



Hashemite University
Faculty of Engineering
Mechanical Engineering Department
Strength of Material Lab

Student name: Mohd nedal 1832971

Raghad abu safi 1834623

Ahmad Abdullah alazzam 1837524

Student ID #:

Experiment Title: tensile test

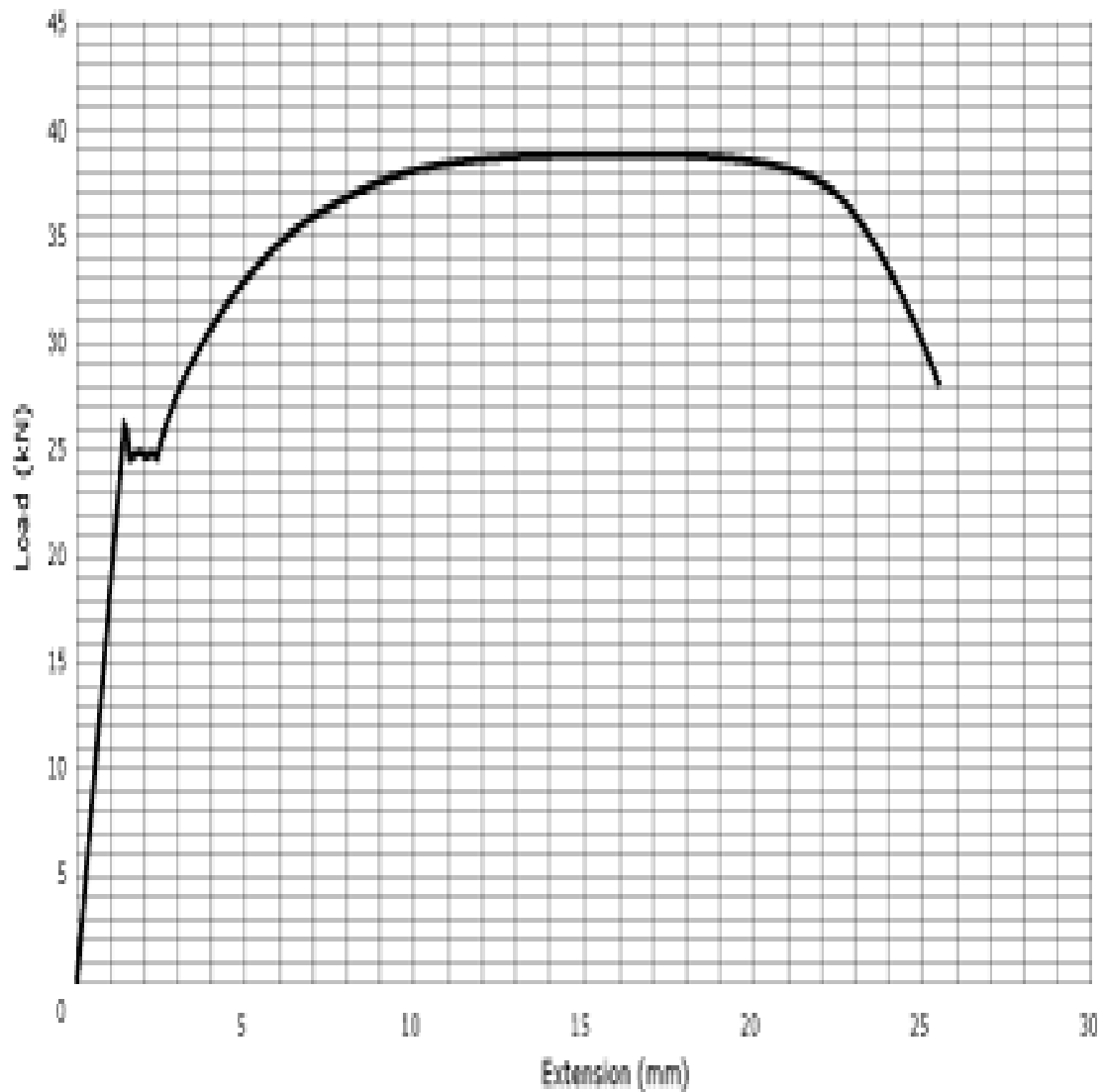
Experiment date: 22/10/2020

Dr: Haitham

Supervisor: Ahmad Sherman

Strength of Material Lab

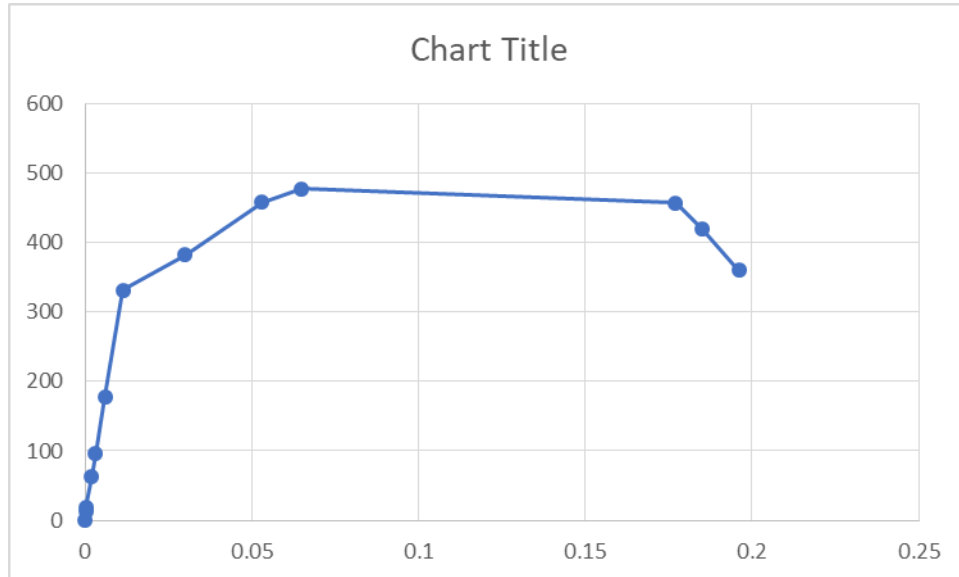
Tensile test



Q#1 Fill the table below by taken five reading (load vs. elongation) for each region (Elastic & plastic) from figure 1 then calculate stress & strain:

	load KN	elongation mm	stress (Map)	strain (mm/mm)
	0	0	0	0
Elastic Region	1	0.038	12.7	0.00029
	1.4	0.04	17.83	0.0003
	5	0.3	63.8	0.002
	7.5	0.4	95.5	0.0032
	14	0.83	178.3	0.006
Plastic Region	26	1.48	331.1	0.0113
	30	3.9	382.0	0.03
	36	7.0	458.4	0.053
	37.5	8.44	477.5	0.065
	36	23	457.09	0.177
	33	24.1	420.2	0.185
	28.2	25.5	360	0.196

Q2#. Plot stress strain diagram:



Note: you have to show one sample of calculation for elastic & plastic region

$$\text{Stress} = P/A = 1K/78.53 = 12.73$$

$$\text{For strain} = (L_f - L_o)/L_o = 0.038/130 = 0.00029$$

Q3#. Determine the following properties:

*The proportional limit : 360 Mpa

*Yield point : 331.1 Mpa

*Yield strength at an offset 0.1%

*Ultimate Stress : 477.5

*Fracture Stress : 360 Mpa

*percent elongation % : 63.75%

*percent reduction Area at fracture % : 38.92%

*Modulus of Elasticity : 513 Kpa

*Modulus of resilience : 1.871 Mpa

*Modulus of Toughness: 62.39 Mpa

*Shear modulus of elasticity (G) v??

*Bulk modulus of elasticity (K) v??

Q#4. Draw the shape of fracture and explain for the tow specimens
(ductile, brittle)

Brittle



Ductile

