



INSTITUTO  
SUPERIOR  
TÉCNICO

2010/11 - 2011/12

**Science, Technology and Engineering  
Perceptions at IST  
First Year Student Survey**

---

Anabela Reis, Carla Patrocínio

Núcleo de Estatística e Prospetiva

Junho/2012

## TABLE OF CONTENTS

---

1. INTRODUCTION.....	3
2. POPULATION, SAMPLE AND REPRESENTATIVENESS DEFINITION.....	4
3. PARENTAL BACKGROUND.....	6
4. MOTIVATION FOR UNDERTAKING AN ENGINEERING COURSE AT IST .....	8
5. PROFESSION PERCEPTIONS .....	10
6. ENGINEERING .....	12
7. CONCLUSIONS.....	13

## 1. INTRODUCTION

---

The IST is an integral part of a European project named ATTRACT, which chiefly aims to analyse the attractiveness of the engineering area of studies. It is therefore crucial to understand what motivates students to undertake science and technological programmes and why the proportion of women entering at these programmes remain so unbalanced.

In light of the foregoing, the purpose of this report is to analyse the motivations and expectations of students entering the IST, highlighting the gender issue. This will not only provide a way of clarifying what makes a difference between male and female when undertaking an engineering programme, but also improve the recruitment strategies.

The first step towards this aim was collect, through a survey, information regarding parental background, the students' main motivations for choosing an engineering programme at IST and different profession perceptions. This information will provide deeper understanding about entrant students' perceptions.

The document begins by defining key notions like population, sample and representativeness. Thus, in the results section, parental background, the students' motivation for undertaking an engineering programme at IST, the different professions perception and, finally, the engineering perception, are presented and examined. The report ends with the main conclusions of this study.

The results are presented per gender. However, when the results are similar between female and male students, the results for the total sample are presented.

## 2. POPULATION, SAMPLE AND REPRESENTATIVENESS DEFINITION

---

### POPULATION:

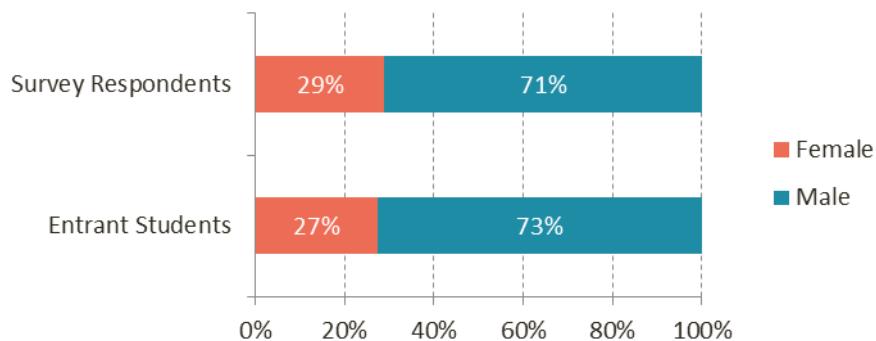
For this study, the population under analysis was the entrant students in 2010/2011 and 2011/12 for the first time.

### SAMPLE:

The population under analysis had been asked to complete an online survey. Therefore, the sample takes into account the number of responses obtained.

	2010/11	2011/12	Total
<b>Entrant Students</b>	1495	1331	2826
<b>Survey Respondents</b>	465	1331	1796
<b>Representativeness</b>	<b>31%</b>	<b>100%</b>	<b>64%</b>

