Questionnaire on the Professional Ethical Awareness of Chinese Engineering Practitioners

Table 1：1. What is your type of work? (choose as many as appropriate)

Field of engineering	Frequency	Percent
Civil engineering	75	39.3
Electrical engineering	19	10.0
Chemical engineering	7	3.7
Mechanical engineering	14	7.3
Energy and power engineering	23	12.1
Computer engineering	25	13.1
Aeronautics and astronautics engineering	1	0.5
Hydraulic engineering	4	2.1
Materials engineering	3	1.6
Marine engineering	1	0.5
Environmental protection engineering	1	0.5
Biological engineering	2	1.0
Architectural engineering	8	4.2
Engineering consultation	1	0.5
Automation	1	0.5
Others	6	3.1

Total	191	100

Table 2: 28. What is your year of birth?

Year of birth	Frequency	Percent
1976	2	1.0
1977	1	0.5
1978	1	0.5
1980	7	3.7
1981	5	2.6
1982	6	3.2
1983	7	3.7
1984	4	2.1
1985	4	2.1
1986	10	5.2
1987	11	5.8
1988	12	6.3
1989	16	8.4
1990	31	16.2
1991	25	13.1
1992	30	15.7
1993	14	7.3
1995	4	2.1

	1997	1	0.5
	Total	191	100

Table 3: 2. How long have you engaged in engineering-related work?

_____Years

Years in engineering	Frequency	Percent
0.5 Year	2	1.0
1 Year	4	2.0
2 Years	2	1.0
3 Years	8	4.2
4 Years	32	16.7
5 Years	47	25.0
6 Years	19	10.0
7 Years	13	6.8
8 Years	8	4.2
9 Years	9	4.7
10 Years	18	9.4
11 Years	1	0.5
12 Years	6	3.1
13 Years	5	2.6
14 Years	3	1.6
15 Years	7	3.6

16 Years	2	1.0
17 Years	1	0.5
19 Years	1	0.5
20 Years	3	1.6
Total	191	100

VAR00001	
N Valid	191
Missing	0
Mean	7.062827
Median	6

Table 4: 3. Do you have the occupational title of an engineer?

Job title	Frequency	Percent
I do not have an occupational title with “engineer” in it	35	18.3
Assistant engineer	76	39.8
Engineer	64	33.5
Senior engineer	16	8.4
Professor-level senior engineer	0	0
Research senior engineer	0	0

Total	191	100

Table 5: 30. What is the highest degree of education you have had?

Education	Frequency	Percent
Less than a Bachelor's degree	0	0
Bachelor's degree	158	82.7
Master's degree	33	17.3
PhD degree	0	0
Total	191	100

Table 6: 29. What is your gender?

Gender	Frequency	Percent
Male	142	74.3
Female	49	25.7
Other	0	0
Total	191	100

Table 7: 4. How well do you know the engineer registration system for practicing qualifications?

Degree of knowing the engineer registration system	Frequency	Percent

Never heard of it	24	12.6
Know a little	100	52.3
Know moderately well	43	22.5
Know very well	24	12.6
Total	191	100

Table 8: 5. How well do you know an association or society of engineers?

Degree of knowing an association or society	**Frequency**	**Percent**
Never heard of one	33	17.2
Know a little	122	63.9
Know moderately well	28	14.7
Know very well	8	4.2
Total	191	100

Table 9: 7. How well do you know the constitutions of an association or society of engineers?

Degree of knowing the constitutions of an association or society	**Frequency**	**Percent**
Never heard of it	81	42.4
Know a little	101	52.9
Know moderately well	7	3.7
Know very well	2	1

Total	191	100

Table 10: 8. How well do you know the code of ethics of an association or society of engineers?

Degree of knowing the code of ethics of an association or society of engineers	**Frequency**	**Percent**
Never heard of it	94	49.2
Know a little	87	45.6
Know moderately well	8	4.2
Know very well	2	1.0
Total	191	100

Table 11: 6. Are you a member of an association or society of engineers?

Membership of an association or society of engineers	**Frequency**	**Percent**
Yes	12	6.3
No	179	93.7
Total	191	100

Table 12: 9. Engineering has a direct and vital impact on the quality of life for all people.

Engineering has a direct and vital impact on the quality of life for all people.	Frequency	Percent
Strongly disagree	4	2.0
Disagree	0	0
Undecided	11	5.8
Agree	114	59.7
Strongly Agree	62	32.5
Total	191	100

Table 13: 12. What do you think is the primary social function of engineering?

Primary social function of engineering	Frequency	Percent
Promoting technological innovation	27	14.1
Improving the material condition of humanity	154	80.6
Enhancing national strength	10	5.3
Total	191	100

Table 14: 10. What is the primary focus of your engineering outcomes?

