

A SURVEY ON COMPANIES AND PARTNERSHIPS EMPLOYING BME  
ENGINEERING GRADUATES WITH SPECIAL EMPHASIS ON EMPLOYER  
PERCEPTIONS OF THE INCOME PROSPECTS, PREPAREDNESS AND  
PERSONAL EFFECTIVENESS OF THEIR ENGINEERS

SUMMARY

Csongor Hajdú

Zoltán Fortuna

Imre Szabó

Gábor Veres

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*Done by the Students' Centre of Budapest University of Technology and Economics (BME).*

BME Students' Centre

## INTRODUCTION, METHODOLOGY APPLIED

The present survey forms an integral part of BME quality assurance system under which the Budapest University of Technology and Economics conducts a survey year by year among its freshmen, new and older graduates and the firms employing them. It is – and has always been - one of the purposes of our quality assurance system to strengthen the links between our university and the different representatives of Hungarian economy by measuring the primary parameters of this mutually advantageous interrelation and disseminate the outcomes of our efforts in printed form as well.

Our present survey is of national scope. BME graduate engineers constitute our focus group. To be able to do a reliable survey on them, however, we have to consider and analyze the wider perspective as well – the relevant market environment in which they are working and the factors contributing to their personal effectiveness (degree recipients from other engineering programs, employers employing our degree recipients etc.). We do expect that by doing this survey we have managed to get valuable information on the situation of all engineers and the dissemination of survey findings will lead to a more effective planning work within the university and elsewhere in the future.

As for the methodology and questionnaire items to be surveyed, we drew on the experiences obtained with similar surveys conducted in 2001 by BME Youth Association, National Centre for Employment Research and Methodology as well as by surveys conducted in 2002, on behalf of Students' Centre of Budapest University of Technology and Economics, by Szonda Ipszozs Hungarian Media-, Opinion Poll and Market Research Institute. This year the interviews were made by telephone, in the form of responses to a pre-formulated set of questions, by the Call Centre of Medián Opinion Poll and Market Research Institute. For the comparability and effective assessment of the obtained information we, of course, relied on external sources as well (Ministry of Education, Public Employment Service, Central Office of Statistics).

In the first stage, we have selected and surveyed– by designing a representative sample frame of 408 business entities - those companies and partnerships, which employ BME graduate engineers. We have presented the distribution of companies and partnerships on regional and national level by number and ownership status.

In the second stage, we have aggregated the remarks (opinions) received from a total of 164 companies and partnerships employing a total of 2300 graduate engineers. The representative sample frame of 164 companies and partnerships has been designed by us in such a way that additional companies and partnerships employing engineering graduates have been added to the list of 92 companies and partnerships already surveyed during the first stage. The information gained from the companies and partnerships also cover the changes to be expected in their hiring policies (hire and discharge of engineers) and the causes triggering such changes.

In our present survey you can also find the relevant incomes earned by engineering graduates in comparison with the incomes earned in Hungarian national economy as a whole in full-time permanent employment in January and February 2004 (figures supplied by Central Statistical Office).

In framing our questions relevant to the incomes earned, we relied on specific dates. The responses given by companies and partnerships refer to their financial accounting status as of 29 February 2004. The only exception is the set of questions asked about the number of engineering graduates being in employment on 29 February 2004, as well as the turnover figures of 2003.

FIRST STAGE: ANALYSING THE REPRESENTATIVE SAMPLE OF COMPANIES AND PARTNERSHIPS EMPLOYING ENGINEERING GRADUATES

## Methodological comments for the first stage

As a basis for designing a representative sample frame we used a relevant statistical information database (Central Statistical Office) based on the information given by the Hungarian Register of Companies, relevant to the registration condition as of 31 December 2003. On 31 December 2003, out of 882.503 business enterprises operating in Hungary a total of 409.265 companies and partnerships (I mean, companies other than sole proprietorships) were registered. This frame was further narrowed in our survey and the resulting sample frame was the group of companies and partnerships employing at least 10 employees; the number of this category of companies and partnership was 30.998 as of 31 December 2003. The sample of 408 companies and partnerships can be considered representative countrywide because of two underlying factors: the number of employees employed and the primary business of the company or partnership by TEÁOR code.

