

WOMEN IN UNIVERSITY ENGINEERING STUDIES IN AUSTRALIA



**ENGINEERS
AUSTRALIA**

November 2007

Contact: Andre Kaspura
Policy Analyst, National and International Policy
Engineers Australia
11 National Circuit, Barton, ACT 2600.
Tel. 02 6270 6581, Fax. 02 6273 4200.
Email: akaspura@engineersaustralia.org.au
<http://www.engineersaustralia.org.au>

1: INTRODUCTION

Past editions of Engineers Australia's publication "The Engineering Profession, A Statistical Overview" did not provide useful data on the role of women in engineering. Drawing on improved access facilities for official data this situation will be remedied in the next edition of the "Statistical Overview" which is expected to be available early in 2008. This paper provides early information from that revision process dealing women commencing and graduating from Australian University courses in engineering. Additional data relating to graduates from both three and four year Bachelor's programs and student graduation by specialist engineering areas will be provided in the next "Statistics Overview".

The terminology used accords with the practise of the data agency which is the Department of Education, Science and Training (DEST). The data reported were obtained in response to an Engineers Australia data request early in November 2007. There have been some revisions for past years resulting in small differences in counts compared to the last "Statistics Overview". No major differences were evident.

2: DOMESTIC STUDENT COMMENCEMENTS

Table 1 provides an overview of domestic student commencements in Australian University courses from 1994 to 2006. Data for 2007 will not be available until mid 2008. Key trends in this data are illustrated in Figures 1 and 2.

TABLE 1
DOMESTIC STUDENTS COMMENCING AUSTRALIAN UNIVERSITY ENGINEERING COURSES, 1994 TO 2006

MALES										
YEAR	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
DOCTORATES	383	369	358	408	376	395	419	406	472	492
RESEARCH MASTER'S	433	368	328	375	298	295	283	270	292	245
COURSEWORK MASTER'S	675	702	615	592	594	554	571	646	849	840
OTHER POSTGRADUATE	773	881	866	878	605	634	602	911	828	956
BACHELOR'S	8839	8937	9150	9432	9352	9335	8905	9148	8792	8667
ASSOCIATE DEGREE & AQF DIPLOMA	408	325	302	72	95	258	210	238	299	275
ENABLING & OTHER	30	33	23	235	244	40	58	208	519	547
MALE COMMENCEMENTS	11541	11615	11642	11992	11564	11511	11048	11827	12051	12022
FEMALES										
DOCTORATES	81	68	91	103	115	95	137	128	142	123
RESEARCH MASTER'S	83	89	67	80	64	66	47	52	74	76
COURSEWORK MASTER'S	103	102	105	104	101	105	110	152	158	167
OTHER POSTGRADUATE	127	153	148	149	113	97	118	194	175	159
BACHELOR'S	1396	1400	1441	1549	1543	1583	1523	1630	1484	1418
ASSOCIATE DEGREES & AQF DIPLOMA	47	30	25	4	6	26	15	14	36	20
ENABLING & OTHER	5	2	2	6	16	27	28	29	54	52
FEMALE COMMENCEMENTS	1842	1844	1879	1995	1958	1999	1978	2199	2123	2015
TOTAL										
DOCTORATES	464	437	449	511	491	490	556	534	614	615
RESEARCH MASTER'S	516	457	395	455	362	361	330	322	366	321
COURSEWORK MASTER'S	778	804	720	696	695	659	681	798	1007	1007
OTHER POSTGRADUATE	900	1034	1014	1027	718	731	720	1105	1003	1115
BACHELOR'S	10235	10337	10591	10981	10895	10918	10428	10778	10276	10085
ASSOCIATE DEGREES & AQF DIPLOMA	455	355	327	76	101	284	225	252	335	295
ENABLING & OTHER	35	35	25	241	260	67	86	237	573	599
ALL COMMENCEMENTS	13383	13459	13521	13987	13522	13510	13026	14026	14174	14037

Source: Data supplied by DEST

The trends in Figure 1 tend to confirm anecdotal information that the number of domestic Australian students commencing engineering courses has been relatively static for some time. The most disturbing aspect of the trends is the falling numbers of students commencing Bachelor's degree courses which are the entry level program to the engineering profession. Although there has been some growth in total numbers commencing engineering courses, this has been in post graduate courses and in enabling and other undergraduate courses.

