**Table S1:** Survey.

# UNIVERSIDAD TÉCNICA ESTATAL DE QUEVEDO

Dear graduates, the State Technical University of Quevedo (UTEQ), the Faculty of Engineering Sciences and the research group Software Engineering Applications (GI2C), are conducting a study to evaluate the professional success of university graduates. We request your participation in this survey by reporting the experiences you personally made in your studies and after graduation. Your participation is completely voluntary; if you do not wish to participate, there will be no negative consequences. Responses are completely anonymous. Your information will be treated strictly confidential. The results will be published in such a way as to exclude the identification of individuals and with an academic focus. For this reason, and thanking you in advance for your collaboration, we are submitting the following questionnaire for your consideration. If you agree to participate, please send the document with your answers to the following e-mail address: rpico@uteq.edu.ec:

For further information contact Roberto Pico-Saltos, rpico@uteq.edu.ec

## *A. PERSONAL DATA*

| | | |
|---|---|---|
| **1.** Birth Date | | |
| **2.** Gender | | ☐ Male ☐ Female |
| **3.** Marital Status | | ☐ Single ☐ Married<br>☐ Widowed ☐ Divorced<br>☐ Consensual union ☐ Separated |
| **4.** Country of birth | | |
| **5.** Home Address | Province | |
| | Canton | |
| | Sector | |
| **6.** Phone Number | Conventional | |
| | Cell phone (s) | |
| **7.** E-mail address (es) | | |

## *B. SOCIO-ECONOMIC STATUS*

| | | | | | | |
|---|---|---|---|---|---|---|
| **8.** Do you have living parents? | Father | Yes | No | Mother | Yes | No |
| | | | | | | |

| | | |
|---|---|---|
| **9.** With whom do you currently live? | ☐ Parents<br>☐ Aunts/Uncles<br>☐ Other relatives | ☐ Sibling<br>☐ Grandparents<br>☐ Independent |

| | | | | |
|---|---|---|---|---|
| **10.** Father's level of education | ☐ | Elementary | ☐ | Postgraduate |
| | ☐ | High School | ☐ | Literacy Center |
| | ☐ | College completed | ☐ | Don't know, father not alive |
| | ☐ | Unfinished college | ☐ | None |
| **11.** Mother's level of education | ☐ | Elementary | ☐ | Postgraduate |
| | ☐ | High School | ☐ | Literacy Center |
| | ☐ | College completed | ☐ | Don´t know, mother not alive |
| | ☐ | Unfinished college | ☐ | None |
| **12.** Father's main occupation | ☐ | Farmer | | |
| | ☐ | Government employee Civil servant | | |
| | ☐ | Trade, sales or similar employees | | |
| | ☐ | Businessman | | |
| | ☐ | Architects, engineers and similar professionals | | |
| | ☐ | Health professionals | | |
| | ☐ | Agricultural and livestock professionals | | |
| | ☐ | Legal professionals | | |
| | ☐ | Primary school teacher | | |
| | ☐ | Secondary school teacher | | |
| | ☐ | University teacher | | |
| | ☐ | Other teaching professionals | | |
| | ☐ | Legislator | | |
| | ☐ | Principal and chief executive officer | | |
| | ☐ | Department manager | | |
| | ☐ | Office Clerk | | |
| | ☐ | Armed Forces and Police | | |
| | ☐ | Other | | |
| **13.** Mother's main occupation | ☐ | Farmer | | |
| | ☐ | Government employee Civil servant | | |
| | ☐ | Farmer | | |
| | ☐ | Retail clerks, salespersons or similar | | |
| | ☐ | Businessman | | |
| | ☐ | Architects, engineers and similar professionals | | |
| | ☐ | Health professionals | | |
| | ☐ | Agricultural and livestock professionals | | |
| | ☐ | Legal professionals | | |
| | ☐ | Primary school teacher | | |
| | ☐ | Secondary school teacher | | |
| | ☐ | University teacher | | |
| | ☐ | Other teaching professionals | | |
| | ☐ | Legislator | | |
| | ☐ | Principal and chief executive officer | | |