## Primary business by TEÁOR code

Our survey found that as of 29 February 2004, engineers with university or college degree were in employment with 22.54% of the companies and partnerships operating in Hungary. This is the specific proportion, which we hereinafter consider to be **average employment rate for engineers**. Among the companies and partnerships having a share higher than 5% in the different sectors of national economy, it is only the Building Industry (F) that can boast of a higher-than-average number of engineers employed. The proportion of engineers employed in this sector makes a total of 36.75%.

<i>Sector</i>		<i>Proportion within the sample</i>	<i>Proportion of companies and partnerships employing engineers</i>
AB	Agriculture, management of game stock, viniculture, fishery	6.81%	11.80%
CDE	Agriculture	31.36%	26.32%
F	Building industry	12.46%	36.75%
G	Trade, repair services	22.72%	10%
H	Hostelry and catering	4.71%	0%
I	Transport, warehousing, postal services, communication	4.40%	14.76%
J	Financial intermediation, banking transactions	1.20%	11.08%
K	Real estate transactions, economic services	13.27%	24.70%
MN	Education and training; Health services and social welfare	1%	50%
0	Other public/communal and personal services	2.07%	100%
Total:		100%	

### **Category of staff**

Among the companies and partnerships employing at least 50 employees, the proportion of those, which, among others, employ engineers as well, is 35.70%. With the two staff categories of 10 to 19 and 20 to 49 employees rated as the lowest, no significant deviation from the average rate of employment for engineers has been observed – the proportions received were 18.91% and 20.60%, respectively.

### **Distribution by region and type of settlement**

As for the proportion within the sample, we can see that it is the Middle Hungary, where both the proportion of companies and partnerships and the proportion of those employing engineers are the highest. While the proportion measured in the mentioned region is significantly higher than that of the national average *rate of employment for engineers*, the proportion measured in West Danubia is significantly lower. If we did not take into account the leading role played by Middle Transdanubia in the sample, we can say that out of the counties, where you can find companies and partnerships in a proportion higher than 4%, it is county Fejér and county Komárom-Esztergom, with the companies and partnerships of which you can find engineers employed in a proportion much higher than the average (32.59% for Fejér county and 31.84% for Komárom-Esztergom county).

### **Distribution by legal form**

It seems clear from the survey that the proportion of companies and partnerships with legal entity, in general, is predominant and also that this is the category of firms that tend to employ engineers. Engineers are employed with this category of firms in a proportion of 23.73%, while in case of companies and partnerships without legal entity the proportion is 11.18%.

## **Composition of the enterprises by type of business**

The 164 enterprises surveyed by us had the following pattern or percentage breakdown by industry: 47.02% operated in Industry, 19.87% was engaged in the Real Estate business or economic services, 14.57% were in the Construction industry, 7.28% dealt with Trade or reparation services, 3.97% was engaged in Agriculture, management of game stock, viniculture or fishery, 3.97% dealt with Transport, warehousing, postal service or communications. The rest of the categories do not reach a total of 5%.

As for the number of staff employed, (I mean, employment rate) the enterprises surveyed fell into the following categories: a total of 51.75% of the enterprises fell into the category of enterprises with 10 to 49 employees; the percentage of enterprises employing 50 to 249 employees was 29.37% and the percentage of enterprises employing a minimum of 250 employees was 18.88%. The highest proportion in the sample was represented by Budapest-based enterprises (37.80%), while the lowest proportion (19.26%) was represented by enterprises operating on the countryside. In the towns with county rank and in the other towns the proportions were nearly the same, 22.61% and 22.56%, respectively.

96.05% of the companies and partnerships surveyed are enterprises with legal entity.

