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Courses » Micro and nano scale energy transport	Announcements	Course	Forum	Progress	Mentor

Unit 12 - Week 11

	Week 11 Assignment 1	
How to access the portal	The due date for submitting this assignment has passed. Due on 2017-10-16, 00):00 IST.
?	Submitted assignment	
Veek 1	Answer the following questions, More than one option can be correct.	
Veek 2	1) Microchannels are directly etched into silicon chips to dissipate a heat flux of from a computer chip. Each o	
Veek 3	parallel microchannels has a width a = 200 μ m, height b = 200 μ m, and length L = 10 mm. Refrigerant R-123 flow the microchannels. Calculate the heat transfer coefficient for if Nusselt number for fully developed flow is 3.556.	ws throug
Veek 4	Properties of R-123	
leek 5	$\mu_L = 404.2 * 10^{-6} Ns/m^2, \\ \mu_V = 10.8 * 10^{-6} Ns/m^2, \\ \rho_L = 1456.6 kg/m^3, \\ \rho_V = 6.5 Kg/m^3, \\ C_{p,L} = 1023 J/KgK, \\ K_L = 7000 KgK, \\ K_L = $	75.6 * 10
Veek 6	1426	
leek 7	 1344 1444 	
/eek 8	13444	
	No, the answer is incorrect. Score: 0	
Veek 9	Accepted Answers:	
leek 10	1344	
Veek 11	2) With the data from previous questions, Calculate the mass flux if the reynolds number is 100. (in Kg/S)	1 po
Two phase Heat transfer in Microchannels Part 2	0.202	
Nano fluid Heat transfer	 202 402 	
Part 1	302	
Nano fluid Heat transfer Part 2	No, the answer is incorrect. Score: 0	
Quiz : Week 11 Assignment 1	Accepted Answers:	
Feedback for Week 11		4
Veek 12	3) With the data from previous questions, calculate the single phase pressure drop in the microchannel (Pa)	1 pc
	 253 353 	
	0.353	
	453	
	No, the answer is incorrect.	
	Score: 0 Accepted Answers:	
	353	
	4) With the data in previous questions, calculate the total pressure drop if the boiling in microchannel starts at 8.29mm and the two phase pressure drop is 42,858 Pa/m	1 pc
	526	
	326	
	 426 0.426 	
	No, the answer is incorrect.	
	Score: 0	
	Accepted Answers: 426	
	5) If the heat flux needed to be dissiplated is $13000 W/m^2$ for the microchannel system described in previous question. Calculate the	ne 1 po
	bond number.	
	$0.378 * 10^{-3}$	
	0.178 * 10 ⁻ 3	
	$0.478 * 10^{-3}$	

Micro and nano scale energy transport - - Unit 12 - Week 11

 $0.0378 * 10^{-3}$

No, the answer is incorrect. Score: 0 Accepted Answers:

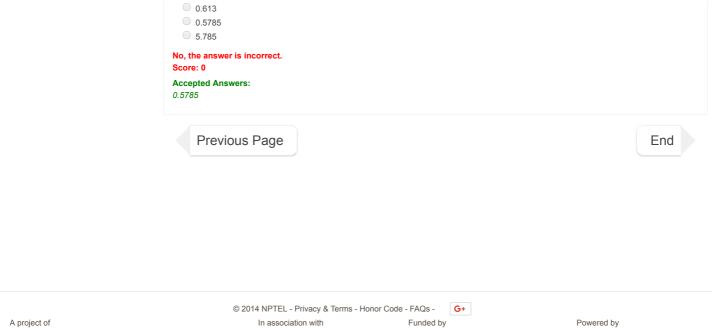
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<pre> file 1985 if 198 if 1</pre>	3169.58	
<pre> 4 199 59 No, the answer is incorrect. Score: 0 Accepted Answers: 478 6.69 7) The stability of nano fluids is determined by</pre>	0 1269.28	
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Score 0 Score 1 Score	No, the answer is incorrect	
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Accepted Answers: 0.6336

12) Calculate the effective thermal conductivity using the data provided in question 9 using hamiltonian crosser model considering 1 point $\operatorname{sphericity}(\psi)$ as 0.5.

0.05785





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