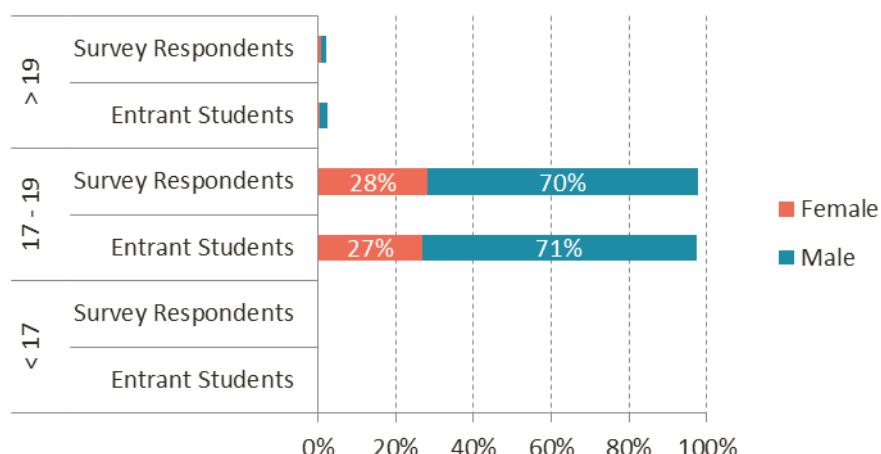
#### 2.1.1 Sample Gender



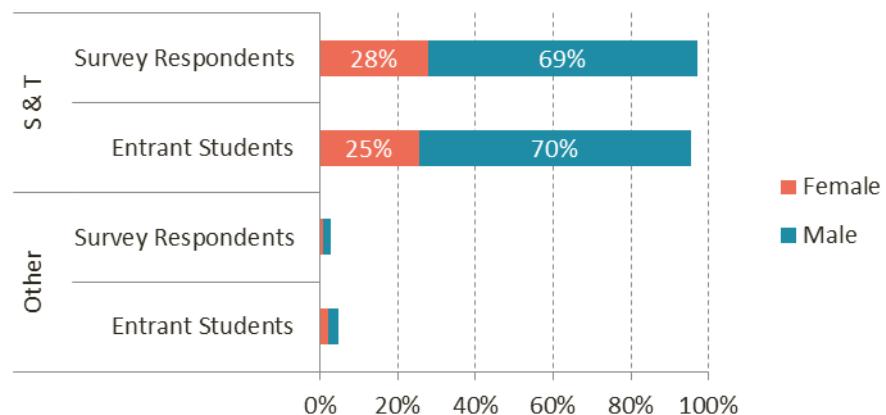
Although the population is basically composed by male students, the male/female students' ratio does not substantially differ from the one in the survey responses

#### 2.1.2 Sample Gender Distribution

Per Age



First-year students are mostly in the 17-19 age group, which accounts for roughly 98%.

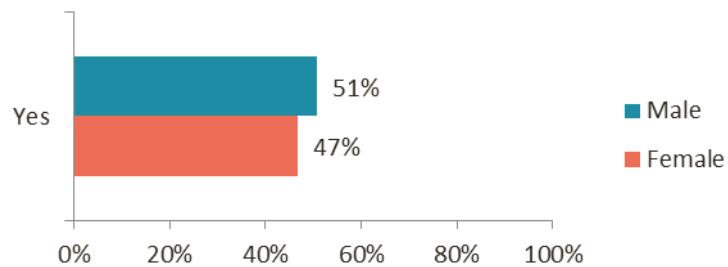
*Per Area of Study in Secondary School*

Most of IST students have a background in science and technologies at secondary school.