Among the respondents, the proportion of companies and partnerships in Hungarian private ownership predominates (69.43%). Their proportion is three times the proportion of those being in foreign majority ownership (18.47%). The proportion of enterprises in state and municipal ownerships taken together makes a total of 12.10% within the sample.

Among the respondents, it is the proportion of enterprises falling into the category of HUF100 to 500 million yearly turnovers that predominates (42.18%). Quarter of the enterprises surveyed has a yearly turnover of more than HUF 1 billion.

## **Number of staff as of 29 February 2004**

Change in the number of staff (i.e. job turnover) with the enterprises surveyed represented a proportion of 0.6% in the year of survey. In the period between February 2003 and February 2004, the proportion of increase in staff was only slightly more than half of the increase in the number of white-collar workers in general, being in employment at that time in Hungary as indicated by an official report of the Central Statistical Office (1.0%). The market demand for workforce with engineering qualification still continues to be higher than that for white-collar workers in general, meaning that engineers were „in higher demand” in the year of survey.

As one of the survey findings, we can say that it is on the areas of Real Estate transactions, economic services (K) and Industry (CDE), where you can find most of the engineering degree recipients employed. The proportion of BME engineering graduates is especially high on the area of computer-aided activities like Real estate transactions, economic services (K) as well as in sub sectors like transportation, warehousing, postal services, communications (I) – a phenomenon closely related to the high demand for qualifications in the area of informatics and logistics.

More than two thirds of the engineering graduates - employed with the companies and partnerships surveyed - work in Budapest – a proportion showing a tendency of a slight decrease during the year of survey. This capital-centred employment tendency among university graduates is especially high in case of BME graduates.

## **Change planned in the number of staff till 31 August 2004**

The number of staff is planned to be increased, which can mean a prospect improving the chances of placement for graduates. In the next six months, the enterprises surveyed plan to hire, for the most part, college graduates, but not new graduates. About 50% of the enterprises said that the idea behind their plans - to increase staff - included development of technology, elimination of the shortage of workforce, investment, expansion of production, but you could also emphatically find

ideas such as product development, and introduction of new profile.

Out of the degree areas, mechanical engineer, chemical engineer and engineer of technical informatics rank the highest both as regards the number of enterprises interviewed and the number of staff hired. Their proportion among job openings makes a total of 26%.

#### **Monthly salaries and incomes earned by engineers in February 2004**

As for the salaries and incomes earned by engineers, a total of 73% (120 enterprises) of the enterprises surveyed has given usable information – figures which you can see in the table below. According to an official report issued by the Central Statistical Office (KSH), the gross average monthly salary of white collar workers in Hungary, - in general in the months of January and February - was on an average of HUF 196.900 – a figure higher, according to present survey findings, than the gross average monthly salary of engineers with college degree, but lower than the gross average monthly salary of engineers with university degree.

<b><i>Gross average monthly salary</i></b>	<i>Engineers with college degree</i>	<i>Engineers with college degree right after graduation</i>	<i>Engineers with university degree</i>	<i>Engineers with university degree right after graduation</i>
Average (HUF)	188.632	182.000	230.583	203.750
Variance (HUF)	77.722	68.005	128.640	79.633
Minimum (HUF)	45.000	80.000	59.000	60.000
Maximum (HUF)	500.000	330.000	800.000	340.000
Number of respondent firms	87	20	84	12

#### **Gross average monthly salaries earned by engineering graduates (February 2004)**

In the table below you can find the other bonuses (fringe benefits etc) of those enterprises, which have given bonuses or some kind of bonus to their engineers (bonus higher than HUF zero in value).

Each category of bonuses or other financial benefits makes a total of 10-20% of the average salary.

