



Monitoring the Popularity of Geodetic Engineering Course

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Introduction

- Not much people realize and appreciate the role of geodetic engineers in the development of modern civilization.
- Surveying is a major part of the spatial information industry and plays a crucial role in the real estate development and construction business.
- Geomatics, as the discipline of gathering, storing, processing, and delivering geographic information, is utilized for national security and civil administration.
- There are many commercial applications for Geomatics systems in the fields of agriculture, forestry, facility mapping, construction, infrastructure, telecommunications, insurance and disaster management, etc.
- Most people have used geospatial data produced by geomatics technologies such as checking the weather report, tagging location on Instagram, or use an app like Waze.

Introduction

- During the Spanish regime in the Philippines, land measurements were performed by “agrimensores” using compass and tape.
- Land titles were issued by a government body based on these measurements but the accuracies of the surveys led afterwards to controversies.
- When the Americans took over (1898), one of the government units that was organized and staffed at the top by the Americans was the Bureau of Public Lands.
- Governor-General Francis B. Harrison adopted the “Filipinization” policy in 1916 and put up a school of surveying to train Filipino surveyors.

Introduction

- The students were called “pensionados” or Bureau of Lands scholars. It was a 2-year course in which after finishing the course the graduates had to render service to the government.
- In 1925, the School of Surveying was incorporated into the UP College of Engineering offering the Associate in Surveying title to its graduates.
- In June 1937, the surveying course was elevated to the 4-year bachelor of science in geodetic engineering course.
- Today the UP Department of Geodetic Engineering offers a 5-year BS Geodetic Engineering program.

Literature Review

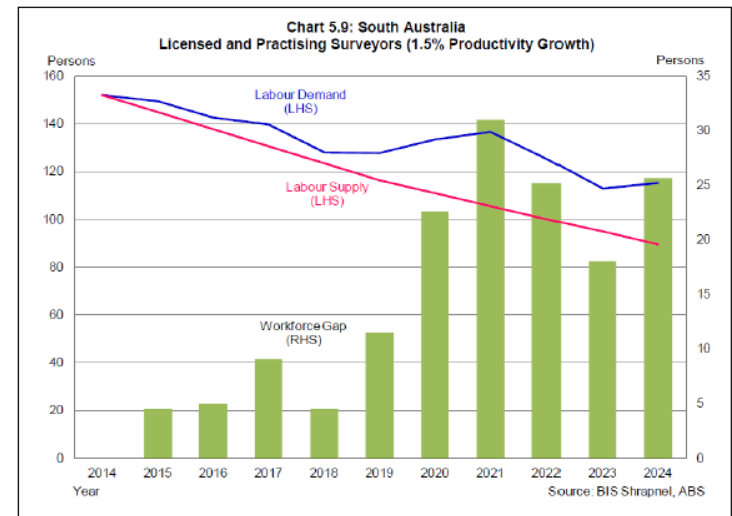
- There is a global shortage of land surveyors and many universities around the world are finding it difficult to attract students into the land surveying programs.
- From an article “An Evaluation of Undergraduate Surveying Education in Alaska”, there is currently a shortage of Professional Land Surveyors in Alaska and the average age of the Professional Land Surveyor is 58 years.
- Since the introduction of the Geomatics offerings at University of Alaska in 1996 there have been 375 declared majors in Geomatics but only 18% of the declared majors have successfully completed the program.

Literature Review

- Madiraju and Satyaprakash (2010) has observed that in India, Surveying as a profession is mostly taken up by Diploma holders.
- The education lacks proper infrastructure in terms of the instruments availability and uninteresting course curriculum.
- The loss of interest in this field can also be attributed to the relatively low remuneration they gain.
- A candidate can receive a salary in the range of INR 100,000 (USD 2500) per annum for a fresher to INR 200,000 (US 5000) per annum with 2-3 years experience

Literature Review

- Due to dwindling numbers, the Bachelor of Geoinformatics and Surveying at the University of South Australia (UniSA) was discontinued in 2006 and the final students from this degree graduated in 2009 (Nietschke et al, 2016).
- A recent report by BIS Shrapnel (2015) predicted that there will be a national shortage of nearly 7,000 surveyors and associated professionals by the middle of next decade.



Objective and Significance of the Study

- The objective of this study is to evaluate the status of the Geodetic Engineering program in terms of the students' selection of the course in the University of the Philippines College Admission Test (UPCAT) and the number of enrollment in the UP College of Engineering.
- The result will be used to strategize on how to improve recruitment and retention of students in order to satisfy the geomatics technology needs of the country in the new millennium.

Data

- The data used in this study was provided by the UP Office of Admissions and the UP College of Engineering Administration Office.
- The Office of Admissions provided the historical data from 1995 to 2015 on the number of students selecting the BSGE program as their first choice in their UPCAT Application Form.
- Data on the actual number of enrollment from Academic Year 2000-2001 to Academic Year 2015-2016 in the BSGE program was provided by the UP College of Engineering Administration Office.