### 3. PARENTAL BACKGROUND

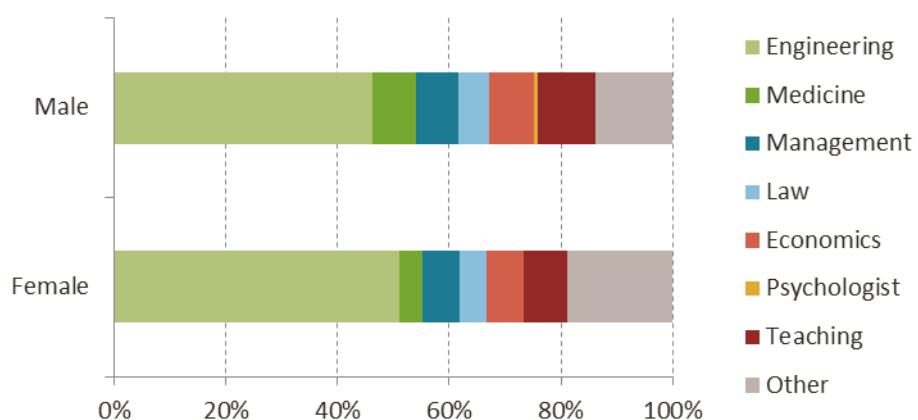
---

#### DOES YOUR FATHER HAVE A TERTIARY EDUCATION?



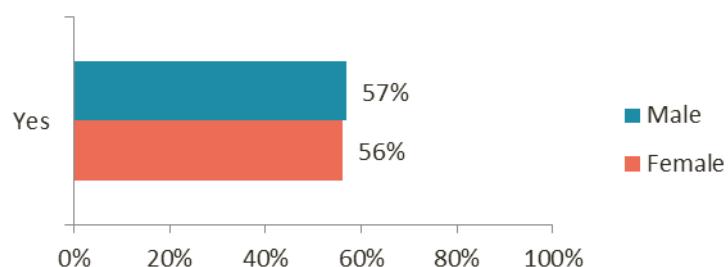
With regard to male students, there is a slightly higher percentage of parents who completed tertiary education.

#### BESIDES HAVING A TERTIARY EDUCATION, DOES YOUR FATHER HAVE AN ENGINEERING BACKGROUND?

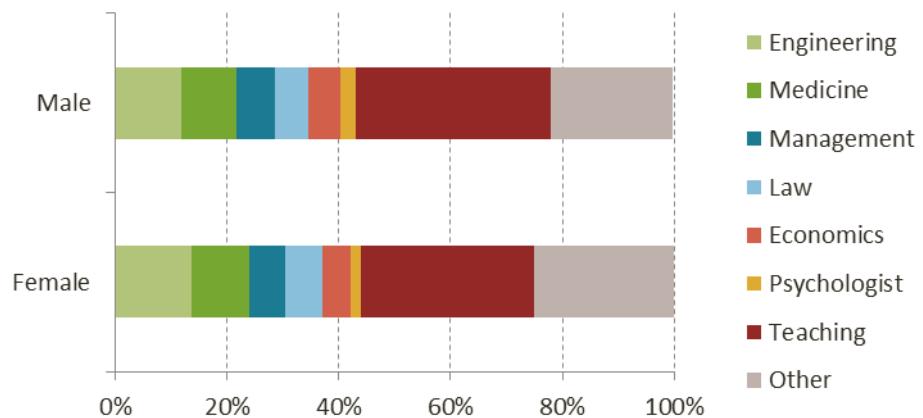


Despite almost half of the students' fathers who have concluded tertiary education having an engineering background, the percentage of females whose fathers have an engineering background are slightly higher than male students.

#### DID YOUR MOTHER CONCLUDE TERTIARY EDUCATION?



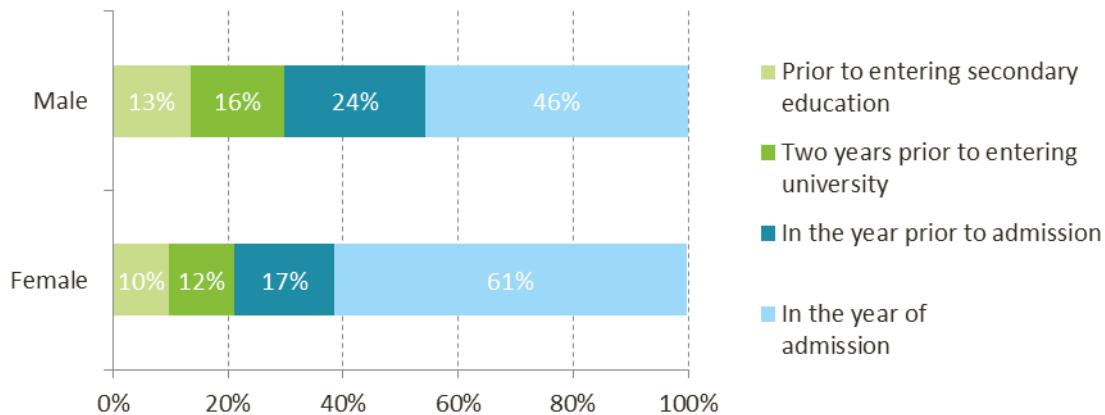
The percentage of students' mothers who completed tertiary education is slightly higher than that of the students' fathers. More than half of students' mothers concluded tertiary education.