| | |
|---|---|
| | ☐ Department manager<br>☐ Office Clerk<br>☐ Armed Forces and Police<br>☐ Other |
| **14.** Do you have siblings? | ☐ Yes ☐ No |
| **15.**, How many siblings do you have? | |
| **16.** How many members make up your household? | |
| **17.** Total household monthly income | |
| **18.** How did you finance your undergraduate studies? | ☐ Own salary ☐ Scholarship<br>☐ Credit ☐ Other |
| **19.** Indicate Monthly Family Expenses | |
| **20.** The housing available is | ☐ Owned ☐ Rented<br>☐ Family ☐ Mortgaged<br>☐ Borrowed ☐ Other |
| **21.** Do you have basic services? | ☐ Drinking water ☐ Piped water<br>☐ Electricity ☐ Sewerage<br>☐ Garbage collection ☐ Telephone |
| **22.** Do you have any special capabilities? | ☐ Yes ☐ No |
| **23.** If you have special capacity, what type is it? | ☐ Auditory<br>☐ Physical<br>☐ Intellectual<br>☐ Visual<br>☐ Multidisabled |
| **24.** Do you receive medical care? | ☐ Yes ☐ No |
| **25.** Indicate the type of medical care | ☐ Public ☐ Private ☐ x University |

### *C. INFORMATION ABOUT THE BACCALAUREATE*

| | |
|---|---|
| **26.** What type of school? | ☐ Public ☐ Fiscomisional ☐ Private |
| **27.** Name of the school where you graduated: | |
| **28.** Title obtained in: | ☐ Science ☐ Technical ☐ Arts<br>☐ Multipurpose ☐ Other ☐ |
| **29.** Baccalaureate degree qualification | |
| **30.** How many years of schooling (high school) did you spend in total to acquire the qualification to enter higher education (include years of repetitive classes)? | ☐ # of Years of schooling in total |

### *D. STUDY INFORMATION*

| | |
|---|---|
| **31.** Degree obtained (UTEQ) | |
| **32.** Year of entry (UTEQ) | |
| **33.** Year of graduation (UTEQ) | |
| **34.** Graduation average | |

| | | | | |
|---|---|---|---|---|
| **35.** Do you belong to any Professional Association, name of the Association | | | | |
| **36.** Faculty | | | | |
| **37.** Career | | | | |
| **38.** Did you study the university career that you chose as your first option? | | Yes | | No |
| **39.** How long did you study at UTEQ to obtain your degree? | Years: | Months: | | |

**40.** How many hours per week did you spend on average during your studies on each of the following activities? Estimate

| Hours | Activity |
|---|---|
| | Studies, including attendance to classes and evaluations, independent work |
| | Sports |
| | Employment/Work |
| | Other activities: Specify: Recreation, sleeping |

**41.** How many months between entering college and graduation did you spend predominantly in?

| Month | Activity |
|---|---|
| | Employment / work NOT related to study |
| | Employment / work related to study |
| | Work, internship (as part of your career |
| | Raising children or other relatives |
| | Military service or equivalent |
| | Not employed, seeking employment |
| | Other, please specify: |

**42.** If you worked during the professional career you studied, to what extent were your work (employment) experiences related to the content of your studies?

| To a very High degree | | | | In No Way | Not applicable No work |
|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 |
| ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

**43.** After graduation, did you undertake any other additional studies/training (graduate courses, courses, seminars, courses not completed, etc.) related to your profession? Exclude those that you do NOT consider to be related to your work.

| Type of course | Name of course or degree obtained | Name of university or company | Country | City | Start date | | End Date | | Completed ? (Y/N) | Average rate /10 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Month | Year | Month | Year | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

Type of course: 1. Short-term course 2. Bachelor's degree in Education 3. Bachelor of Science 4. Engineering 5. Diploma 6. Spexialization 7. Master's Degree in Education 8. Master of Science 9. PhD Doctorate

**44.** How would you rate your level of proficiency in a foreign language at the time of graduation from college? Answer with respect to any language on the list and check the type of proficiency in each row. Multiple response possible in each row.

| | Language proficiency level | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | A. Able to write relevant professional texts | | | B. Able to read professionally relevant texts | | | C. Able to speak in a professionally relevant context | | | D. Scarce | E. Not proficient in the language |
| | High | Medium | Low | High | Medium | Low | High | Medium | Low | | |
| **English** | | | | | | | | | | | |
| **French** | | | | | | | | | | | |
| **German** | | | | | | | | | | | |
| **Other: Specify** | | | | | | | | | | | |

**45.** How would you rate your current level of proficiency in a foreign language? Please answer for any language on the list. Multiple responses possible in each row.

| | Language proficiency level | | | | |
|---|---|---|---|---|---|
| **Language** | **A. Able to write relevant professional texts** | **B. Able to read professionally relevant texts** | **C. Able to speak in a professionally relevant context** | **D. Scarce** | **E. Not proficient in the language** |

| | High | Medium | Low | High | Medium | Low | High | Medium | Low |
|---|---|---|---|---|---|---|---|---|---|
| **Inglés** | | | | | | | | | |
| **Francés** | | | | | | | | | |
| **Alemán** | | | | | | | | | |
| **Other: Specify** | | | | | | | | | |