UP Office of Admissions Data

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y
1	Diliman: 1995-2015 UPCAT Degree Program Distribution (by First Choice of Applicants & Qualifiers, by Final Course Qualified)																								
3	CAMPUS	CODE	DEGREE PROGRAM	2015		2014		2013		2012		2011		2010		2009		2008		2007		2006		2005	
4				apps IC1	qual fcrse	apps IC1	qual fcrse	apps IC1	qual fcrse	apps IC1	qual fcrse	apps IC1	qual fcrse	apps IC1	qual fcrse	apps IC1	qual fcrse	apps IC1	qual fcrse	apps IC1	qual fcrse	apps IC1	qual fcrse	apps IC1	qual fcrse
5	4	4000	Course Not Indicated	18		5		20		10		8		9		11		14		13		13		13	
6	4	4001	BA Anthropology	117	20	134	8	106	10	121	19	93	8	83	8	73	8	75	12	109	22	90	15	79	6
7	4	4007	BA Comparative Literature	59	12	60	10	34	7	47	9	27	6	31	9	25	8	30	5	28	6	31	8	28	7
8	4	4010	BA European Languages	651	50	578	45	696	30	662	30	544	31	642	30	608	30	617	31	615	31	456	30	297	30
9	4	4012	BA History	267	28	230	10	209	14	272	24	181	12	192	16	147	5	152	11	171	13	187	24	179	16
10	4	4016	BA Journalism	864	45	795	45	864	45	842	45	647	45	689	46	655	45	696	45	711	45	832	45	846	45
11	4	4017	BA Linguistics	406	35	429	25	415	19	430	34	407	35	398	29	317	35	333	35	337	35	232	35	205	34
12	4	4020	BA Philosophy	196	41	229	26	192	21	187	19	176	30	183	23	153	26	143	25	200	32	180	38	209	33
13	4	4021	BA Filipino			63		74	1	72		52	1	53	3	52	1	53	2	55		57	3	46	2
14	4	4022	BA Political Science	1130	105	1243	93	1133	104	1030	88	1023	93	1031	91	885	102	1037	105	913	105	1001	106	1106	106
15	4	4023	BA Psychology	899	50	747	50	699	50	636	51	560	50	527	50	442	50	475	50	448	50	446	50	475	50
16	4	4025	BA Sociology	105	34	124	2	106	11	89	10	94	12	101	9	93	4	93	14	101	14	124	27	88	8
17	4	4026	BA Spanish																						
18	4	4027	BA Speech Communication	222	28	248	25	259	25	215	16	186	14	222	20	183	23	199	25	249	28	203	38	181	37
19	4	4028	BA Theater Arts	299	18	293	5	238	5	201	2	199	3	196		152	3	207	5	283	8	238	13	269	9
20	4	4036	BS Architecture	3331	70	2995	70	2937	70	2220	70	1713	70	1576	70	1107	70	907	70	904	70	903	70	851	70
21	4	4038	BS Biology	2160	100	2055	100	1874	100	1849	100	1710	100	1602	100	1338	100	1251	100	1175	100	1229	100	1180	90
22	4	4040	BS Business Administration	3683	100	3618	100	3009	100	2990	100	2623	100	2662	100	2338	100	2361	100	2261	100	2440	100	2390	100
23	4	4043	BS Business Administration & Accountancy	8605	100	9141	100	8099	101	8022	100	7061	100	7198	100	6151	100	6173	100	5511	100	5705	100	5369	100
24	4	4044	BS Business Economics	454	90	544	90	457	90	445	90	380	90	375	90	367	90	428	90	399	90	410	90	382	90
25	4	4046	BS Chemistry	410	80	417	80	371	80	399	80	290	80	326	80	253	81	279	80	254	80	274	80	273	70
26	4	4047	BS Clothing Technology	262	10	232	8	212	10	215	9	177	9	134	10	179	10	185	10	187	10	168	10	171	7
27	4	4048	BS Community Development	85	8	103	1	90	4	90	3	92	5	80	8	92	5	87	2	105	9	102	13	106	4
28	4	4049	BS Community Nutrition	214	35	194	36	179	35	159	26	155	27	137	24	133	25	105	10	123	23	149	16	113	8
29	4	4078	BS Chemical Engineering	1695	140	1416	140	1314	140	1192	140	1004	141	1085	140	925	140	856	140	722	141	696	140	644	215
30	4	4079	BS Civil Engineering	4313	130	3732	130	3058	130	2578	130	2203	131	2124	131	1619	130	1397	130	1108	129	1020	130	968	96
31	4	4080	BS Electrical Engineering	612	70	645	57	468	37	453	35	351	35	372	35	305	34	287	35	311	32	292	35	278	35
32	4	4081	BS Geodetic Engineering	280	75	296	45	272	30	221	29	111	18	120	19	102	23	86	12	77	14	87	12	77	6
33	4	4082	BS Industrial Engineering	708	112	659	110	598	110	572	110	484	110	445	110	466	111	444	110	418	110	422	110	395	110
34	4	4083	BS Mechanical Engineering	1645	80	1507	80	1209	80	879	80	727	80	708	80	555	70	585	80	498	54	474	72	405	34
35	4	4084	BS Metallurgical Engineering	176	35	162	33	158	35	120	35	84	28	78	20	76	24	48	17	37	9	58	15	53	13

1995-2015 BS Geodetic Engineering (by First Choice of Applicants & Qualifiers, by Final Course Qualified)

CODE	DEGREE PROGRAM	2015		2014		2013		2012		2011		2010		2009		2008		2007		2006		2005	
		apps IC1	qual fcrse	apps IC1	qual fcrse	apps IC1	qual fcrse	apps IC1	qual fcrse	apps IC1	qual fcrse	apps IC1	qual fcrse	apps IC1	qual fcrse	apps IC1	qual fcrse	apps IC1	qual fcrse	apps IC1	qual fcrse	apps IC1	qual fcrse
4081	BS Geodetic Engineering	280	75	296	45	272	30	221	29	111	18	120	19	102	23	86	12	77	14	87	12	77	6
	DILIMAN TOTAL	58209	5589	56676	3913	50607	3876	48486	3821	43333	3821	45178	3831	39405	3826	40791	3826	39485	3825	39109	4480	36933	3822
	OVERALL TOTAL	88554	14988	84885	13028	76662	12732	73474	12936	66559	12944	69708	12550	63241	12129	68108	12234	71478	12053	68724	12457	68531	11427

UP College of Engineering Administration Office

COLLEGE OF ENGINEERING
U.P. Diliman, Quezon City

Data

SY 2015-2016

ENROLLMENT DATA SHEET

COURSE SEMESTER	CnE				CE				CS				EE				ECE			
SEX	1		2		1		2		1		2		1		2		1		2	
5th	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
4th	58	66	54	61	133	72	120	63	x	x	x	x	34	7	29	7	91	47	70	47
3rd	64	47	67	45	91	54	89	55	64	45	62	42	18	6	19	8	86	27	91	27
2nd	53	62	50	63	87	54	91	55	59	37	57	40	31	10	32	9	80	45	77	44
1st	69	54	73	57	75	49	95	57	60	51	83	52	43	13	45	17	80	43	89	47
Shifts Eng'g to Eng'g	67	68	67	68	72	52	70	53	102	39	100	37	49	13	48	14	98	37	98	37
Shifts from other Colleges	3	1	0	0	8	5	0	0	3	1	"(1)"	"(1)"	2	1	"(1)"	"(1)"	6	3	"(3)"	"(2)"
Transferees from other UP units	4	2	0	0	9	3	0	0	3	2	"(1)"	"(1)"	2	0	0	0	1	2	"(1)"	"(1)"
Transferees from other schools	1	1	0	0	4	2	0	0	2	2	0	0	3	3	0	0	6	2	0	0
2nd Degree Students	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0
TOTAL	0	0	0	0	3	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
	319	301	311	294	482	292	465	283	314	178	302	171	184	55	174	55	448	206	425	202
	620		606		774		748		452		473		259		229		654		627	

COURSE SEMESTER	CoE				GE				IE				ME				MatE			
SEX	1		2		1		2		1		2		1		2		1		2	
5th	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
4th	55	18	50	16	80	45	82	50	66	47	65	45	101	20	88	17	20	35	20	30
3rd	38	25	36	23	37	34	36	37	49	43	48	41	68	14	69	16	22	20	20	21
2nd	57	27	56	26	44	25	52	29	35	54	39	54	65	9	70	9	27	29	24	29
1st	67	38	67	37	41	33	58	43	47	47	52	54	66	8	73	11	36	27	38	28
Shifts Eng'g to Eng'g	77	38	76	42	35	38	35	38	49	53	47	52	57	15	57	14	33	38	32	37
Shifts from other Colleges	0	1	0	0	5	3	"(5)"	"(1)"	6	8	"(3)"	0	8	2	0	0	0	1	0	0
Transferees from other UP units	1	0	0	0	3	4	0	0	0	1	"(5)"	"(2)"	2	0	0	0	1	1	0	0
Transferees from other schools	2	1	0	0	7	4	0	0	2	0	0	0	5	2	0	0	1	0	0	0
2nd Degree Students	6	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	303	153	285	144	252	189	263	197	254	253	251	246	372	70	357	67	140	151	134	145
	456		429		441		400		507		497		442		434		291		279	