**BESIDES HAVING A TERTIARY EDUCATION, DOES YOUR MOTHER HAVE AN ENGINEERING BACKGROUND?**

While the trend for students' fathers is that they have a background in engineering, students' mothers are more likely to have a background in teaching.

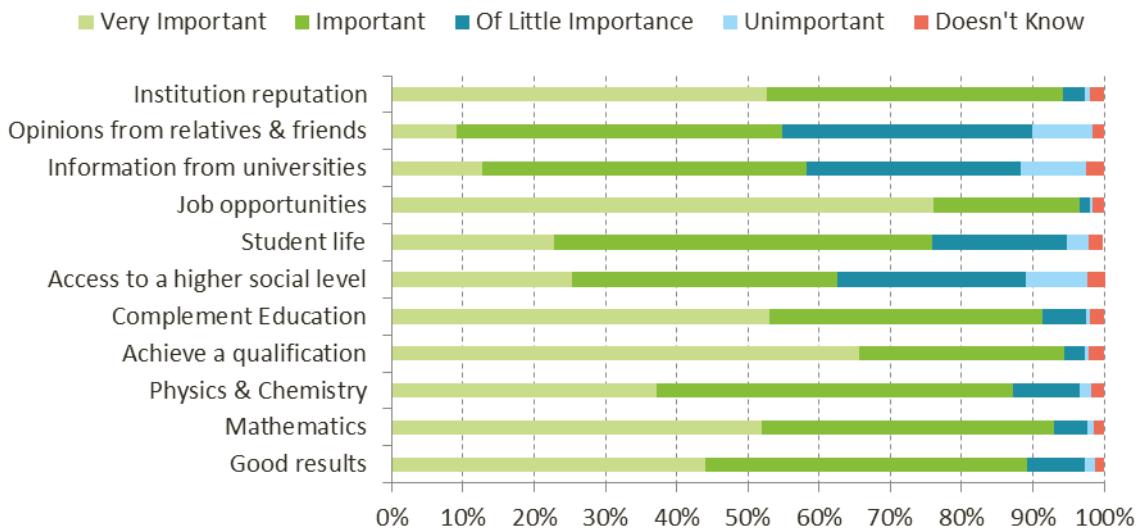
## 4. MOTIVATION FOR UNDERTAKING AN ENGINEERING COURSE AT IST

### WHEN DID YOU DECIDE TO CHOOSE THE PROGRAMME/INSTITUTION YOU ARE ATTENDING?



Female students tend to delay the programme/institution decision to the year of admission (61%), while the percentage of male students who decide only in the year of admission is 46%.

### PLEASE STATE THE DEGREE OF IMPORTANCE OF EACH OF THE FOLLOWING FACTORS TO YOUR DECISION IN ATTENDING A UNIVERSITY PROGRAMME.