<b><i>Other bonuses or benefits higher than HUF zero</i></b>	<i>Engineers with college degree</i>	<i>Engineers with college degree right after graduation</i>	<i>Engineers with university degree</i>	<i>Engineers with university degree right after graduation</i>
Average (HUF)	20.352	20.750	43.200	36.833
Variance (HUF)	32.515	28.043	58.109	58.314
Minimum (HUF)	1.000	3.000	2.000	3.000
Maximum (HUF)	180.000	100.000	250.000	150.000
Number of respondent firms	54	12	45	5

### Monthly sum of other bonuses and benefits given to technical graduates (February 2004)

The average gross monthly incomes from primary employment are given in the table below including also those firms, which do not give bonuses or other benefits to their engineers.

<i>Average gross monthly income</i>	<i>Engineers with college degree</i>	<i>Engineers with college degree right after graduation</i>	<i>Engineers with university degree</i>	<i>Engineers with university degree right after graduation</i>
Average (HUF)	205.000	197.842	259.640	231.455
Variance (HUF)	89.929	68.867	153.512	112.798
Minimum (HUF)	48.000	83.000	60.000	60.000
Maximum (HUF)	580.000	330.000	850.000	470.000
Number of respondent firms	78	19	75	11

### Average gross monthly incomes earned by technical graduates (February 2004)

On an average, the gross monthly incomes of university graduates tend to be 22% higher and their bonuses or other benefits 112% higher than those with college degree. If taken together, we can see that average gross monthly incomes - in the case of university graduates - is an average of 27% higher. If we look at the various figures, we can see that they are higher (71%) with the incomes of university graduates than with those of their counterparts with college graduates.

### Earnings to be expected in 2004

As predicted by HRD specialists employed with the firms surveyed, nearly two thirds (62.11%) of their engineers will experience a rise in their average gross earnings this year. Those who gave prediction even for the rate of increase (86 firms), plan an average of 8.40% increase for the year 2004. This compares to the rate of 6.8% for the first quarter of 2004 predicted by a report (9) of Hungarian National Bank and exceeds, in proportion, the inflation rate of 6.0% projected for the whole year of 2004.

### How valuable is professional practice?

When inviting candidates to apply for a vacant position of engineer, 71% of employers (116 firms) said that work experience was a special advantage. 49.5% of these firms think that it is an advantage if the applicant engineers have at least 3 years of work experience. The second best option for them, as employers, is the group of engineers having work experience of 1 to 3 years.

Interestingly enough, enterprises with a yearly turnover of HUF 1 billion and HUF 100 to 500 million as well as multinational companies tend to prefer, - in a proportion higher than the average - new graduates, who have no work experience at all. This phenomenon can be explained by two factors: on one hand, big companies hire staff „from the inside” and even prefer to develop and train for themselves the specialists and executive staff of their own – by this offering a prospect of promotion for their talented and ambitious young staff. On the other hand, this is the specific group of companies that prefer to launch special on-site post gradual programmes of 1.5 to 2 years duration for new graduates to make them more practice oriented. As for the other parameters examined, no significant discrepancy has been observed.

### **Channels used for hiring new staff**

A 3-grade scale was given to respondent firms to indicate their preference for hiring staff (1- for often used, 2-for sometimes used, 3 – for not used.) The most important channel proved to be the informal channel (1.76). This finding does not seem to be surprising. It is practically the same as that was indicated by former surveys: both employers and employees use personal contacts as the most frequent and most successful channel of hiring new staff. The second best option seems to be the newspaper ads. Interestingly enough, the firms surveyed hardly or never contact employment centres and the higher education institutes or the specific faculties thereof in order to fill their vacancies. Even the career counselling firms and online job agencies and career fairs are not mentioned among the best methods. As for the latter one – i.e. career fairs – it can be explained by the fact that nearly half of the firms looks for specialists with an already established career background while career fairs are visited mainly by graduates themselves.

### **Competences, skills and personal traits required for effective job search**

During our survey, we inquired not only about what employers think about the qualifications of graduate engineers, but also about how they rank other personal requirements when hiring engineers as new staff.