COURSE SEMESTER	MatE				EM				TOTAL			
SEX	1		2		1		2		1		2	
5th	M	F	M	F	M	F	M	F	M	F	M	F
4th	21	19	18	11	37	9	42	13	596	385	638	361
3rd	20	13	20	14	17	7	17	7	574	335	574	334
2nd	17	14	17	13	17	8	16	10	572	375	582	381
1st	19	14	20	14	18	14	24	14	641	391	717	431
Shifts Eng'g to Eng'g	19	14	19	14	19	9	20	8	677	414	670	414
Shifts from other Colleges	0	0	0	0	3	1	0	0	44	27	"(13)"	"(5)"
Transferees from other UP units	0	0	0	0	0	0	0	0	26	15	"(7)"	"(4)"
Transferees from other schools	1	0	0	0	1	0	0	0	12	7	0	0
2nd Degree Students	0	0	0	0	4	0	0	0	33	19	0	0
TOTAL	0	0	0	0	0	0	0	0	4	4	0	0
	97	74	94	66	778	48	119	52	3279	1972	1181	1921
	171		180		164		171		5,251		5,102	

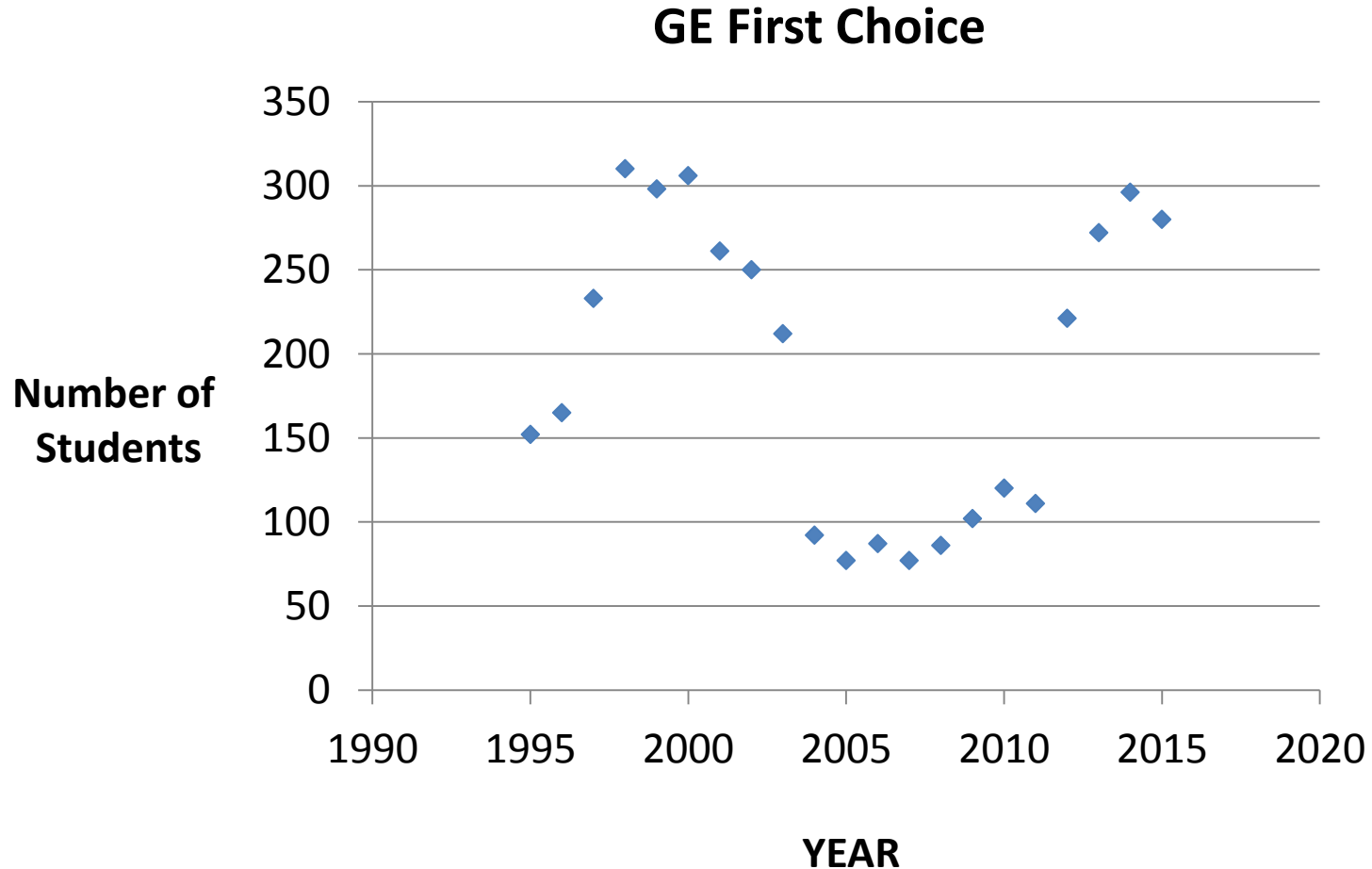
(Undergraduate Students only)

/Date February 16, 2016

Results and Discussions

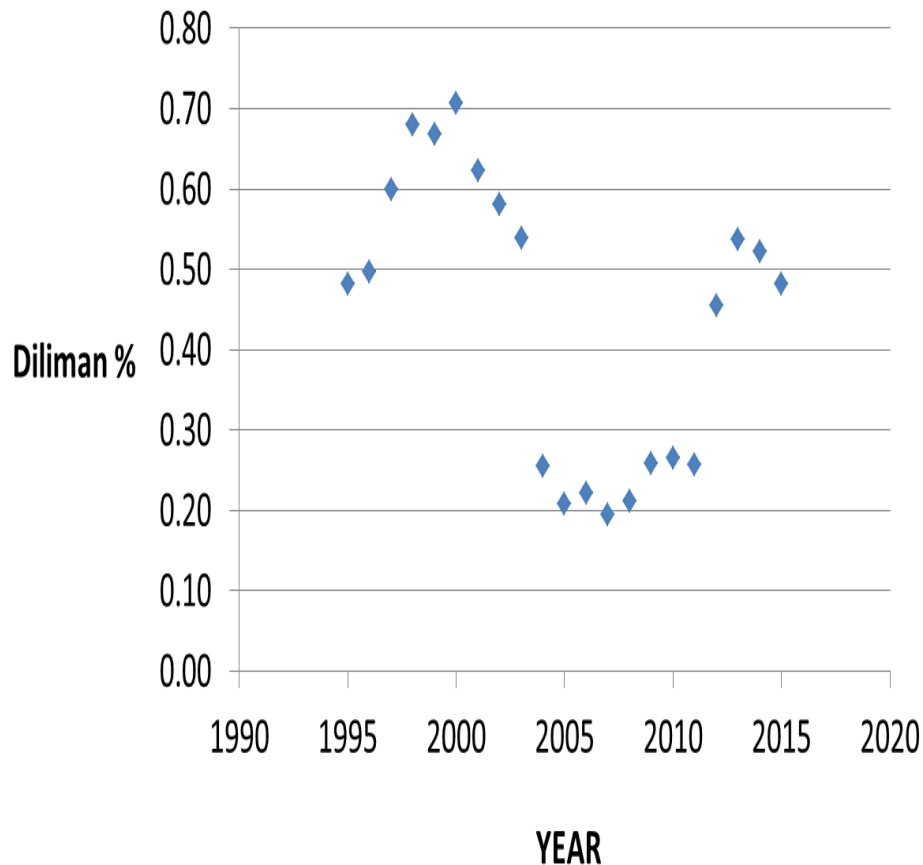
YEAR	Applicants First Choice	Qualifiers per Course	DILIMAN TOTAL		OVERALL TOTAL		Diliman % of First Choice	Overall % of First Choice
			Examinees	Qualifiers	Examinees	Qualifiers		
1995	152	25	31524	6012	49638	12127	0.48	0.31
1996	165	19	33156	4526	51317	10355	0.50	0.32
1997	233	35	38861	4508	58800	10783	0.60	0.40
1998	310	40	45632	4538	67528	11049	0.68	0.46
1999	298	36	44613	4747	65029	11163	0.67	0.46
2000	306	30	43313	3735	65892	10706	0.71	0.46
2001	261	24	41872	3747	64848	10667	0.62	0.40
2002	250	34	43010	3921	67436	11259	0.58	0.37
2003	212	29	39367	3942	65999	10803	0.54	0.32
2004	92	12	35979	3822	65362	11381	0.26	0.14
2005	77	6	36933	3822	68531	11427	0.21	0.11
2006	87	12	39109	4480	68724	12457	0.22	0.13
2007	77	14	39485	3825	71478	12053	0.20	0.11
2008	86	12	40791	3826	68108	12234	0.21	0.13
2009	102	23	39405	3826	63241	12129	0.26	0.16
2010	120	19	45178	3831	69708	12550	0.27	0.17
2011	111	18	43333	3821	66559	12944	0.26	0.17
2012	221	29	48486	3821	73474	12936	0.46	0.30
2013	272	30	50607	3876	84885	13028	0.54	0.32
2014	296	45	56676	3913	84885	13028	0.52	0.35
2015	280	75	58209	5589	88554	14988	0.48	0.32