**46.** What computer skills did you possess at the time you graduated and currently?

| GRADUATION TIME | | | | | Computer skills | CURRENTLY | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **1 None** | **2** | **3** | **4** | **5 Very Good** | | **1 None** | **2** | **3** | **4** | **5 Very Good** |
| | | | | | Word or text processor | | | | | |
| | | | | | Spreadsheet | | | | | |
| | | | | | Data base | | | | | |
| | | | | | Specialized software (SPSS, statistical, accounting and tax management) | | | | | |
| | | | | | Programming languages | | | | | |

*E. EMPLOYMENT INFORMATION*

| | | | | | |
|---|---|---|---|---|---|
| **47** | Current activity | ( ) Working | ( ) Studying | ( ) Both | ( ) Neither studying nor working |

**48.** Describe your most relevant work experiences prior to your current job.

| No. | Company | Position | Location | Time worked | Years worked (From - To) | Hierarchical level of your position | Nature of the company (public, private) | Percentage of relation of the position with your title |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |
| | | | | | | | | |

**E.1 FIRST JOB**

***49***. How long did it take to obtain your first job?

| | |
|---|---|
| a. Before graduation | |
| b. Less than 6 months after graduation | |
| c. Between 6 months and one year after graduation | |
| d. More than one year after graduation | |

**50**. How did you try to find your first job after graduation? Multiple answers are possible.

| | |
|---|---|
| I applied for a vacancy announcement | |
| I contacted employers without knowing if there was an opening | |
| I advertised my services | |
| I was contacted by an employer | |
| I contacted a public employment agency | |
| I contacted a commercial employment agency | |
| I sought the help of a placement office at my college or university | |
| I sought the help of faculty at my college or university | |
| Established contacts while working during my studies | |
| Used other personal contacts/relationships (e.g. parents, relatives, friends) | |
| Started my own business/self-employment | |

**51**. What were the company's or first employer's requirements for hiring you? Select 1 or more

| | |
|---|---|
| Be from a prestigious university | |
| Work experience in the specialty | |
| Academic record - Grades - Qualifications | |
| Professional degree in the area of work | |
| Pass the exam | |
| Experience abroad | |
| Knowledge of foreign languages | |
| Computer skills | |
| Personal skills | |
| Personal interview | |
| For having an agreement with UTEQ | |
| Recommendations/references from third parties | |
| Other: Specify | |

**E.2. CURRENT JOB**

| | | |
|---|---|---|
| **52**. Company Name: | | |
| **53**. Place of work (province, canton, parish, etc.):<br>Canton: | Province: | Country: |
| **54**. Company address: | | |
| **55**. Telephone: | **56**. E-mail: | |
| **57**. Position held: | | |
| **58**. Time you have been with the company:<br>( )Less than one year<br>( )One year<br>( )Two years<br>( )Three years<br>( )More than three years | **59**. Length of time in executive position:<br>( )Less than one year<br>( )One year<br>( )Two years<br>( )Three years<br>( )More than three years | |
| **60**. Hierarchical level | ( )Technician | ( )Supervisor |

| | |
|---|---|
| | ( )Head of area ( )Officer<br>( )Official ( )Manager<br>( )Businessman ( )Entrepreneur<br>( ) Other _____ |
| **61**. Employment status | ( )Appointment ( )Temporary<br>( )Contract ( )Other _____ |
| **62**. Relationship of the job to your area of training | ( )0% ( )1-20% ( ) 21-40%<br>( ) 41-60% ( ) 61-80% ( ) 81-100% |
| **63**. Type of company | ( )Own ( )Public ( )Private<br>( )Social-NGO ( )Other _____ |
| **64**. Size of the company or organization | ( )Microenterprise (1-30 People)<br>( )Small (31-100 People)<br>( )Medium (101-500 People)<br>( )Large (more than 500 people) |
| **65**. Economic Sector of the Company or Organization | ( )Agribusiness<br>( )Agricultural<br>( )Livestock<br>( )Fishing<br>( )Mining<br>( )Forestry<br>( )Industrial<br>( )Construction<br>( )Petroleum<br>( )Educational<br>( )Tourism<br>( )Commerce<br>( )Legal<br>( )Informatics<br>( )Finance<br>( )Other _____ |
| **66**. Please indicate on the following scale your current monthly salary income | ( )From 354 to 500 USD<br>( )From 501 to 700 USD<br>( )From 701 to 900 USD<br>( )From 901 to 1200 USD<br>( )From 1201 to 1500 USD<br>( )From 1501 to 2000 USD<br>( )From 2001 to 3000 USD<br>( )From 3001 to 5000 USD<br>( )More than 5000 USD |