<i>Competencies, skills, personal traits</i>	<i>Percentage of firms ranking it as a high priority</i>
Good command of foreign languages	53.40%
Professional practice, work experience	26.30%
Computer literacy	11.00%
Good communication skills	10.20%
Flexibility and mobility	10.20%
Driver's licence	9.30%
Team spirit, interpersonal skills, the ability to work effectively in a team	8.50%
Resolution and self-assurance	7.60%
Ability to work under pressure	5.90%
Creativity and resourcefulness	5.10%
Motivated-ness and sense of vocation	5.10%
Decency and loyalty	5.10%

*Perceptions given by a focus group of 142 firms*

## Personal requirements for recruiting staff, as seen by employers

### *Competencies, skills, and personal traits required retaining a position*

What a young engineer needs to do is not only acquire a job, but also retain it – a challenge not less difficult. So this is the reason why we were curious about how the employers ranked personal requirements for their engineers to be able to retain their positions. The results obtained are given in the table below.

<i>Competencies, skills, and personal traits</i>	<i>Percentage of firms ranking it as a high priority</i>
A performance-oriented practical approach to the tasks assigned	98.10%
Preciseness, accuracy, meticulousness	97.50%
Ability to work to close deadlines	93.10%
Ability to work effectively in a team, team spirit	93.00%
Ability to solve problems effectively	90.60%
Ability to work independently	86.20%
Good interpersonal and communication skills	82.30%
Creativity and resourcefulness	73.60%
High level of professional skills	72.30%
Professional ambitiousness, self-management skills	58.00%
Full awareness of the economic and market situation relevant to his/her career	38.90%
Possession of an established professional network of contacts	18.40%

*Perceptions given by a focus group of 159 firms*

## Personal requirements for retaining positions, as seen by employers

Looking at the table above we can see, that from the point of view of employers, there are traits and skills not really measurable that rank the highest of all during the day-to-day work of engineers: preciseness, accuracy, meticulousness, good problem solving ability. The so-called „soft skills” like ability to work independently, communication skills, creativity and resourcefulness are rated with job retention as high as with acquiring the job. What do employers not rate really high are possession of an established professional network of contacts, full awareness of the economic and market situation relevant to the employer's career field – things requiring even a decade of work experiences.

## Supply of engineers with technical degree

It can be concluded that nearly half (47.2%) of the enterprises surveyed have sufficient number of highly qualified specialist engineers. The proportion of those, which perceived shortage (28.8%) and the proportion of those, which perceived oversupply (24%), is nearly the same.

As regard of shortage of engineers with technical degree, the affected sectors are construction (F) and industry (CDE). A balance between the shortage and demand of engineers with technical degree can be observed in the sectors of transportation, warehousing, postal services,

communications (J) while in four other sectors: trade, repair services (G), real estate transactions, economic services (K) as well as in agriculture, management of game stock, viticulture, and fishery (AB) oversupply outnumber vacancies. A considerable shortage of highly qualified engineers can be perceived in the central and western parts of Transdanubia, while there is a slight shortage in the central part of Hungary, a slight oversupply in the southern part of the Great Hungarian Plane, and in the southern part of Transdanubia, and a considerable oversupply in the northern part of Hungary, and in the northern part of the Great Hungarian Plain.

**Post gradual training opportunities offered to engineers**

68.9% of the respondent firms (113 firms) supports the idea, that their engineers should be exposed to post gradual training programmes, while in a survey conducted by BME Students' Centre in 2004, 95% of the engineers surveyed in 2002 as new graduates, said they were interested to be enrolled in such programmes.

Two of the most preferred post gradual training options are constituted by on-site training courses (91.2%) and attendance at professional events (88.5%). For the engineers employed with the firms surveyed the least available post gradual training option is participation at international conferences, symposiums, specialized exhibitions, study tours, exchange visits etc. (10.6%). Though supporting employee participation at post gradual training courses leading to a second degree, is not considered to be among the preferred forms of post gradual training from part of employers, nearly half of the firms (46%) use this form.