FIGURE 1: DOMESTIC STUDENT COMMENCEMENTS IN AUSTRALIAN UNIVERSITY ENGINEERING COURSES

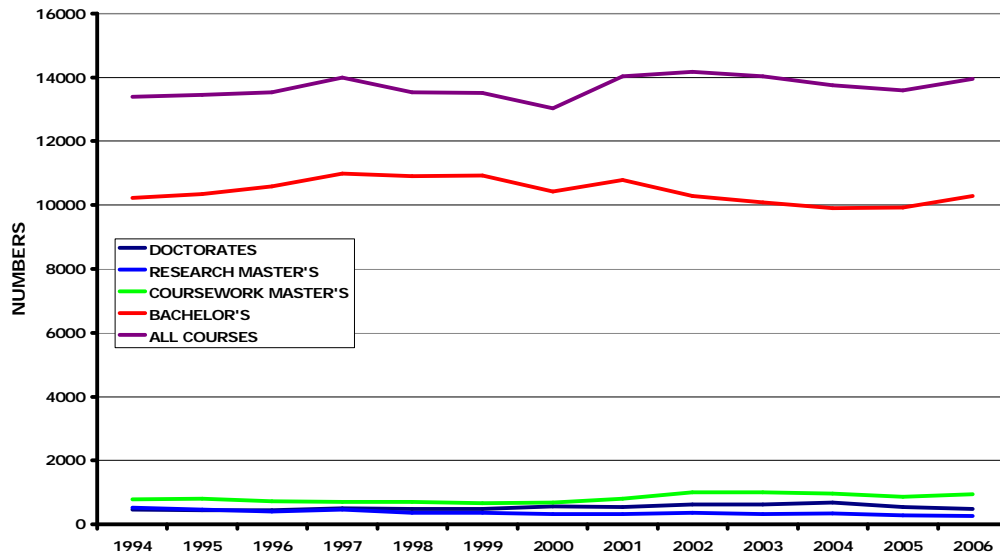
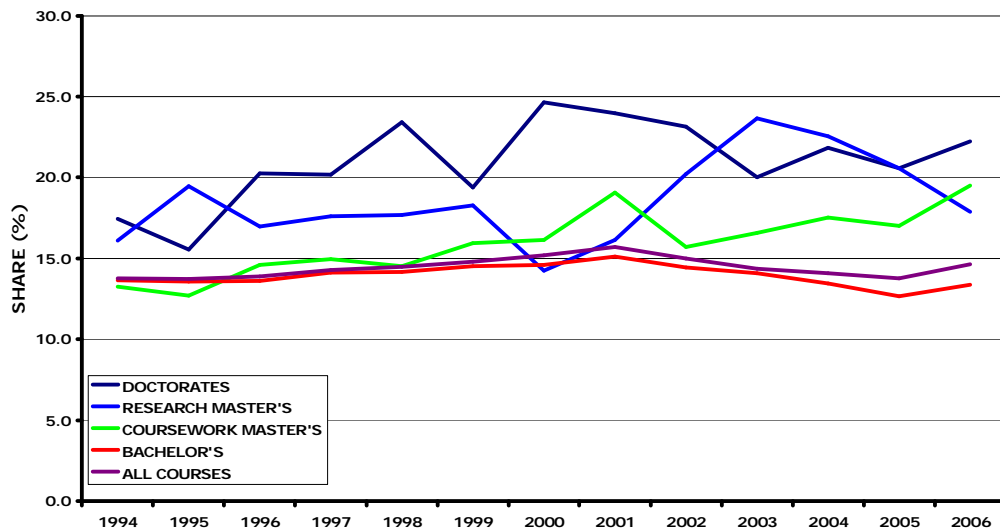


FIGURE 2: FEMALE SHARES OF DOMESTIC STUDENT COMMENCEMENTS IN AUSTRALIAN UNIVERSITY ENGINEERING COURSES



There are now about 1400 to 1500 women commencing Bachelor's degrees each year. The share of women in these programs was 13.6% in 1994 and much the same (13.4%) in 2006. In between, the share rose to as high as 15.7% in 2001. However, the growth evident in the early part of the study period was not maintained.

Around 500 women commence post graduate programs each year. As Figure 2 shows the female shares of these courses were much higher and are generally increasing. Female commencements in Doctoral programs were 22.2% in 2006 and peaked at 24.6% in 2000. Female commencements in both research and coursework Master's programs also showed higher shares than Bachelor's commencements. But because post graduate commencements are relatively small in the overall picture these outcomes only marginally raised the female commencement share across all courses above the shares observed for Bachelor programs.

3: OVERSEAS STUDENT COMMENCEMENTS

Table 2 and Figures 3 and 4 provide data on the commencements of overseas students in Australian University courses.

TABLE 2
OVERSEAS STUDENTS COMMENCING AUSTRALIAN UNIVERSITY ENGINEERING COURSES, 1994 TO 2006

MALES										
YEAR	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
DOCTORATES	171	144	114	140	135	131	138	190	186	207
RESEARCH MASTER'S	95	128	104	87	88	82	91	97	117	133
COURSEWORK MASTER'S	206	319	315	356	371	531	707	1089	1442	2443
OTHER POSTGRADUATE	72	115	100	100	110	84	155	194	219	128
BACHELOR'S	882	1111	1386	1540	1366	1703	1807	2818	3206	3564
ASSOCIATE DEGREE & AQF DIPLOMA	9	11	6	0	13	9	16	16	58	26
ENABLING & OTHER	0	0	0	4	1	3	4	2	9	46
MALE COMMENCEMENTS	1435	1828	2025	2227	2084	2543	2918	4406	5237	6547

FEMALES										
YEAR	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
DOCTORATES	26	28	29	20	29	34	38	47	40	50
RESEARCH MASTER'S	20	18	25	24	26	16	21	24	23	25
COURSEWORK MASTER'S	22	36	46	55	64	110	109	216	303	407
OTHER POSTGRADUATE	13	14	19	17	11	7	28	27	38	20
BACHELOR'S	149	186	251	241	253	350	427	556	653	716
ASSOCIATE DEGREE & AQF DIPLOMA	1	0	2	0	0	0	0	1	19	1
ENABLING & OTHER	0	0	0	1	0	0	0	3	1	17
FEMALE COMMENCEMENTS	231	282	372	358	383	517	623	874	1077	1236

TOTAL										
YEAR	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
DOCTORATES	197	172	143	160	164	165	176	237	226	257
RESEARCH MASTER'S	115	146	129	111	114	98	112	121	140	158
COURSEWORK MASTER'S	228	355	361	411	435	641	816	1305	1745	2850
OTHER POSTGRADUATE	85	129	119	117	121	91	183	221	257	148
BACHELOR'S	1031	1297	1637	1781	1619	2053	2234	3374	3859	4280
ASSOCIATE DEGREE & AQF DIPLOMA	10	11	8	0	13	9	16	17	77	27
ENABLING & OTHER	1	0	2	4	1	3	4	3	28	47
ALL COMMENCEMENTS	1666	2110	2397	2580	2466	3057	3537	5275	6304	7720

Source: Data supplied by DEST

Overseas students have been the main source of growth in commencements in engineering courses. Figure 3 shows that this is particularly the case for Bachelor's and coursework Master's programs. Overseas student participation in research Master's and Doctoral programs is important, but the numbers here are small when compared to coursework Master's and Bachelor's degrees.