Results and Discussions



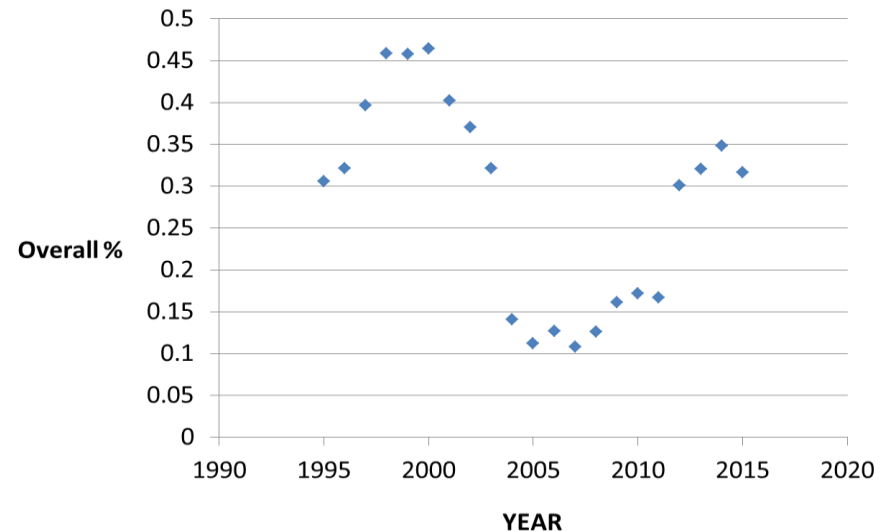
Results and Discussions

Diliman % of First Choice



- Represents only 0.20% or 1 out of 513 to 0.71% or 1 out of 142 examinees in Diliman
- Represents only 0.11% or 1 out of 928 to 0.46% or 1 out of 215 examinees nationwide