Primary focus of work	Frequency	Percent
Safety	78	40.8
Efficiency	6	3.2

Reliability	49	25.7
Profit	11	5.8
Innovation	10	5.2
Sustainability	26	13.6
Effectiveness	9	4.7
Beauty	1	0.5
Other	1	0.5
Total	191	100

Table 15: 11. What do you hold paramount in your work?

Hold paramount in your work	**Frequency**	**Percent**
Employer's interest	32	16.8
Customers' interests	24	12.6
The safety, health, and well-being of the public	124	64.9
Personal interests	10	5.2
Others	1	0.5
Total	191	100

Table 16: 13. Good engineering is not simply technically adeptness (though it is that) but also moral good (in the sense of serving the moral ideal of improving the material condition of humanity or the like without violating any justified moral standard).

Views on “Good Engineering”	Frequency	Percent
Strongly disagree	2	1.0
Disagree	0	0
Undecided	13	6.8
Agree	106	55.5
Strongly Agree	70	36.7
Total	191	100

Table 17: 14. Why did you answer the question 13 the way you did?

Reasons for agreement with the above description of "good engineering"	Frequency	Percent
It is the ideal and essence of engineering	90	46.9
It is ethical and moral	13	6.8
It is the professional responsibility of engineers	10	5.2
Overall consideration is important	8	4.2
In accordance with my values	18	9.3
Technology without moral constraints can do harm to society	14	7.3
Just agree, no reason is given	22	11.4
Reasons for neutrality	**Frequency**	**Percent**
Depending on the situation	3	1.6
Technology is morally neutral	3	1.6

Others	11	5.7
Total	192	100

Table 18: 24. What do you think is the greatest achievement of an engineer?

The greatest achievement of an engineer	**Frequency**	**Percent**
Contributing to technological innovation	8	4.2
Guaranteeing the safety and quality of engineering	31	16.2
Helping to meet human needs for engineering services and products	145	75.9
Enhanced social status	3	1.6
Increasing Income	1	0.5
Others	3	1.6
Total	191	100

Table 19: 15. Engineers should perform services only in the areas of their competence.

Engineers should perform services only in the areas of their competence.	**Frequency**	**Percent**
Strongly disagree	4	2.1
Disagree	3	1.6
Undecided	17	8.9
Agree	123	64.4

Strongly Agree	44	23.0
Total	191	100

Table 20: 25. Engineers should serve with fidelity the public, their employers and clients.

Engineers should serve with fidelity the public, their employers and clients.	**Frequency**	**Percent**
Strongly disagree	1	0.5
Disagree	5	2.6
Undecided	24	12.6
Agree	109	57.1
Strongly Agree	52	27.2
Total	191	100

Table 21: 16. Do you actually refer to engineers' *technical* standards in your work?

Frequency of referring to technical standards	**Frequency**	**Percent**
Never	1	0.5
Rarely	13	6.8
Sometimes	25	13.1
Most of the time	66	34.6
Always	86	45.0
Total	191	100

Table 22: 17. Do you actually follow engineers' standards of *conduct* in your work?

Frequency of referring to standards of conduct	Frequency	Percent
Never	1	0.5
Rarely	7	3.7
Sometimes	18	9.4
Most of the time	87	45.6
Always	78	40.8
Total	191	100

Table 23: 18. Do you care whether other engineers follow technical standards and standards of conduct (the ones engineers share)?

Whether care others follow technical standards and standards of conduct	Frequency	Percent
I don't care at all	0	0
I don't much care	7	3.7
I don't know	18	9.4
I care somewhat	81	42.4
I care very much	85	44.5
Total	191	100

Table 24: 19. Why did you answer the question 18 the way you did?

Reasons for caring others follow technical standards and standards of conduct	**Frequency**	**Percent**
As an engineer, we should abide by the standards	31	16
Only everyone complies with the standards can we make good (high-quality, safe, environment-friendly, etc.) projects.	54	27.8
It is ethical and moral	6	3.1
Compliance with the same standards is conducive to cooperation and efficiency	27	13.9
I will be affected	6	3.1
For the fairness	4	2.1
Standards are very important	22	11.3
Reasons for not caring others follow technical standards and standards of conduct	**Frequency**	**Percent**
I am unable to control others	14	7.2
I do not know	11	5.7
Others	19	9.8
Total	194	100

Table 25: 20. Do you like to conduct yourself in a way beyond what law, market, morality, and public opinion would otherwise require?

Attitude towards conducting yourself in a way beyond what law, market, morality, and public opinion would otherwise require	Frequency	Percent
I hate it	12	6.3
I moderately dislike it	9	4.7
I am neutral	105	55.0
I moderately like it	53	27.7
I like it very much	12	6.3
Total	191	100

Table 26: 21. Why did you answer the question 20 the way you did?