Overseas females, like their Australia counterparts, have higher commencement shares in post graduate courses than in Bachelor courses. This is illustrated in Figure 4 which also compares the overseas women shares to the share of domestic Australian women in all engineering courses. The overseas women's shares are generally a little higher.

FIGURE 3: OVERSEAS STUDENT COMMENCEMENTS IN AUSTRALIAN UNIVERSITY ENGINEERING COURSES

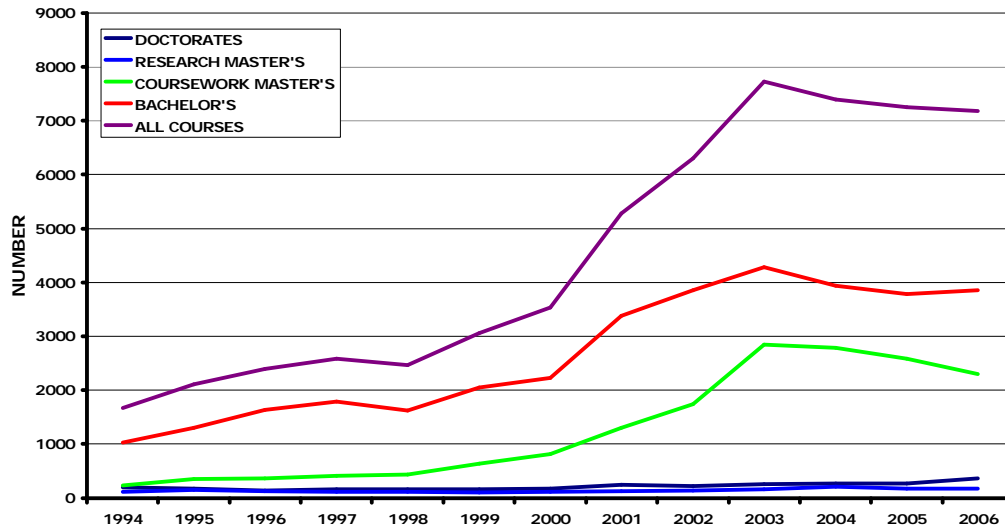
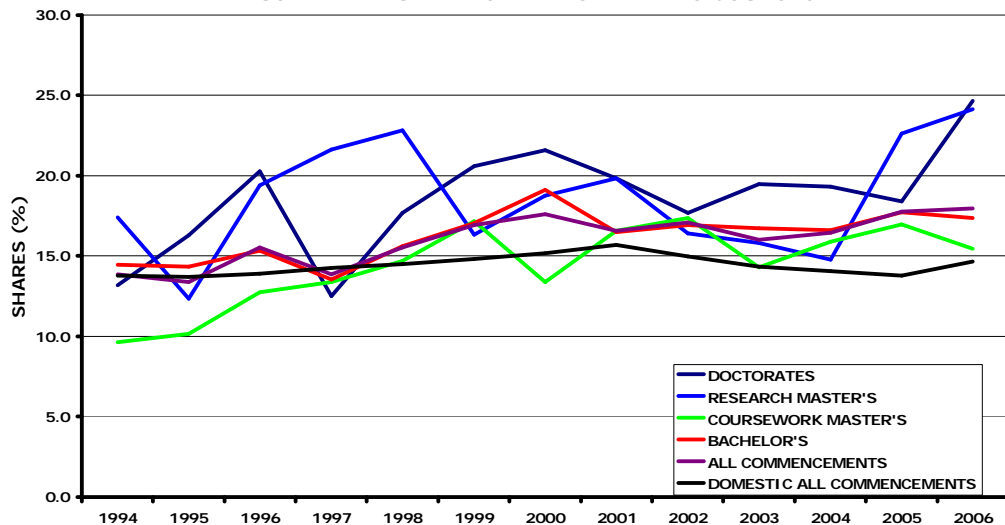


FIGURE 4: FEMALE SHARES OF OVERSEAS STUDENT COMMENCEMENTS IN AUSTRALIAN UNIVERSITY ENGINEERING COURSES



4: TOTAL STUDENT COMMENCEMENTS

Total student commencements in Australian University engineering courses are presented in Table 3 and the key trends are illustrated in Figures 5 and 6. The features are a combination of the points discussed in the previous two Sections.

TABLE 3
TOTAL STUDENT COMMENCEMENTS IN AUSTRALIAN UNIVERSITY ENGINEERING COURSES, 1994 TO 2006

MALES										
YEAR	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
DOCTORATES	554	513	472	548	511	526	557	596	658	699
RESEARCH MASTER'S	528	496	432	462	386	377	374	367	409	378
COURSEWORK MASTER'S	881	1021	930	948	965	1085	1278	1735	2291	3283
OTHER POSTGRADUATE	845	996	966	978	715	718	757	1105	1047	1084
BACHELOR'S	9721	10048	10536	10972	10718	11038	10712	11966	11998	12231
ASSOCIATE DEGREE & AQF DIPLOMA	417	336	308	72	108	267	226	254	357	301
ENABLING & OTHER	30	33	23	239	245	43	62	210	528	593
MALE COMMENCEMENTS	12976	13443	13667	14219	13648	14054	13966	16233	17288	18569

