

URVEY FOR GRADUATION STUDENTS' FEEDBACK

Congratulations on your graduation and gain the degree from Hanoi University of Science and Technology! As an alumini, your feedback will contribute significantly to the school's development orientation, strategy to improve the quality of training and maintain the prestige brand name BACH KHOA HANOI. The results of the survey will be presented in statistical form, and your information and opinions will be kept confidential

Major Specialization: Address: Phone: B. JOB INFORMATION (each option, mark X into the most suitable choice, add more information if necessary) 1. Job status S. Place of work [] Accepted to a company Privately held companies [] Potential to get a job Privately held companies [] Tob e a graduate student [] Consulter, project management [] Potential to study stiljer [] Foreign companies at VN [] Relevant job [] Training skills school [] Job is study field [] Mon-gevernment Administration [] Job cose to the study field [] Others: [] Job cose to the study field [] Others: [] Job cose to the study field [] Others: [] Job cose to the study field [] Others: [] Job cose to the study field [] Staffield [] Job cose to the study field [] Staffield [] Job cose to the study field [] Staffield [] Job cose to the study field [] Staffield [] Job cose to the study field [] Others: [] Job cose to the study field [] Others: [] Job cose to the study field [] Staffield [] Job cose tothe study field	Name	Email		L] [3111	ale	
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Other comments:	15. Learning environment at HUST is excellent and dynamic							
	Other comments:							

HANOI UNIVERSITY OF SCIENCE AND TECHNOLOGY

SOCIALIST REPUBLIC OF VIETNAM

Independence - Freedom – Happiness

SCHOOL OF TRANSPORT ENGINEERING

MINUTES ON SURVEY REPORT

IN RECEIVING FEEDBACKS OF GRADUATE STUDENTS 2016-2017

- 1. Time: 9 AM, Monday, July 3rd, 2017.
- 2. Place: 2nd Floor, C7B
- 3. Participants: All members of School Director Board and Heads of Departments.
- 4. Chairman: Assoc. Prof. Dr. Le Anh Tuan
- **5. Objective:** Announcement on survey results of receiving graduate student's feedbacks on the quality of TRANSPORT ENGINEERING training program

6. Contents:

Assoc. Prof. Le Anh Tuan summarizes the survey results:

- The objective of this survey was to get the feedbacks of students graduated in the academic year 2016-2017 on the training quality.
- The survey was performed by the Political and Student Affairs Office.
- Total graduate students participated in the survey was 71.
- The questionnaires contained 15 questions related to:
- 1. The training program has good quality, meet my expectations?
- 2. The training program at HUST meets requirements for human resources at your working place?
- 3. Students are in good conditions to promote their learning and thought development?
- 4. The training programs are practical and applicable?
- 5. Knowledge quantity is adequate for time and training method?
- 6. Program structure is reasonable, subjects are well connected to each other and less repeated?
- 7. Students are fully provided with or instructed about textbooks, lectures and other studying materials?
- 8. Equipment installed at lecture halls meet requirements.
- 9. Students are treated equally during lecture time and in result evaluation?
- 10. Contents of fundamental subjects are adequate and applicable?
- 11. Contents of specific subjects are adequate?
- 12. Students have learnt a lot from lecturers about working methods and personality development?
- 13. Students are well supported in scientific research activities.
- 14. Students have gained specific knowledge and skills that are necessary for future career?
- 15. Learning environment at HUST is excellent and dynamic?

- Five grades for evaluation were proposed, including Strongly agree, Agree, Not really agree, Disagree and Strongly disagree.
- The results were as following:

Most of the answers were positive (agree and strongly agree) at the percentage of 44- 68%, especially for meeting learner's expectation in training quality, working method personality development, fully provided with studying materials, equally treated in learning and evaluation, knowledge and skills are necessary for future career.

Highest percentages showing negative feedbacks (1-33% not really disagree, disagree, strongly disagree) were related to inadequate and less applicable of fundamental subjects, less practical training program, less time for learning and less modernized equipment installed at the lecture halls.