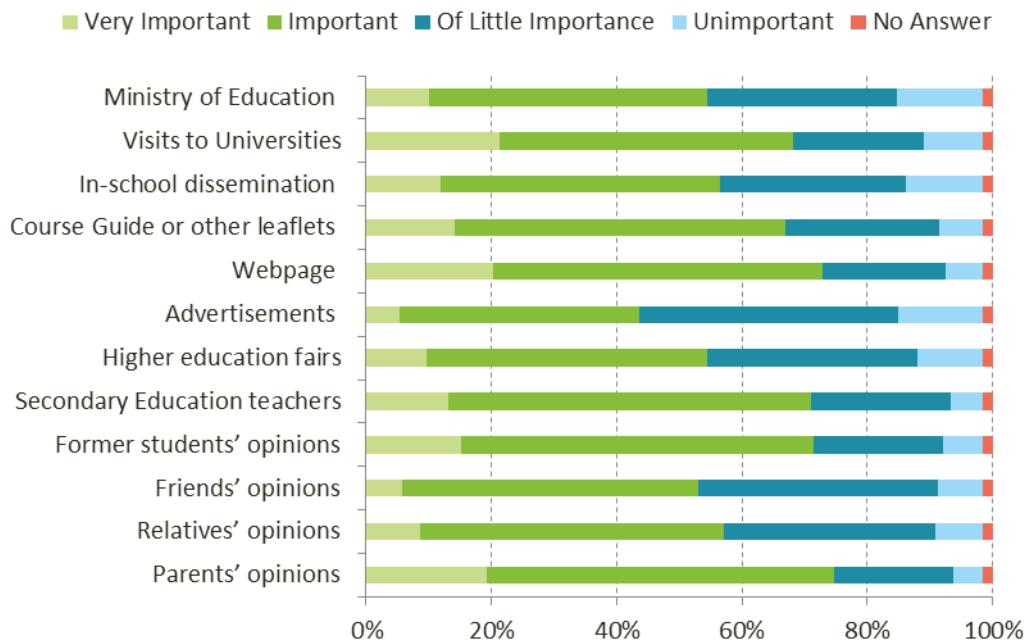


As said before, since the importance of the above factors to the decision in attending a university course was very similar to the IST, the results for the total sample are presented.

Both female and male students stated as the most important factors to the decision of attending an engineering course at IST:

- Job opportunities/ integration in the labour market;
- Achieving a qualification to pursue an occupation.

**PLEASE STATE THE DEGREE OF IMPORTANCE OF EACH OF THE FOLLOWING SOURCES OF INFORMATION FOR YOU TO CHOOSE THE PROGRAMME/INSTITUTION YOU ARE ATTENDING.**

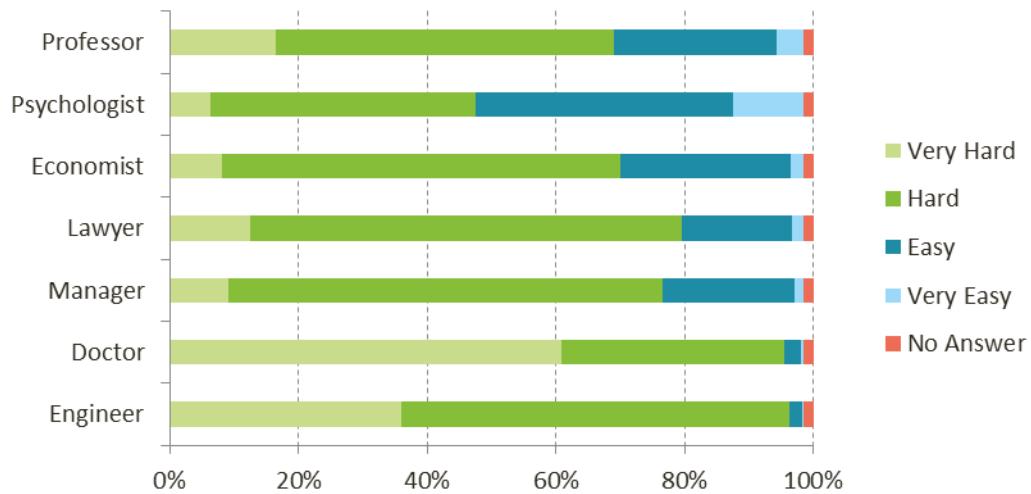


The choice of the programme/institution relies mostly on:

- Visits to higher education establishments;
- Webpage of higher education establishments;
- Parents' opinions.