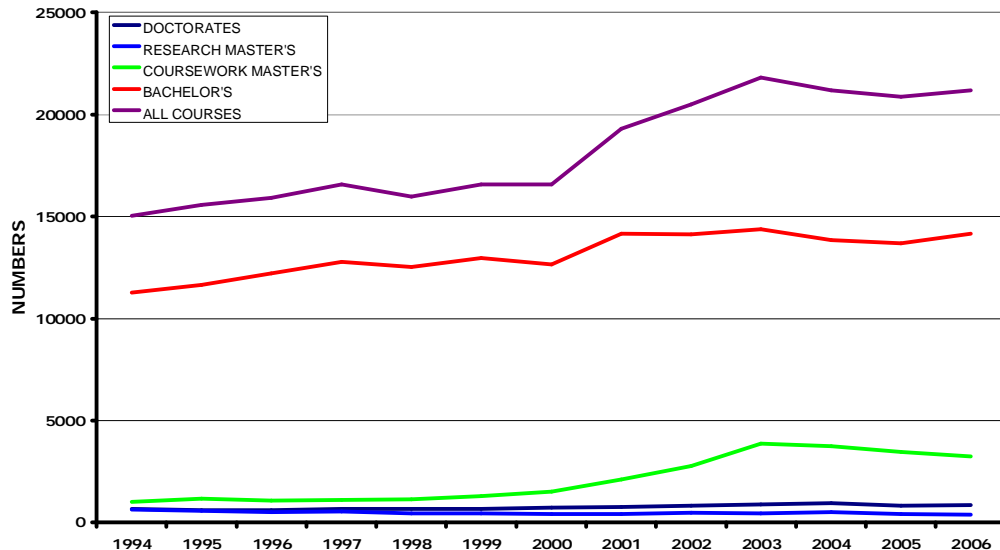
FEMALES										
YEAR	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
DOCTORATES	107	96	120	123	144	129	175	175	182	173
RESEARCH MASTER'S	103	89	67	80	64	66	47	52	74	76
COURSEWORK MASTER'S	125	138	151	159	165	215	219	368	461	574
OTHER POSTGRADUATE	127	153	148	149	113	97	118	194	175	159
BACHELOR'S	1545	1586	1692	1790	1796	1933	1950	2186	2137	2134
ASSOCIATE DEGREES & AQF DIPLOMA	48	30	27	4	6	26	15	15	55	21
ENABLING & OTHER	5	2	2	7	16	27	28	32	55	69
FEMALE COMMENCEMENTS	2073	2126	2251	2353	2341	2516	2601	3073	3200	3251

TOTAL										
YEAR	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
DOCTORATES	661	609	592	671	655	655	732	771	840	872
RESEARCH MASTER'S	631	585	499	542	450	443	421	419	483	454
COURSEWORK MASTER'S	1006	1159	1081	1107	1130	1300	1497	2103	2752	3857
OTHER POSTGRADUATE	972	1149	1114	1127	828	815	875	1299	1222	1243
BACHELOR'S	11266	11634	12228	12762	12514	12971	12662	14152	14135	14365
ASSOCIATE DEGREES & AQF DIPLOMA	465	366	335	76	114	293	241	269	412	322
ENABLING & OTHER	35	35	25	246	261	70	90	242	583	662
ALL COMMENCEMENTS	15049	15569	15918	16572	15989	16570	16567	19306	20488	21820

Source: Data supplied by DEST

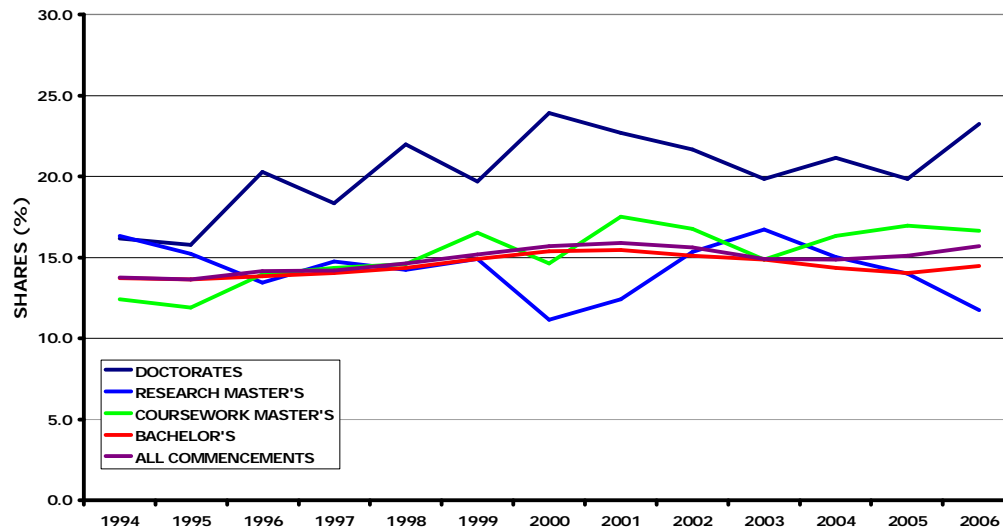
Overseas students are the drivers of growth in commencement numbers with Figure 5 reflecting the pressures evident in Figure 3. Focusing on total commencement does not reveal the importance of overseas student commencements.

FIGURE 5: TOTAL STUDENT COMMENCEMENTS IN AUSTRALIAN UNIVERSITY ENGINEERING COURSES



In aggregate there are over 3,200 women commencing engineering programs at Australian Universities each year. About two-thirds of them are commencing Bachelor's programs, about 25% commence post graduate courses and less than 3% commence Associate degree, AQF Diplomas or other courses. The latter is about half the proportion of men in these courses.