Discussion:

All members are agreed with the survey results.

Assoc. Prof. Le Anh Tuan: The results are somehow more positive compared to the reality.

Dr. Durong Ngoc Khanh: Equipment for practical and doing experiment in chemical engineering courses should be renewed and more equipped to improve the training quality.

Dr. Trinh Minh Hoang: The lecture halls should be well equipped for better presentation and learning environment.

Assoc. Prof. Khong Vu Quang: Improvements should be planned and put in the reality every year to meet requirements of the learners and employers.

Dr. Tran Xuan Bo: Similar surveys should be performed more regularly and extended to the employers and lecturers.

Conclusions:

The survey was done only on 71 graduate students. However, the survey results somehow gave a positive feedback from the learners and general evaluation on training quality in Transport Mechanical Engineering at STE. Positive answers encouraged lecturers and managers to promote good present activities. Meanwhile, negative answers strictly required timely application of improvement activities. The improvement planning will be fully considered in every working plan in the time to come at STE

The meeting is closed at 11:30 AM on the same day.

Chairman

(signed)

Dr. Pham Van Sang

Secretary

(signed)

Assoc. Prof. Dr Le Anh Tuan

HANOI UNIVERSITY OF SCIENCE AND TECHNOLOGY QUALITY ASSURANCE CENTER

CLASSROOM OBSERVATION FORM

Faculty/School:....

	Type of classroom observation Announced: □		Unannou	ınced: □]						
I. 1	Information of Staff:										
Na	ame :Academic title:Depart	ment:									
Su	bject code:Subject name:	Class :	P	lace:							
П.	Information of Observers:										
Na	ameAcademic title:Dep	artment:									
	Level 1 – NOT APPLICABLE; 2 – BELOW THE AVERAGE; 3 – AVERAGE; 4 – CREDIT; Mức 5 – EXCELLENT										
No.	Content rated	Level 1	2	3	4	Level 5					
Ι	Group 1. Pedagogy										
1	Manage and cover classes										
2	Method of communicating clearly, clearly										
3	Teaching facilities (tables or / and projectors) are used in an effective combination										
4	Active teaching methods, attract students										

1	Manage and cover classes			
2	Method of communicating clearly, clearly			
3	Teaching facilities (tables or / and projectors) are used in an effective combination			
4	Active teaching methods, attract students			
5	Time allocation of logical lessons (theory, for example, troubleshooting)			
П	Group 2. Specialty			
6	The lecture content fits with signed proposal of Faculty/School			
7	Logical integration of the lecture			
8	Ability of lecture cover			
9	The accuracy of the lesson information communicated to the student			
10	Students are taught to self-study (homework, research questions, reference documents)			
Π	Group 3: Assessment of lectures using teaching aids (*)			
11	Format: Font, font size large enough, easy to see; the color used has the appropriate contrast; Images, effects, sounds are used sensibly, not abuse			
12	Content: To meet the goal of the lesson, emphasis of main point, each slide has corresponding topic name			
13	Teaching aids: have prepared materials corresponding to projected contents			
14	Effective teaching: Attract attention and excitement of students, enhance interaction in the classroom, make students more receptive.			
15	Technique used: Proficient use, harmonious combination of teaching aids.			