**67**. If you are currently employed or self-employed: How would you describe your current professional situation?

| | |
|---|---|
| I have a regular job / I am self-employed | |
| I have odd jobs related to my study | |
| I have occasional jobs NOT related to my study | |
| I have more than one job | |
| I am currently doing military or civilian service. | |
| Other: Specify: | |

**68**. Indicate at least five generic competencies that you consider most important in your job.

| | |
|---|---|
| Ability to abstract, analyze and synthesize. | |
| Ability to apply knowledge in practice | |
| Ability to organize and plan time | |
| Knowledge of the area of study and the profession | |
| Social responsibility and civic commitment | |
| Ability to communicate orally and in writing | |
| Ability to communicate in a second language | |
| Skills in the use of information and communication technologies. | |
| Research skills | |
| Ability to learn and update oneself permanently | |
| Ability to search for, process and analyze information from different sources. | |
| Critical and self-critical capacity | |
| Ability to act in new situations | |
| Ability to identify, pose and solve problems | |
| Ability to make decisions | |
| Ability to work in a team | |
| Interpersonal skills | |
| Ability to motivate and lead towards common goals | |
| Commitment to the preservation of the environment | |
| Creative capacity | |
| Commitment to their socio-cultural environment | |
| Appreciation and respect for diversity and multiculturalism | |
| Ability to work in international contexts | |
| Ability to work autonomously | |
| Ability to formulate and manage projects | |
| Ethical commitment | |
| Commitment to quality | |

**69**. All things considered, to what extent does your current employment situation match the expectations you had when you began your university studies?

| Worse than I expected | | | Much better than I expected | | I did not have any expectations |
|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 0 |
| ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

**70.** To what extent do you use the knowledge and skills you acquired during your university studies?

| None At all degree | | | | To a very high |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
| ☐ | ☐ | ☐ | ☐ | ☐ |

**71.** If you consider your job as poorly suited and unrelated to your education: why did you accept it? Possible multiple answer.

| | | |
|---|---|---|
| 1. | Not applicable, I consider that my job corresponds to my studies. | |
| 2. | I have not yet found a more suitable job. | |
| 3. | By doing this job I have better career prospects. | |
| 4. | I prefer a job that is not closely related to my studies. | |

| | | |
|---|---|---|
| 5. | I was promoted to a category that was less closely related to my studies than my previous category. | |
| 6. | I earn a higher income from my current job. | |
| 7. | My current job offers me security. | |
| 8. | My current job is interesting. | |
| 9. | My current job provides the opportunity for part-time/flexible schedules. | |
| 10. | My current job allows me to work in my preferred location. | |
| 11. | My current job allows me to attend to family obligations. | |
| 12. | At the beginning of my professional career, it was foreseeable that I would have a job that was only slightly related to my studies. | |
| 13. | Other:…… | |

***SATISFACTION WITH THE TRAINING AND ATTENTION OFFERED BY THE UNIVERSITY***

**72**. Are you satisfied with the knowledge acquired during your studies at UTEQ?

| Very Satisfied | Satisfied | Not very satisfied | Not Satisfied |
|---|---|---|---|
| | | | |

**73**. Why?

| |
|---|
| |

**74**. How would you rate the usefulness of pre-professional practices (internships) for your professional and job development?

| Excellent | Very Good | Good | Fair | Poor |
|---|---|---|---|---|
| | | | | |

**75**. The bibliography and material suggested by the teachers was:

| Excellent | Very Good | Good | Fair | Poor |
|---|---|---|---|---|
| | | | | |

**76.** You consider that the contents of the subjects, seen throughout the course of study, turned out to be.

| Excellent | Very Good | Good | Fair | Poor |
|---|---|---|---|---|
| | | | | |

**77.** How often do you visit UTEQ?

| | Constantly | | Rarely | | Never |
|---|---|---|---|---|---|

**78**. What areas would you reinforce in your curriculum?

**79**. Which subjects do you consider should be eliminated from the curriculum?

**80**. What are the subjects that have contributed to your professional development?

**81.** To what extent does your occupation correspond to your level of education?

| Not appropriate | | | Completely appropriate | |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
| | | | | |

**82.** How would you rate the study facilities and conditions you experienced during the course of study from which you graduated?