FIGURE 6: FEMALE SHARES OF ALL STUDENT COMMENCEMENTS IN AUSTRALIAN UNIVERSITY ENGINEERING COURSES



The different course preferences of domestic Australian women students compared to overseas women students tends to reduce the higher shares in post graduate commencements mentioned earlier, except for Doctoral programs where they complement each other. There are now 170 to 180 women commencing engineering Doctoral programs each year.

6: GRADUATION OF DOMESTIC STUDENTS

Table 4 sets out annual graduations from Australian University engineering students from 1994 to 2005. Unfortunately DEST data on graduations lag a year behind commencement data due to the administration of the data system. Graduation data for 2006 will not be available until mid 2008. The data in this Table do not correspond to outcomes from the commencements shown in Table 1. While it is tempting to compare the two Tables with a lag to account for course duration, a series of factors renders such a comparison invalid. These factors include variable course duration, students drop out before course completions, students transfer from other disciplines and students take variable periods to complete courses.

DEST publish apparent university attrition rates at higher levels of aggregation. Attempts to obtain such data for engineering programs are in train and there are no indications yet whether these will be successful.

TABLE 4
GRADUATION OF DOMESTIC STUDENTS FROM AUSTRALIAN ENGINEERING COURSES, 1994 TO 2005

MALES											
LEVEL OF COURSE	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
DOCTORATES	151	174	248	284	263	272	288	260	316	331	333
RESEARCH MASTER'S	150	157	136	165	139	116	104	118	111	120	122
COURSEWORK MASTER'S	408	409	452	510	494	467	375	529	511	551	538
OTHER POSTGRADUATE	480	463	470	460	457	436	370	344	279	337	327
BACHELOR'S	4164	4562	4533	4700	4720	4503	4418	5034	4753	4847	5005
ASSOCIATE DEGREE & AQF DIPLOMA	314	313	186	65	62	129	106	162	176	141	115
OTHER UNDERGRADUATE	8	10	11	91	74	13	9	108	279	206	443
ALL MALE GRADUATES	5675	6088	6036	6275	6209	5936	5670	6555	6425	6533	6883
FEMALES											
LEVEL OF COURSE	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
DOCTORATES	17	25	43	45	62	48	67	63	65	89	88
RESEARCH MASTER'S	17	19	42	36	25	28	39	28	33	28	25
COURSEWORK MASTER'S	44	49	56	83	73	74	83	107	113	112	107
OTHER POSTGRADUATE	61	79	75	79	66	82	54	65	55	74	82
BACHELOR'S	695	730	756	824	830	761	772	1027	968	984	975
ASSOCIATE DEGREE & AQF DIPLOMA	23	17	8	10	4	16	6	5	10	15	9
OTHER UNDERGRADUATE	0	0	0	4	1	1	0	4	13	6	1
ALL FEMALE GRADUATES	857	919	980	1081	1061	1010	1021	1299	1257	1308	1287
TOTAL											
LEVEL OF COURSE	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
DOCTORATES	168	199	291	329	325	320	355	323	381	420	421
RESEARCH MASTER'S	167	176	178	201	164	144	143	146	144	148	147
COURSEWORK MASTER'S	452	458	508	593	567	541	458	636	624	663	645
OTHER POSTGRADUATE	541	542	545	539	523	518	424	409	334	411	409
BACHELOR'S	4859	5292	5289	5524	5550	5264	5190	6061	5721	5831	5980
ASSOCIATE DEGREE & AQF DIPLOMA	337	330	194	75	66	145	112	167	186	156	124
OTHER UNDERGRADUATE	8	10	11	95	75	14	9	112	292	212	444
ALL GRADUATES	6532	7007	7016	7356	7270	6946	6691	7854	7682	7841	8170

Source: Data supplied by DEST

In 1994 about 850 domestic Australian women students graduated from engineering courses. About 81% graduated from Bachelors programs and about 9% graduated from Master's and Doctoral programs. By 2005 the number of women graduating had increased by half and these shares had altered somewhat. The proportion of Bachelor's graduates fell to 75% even though their numbers increased by 40%. The main reason was the increasing number of women graduating from Master's and Doctoral programs. The number here almost tripled and now about 17% graduate from these programs. Women were 21% of domestic Doctoral graduates.

An important factor contributing to professional engineering skill shortages in Australia has been the comparatively slow growth of entry level graduates into the profession. During most of the 1990s the number of domestic Australian Bachelor's graduates was typically between 5,200 and 5,500. Since 2001 it has been just short of 6,000. The increasing number of women graduates has been a key element of this result. At the beginning of the period women graduates from Bachelor's programs were a little less than 14% of the total, but over the last 3 years this share had grown to just under 17%.

In contrast to relatively static commencement trends, graduations of Australian domestic students from engineering courses are rising,

particularly from Bachelor's programs. As Figure 8 shows, Australian domestic female shares are rising in most courses. Since about 2001, all female graduating shares increased to be above the domestic female commencement share.