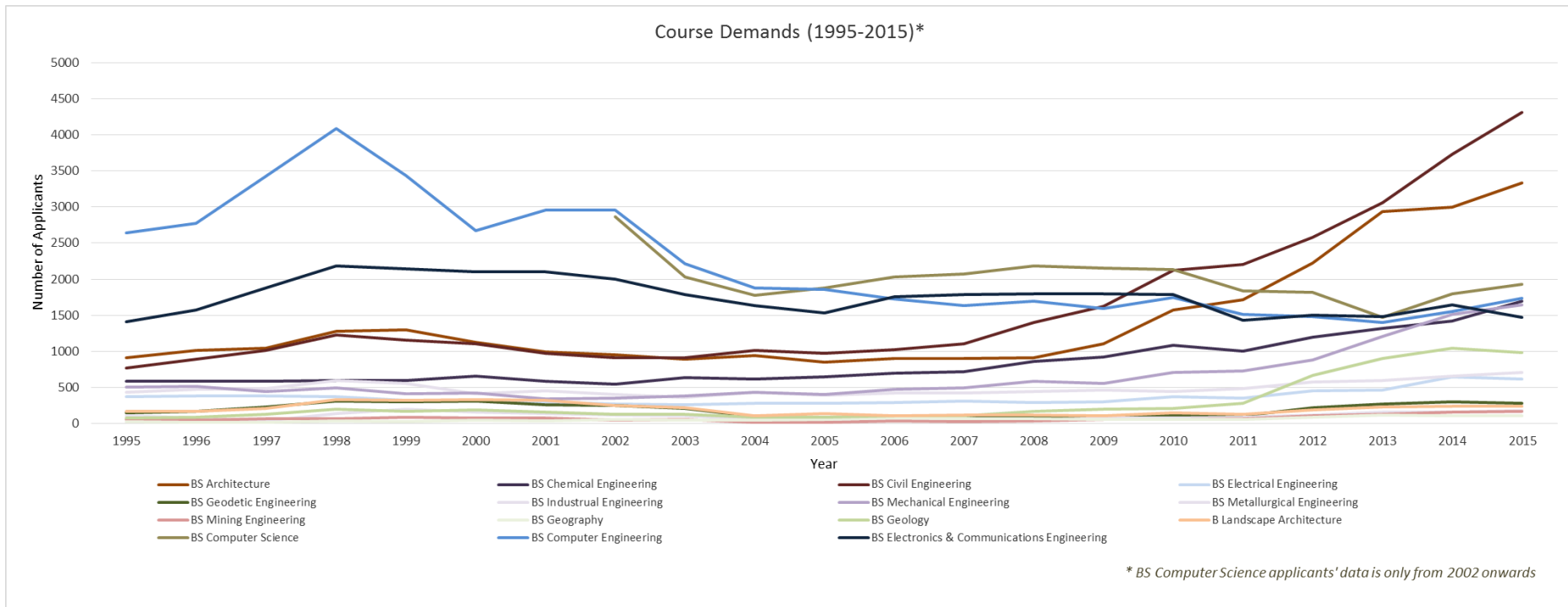
Overall % of First Choice



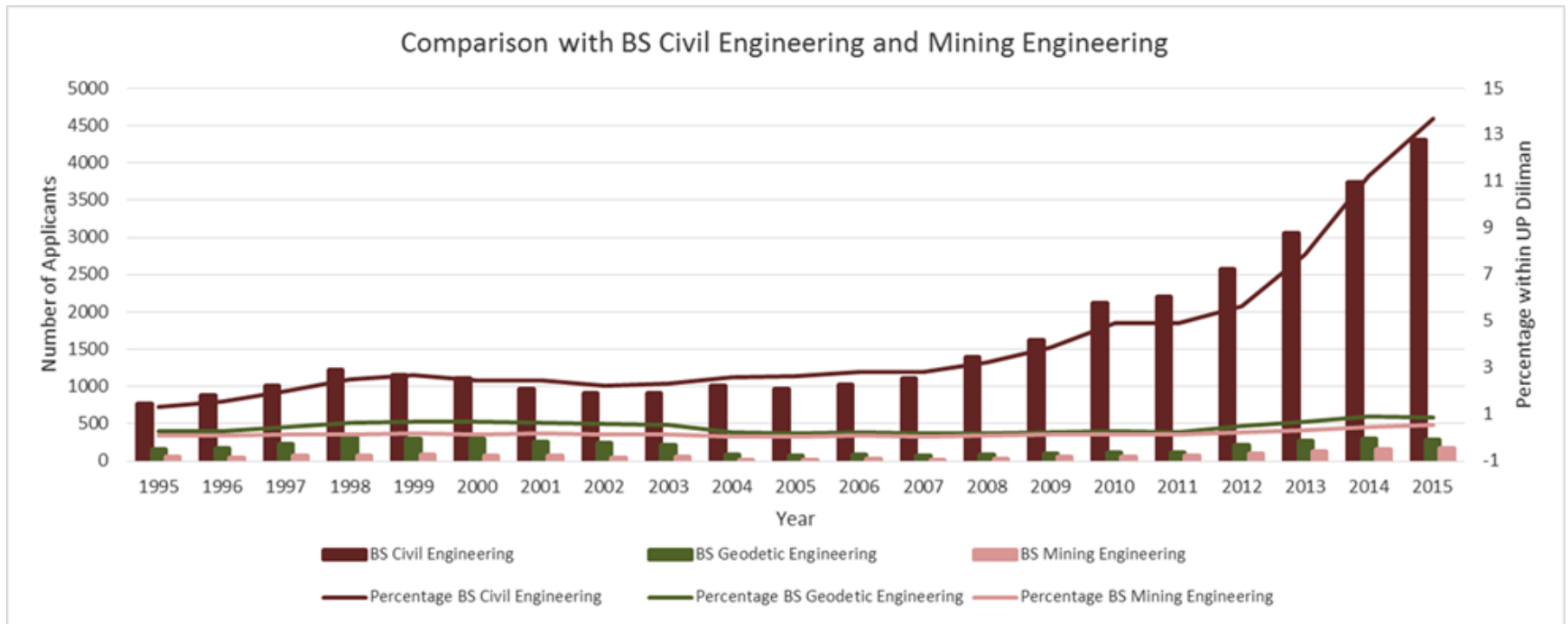
Results and Discussions

	NUMBER OF 1ST CHOICE APPLICANTS PER YEAR																				
COURSES	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
BS Architecture	914	1008	1044	1276	1295	1130	995	955	889	941	851	903	904	907	1107	1576	1713	2220	2937	2995	3331
BS Chemical Engineering	584	582	584	591	591	653	583	542	638	620	644	696	722	856	925	1085	1004	1192	1314	1416	1695
BS Civil Engineering	773	889	1017	1223	1159	1104	972	910	910	1014	968	1020	1108	1397	1619	2124	2203	2578	3058	3732	4313
BS Electrical Engineering	374	385	383	375	325	316	305	267	256	282	278	292	311	287	305	372	351	453	468	645	612
BS Geodetic Engineering	152	165	233	310	298	306	261	250	212	92	77	87	77	86	102	120	111	221	272	296	280
BS Industrial Engineering	430	472	487	592	556	413	450	401	362	430	395	422	418	444	466	445	484	572	598	659	708
BS Mechanical Engineering	503	513	440	498	413	422	337	354	382	433	405	474	498	585	555	708	727	879	1209	1507	1645
BS Metallurgical Engineering	109	73	36	138	198	158	142	120	105	54	53	58	37	48	76	78	84	120	158	162	176
BS Mining Engineering	61	51	66	71	83	74	75	50	55	15	19	35	22	36	61	60	68	108	124	155	173
BS Geography	24	19	16	34	29	44	41	52	47	50	55	72	66	67	61	53	58	85	118	104	103
BS Geology	75	91	125	203	172	193	160	126	129	82	87	104	103	170	203	210	284	671	896	1044	978
B Landscape Architecture	172	164	207	327	318	336	320	253	222	112	134	103	113	118	107	148	131	186	226	240	238
BS Computer Science								2868	2031	1773	1877	2028	2073	2183	2158	2134	1836	1822	1466	1800	1926
BS Computer Engineering	2645	2776	3425	4085	3437	2667	2953	2952	2210	1880	1859	1730	1629	1700	1592	1747	1508	1481	1403	1553	1735
BS Electronics & Communications Engineering	1406	1568	1881	2186	2138	2103	2106	1999	1791	1635	1527	1759	1789	1797	1800	1791	1434	1504	1480	1642	1473
BS Materials Engineering							188	201	212	85	64	89	71	77	92	97	95	129	145	164	181

