

Course	ENGR 13300
Assignment Name	EX3 IND 1
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Student 1 Purdue login	raghav 21

Academic Integrity Statement: I/We have not used or unmodified. Neither have I/we provided access to my/our own original work.

Problem Description

/add a description and delete

Input Section:

Table 1: Spot Weld Shear Strength Tests	
Weld Strength (MPa)	
	5408
	5420
	5407
	5463
	5431
	5429
	5469
	5408
	5475
	5401
	5416
	5481
	5442
	5446
	5377
	5453
	5376
	5487
	5454
	5422
	5388
	5416
	5375
	5354
	5459
	5382
	5409

5421  
5422  
5357  
5459  
5406  
5416  
5388  
5445  
5444  
5435  
5457  
5429  
5466  
5399  
5445  
5381  
5401  
5458  
5383  
5391  
5436  
5425  
5411  
5485  
5401  
5477  
5454  
5388  
5399  
5431  
5407  
5447  
5453  
5388  
5431  
5416  
5385  
5329  
5428  
5372  
5440  
5431  
5440  
5473

5418

5481

5413

5390

5422

5423

5465

5387

5406

5399

5448

5441

5427

5440

5342

5435

5366

5412

5421

5482

5452

5387

5430

5384

5396

5406

5420

5462

5418

Semester	Fall 2024
Section	22
List collaborators if any(Name, Purdue login)	

material obtained from any other unauthorized source, either modified  
s to my/our work to another. The solution I/we am/are submitting is

ete this comment/

Calculation Section:

Table 2: Calculation of descriptive statistics for data in Table 1			
statistic		value	unit
min		5329	MPa
max		5487	MPa
range		158	MPa
mean		5421.7	MPa
median		5421.5	MPa
mode		5431	MPa
standard deviation		33.5	MPa
variance		1123.6	(Mpa)'
count		100	count

Table 3: Calculation of histogram quantities			
description		value	unit
number of bins using general rule		10	
bin width using general rule		15.8	
Updated values to make the histogram more presentable.			
number of bins		10	
bin width		16	
bin upper limits		5345	
		5361	
		5377	
		5393	
		5409	
		5425	
		5441	
		5457	
		5473	

**Table 4: Calculations for minimum required shear strength**

description	value	unit
1 ksi =	6.8948	[MPa]
<a href="https://www.engineeringtoolbox.com/unit-converter-d_185.html#Pressure">https://www.engineeringtoolbox.com/unit-converter-d_185.html#Pressure</a>		
required minimum shear strength	780	[ksi]
	5377.944	[Mpa]
number of samples below the required minimum shear strength	91	



<--- replace the shaded text with actual values

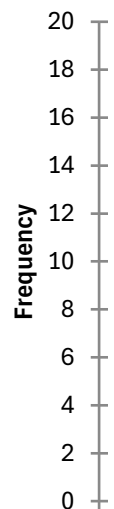
<--- replace the shaded text with actual values

#### Output Section:

Table 5: Outputs of EXCEL Histogram Function (Analysis ToolPak)

<i>Bin</i>	<i>Frequency</i>
5345	2
5361	2
5377	5
5393	13
5409	15
5425	18
5441	16
5457	13
5473	9
5489	7
More	0

Figure 1: H



#### Question 5

If the required minimum shear strength is 780 ksi (kilo pound per square inch), should tl  
using the data.

Yes because 91% of the welds were above 780 ksi.

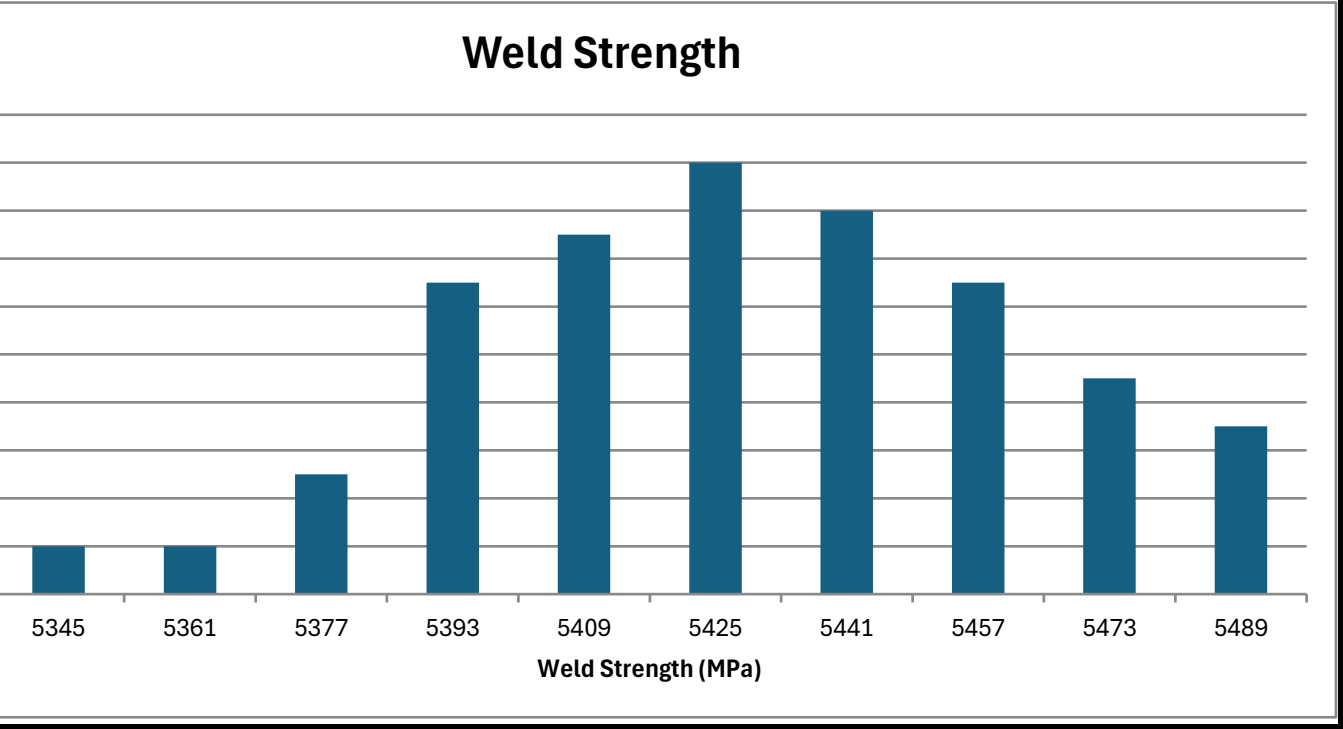




#### Question 5

If the required minimum shear strength is 780 kN

istogram of weld shear strength tests



he company buy the welding robot? Justify your answer



kip per square inch (ksi), should t