FIGURE 7: GRADUATION OF DOMESTIC STUDENTS FROM AUSTRALIAN ENGINEERING COURSES

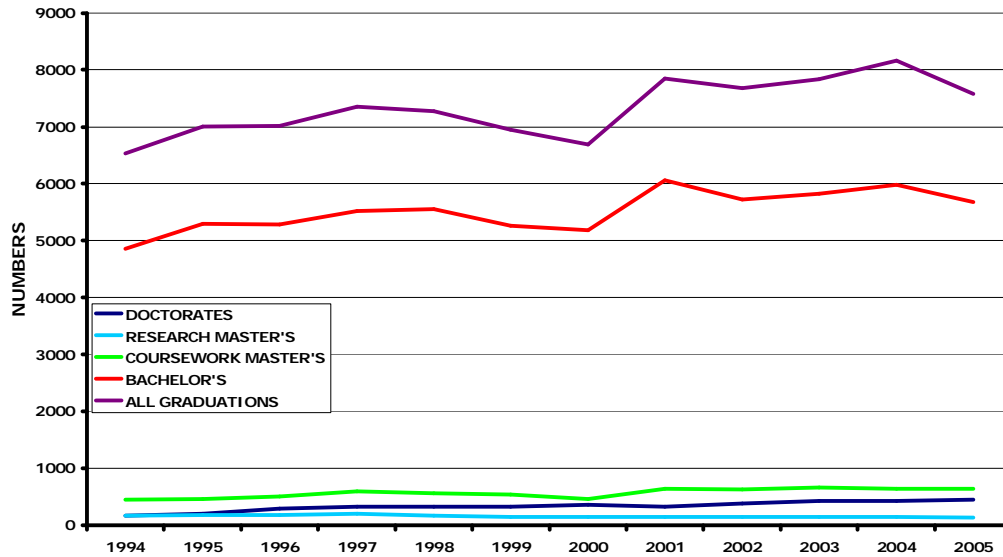
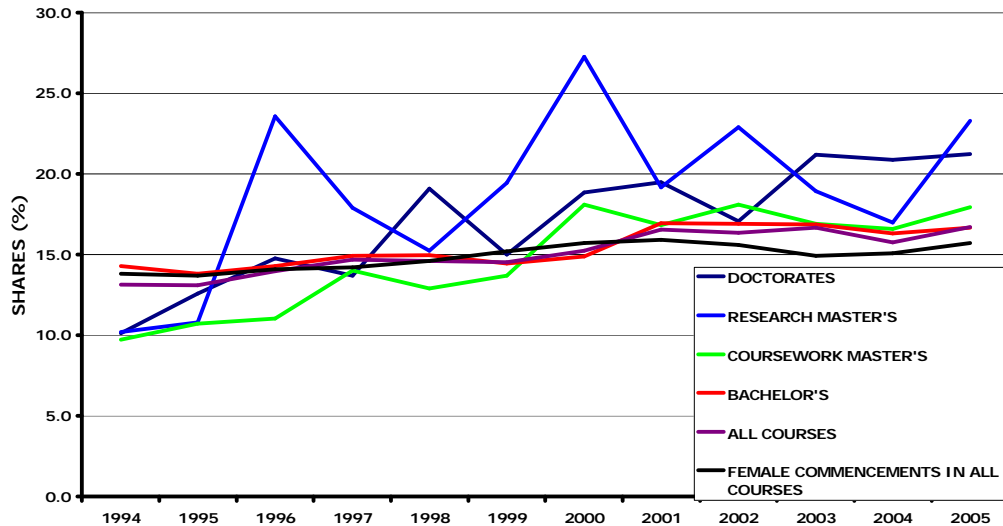


FIGURE 8: FEMALE SHARES OF DOMESTIC STUDENT GRADUATION FROM AUSTRALIAN ENGINEERING COURSES



7: GRADUATION OF OVERSEAS STUDENTS

There has been a five fold growth in the number of overseas students graduating from Australian University engineering courses.

While overseas students are represented in all course categories, their presence is particularly strong in coursework Master's and in Bachelor's programs which in 2005 comprised about 90% of graduations.

TABLE 5
GRADUATION OF OVERSEAS STUDENTS FROM AUSTRALIAN ENGINEERING COURSES, 1994 TO 2005

MALES												
LEVEL OF COURSE	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
DOCTORATES	114	98	113	130	102	96	109	78	84	86	127	154
RESEARCH MASTER'S	86	58	53	53	53	36	35	45	36	35	59	59
COURSEWORK MASTER'S	160	222	291	307	351	452	491	718	870	1441	1610	1909
OTHER POSTGRADUATE	29	33	75	143	118	34	76	93	128	121	103	158
BACHELOR'S	476	551	619	687	866	1036	1194	1373	1424	1618	1794	1958
ASSOCIATE DEGREE & AQF DIPLOMA	5	8	12	1	8	9	8	17	36	25	33	42
OTHER UNDERGRADUATE	0	0	0	3	1	2	0	1	4	41	10	13
ALL MALE GRADUATES	870	970	1163	1324	1499	1665	1913	2325	2582	3367	3736	4293
FEMALES												
DOCTORATES	8	13	9	12	11	20	10	19	15	22	22	31
RESEARCH MASTER'S	8	14	6	7	13	15	11	15	5	11	14	16
COURSEWORK MASTER'S	15	29	32	49	54	66	103	198	201	275	332	390
OTHER POSTGRADUATE	4	7	10	16	10	4	13	15	22	24	16	37
BACHELOR'S	83	80	100	119	143	207	229	285	324	379	426	438
ASSOCIATE DEGREE & AQF DIPLOMA	0	1	0	0	0	0	0	0	0	10	25	7
OTHER UNDERGRADUATE	0	0	0	1	0	0	0	0	1	11	2	5
ALL FEMALE GRADUATES	118	144	157	204	231	312	366	532	568	732	837	924
TOTAL												
DOCTORATES	122	111	122	142	113	116	119	97	99	108	149	185
RESEARCH MASTER'S	94	72	59	60	66	51	46	60	41	46	73	75
COURSEWORK MASTER'S	175	251	323	356	405	518	594	916	1071	1716	1942	2299
OTHER POSTGRADUATE	33	40	85	159	128	38	89	108	150	145	119	195
BACHELOR'S	559	631	719	806	1009	1243	1423	1658	1748	1997	2220	2396
ASSOCIATE DEGREE & AQF DIPLOMA	5	9	12	1	8	9	8	17	36	35	58	49
OTHER UNDERGRADUATE	0	0	0	4	1	2	0	1	5	52	12	18
ALL GRADUATES	988	1114	1320	1528	1730	1977	2279	2857	3150	4099	4573	5217

Source: Data supplied by DEST

Growth trends for overseas women graduates mirrored the general pattern for overseas students. Overseas women students were a lower proportion of overseas graduates at the beginning of the period than their domestic counterparts, but by 2005 their share was higher.