The reasons for liking conducting yourself in a way beyond what law, market, morality, and public opinion would otherwise require	Frequency	Percent
Engineers should have professional ethics of pursuing excellence	11	5.5
Meeting existing standards is the minimum requirement. I have higher requirements for myself.	34	16.9
High standards can ensure better engineering quality	9	4.5
High standards are conducive to enhancing the competitiveness of enterprises	7	3.5

The reasons for being neutral to conducting yourself in a way beyond what law, market, morality, and public opinion would otherwise require	Frequency	Percent
It is good enough to meet existing standards	46	22.9
I want to pursue high standards, but it is difficult to implement them	8	3.9
It is theoretically possible to pursue high standards, but it is difficult to implement them	5	2.5
Depending on the situation, the interests of all parties should be considered comprehensively	27	13.4
The reasons for disliking conducting yourself in a way beyond what law, market, morality, and public opinion would otherwise require	**Frequency**	**Percent**
Excessive standards may result in high costs, inefficiencies or waste of resources.	18	8.9
They just expressed their attitude, but gave no specific reasons	16	8
Others	20	10
Total	201	100

Table 27: 27. Engineers should act in such a manner as to uphold and advance the integrity, honor and dignity of the engineering profession.

Engineers should uphold and advance the integrity, honor and dignity of the engineering profession.	Frequency	Percent
Strongly disagree	1	0.5
Disagree	0	0

Undecided	8	4.2
Agree	109	57.1
Strongly Agree	73	38.2
Total	191	100

Table 28: 22. Engineers should not emphasize technical competence without serious consideration of whether the projects in which they are involved are really good (for the safety, health, and well-being of the public, environmentally- friendly etc.) projects.

Engineers should consider whether the project they are involved in is a good one	**Frequency**	**Percent**
Strongly disagree	2	1.0
Disagree	3	1.6
Undecided	20	10.5
Agree	107	56.0
Strongly Agree	59	30.9
Total	191	100

Table 29: 23. Why did you answer the question 22 the way you did?

The reasons for engineers should consider the project they are involved in is a good one	**Frequency**	**Percent**

It is ethical and moral	24	12.3
It is the ideal and value of engineering	39	20
Social responsibility	28	14.4
Engineers should have ethical judgment	29	14.9
Sustainable development is important	13	6.7
Engineering safety is important	7	3.6
Overall consideration is important	8	4.1
Just agree, no reason is given	25	12.8
The reasons for being neutral	**Frequency**	**Percent**
Engineers sometimes are involved in projects involuntarily	4	2.1
It is the responsibility of the relevant functional departments to evaluate the quality of the project	2	1
It is difficult to assess the quality of a project	2	1
Just neutral, no reason is given	3	1.5
The reasons for engineers should not consider the project they are involved in is a good one	**Frequency**	**Percent**
Experience	1	0.5
There are other factors.	1	0.5
Just disagree, no reason is given	2	1
Others	7	3.6
Total	195	100

Table 30: 26. Engineers should consider environmental impact and sustainable development in the performance of their professional duties.

Engineers should consider environmental impact and sustainable development	**Frequency**	**Percent**
Strongly disagree	0	0
Disagree	2	1.0
Undecided	10	5.2
Agree	99	51.8
Strongly Agree	80	42.0
Total	191	100

Table 31: Do you care whether other engineers follow technical standards and standards of conduct (the ones engineers share)?

Answer	Four years or less	Ten years or more
A. I don’t care at all	0%	2.1%
B. I don’t much care	47.9%	27.7%
C. I don’t know	14.6%	2.1%
D. I care somewhat	0%	0%
E. I care very much	37.5%	68.1%

Table 32: How well do you know the engineer registration system for practicing qualifications?

Answer	Four years or less	Ten years or more
A. Never heard of it	12.5%	10.6%
B. Know a little	68.8%	44.7%
C. Know moderately well	14.6%	23.4%
D. Know very well	4.1%	21.3%

Table 33: Engineering has a direct and vital impact on the quality of life for all people.

Answer	Four years or less	Ten years or more
A. Strongly disagree	4.2%	0%
B. Disagree	0%	0%
C. Undecided	10.4%	2.1%
D. Agree	62.5%	63.8%
E. Strongly Agree	22.9%	34.1%

Table 34: Good engineering is not simply technically adeptness (though it is that) but also morally good (in the sense of serving the moral ideal of

improving the material condition of humanity or the like without violating any justified moral standard).