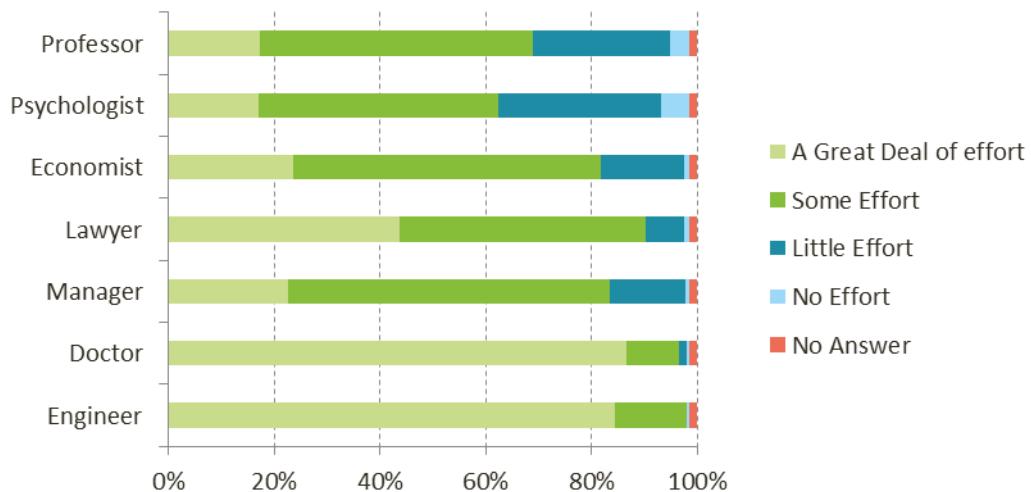
## 5. PROFESSION PERCEPTIONS

**PLEASE STATE THE DEGREE OF DIFFICULTY WITH REGARD TO THE DUTIES PERFORMED IN EACH OF THE FOLLOWING PROFESSIONS?**



IST students consider the most difficult professions regarding the duties performed doctors and engineers.

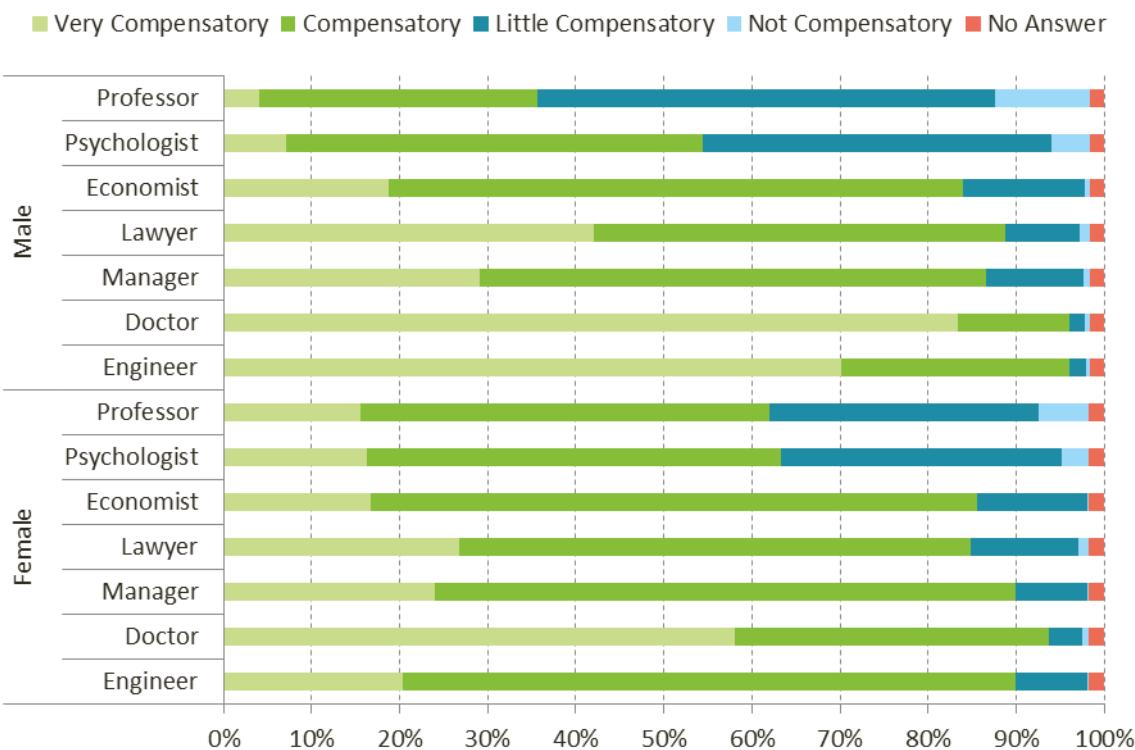
**WOULD YOU CONSIDER THAT TAKING ONE OF THE FOLLOWING PROGRAMMES BELOW REQUIRES:**



