CE490 HOMEWORK-1 H. Sucuoğlu

(**Due: 21 March 2017**)

Get your copy of a ground acceleration component from an actual earthquake from the GMset that is available on the course website.

Note the information about the earthquake (date, epicenter), station name, site characteristics (rock, soil or loose alluvium, if available) and component of the record. These should be printed on your figures. Related information can be found on the internet at related websites (i.e. http://ngawest2.berkeley.edu/, etc.)

1) Plot $\ddot{u}_g$, $\dot{u}_g$, u_g vs. time. ***(Print out the plots.)***

2) Calculate and plot the following spectra for 2, 5, 10 % damping respectively. Write your own solution algorithm; do not use readily available ODE solver routines. ***(Print out the plots. – Plot spectra for different damping values on the same figure.)***

a) S_a
b) PS_a
b) S_d

3) Compare the 5% damped S_a with the code Spectrum (TEC2007), derived for seismic zone 1, soil type Z3.

4) Discuss the results obtained in parts 2, 3 and 4.

IMPORTANT REMARKS:

- *It is strongly recommended to use a computer program (i.e. Matlab, Mathcad etc.) or any kind of scripting language to process the ground motion data for your calculations and for your plots. Use of programs such as USDP and/or SeismoSignal are prohibited and any kind of work that includes output of a readily available program will not be graded.*

a. *You should also submit your source code of your program or the template of the software (i.e. soft copy of your work) that you utilized for your calculations to* ***Kaan Kaatsız (via e-mail). Send your digital copies in a single zipped file. File name format: NameSurname_ID.zip. If you do not submit the soft copy of your homework, it will not be graded.***

- *Provide a clear and illustrative script that is highlighted with comments and/or program template for your work as well as a neatly presented hard copy (i.e. plots, discussions and other parts that you submit in a printed format) of your homework.*
- *For large files that you wish to submit, please send a cloud link of the file from platforms such as Dropbox, Google Drive, OneDrive, etc. rather than sending the file.*

Ground Motion File Assignment Table

#	Id Number	Last Name	First Name	GM
1	1701283	ABDULLAYEV	ÜLVİ	116270
2	1736578	ERDOĞAN	ÇAĞRI	116360
3	1871938	GÜNEŞ	ANIL	A02043
4	1872027	KARADAĞ	HAZAR	BOL000
5	1872142	KUYUMCU	BURAK	CLS090
6	1872167	KİSELİ	HASAN BATU	DZC270
7	1872621	ÇANDIR	ESAT	E06140
8	1884154	ATALAY	HASAN OĞUZ	E11140
9	1931948	DEMİRÇEKEN	ORÇUN	E11230
10	1932086	EMÇE	AHMET	ELC180
11	1932151	GÖRAL	KORAY DENİZ	ERZEW
12	1932193	GÜMÜŞ	OĞUZHAN	G01000
13	1809417	BALABAN	BİRKAN	G01090
14	1932565	ORAK	CELİL	G02000
15	1933233	ÖZSOY	CAN	G02090
16	2043438	TEZGELEN	EZGİ	G03000
17	1809862	GÜVEN	MUSTAFA	G03090
18	1871391	ARIKOĞLU	PINAR	G04360
19	1809284	ALTAN	YUSUF	GIL067
20	1669548	DUMAN	YUSUF	GIL337
21	1933142	ÖZDEMİR	EYÜP ORÇUN	GOF090
22	1847433	RECEBLI	JEYHUN	GOF180
23	1785955	TABIEHZAD	POURYA	GRN270
24	1810324	PAKSOY	HÜSEYİN	HE04410
25	2276988	HADLEY	HANNAH ELIZABETH	IZT090
26	1810399	SEVİNDİK	HASAN SEZAİ	LCN275
27	1847425	RABAIA	TAREQ	LEX000
28	1851443	ÇAÇAN	MEHMET	LOB000
29	1871250	AKBELEN	MUSTAFA BARIŞCAN	LOB090
30	1871425	AVAN	MUSTAFA ALPEREN	MTW000
31	1871748	DERİCİ	SELEN	NIS090