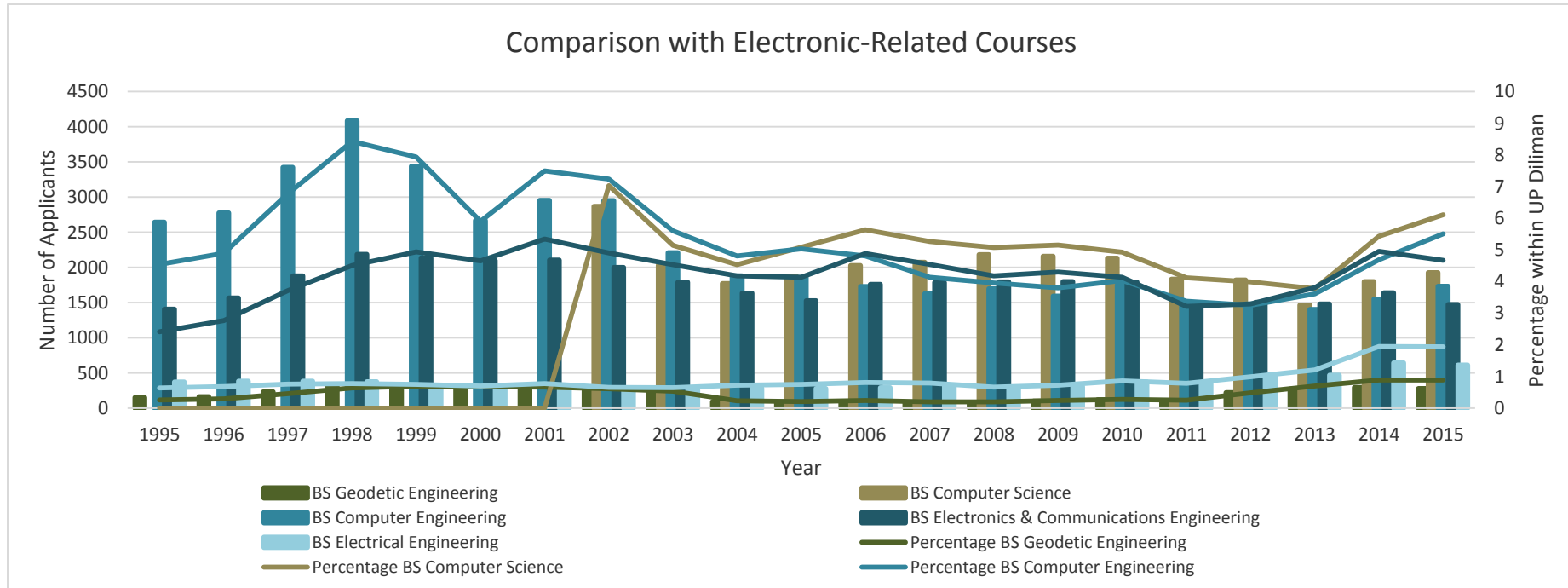
Results and Discussions



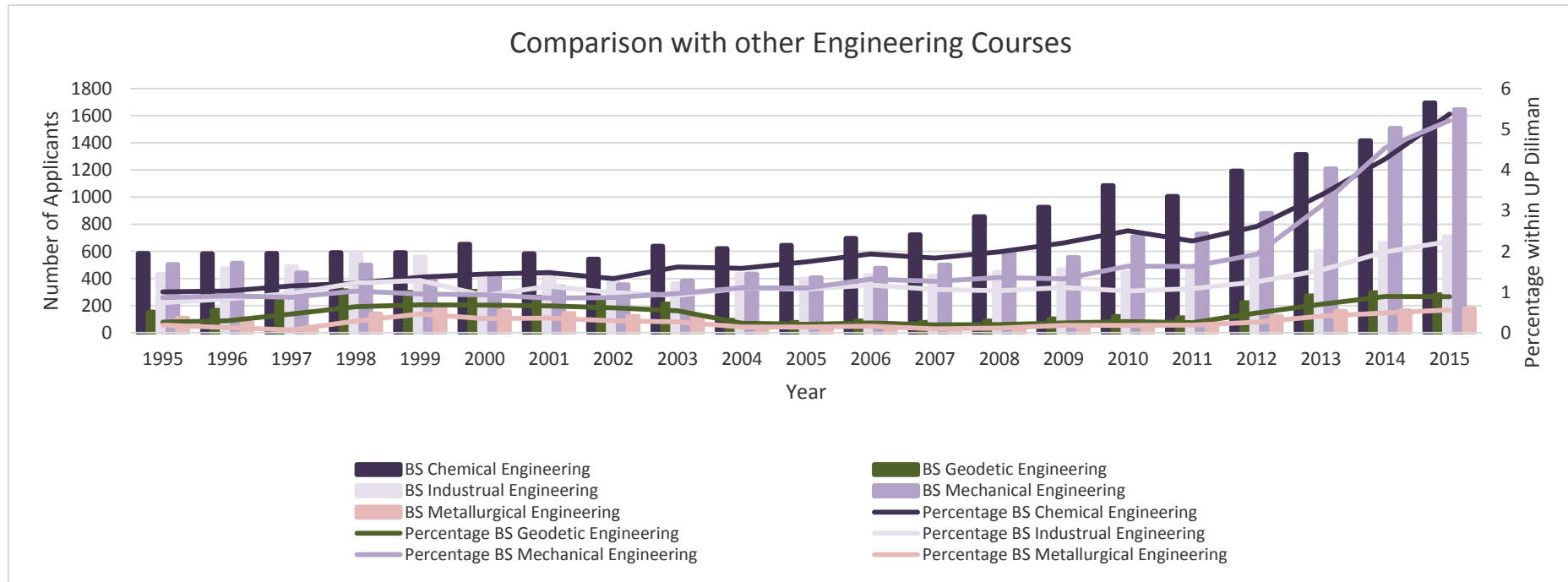
Results and Discussions



Results and Discussions

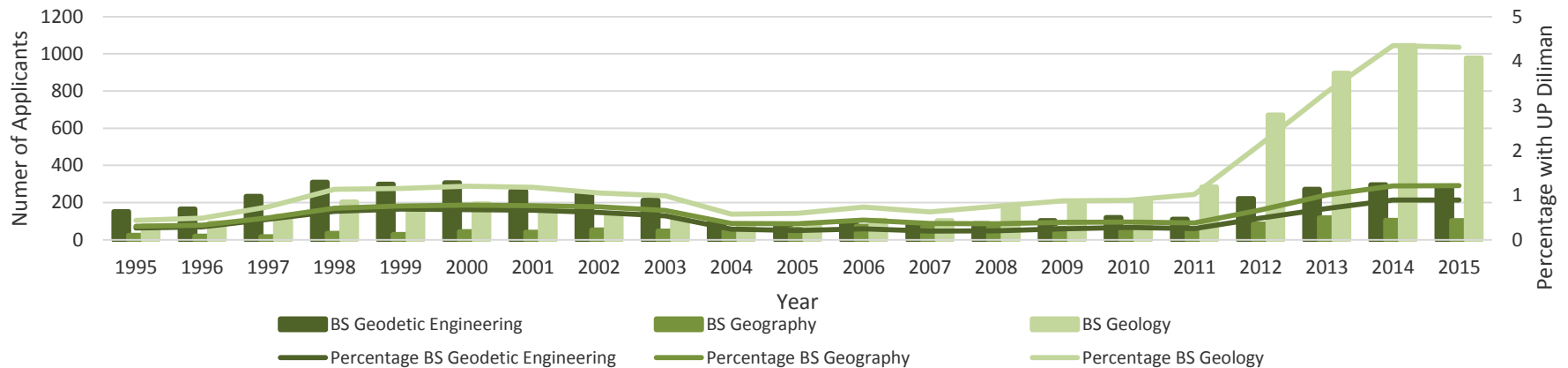


Results and Discussions

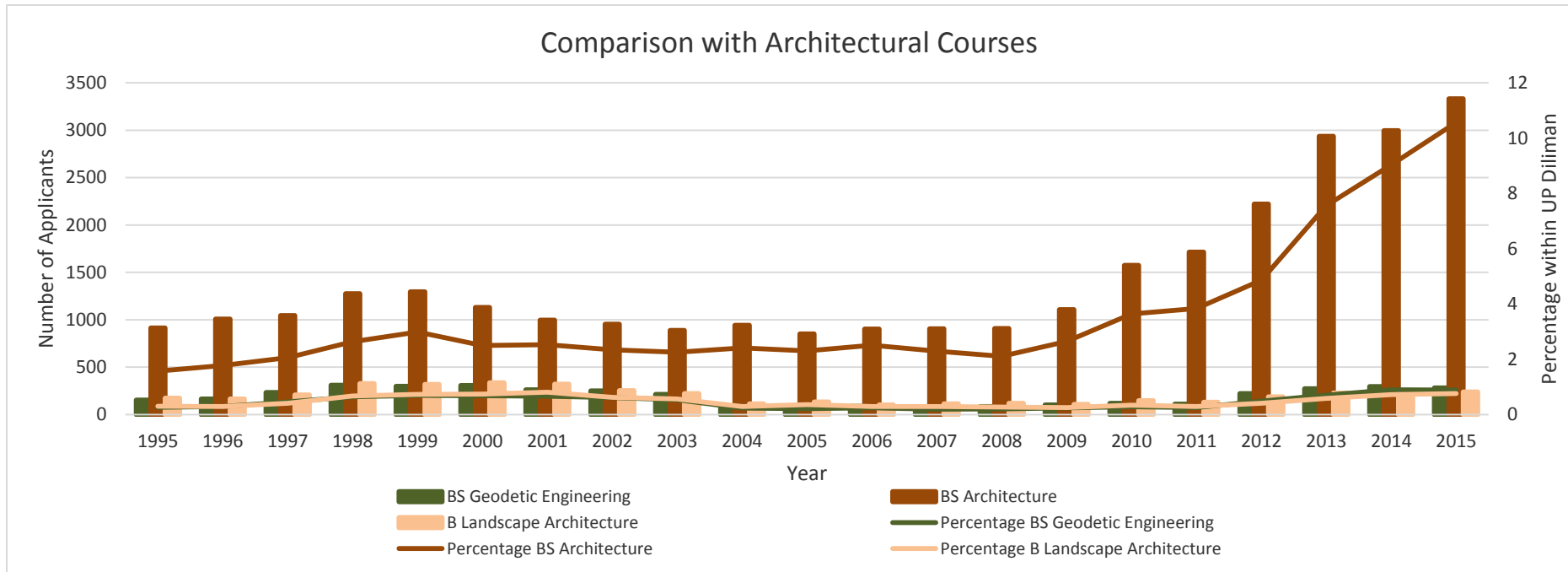


Results and Discussions

Comparison of Applicants with BS Geography and BS Geology



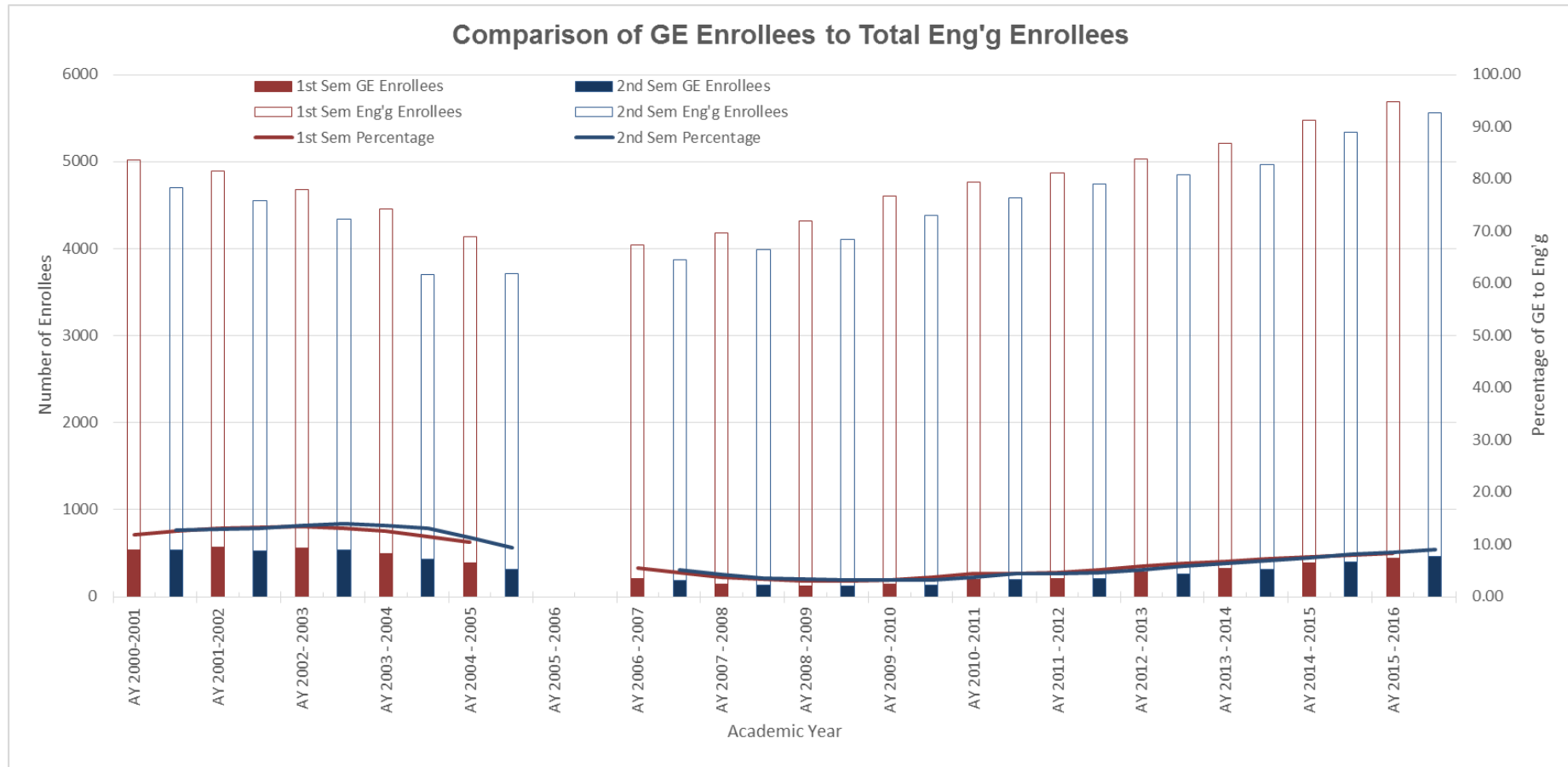
Results and Discussions



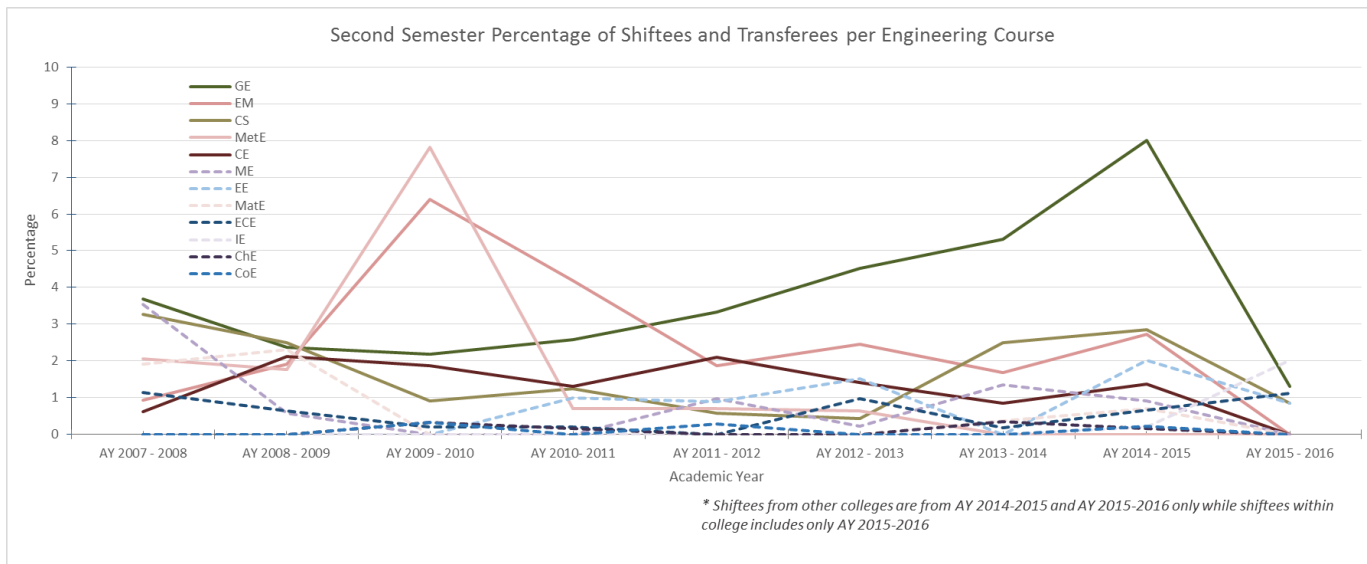
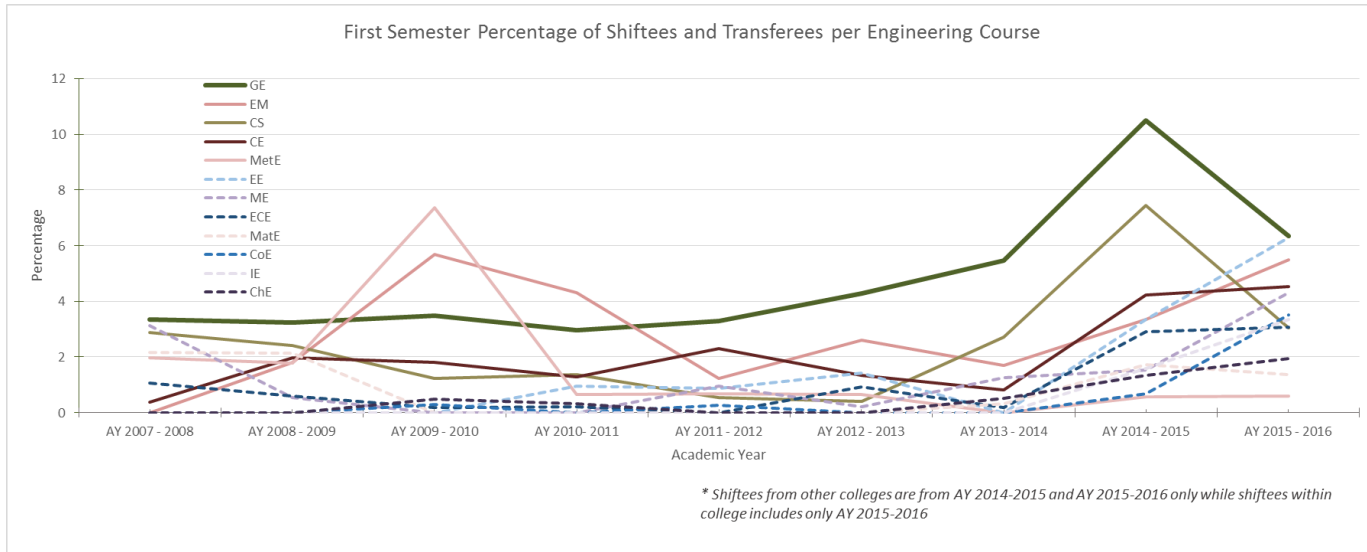
Results and Discussions

Academic Year	GE Enrollment		Engg Total		% of Enrollment	
	1st Sem	2nd Sem	1st Sem	2nd Sem	1st Sem	2nd Sem
SY 2000 - 2001	533	533	4484	4167	11.89	12.79
SY 2001 - 2002	568	530	4326	4020	13.13	13.18
SY 2002- 2003	558	533	4118	3811	13.55	13.99
SY 2003 - 2004	500	432	3953	3276	12.65	13.19
SY 2004 - 2005	391	319	3751	3393	10.42	9.40
SY 2005 - 2006						
SY 2006 - 2007	210	187	3829	3687	5.48	5.07
SY 2007 - 2008	149	136	4034	3856	3.69	3.53
SY 2008 - 2009	124	126	4197	3981	2.95	3.17
SY 2009 - 2010	143	137	4458	4242	3.21	3.23
SY 2010- 2011	203	193	4566	4391	4.45	4.40