The IST entrant students agree on the courses that take a great deal of effort, which are medicine and engineering.

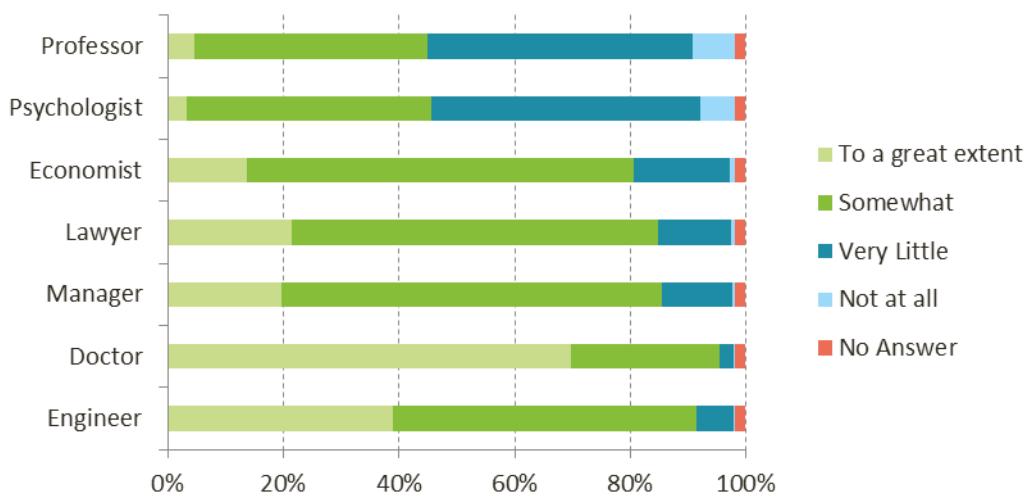
**HOW WOULD YOU CLASSIFY THE PAY LEVEL OF THE FOLLOWING PROFESSIONS?**

Male and female IST entrant students' opinion differ significantly in terms of professions pay level, as it can be seen in the figure bellow.



In spite of having different opinions about the pay level of the above professions, both male and female students consider that is financial rewarding to be doctor. However, male students tend to be much more optimistic about the pay level of engineers.