VG: Very Good G: Good F: Fair B: Bad P: Poor

| **Study Facilities and Conditions** | **VG** | **G** | **F** | **B** | **P** |
|---|---|---|---|---|---|
| Academic counseling offered in general | | | | | |
| Final exam assistance/counseling | | | | | |
| Specialization course content | | | | | |
| Variety of courses offered | | | | | |
| Degree program design | | | | | |
| Evaluation/grading system | | | | | |
| Opportunity to choose courses and areas of specialization | | | | | |
| Practical emphasis on teaching and learning | | | | | |
| Quality of teaching | | | | | |
| Opportunities to participate in research projects | | | | | |
| Emphasis on teaching + learning research | | | | | |
| **Study Facilities and Conditions** | **VG** | **G** | **F** | **B** | **P** |
| Provision of work sites and other work experiences | | | | | |
| Opportunity for extra-classroom contacts with faculty members | | | | | |
| Contacts with fellow students | | | | | |

| |
|---|
| Opportunity for students to have an impact on university policies |
| Library equipment and bibliography |
| Availability of teaching materials |
| Quality of technical equipment (e.g. PCs, measuring instruments, etc.) |

**83.** Have you carried out any scientific research work to date?

- [ ] Constantly
- [ ] Rarely
- [ ] Never

**84.** Have you published your scientific research?

- [ ] Yes
- [ ] No

**85.** Select the type of forum in which you have published your research (only if you answered YES in the previous question).

| | **Quantity** | **Indexing/Editorial?** |
|---|---|---|
| Academic conference | | |
| Non-indexed journal | | |
| Technical report | | |
| Indexed journal | | |

**86.** Has generated any patent or product recognized by the intellectual property institute.

- [ ] Yes
- [ ] No

**87.** Please rate from 1 to 5 (where 1= strongly disagree, 2= disagree, 3= indifferent, 4 = agree, 5= strongly agree) the following aspects:

| # | COMPONENT | QUESTIONS | 1 Strongly Disagree | 2 Disagree | 3 Indifferent | 4 Agree | 5 Strongly Agree |
|---|---|---|---|---|---|---|---|
| 1 | **PROFESSIONAL VITALITY (passion, vigor)** | I am generally full of energy during the work day. | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2 | **SATISFACTION WITH LIFE** | In most ways, my life is close to ideal. | | | | | |
| 3 | **PROFESSIONAL SATISFACTION** | I am satisfied with the success I have achieved in my career. | | | | | |
| 4 | **ACCOMPLISHMENT OF GOALS** | I have achieved the goal I have set for myself in my professional career. | | | | | |
| 5 | **MAKING A DIFFERENCE** | I consider professional success to be made up of personal satisfaction and, in addition, my contribution to society through my work. | | | | | |
| 6 | **MAKING A DIFFERENCE** | I am satisfied with the position of organizational hierarchy in my job. | | | | | |
| 7 | **ORGANIZATIONAL HIERARCHY** | The job gives meaning to my existence and identity. | | | | | |
| 8 | **WORK CENTRICITY** | I am earning as much as I think my job is worth. | | | | | |
| 9 | **FINANCIAL SUCCESS** | I am satisfied with the promotions I have received so far in my professional career. | | | | | |
| 10 | **HIERARCHICAL SUCCESS** | I feel that I have the confidence of my superior at work. | | | | | |
| 11 | **INTERPERSONAL SUCCESS** | I feel fully supported by management in my work. | | | | | |
| 12 | **SUCCESS AT WORK** | I like the work I do. | | | | | |
| 13 | **SUCCESS AT WORK** | I have an attitude for detecting the feelings and perspectives of others and take an active interest in their concerns. | | | | | |
| 14 | **EMPATHY** | I have the ability to negotiate and resolve disagreements at work. | | | | | |
| 15 | **CONFLICT MANAGEMENT** | I am a creator of group synergies to achieve collective objectives and shared goals at work. | | | | | |
| 16 | **TEAMWORK** | I am persistent in achieving objectives despite obstacles and setbacks. | | | | | |
| 17 | **OPTIMISM** | I apply effective tactics for persuasion in my work. | | | | | |
| 18 | **INFLUENCE** | I strive to improve or achieve a standard of excellence. | | | | | |
| 19 | **ACHIEVEMENT** | I know how to recognize my strengths and limitations at work. | | | | | |
| 20 | **SELF-EVALUATION** | I keep emotions and disruptive impulses in check. | | | | | |

**THANK YOU VERY MUCH FOR YOUR COOPERATION.**