FIGURE 9: GRADUATION OF OVERSEAS STUDENTS FROM AUSTRALIAN UNIVERSITY ENGINEERING COURSES

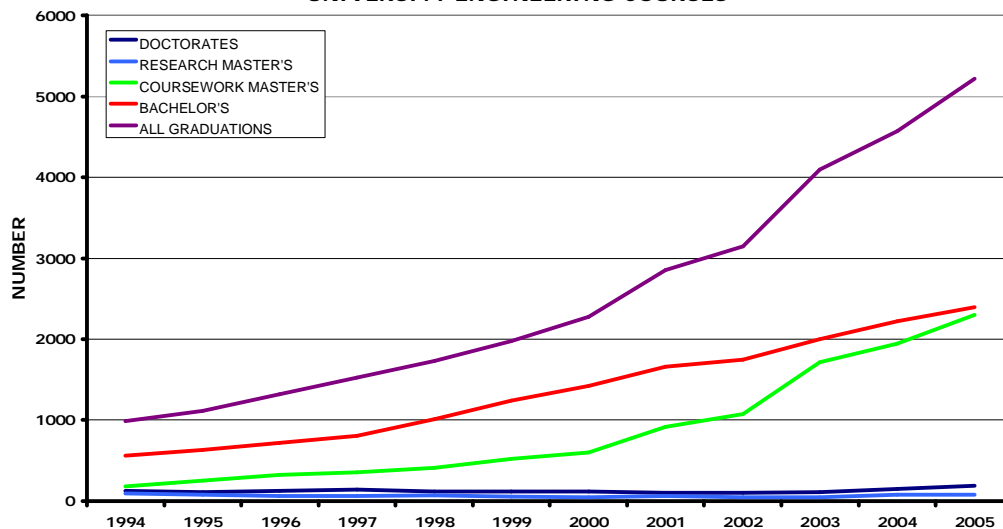
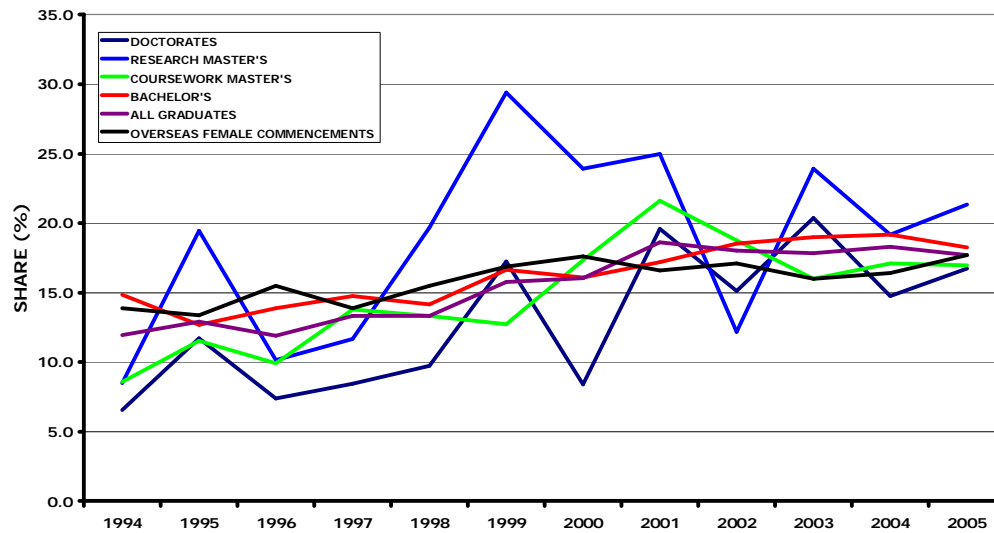


FIGURE 10: FEMALE SHARES OF OVERSEAS STUDENTS GRADUATING FROM AUSTRALIAN UNIVERSITY ENGINEERING COURSES



8: ALL GRADUATING STUDENTS

Table 6 and Figure 11 show that much stronger growth trends in engineering graduation are evident when the full student population is considered. These trends are so strong that they dominate most other considerations.

TABLE 6
GRADUATION OF ALL STUDENTS FROM AUSTRALIAN ENGINEERING COURSES, 1994 TO 2005

MALES

LEVEL OF COURSE	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
DOCTORATES	265	272	361	414	365	368	397	338	400	417	460	510
RESEARCH MASTER'S	236	215	189	218	192	152	139	163	147	155	181	161
COURSEWORK MASTER'S	568	631	743	817	845	919	866	1247	1381	1992	2148	2430
OTHER POSTGRADUATE	509	496	545	603	575	470	446	437	407	458	430	456
BACHELOR'S	4640	5113	5152	5387	5586	5539	5612	6407	6177	6465	6799	6690
ASSOCIATE DEGREE & AQF DIPLOMA	319	321	198	66	70	138	114	179	212	166	148	176
OTHER UNDERGRADUATE	8	10	11	94	75	15	9	109	283	247	453	181
ALL MALE GRADUATES	6545	7058	7199	7599	7708	7601	7583	8880	9007	9900	10619	10604