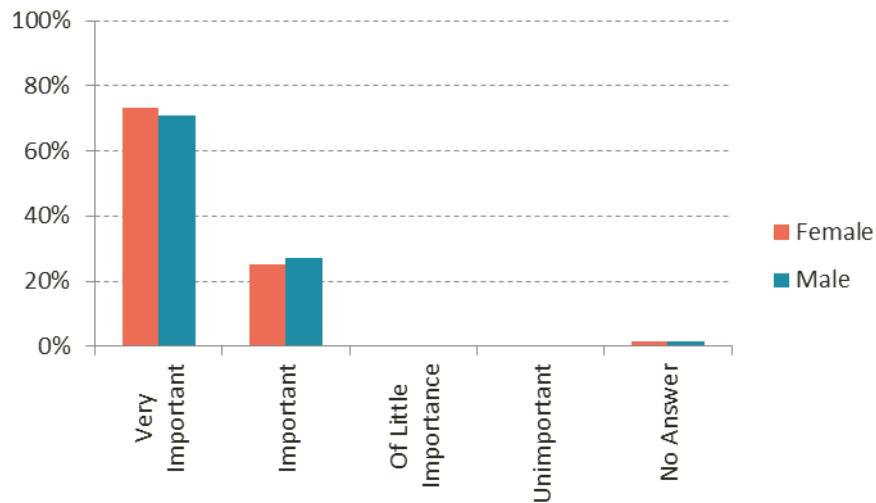
#### DO EMPLOYERS RECOGNISE THE IMPORTANCE OF THE FOLLOWING PROFESSIONS?



Finally, both genders agree that the most recognised professions are doctor and engineer.

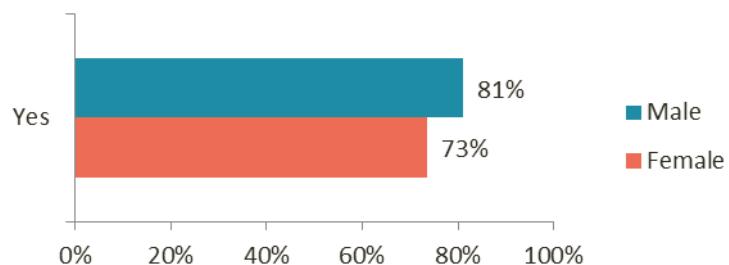
## 6. ENGINEERING

**PLEASE CLASSIFY THE DEGREE OF IMPORTANCE OF ENGINEERS TO THE COUNTRY'S DEVELOPMENT.**



Although the responses are similar, female entrant students are most likely to recognise the importance of the engineering profession to the country development.

**NOWADAYS, WOULD YOU CONSIDER THAT ENGINEERS HAVE EASY ACCESS TO THE LABOUR MARKET?**



Regarding the labour market prospects, IST entrant students consider that there is an easy access to the labour market. However, female students are more pessimistic about this issue.

## 7. CONCLUSIONS

---

The entrant student population at IST is mostly composed by male students, approximately ¾, with ages between 17-19 years and whose background at secondary school is science and technology.

### PARENTAL BACKGROUND

Although about half of IST students' parents concluded tertiary education, their background is significantly different. IST students' fathers are more likely to have an engineering background, while most of the mothers have a teaching background.

### MOTIVATION FOR UNDERTAKING AN ENGINEERING PROGRAMME AT IST

Most of the IST students had only decided the course/institution in the year of admission. However, there were a higher percentage of female students, whose decision had only been made at the admission year.

Relatively to the decision in attending a university programme, both female and male IST students share similar opinions. Their decision had taken into consideration specially three factors:

- Job opportunities/Integration in the labour market;
- To achieve a qualification to pursue an occupation.

The choice of the programme/institution relies mostly on:

- Visits to higher education establishments;
- Webpage of higher education establishments;
- Parents' opinions.

### PROFESSION PERCEPTIONS

There is a consensus when the IST students are asked which profession are more difficult regarding the performing duties – engineer and doctor. The same happens with the programmes which require more effort, i.e. medicine and engineering. However, the same is not valid when asked about the pay level. Male students are much more optimistic about the pay level of the engineer profession. About 70% consider that engineering is very compensatory, while only 20% of female students consider that. Regarding the recognition, opinions are similar. Both male and female students think that is more likely to be recognized by the employers being a doctor or an engineer.

### ENGINEERING

The great majority of the IST students believe that engineers have great importance to the country's development and that they have easy access to the labour market, even though female students are more pessimistic about it.