Prerequisites Survey/Test
ME 460/660: Mechanical Vibrations
Instructor – Dr. Joseph C. Slater

Students Name:

Score: \_\_\_\_\_\_ points out of \_\_\_\_\_\_ points

Score: \_\_\_\_\_\_ points out of \_\_\_\_\_\_ points

The purpose of this survey/test is to assess how prepared you are for this course and to see how well the prerequisite courses are covering the material required for this course. Please fill out the general information on each course, check the appropriate box that best describes the level of understanding that you feel you have for the topic, and then work out the test question. This test will constitute 5% of your grade for this quarter. Note that no test points are given or deducted for how you respond to the student assessment portion of the form.

Simple Laplace Transform Table:

F(s)	F(t)
sX(s) - x(0)	$\dot{x}(t)$
$s^2X(s) - sx(0) - v(0)$	$\ddot{x}(t)$
$\frac{a}{s^2+a^2}$	$\sin(at)$
$\frac{s}{s^2+a^2}$	$\cos(at)$
1	$\delta(t)$
$\frac{1}{s}$	u(t)
$\frac{1}{s^2}$	t
$\frac{1}{s-a}$	$e^{at}$
$\frac{1}{s^n}$	$\frac{t^{n-1}}{(n-1)!}$

	General Inf	ormation on Prereq	uisite Course	
Course	Where Taken	Term/Year	Instructor	Grade (4.0 scale)
ME 213: Dynamics				
Student Asses	ssment of Their Kno	wledge of Prerequi	site Topic for Cour	se Listed Above
	į.	Check b	ox below applicable	e response
Topic	ABET Topic Letters	Can Explain or Apply Concept	Heard of Topic	Never Heard of Topic
Free Body Diagrams	A	49		
Te	est Question Assess:	ment of Student's P	rerequisite Knowle	dge
Question: Derive	the equation of n	m	wing system: F(t)	
Answer:		L $x(t)$		
		Construction of the Constr	-(+)	
	SF = mi			
	MXLEX	= F(F)		

Grade:

out of 2 points

MB 213: Dynamics  Student Assessment of Their Knowledge of Prerequisite Topic for Course Listed Above  Topic  ABET Topic Letters  Can Explain or Ap Beard of Topic  Never Heard of Topic  Assessment of Student's Prerequisite Knowledge  Question: Derive the equation of motion of the following system: $ y = 2x $ $ y = 3x $ $ y = 3$		G	eneral In	formation on Prerec	quisito Course	
Student Assessment of Their Knowledge of Prerequisite Topic for Course Listed Above  Topic  ABET Topic Letters  Check box below applicable response  Check box below applicable response  Phy Concept  Topic  Test Question Assessment of Student's Prerequisite Knowledge  Question: Derive the equation of motion of the following system: $ y = 2x $ $ y = 6k $ $ y = 2k $ $ y = $	Course	Where T	aken	Term/Year		Cmode (10 1)
Student Assessment of Their Knowledge of Prorequisite Topic for Course Listed Above  Topic  ABET Topic Let Care Explain or Applicable response  Check box below applicable response  Check box below applicable response  Never Heard of Topic  Never Heard of Topic  Never Heard of Topic  Topic Concept of Course Listed Above  Provided to the Student's Prerequisite Knowledge  Question: Derive the equation of motion of the following system: $ y = 2 \times y = 0 R,  (R_0   R_0) = 0 \times R_0 = 0 $	ME 213: Dynamics				17000 00007	Grade (4.0 scale)
Answer:  ABET Topic Let ters  Can Explain or Ap- Heard of Topic  Newer Heard of Topic  Test Question Assessment of Student's Prerequisite Knowledge  Question: Derive the equation of motion of the following system: $ y = 2 \times y = 0 \times 1  \text{Residuation of motion of the following system:} $ Answer: $ y = 2 \times y = 0 \times 1  \text{Residuation of motion of the following system:} $ $ y = 2 \times y = 0 \times 1  \text{Residuation of motion of the following system:} $ $ y = 2 \times y = 0 \times 1  \text{Residuation of motion of the following system:} $ $ y = 2 \times y = 0 \times 1  \text{Residuation of motion of the following system:} $ $ y = 2 \times y = 0 \times 1  \text{Residuation of motion of the following system:} $ $ y = 2 \times y = 0 \times 1  \text{Residuation of motion of the following system:} $ $ y = 2 \times y = 0 \times 1  \text{Residuation of motion of the following system:} $ $ y = 2 \times y = 0 \times 1  \text{Residuation of motion of the following system:} $ $ y = 2 \times y = 0 \times 1  \text{Residuation of motion of the following system:} $ $ y = 2 \times y = 0 \times 1  \text{Residuation of motion of the following system:} $ $ y = 2 \times y = 0 \times 1  \text{Residuation of motion of the following system:} $ $ y = 2 \times y = 0 \times 1  \text{Residuation of motion of the following system:} $ $ y = 2 \times y = 0 \times 1  \text{Residuation of motion of the following system:} $ $ y = 2 \times y = 0 \times 1  \text{Residuation of motion of the following system:} $ $ y = 2 \times y = 0 \times 1  \text{Residuation of motion of the following system:} $ $ y = 2 \times y = 0 \times 1  \text{Residuation of motion of the following system:} $ $ y = 2 \times y = 0 \times 1  \text{Residuation of motion of the following system:} $ $ y = 2 \times y = 0 \times 1  \text{Residuation of motion of the following system:} $ $ y = 2 \times y = 0 \times 1  \text{Residuation of motion of the following system:} $ $ y = 2 \times y = 0 \times 1  \text{Residuation of motion of the following system:} $ $ y = 2 \times y = 0 \times 1  \text{Residuation of motion of the following system:} $ $ y = 2 \times y = 0 \times 1  \text{Residuation of motion of the following system:} $ $ y = 2 \times y = 0 \times 1  \text{Residuation of motion of the following system:} $ $ y = 2 \times y = 0 \times 1  Residuation of motion$						
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Answer:  Test Question Assessment of Student's Prerequisite Knowledge  Question: Derive the equation of motion of the following system: $ \begin{array}{cccccccccccccccccccccccccccccccccc$				Uneck t	ox below applicab	le response
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Answer:  Test Question Assessment of Student's Prerequisite Knowledge  Question: Derive the equation of motion of the following system: $ y = 2x $ $ y = 0R $ $ y = 2R $ $ y = 0R $ $ y =$		ters		ply Concept	, ,	
Test Question Assessment of Student's Prerequisite Knowledge  Question: Derive the equation of motion of the following system: $ y = 2x $ $ y = 0R. $	Kinematics and Ki-		A			
Answer:  2						
Answer:  2 F = M, X  Mig-2T = MX  Sub @ 1-to D  Mig = (M, + M) + \frac{1}{R}) \frac{1}{R} = T  Mig = (M, + M) + \frac{1}{R}) \frac{1}{R} = T  Either  We know there is rolling to theat slipping because the problem statement asked for a single equation  OR y & OR is the second equation. For the first equip and of the state of the second equation. For Ming g	${ m T}\epsilon$	est Questi	on Assess	ment of Student's F	rerequisite Knowle	edge
mig  Signification  Sub Dinto D  Mig = Mix + 2 (m2 + The) ji	Question: Derive	the equa	ation of r	motion of the following $x$	wing system:	
Either  We know there is rolling in thout slipping because the problem statement asked for a single equation of year, and we substitute @ into O for the first equ, and @ is the second equation. From NKM2	Sub (3) 1-7 M, 9=	MX+	2 (m+	R2) y	5 n 6 0 .	T- RÓ
We know there is rolling in thout slipping because the problem statement asked for a single equation OR yxoR; and we substitute @ into O for the first equ, and 3 is the second equation. From Nxm2		(m,+	-M3 +	元) ※ /	(m <sub>2</sub> + 7	
y x or, and we substitute @ into O for the first egn, and 3 is the second equation. From My	Either				f J = I i	
	We keep of OK y x OR, First egn,	and (	there states I'we 3) 15	ant askell to	of into O equation. FF:	for the Nx mag
	rade:out of 4					

		General Info	ormation on Prereq	uisite Course	
Course	Where	Taken	Term/Year	Instructor	Grade (4.0 scale)
EE 321: Linear Sys-					
tems I					
Student Asses	sment c	of Their Kno	wledge of Prerequi	site Topic for Cours	se Listed Above
			Check b	ox below applicable	response
Topic	ABET ters	Topic Let-	Can Explain or Ap- ply Concept	Heard of Topic	Never Heard of Topic
Laplace transform of differential equa- tion		A			
Te	est Ques	tion Assessi	ment of Student's P	rerequisite Knowle	dge
Question: Find tl	he $Lapl$	ace domair		X(s), given the g	
and the second s	g vig det ver ville transfel get ette gjenet et get get det ste ste ste ste ste ste ste ste ste s	a			)
X(:	5) =	52402	524.15	+ 4	
The state of the s	and a second section of the second section of the second second section of the second section of the second second second section of the second secon	and a superplant of the superp	a raise of the second s	and the second s	
Grade: out of	2 points	3	****		**************************************