SY 2011 - 2012	213	210	4655	4534	4.58	4.63
SY 2012 - 2013	281	265	4753	4583	5.91	5.78
SY 2013 - 2014	330	320	4878	4645	6.77	6.89
SY 2014 - 2015	390	400	5084	4941	7.67	8.10
SY 2015 - 2016	441	460	5251	5102	8.40	9.02

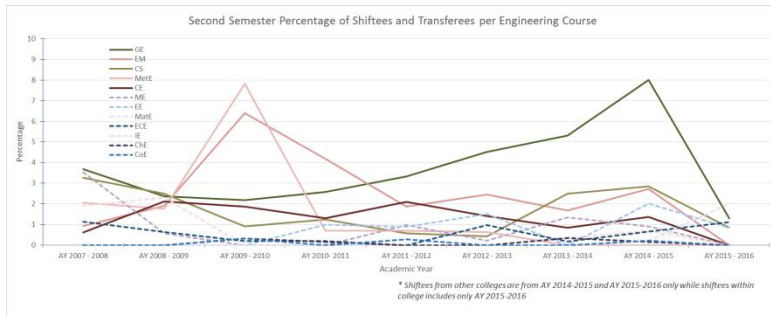
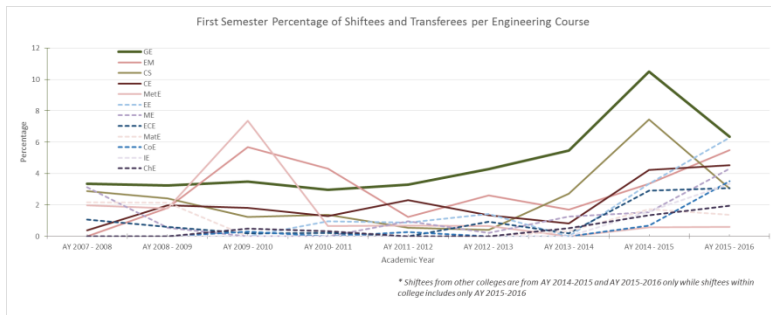
Results and Discussions



Results and Discussions



Results and Discussions



- In the first semester of AY 2014 – 2015, the number of shiftees and transferees into the BSGE program is 41 out of a total of 170 students composing 10.51% of the total GE population and 24.12% of the total engineering shiftee/transferee.
- This number is followed by Computer Science with 34 composing 7.44% of the total CS population and 20% of the total engineering shiftee/transferee.
- These two courses alone comprise 44.12% of the total shiftee/transferee in the College of Engineering.

Conclusions

- The BS Geodetic Engineering program is not so popular among high school graduating students, parents, and the public in general as indicated by the University of the Philippines College Admission Test (UPCAT) and the number of enrollment in the UP College of Engineering.
- Much has to be done in the secondary level to promote the use and benefits of using geospatial technologies applications in the lives of people.

Recommendations

- The whole Geodetic Engineering community (DGE, GEP, individual Geodetic Engineer) has to intensify the information drive specially targeting science high schools whose students have high success rates in the UPCAT.
- Revitalize the “high school caravan” and implement the activity at more frequent regular interval.
- Produce promotional materials such as videos and audio visual presentations showing the nature and relevance of the profession to communities and the environment.
- GE 1 (Earth Trek) can be utilized to recruit potential BSGE students by inviting impressive speakers to talk about interesting issues in geomatics applications.
- Push for a specialized course in geospatial information management called BS Geoinformatics.

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Salamat Po!
(Thank You)