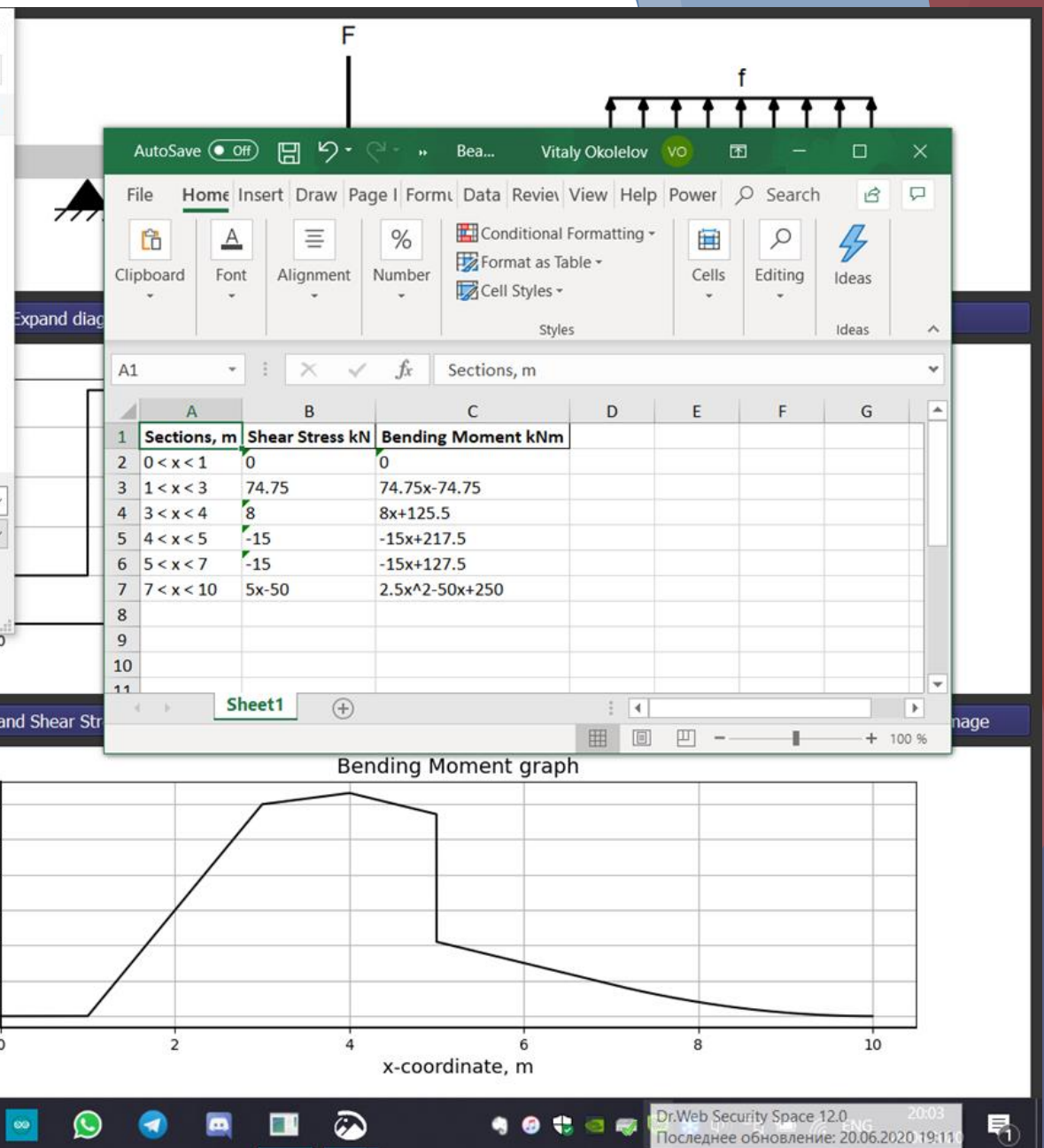
Diagram Customisation



4 < x < 5	-15	-15x+217.5
5 < x < 7	-15	-15x+127.5
7 < x < 10	5x-50	2.5x^2-50x+250

Position, m	Shear Stress, kN	Bending Moment, kNm
x = 0	0	0
x = 1 (-)	0	0
x = 1 (+)	74.75	0
x = 3 (-)	74.75	149.5
x = 3 (+)	8	149.5
x = 4 (-)	8	157.5

Save SS and BM equations in a file Save SS and BM values in a file



Saving Equation in a file

Save Shear Stress graph as an image

Упорядочить Новая папка

Имя Дата изменения Тип Размер

- github 15.05.2020 13:08 Папка с файлами
- mach_learn 05.08.2019 21:51 Папка с файлами
- Python 28.05.2020 18:47 Папка с файлами
- Beam_Shear_Stress_graph.png 20.06.2020 20:04 Файл "PNG" 26 K5
- Borderlands 2 RU 17.08.2019 12:21 Ярлык Интернета 1 K5
- Borderlands The Pre-Sequel 17.08.2019 12:21 Ярлык Интернета 1 K5
- Subnautica Below Zero 03.04.2020 19:06 Ярлык Интернета 1 K5
- Этот компьютер 31.07.2019 17:58 Ярлык 1 K5

Имя файла: Beam_Shear_Stress_graph.png

Тип файла: PNG (*.png)

Сохранить Отмена

Скрыть папки

Position, m	Shear Stress, kN	Bending Moment, kNm
$4 < x < 5$	-15	$-15x + 217.5$
$5 < x < 7$	-15	$-15x + 127.5$
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Save SS and BM equations in a file

Save SS and BM values in a file

Expand diagram

Expand Shear Stress

Photos - Beam_Shear_Stress_graph.png

Shear Stress graph

Shear Stress, kN

x-coordinate, m

Bending Moment, kNm

x-coordinate, m

The screenshot shows a software interface for structural analysis. At the top, a beam diagram is displayed with a point load F , a moment M , and a distributed load f . Below the diagram, a table provides the shear stress and bending moment values for different segments of the beam. A window titled 'Photos - Beam_Shear_Stress_graph.png' is open, showing the saved shear stress graph. The graph plots Shear Stress (kN) against x-coordinate (m). The shear stress is zero for $0 \leq x < 1$, jumps to 74.75 kN at $x = 1$, remains constant until $x = 3$, drops to 8 kN at $x = 3$, and then increases linearly to 50 kN at $x = 10$. The bending moment graph shows a parabolic curve for $0 \leq x < 1$, a linear increase from 0 to 149.5 kNm at $x = 3$, and a parabolic decrease from 157.5 kNm at $x = 4$ to 0 kNm at $x = 10$.

Saving Shear Stress graph in a file