What the firms surveyed really support in a comparatively higher proportion is the further education of their staff with technical qualification in engineering skills (85%). This is followed by foreign language skills, informatics and computer skills with more or less the same ratings. Out of the firms supporting the personal growth and development of their employees, the proportion of those, which encourage post gradual training in the area of economic and managerial skills are nearly 40%.

**Characteristics of managerial staff supervising engineers**

The managers of the firms surveyed have been in employment with their firms for an average of 10.63 years. The longest manager seniority spent in employment with one and the same firm is 37 years. The figures above refer to the fact that we have managed to contact such managers, who had ample time to form out thorough opinions about BME engineering graduates. The composition of engineers in subordinate positions is given in the table below.

<i>Number of engineering graduates in subordinate position</i>	<i>Total number of engineers in subordinate positions</i>	<i>Number of engineers with university degree in subordinate position</i>	<i>Number of engineers with college degree in subordinate position</i>	<i>Number of BME engineers in subordinate position</i>	<i>Number of BME engineers as new graduates in subordinate position</i>
Number of managers supervising a given number of subordinates	96	83	79	59	16
Average number of subordinates	23.66	14.37	13.65	7.59	2.06
Total number of subordinate engineers	2271	1193	1078	448	33

*Number of engineering graduates*

### Ranking the institutes from which engineers graduated

In our survey we asked company managers to rank Hungarian higher education institutes as to the quality of education with special emphasis on the knowledge and skills they had provided to engineering graduates. More than two thirds (70.71%) of the respondent firms ranked BME as the best of all similar institutes. Therefore it can be concluded that BME continues to be the leading engineering institute of higher education in Hungary – a fact corroborated also by a former survey, conducted by Szonda Ipsos. This leading position is especially precious, if we consider the fact that the University of Miskolc and the Budapest Technical College - next in the list after BME - were mentioned together only by nearly a third of the respondent firms and only 9.09% and 7.07 per cent, respectively of the managers ranked it the highest.

### Development ideas in higher engineering education

In our survey, we were curious about perceptions of company managers and ideas as to what changes - they think - should be done in higher engineering education to have more effective and more educated engineers. The responses received showed a mixed picture with the following proportions of the individual composite elements ranked by the firms.

<i>Development ideas</i>	<i>Percentage mentioned by the firms surveyed</i>
A more practice-oriented approach to education	49.59%
Improving foreign language skills, more exposure to foreign language learning	15.39%
Up-to-datedness in knowledge and skills	4.27%
Managerial skills	3.42%
Consolidating and widening theoretical knowledge	2.56%
Increasing knowledge and skills in Informatics	2.56%
Developing interpersonal and communication skills	2.56%
Improving problem-solving skills	2.56%
Making education more specialized	2.56%
Improving team building skills, project management skills	1.71%
Improving contacts with Industry	1.71%
Other: (suggestions for developing specialization programmes, suggestions for securing funding sources, suggestions for general undergraduate programmes)	11.11%

*Development ideas by proportion as ranked by 108 respondent firms.*

## Changes required in higher engineering education

Nearly half of the respondent firms considered the increase of professional experiences and practice work (the lab aspect of education) to be the most important development idea so a market-minded higher engineering institute like MBE should view this requirement as the highest development priority. In addition to a wider exposure to professional experiences, students should be provided with more practical and reliable foreign language skills (15.39% of the company managers surveyed mentioned this).

## Professionalism of BME engineers as seen by company managers

In surveying perceptions and experiences of company managers about engineering graduates as workforce, in general, we were curious about their opinion of the effectiveness of our BME graduates (both new and older) as workforce. It can be concluded, from the responses given by managers of a total of 80 firms, that more than four fifths of the new graduates have at least average professionalism and about a quarter of them have full professionalism (i.e. have a sound professional knowledge in their chosen degree area) – an outcome gained from former surveys.