Answer	Four years or less	Ten years or more
A. Strongly disagree	0%	0%
B. Disagree	0%	0%
C. Undecided	12.5%	6.4%
D. Agree	60.4%	51%
E. Strongly Agree	27.1%	42.6%

Table 35: Group Statistics

	The number of years for having worked as engineers	N	Mean	Std. Deviation	Std. Error Mean
How well do you know the engineer registration system for practicing qualifications?	engineers have worked for four years or less.	48	2.13	.703	.102
	engineers have worked for ten years or more.	47	2.55	.951	.139
Engineering has a direct and vital impact on the	engineers have worked for four years or less.	48	4.00	.851	.123

quality of life for all people.	engineers have worked for ten years or more.	47	4.32	.515	.075
Good engineering is not simply technically adeptness (though it is that) but also morally good (in the sense of serving the moral ideal of improving the material condition of humanity or the like without violating any justified moral standard).	engineers have worked for four years or less.	48	4.06	.755	.109
	engineers have worked for ten years or more.	47	4.36	.605	.088
Do you care whether other engineers follow technical standards and standards of conduct (the ones engineers share)?	engineers have worked for four years or less.	48	4.23	.692	.100
	engineers have worked for ten years or more.	47	4.62	.644	.094

Table 36: Independent-Samples T Test

Independent-Samples T Test										
		Levin's variance equivalence test		T-test of mean equivalence						
									95% Confidence interval	
		F	Significance	t	Degree of freedom	Sig. (Double tail)	Mean difference	Standard error margin	Lower limit	Upper limit
ERSPQ	Equal Variances Assumed	13.244	.000	-2.498	93	.014	-.428	.171	-.769	-.088
	Equal Variances Not Assumed			-2.491	84.684	.015	-.428	.172	-.770	-.086
ASE	Equal Variances Assumed	6.998	.010	-1.318	93	.191	-.192	.146	-.481	.097
	Equal Variances Not Assumed			-1.314	85.061	.192	-.192	.146	-.482	.099

ASE1	Equal Variances Assumed	2.387	.126	.764	93	.447	.044	.057	-.070	.158
	Equal Variances Not Assumed			.762	87.186	.448	.044	.058	-.071	.158
CASE	Equal Variances Assumed	.116	.734	-1.126	93	.263	-.141	.125	-.388	.107
	Equal Variances Not Assumed			-1.124	91.402	.264	-.141	.125	-.389	.108
CEASE	Equal Variances Assumed	.302	.584	-1.945	93	.055	-.245	.126	-.494	.005
	Equal Variances Not Assumed			-1.943	91.767	.055	-.245	.126	-.495	.005
DVIQLP	Equal Variances Assumed	.002	.962	-2.206	93	.030	-.319	.145	-.606	-.032
	Equal Variances Not Assumed			-2.217	77.685	.030	-.319	.144	-.606	-.033
PFYEO	Equal Variances Assumed	.311	.579	.000	93	1.000	.000	.417	-.828	.828
	Equal Variances Not Assumed			.000	92.913	1.000	.000	.417	-.828	.828
YHYW	Equal Variances Assumed	1.681	.198	.162	93	.872	.029	.178	-.325	.383
	Equal Variances Not Assumed			.162	89.578	.872	.029	.178	-.324	.382
YTPSFE	Equal Variances Assumed	3.241	.075	-.941	93	.349	-.082	.087	-.255	.091
	Equal Variances Not Assumed			-.942	90.748	.349	-.082	.087	-.255	.091
GETAMG	Equal Variances Assumed	.637	.427	-2.128	93	.036	-.299	.141	-.578	-.020
	Equal Variances Not Assumed			-2.133	89.521	.036	-.299	.140	-.578	-.020
EPSATC	Equal Variances Assumed	5.042	.027	-1.255	93	.213	-.170	.136	-.440	.099
	Equal Variances Not Assumed			-1.251	83.320	.215	-.170	.136	-.441	.100
ETSYW	Equal Variances Assumed	2.545	.114	-.117	93	.907	-.023	.197	-.415	.369
	Equal Variances Not Assumed			-.117	88.881	.907	-.023	.197	-.414	.368
ESCYW	Equal Variances Assumed	1.295	.258	-.164	93	.870	-.026	.157	-.337	.286
	Equal Variances Not Assumed			-.164	91.131	.870	-.026	.157	-.337	.285
COETSSC	Equal Variances Assumed	.555	.458	-2.826	93	.006	-.388	.137	-.660	-.115
	Equal Variances Not Assumed			-2.829	92.776	.006	-.388	.137	-.660	-.116
LMMPO	Equal Variances Assumed	2.257	.136	-.250	93	.803	-.048	.191	-.428	.332
	Equal Variances Not Assumed			-.250	88.901	.803	-.048	.192	-.429	.333
ETCRG	Equal Variances Assumed	.025	.876	-.899	93	.371	-.151	.168	-.484	.182
	Equal Variances Not Assumed			-.900	92.744	.371	-.151	.168	-.483	.182
ESFPEC	Equal Variances Assumed	.076	.783	-1.581	93	.117	-.234	.148	-.528	.060
	Equal Variances Not Assumed			-1.584	89.139	.117	-.234	.148	-.528	.059