FEMALES

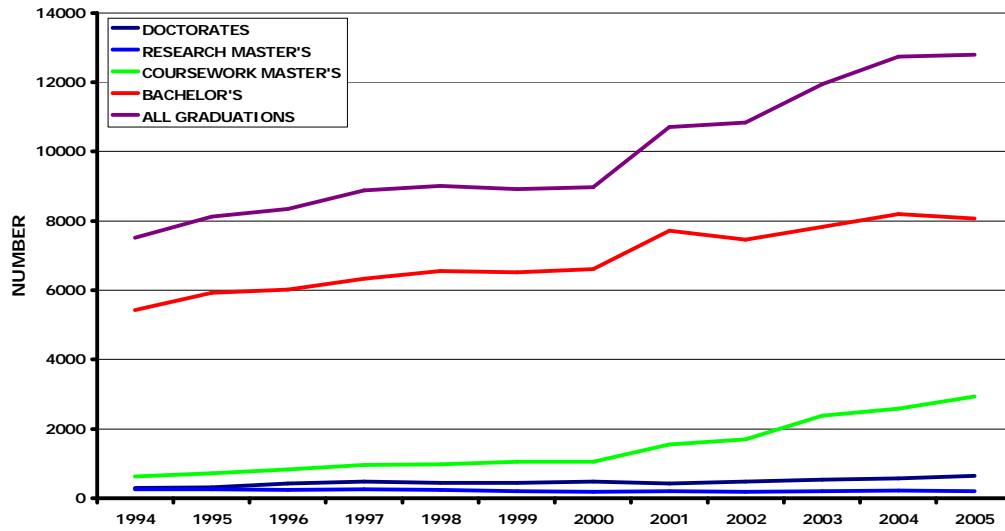
DOCTORATES	25	38	52	57	73	68	77	82	80	111	110	127
RESEARCH MASTER'S	25	33	48	43	38	43	50	43	38	39	39	47
COURSEWORK MASTER'S	59	78	88	132	127	140	186	305	314	387	439	504
OTHER POSTGRADUATE	65	86	85	95	76	86	67	80	77	98	98	102
BACHELOR'S	778	810	856	943	973	968	1001	1312	1292	1363	1401	1386
ASSOCIATE DEGREE & AQF DIPLOMA	23	18	8	10	4	16	6	5	10	25	34	14
OTHER UNDERGRADUATE	0	0	0	5	1	1	0	4	14	17	3	10
ALL FEMALE GRADUATES	975	1063	1137	1285	1292	1322	1387	1831	1825	2040	2124	2190

TOTAL

DOCTORATES	290	310	413	471	438	436	474	420	480	528	570	637
RESEARCH MASTER'S	261	248	237	261	230	195	189	206	185	194	220	208
COURSEWORK MASTER'S	627	709	831	949	972	1059	1052	1552	1695	2379	2587	2934
OTHER POSTGRADUATE	574	582	630	698	651	556	513	517	484	556	528	558
BACHELOR'S	5418	5923	6008	6330	6559	6507	6613	7719	7469	7828	8200	8076
ASSOCIATE DEGREE & AQF DIPLOMA	342	339	206	76	74	154	120	184	222	191	182	190
OTHER UNDERGRADUATE	8	10	11	99	76	16	9	113	297	264	456	191
ALL GRADUATES	7520	8121	8336	8884	9000	8923	8970	10711	10832	11940	12743	12794

Source: Data provided by DEST

FIGURE 11: TOTAL STUDENT GRADUATIONS FROM AUSTRALIAN UNIVERSITY ENGINEERING COURSES



The women's share of engineering graduates has generally been rising across all course categories. Indeed, the share of women graduates has been appreciably higher than the share of women commencements for the past 5 years.

FIGURE 12: FEMALE SHARES OF TOTAL STUDENTS GRADUATING FROM AUSTRALIAN UNIVERSITY ENGINEERING COURSES

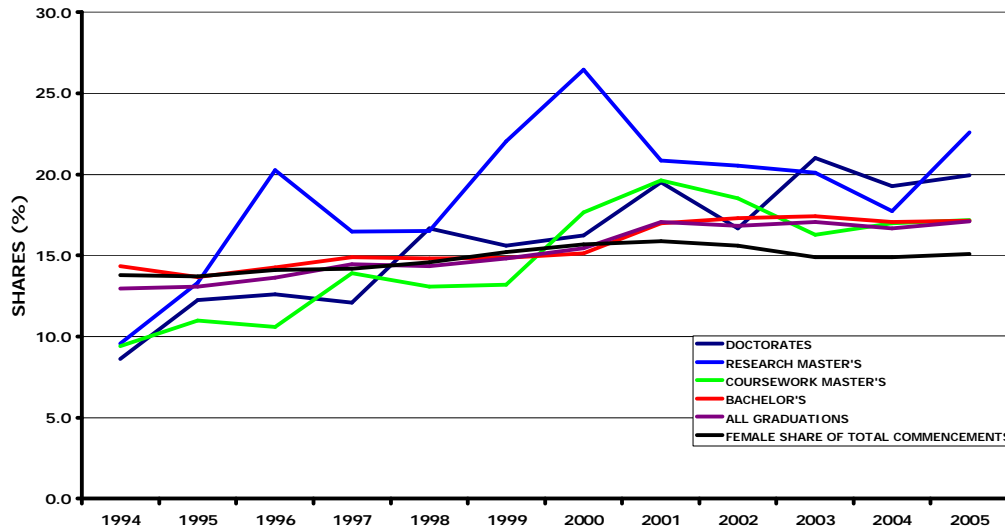


FIGURE 13: SHARES OF OVERSEAS STUDENTS IN TOTAL GRADUATION FROM AUSTRALIAN UNIVERSITY ENGINEERING COURSES