In surveying the level/extent of professionalism of new engineering graduates, we asked company managers whether they thought that new graduates should know, and be aware of the market atmosphere and business climate in which the company operates. Out of the respondent managers, slightly more than a third (42 firms) thought they should.

Those who thought that new graduates should know the market atmosphere and business climate in which the company operates were given another question to inquire about the extent and depth of knowledge that BME new graduates had about the company's activity. It worth mentioning that in the opinion of the managers, who thought that new graduates should know, and be aware of, (the market atmosphere and business climate in which the company operates,) nearly 50% of the BME new graduates had a good or fairly good knowledge of the operation of their companies in a wider perspective, while slightly more than 50% had only scarce knowledge or no knowledge at all.

## Workload and ability to be assigned more challenging tasks

We were curious about the workload of our BME graduates and ability to be assigned more challenging tasks. More than half (66.70%) of the 90 company managers said that their engineers can be assigned only tiny, unchallenging tasks or part of a complex task and only 43.30% of the BME engineering graduates can be assigned more challenging, more difficult tasks.

## Strengths and weaknesses

We were querying about the strengths and weaknesses of our BME engineering graduates. The responses from the company managers were open and straightforward. So we received a wide variety of responses. In the table below you can find only the responses ranked, in proportion higher than 4%.

<i>Strengths</i>	<i>Percentage rate mentioned by company managers</i>
Depth of theoretical knowledge of the degree area, preparedness	47.80%
Creativity	6.09%
Work experience	5.22%
Problem solving ability	4.35%
Ability to be assigned more challenging tasks	4.35%

*Strengths by proportion as ranked by 85 respondent firms.*

### Strengths of BME engineering graduates as seen by company managers

<i>Weaknesses, weak points</i>	<i>Percentage rate mentioned by company managers</i>
Lack of practice and work experience	62.35%
Poor foreign language skills	11.76%
Poor or insufficient communication and negotiation skills	4.71%

*Weaknesses by proportion as ranked by 79 respondent firms.*

### Weaknesses of BME engineering graduates as seen by company managers

The proportions and rankings of weaknesses are in one line with the planned changes required to be done in Hungarian higher engineering education, and at the same time, are relevant to the criteria required to be met by engineers searching job on the labour market.

### Main personal requirement as seen by company managers

In the survey, we asked the managers to answer a set of questions relevant to the personal requirements to be met by BME engineering graduates when applying for a position at their companies. The responses were given on a 5-grade scale (e.g.: 1 for „very poor”, 3 for „satisfactory”, 5 for „excellent”) and the average ratings are given in the table below.

<i>Personal requirements</i>	<i>Average rating</i>
Computer skills/IT	4.32
Theoretical knowledge of the specialization chosen	4.14
Ability to solve problems and perform tasks	4.02
Creativity	3.99
Team spirit, flexibility and adaptability	3.90
Perseverance and ability to bear workload	3.89
Reliability, good discipline, accuracy, and meticulousness	3.87
Ability to work quickly and precisely	3.82
Firmness and determinedness	3.71
Good interpersonal and communication skills	3.66
Initiation skill	3.64
Ability to work autonomously	3.60
Analytical skills	3.58
Good reading skills in foreign languages	3.53
Good writing and composition skills	3.40

<i>Personal requirements</i>	<i>Average rating</i>
Managerial and organizational skills	3.32
Presentation and public speaking skills	3.28
Good speaking skills in foreign languages	3.16
Professional skills along with work experience	3.06
Good writing and composition skills in foreign languages	3.06
Economic and financial skills	2.92
Legal skills	2.77
Total:	3.57

*Personal requirements by average ratings as ranked by 90 respondent firms.*

**Personal requirements to be met by BME engineering graduates as seen by company managers**

It can be concluded from the above table that the ratings given as responses deviate from the „satisfactory” rating always upward - a tendency meaning that the company managers surveyed were satisfied with BME engineering graduates.