

Homework #7

Continuous-Time Signals and Systems

Assigned on Saturday, November 4, 2017

Due on Friday, November 10, 2017, by 12:30 pm via Canvas submission

Late homework will not be accepted.

Reading: McClellan, Schafer & Yoder, *Signal Processing First*, 2003, Ch. 9.

Companion Web site with demos and other supplemental information: <http://dspfirst.gatech.edu/>

Web site contains solutions to selected homework problems from *DSP First*.

The e-mail address for Ms. Anyesha Ghosh (TA) and her TA office room number are available at

https://utexas.instructure.com/files/43773591/download?download_frd=1

Office hours for Ms. Ghosh and Prof. Evans follow, as well as Prof. Evans' coffee hours on Friday.

<i>Time Slot</i>	<i>Monday</i>	<i>Tuesday</i>	<i>Wednesday</i>	<i>Thursday</i>	<i>Friday</i>
9:00 am			Ghosh		
9:30 am			Ghosh		
10:00 am			Ghosh		
10:30 am					
11:00 am		Ghosh		Ghosh	
11:30 am		Ghosh		Ghosh	
12:00 pm		Ghosh		Ghosh	Evans (EER cafe)
12:30 pm		Evans (EER 1.516)		Evans (EER 1.516)	Evans (EER cafe)
1:00 pm		Evans (EER 1.516)	Evans (EER 6.882)	Evans (EER 1.516)	Evans (EER cafe)
1:30 pm		Evans (EER 1.516)	Evans (EER 6.882)	Evans (EER 1.516)	Evans (EER cafe)
2:00 pm			Evans (EER 6.882)	Evans (EER 6.882)	
2:30 pm				Evans (EER 6.882)	
3:00 pm				Evans (EER 6.882)	

EE 313 tutoring is available on Mondays through Thursdays from 7:00pm to 10:00pm in ETC 4.150:

<http://www.ece.utexas.edu/undergraduate/tutoring>

1. System Properties. 25 points.

Signal Processing First, problem P-9.2, page 279.

2. Dirac Delta. 25 points.

Signal Processing First, problem P-9.4, page 279. For part (a), use

$$\int_0^{10} e^{-(t-4)} u(t-4) \delta(t-5) dt$$

Please do parts (b), (c) and (d) as they appear in problem P-9.4.

Simplify expressions involving the Dirac delta under integration, but please refrain from simplifying expressions involving the Dirac delta when it is not being integrated.

3. Continuous-Time Convolution. 25 points.

Signal Processing First, problem P-9.15, page 281.

4. Child of Continuous-Time Convolution. 25 points.

Signal Processing First, problem P-9.8, page 280.

As stated on the course descriptor, "Discussion of homework questions is encouraged. Please be sure to submit your own independent homework solution."

NOTE: In your solutions, please put all work for problem 1 together, then all work for problem 2 together, etc. Please see additional homework guidelines on the homework page.