EE 321: Linear Systems I  Student Assessment of Their Knowledge of Prerequisite Topic for Course Lis  Check box below applicable resp  Topic ABET Topic Let-  Can Explain or Ap- Heard of Topic New		General Info	ormation on Prereq	uisite Course	
EE 321: Linear Systems I  Student Assessment of Their Knowledge of Prerequisite Topic for Course List  Topic  ABET Topic Letters  ABET Topic Letters  ABET Topic Letters  A  Test Question Assessment of Student's Prerequisite Knowledge  Question: Find the first three term of the Fourier series of the repeating which $x(t) = 0$ from $t = 0$ to $t = 1$ , and $x(t) = -1$ from $t = 0$ repeating every 2 seconds.  Hint: $F(t) = \frac{a_0}{2} + \sum_{n=1}^{\infty} (a_n \cos(n\omega_T t) + b_n \sin(n\omega_T t)) \text{ where } \omega_T = 2\pi t + b_n = 2$		Where Taken	Term/Year	Instructor	Grade (4.0 scale)
Student Assessment of Their Knowledge of Prerequisite Topic for Course Lis Check box below applicable response term of the Fourier of the Fourier series A  Test Question Assessment of Student's Prerequisite Knowledge Question: Find the first three term of the Fourier series of the repeating which $x(t) = 0$ from $t = 0$ to $t = 1$ , and $x(t) = -1$ from $t = 0$ repeating every 2 seconds. Hint: $F(t) = \frac{a_0}{2} + \sum_{n=1}^{\infty} (a_n \cos(n\omega_T t) + b_n \sin(n\omega_T t)) \text{ where } \omega_T = 2\pi \text{ the period of the function } a_0 = \frac{2}{T} \int_0^T F(t) dt, a_0 = \frac{2}{T} \int_0^T F(t) \sin(n\omega_T t) dt$ Answer:  You're welcome to be the fourier term of the Fourier series of the repeating $\omega_T = 0$ for $\omega_T $	21: Linear Sys-				
Topic ABET Topic Let- $\frac{Check box below applicable resp}{Can Explain or Ap} \frac{Near of Topic}{Top} \frac{Near of Topic}{Topic} \frac{Near of Topic}{T$	I				
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Test Question Assessment of Student's Prerequisite Knowledge Question: Find the first three term of the Fourier series of the repeating which $x(t) = 0$ from $t = 0$ to $t = 1$ , and $x(t) = -1$ from $t = 0$ repeating every 2 seconds. Hint: $F(t) = \frac{a_0}{2} + \sum_{n=1}^{\infty} (a_n \cos(n\omega_T t) + b_n \sin(n\omega_T t)) \text{ where } \omega_T = 2\pi the period of the function } a_0 = \frac{2}{T} \int_0^T F(t) dt, \\ a_n = \frac{2}{T} \int_0^T F(t) dt, \\ a_n = \frac{2}{T} \int_0^T F(t) \sin(n\omega_T t) dt$ Answer:  Figure uselesses to be the math, but and $a_n = 0$ for	er series	A			
Question: Find the first three term of the Fourier series of the repeating which $x(t) = 0$ from $t = 0$ to $t = 1$ , and $x(t) = -1$ from $t = 1$ repeating every 2 seconds. Hint: $F(t) = \frac{a_0}{2} + \sum_{n=1}^{\infty} (a_n \cos(n\omega_T t) + b_n \sin(n\omega_T t)) \text{ where } \omega_T = 2\pi \text{ the period of the function } a_0 = \frac{2}{T} \int_0^T F(t) dt, \\ a_n = \frac{2}{T} \int_0^T F(t) \cos(n\omega_T t) dt, \text{ and } \omega_0 = \frac{2}{T} \int_0^T F(t) \sin(n\omega_T t) dt$ Answer:  You're uselessed to be the math, but and $\omega_0 = 0$ . The series of the repeating which is a series of the repeating which $\omega_T = 0$ .			nent of Student's P	rerequisite Knowled	lge
	repeatin Hint: $F(t) = $ the period $a_0 = \frac{2}{T} \int a_n = $	ag every 2 second $\frac{a_0}{2} + \sum_{n=1}^{\infty} (a_n \cos \alpha_n) \cos \alpha_n \cos \alpha_$	s. $s(n\omega_T t) + b_n \sin(r t)$	$(\omega_T t)$ where $\omega_T = -1$ $(\alpha_N = 0)$ $($	$= 2\pi/T, \text{ and } T$ $n = 1, \dots \infty$ $n = 0$ $n = 0$