(*): Only evaluate this content when the lecture uses teaching aids

HANOI UNIVERSITY OF SCIENCE AND TECHNOLOGY SCHOOL OF TRANSPORTATION ENGINEERING

SUMMARY REPORT OF LECTURE PERFORMANCE EVALUATION

Department Title Subject Schedule **General assessment** No. Name Degree Week Day Pace Pedagogical Professional Ranking Hour Comments point point Utilizing, 12 27/10 Tran Anh 9 TC-505 Good Good class management, 1 Intenal Dr. 4.1 4.3 Trung Combusion Reparing good communication, clear, good expertise, Engine ICE accurate communication TC-211 Nguyen 13 3/11 3 4 4.5 Ability to monitor class 2 Automotive MSc Automotive Good good well, lecturing Thanh Engineering Electrical according to the syllabus Tung and well; Combining slides and Electronic writing in a logical way. Systems Fluid Power PLC Pham Tat 28/10 8 4.3 good communication, 3 MSc 12 D7-103 4.3 Good Thang Application clear, need to monitor class & Automation controlling good well, good expertise, provide accurate hydro Engineering transmission information, in accordance with requirements Do Viet Fluid Power 7/10 TC-510 3.7 MSc Hypro 9 Good Be proactive and confident 4 8 4 Machinery while lecturing. Use a Long & good projector; however, Automation the table is not used, no Engineering professional confusion

SEMESTER I, SCHOOL YEAR 2014-2015

Hanoi, 6th January, 2015 Leader of STE (signed) Dr. Duong Ngoc Khanh

HANOI UNIVERSITY OF SCIENCE AND TECHNOLOGY QUALITY ASSURANCE CENTER

EXPERIMENT & PRACTICE OBSERVATION FORM

	Faculty/School:									
	Type of classroom observation Announced: □	I]							
I.]	Information of Staff:									
Na	ame :Academic title:Departn	nent:		•••••						
Su	bject name:Time:	l	Place:		•••••					
II.	Information of Observers:									
Na	ameAcademic title:Depa	rtment:.			•••••					
	Level 1 – NOT APPLICABLE; 2 – BELOW THE AVERAGE; 3 – AVERAGE; 4	– CREI	DIT; M	úrc 5 – I	EXCEL	LENT				
No.	Content rated	Level 1	2	3	4	Level				
Ι	Group 1. Pedagogy									
1	Manage and cover classes									
2	Method of communicating clearly, clearly									
_	Teaching facilities (tables or / and projectors) are used in an effective	_		_	_					

No.	Content rated	Level 1	2	3	4	Level 5
Ι	Group 1. Pedagogy					
1	Manage and cover classes					
2	Method of communicating clearly, clearly					
3	Teaching facilities (tables or / and projectors) are used in an effective combination					
4	Active teaching methods, attract students					
5	Experimental and practical organization for ensuring goals					
П	Group 2. Specialty					
6	Equipment and tool are prepared well for lesson					
7	Experimental and practical guide fits with lecture contents					
8	The lecture content fits with signed proposal of Faculty/School					
9	Sequence of experimental and practical steps is logic and scientific					
10	Students are taught to self-study (homework, research questions, reference documents)					
11	Ensure safety for people and equipment					

III. GENERAL COMMENT

1. Pedagogy::

2.Specialty:

HANOI UNIVERSITY OF SCIENCE AND TECHNOLOGY CENTER FOR QUALITY ASSURANCE

Hanoi, January 18, 2017

STATISTICS OF THE EXPERIENCE - PRACTICE LESSON SEMESTER I , SCHOOL-YEAR 2016-2017

No.	Name	Unit	Subject	Day	Pedagogical point	Professional point	General assessment
1	Nguyen Van Hung	SBFT	Specialized experience - practice of SBFT	06/10/2016	4.20	4.47	Good pedagogical style, mastering expertise. TN room was crowded, not enough seats for students
2	To Kim Anh	SBFT	Food biochemistry laboratory	10/18/2016	4.73	4.73	Communicate clearly, understandably. Good professional. Students should be grouped to discuss the issues candidates
3	Tu Viet Phu	SBFT	Sensory evaluation of food	10/19/2016	4.60	4.70	Monitoring class well, the content is communicated clearly, logically. Mastering expertise
4	Nguyen Van Hung	SBFT	Technology vegetables	10/20/2016	4.60	4.75	Good classroom management. Lectures presented clearly and coherently. Mastering professional
5	Vu Dinh Quy	STE	Introduction to aerospace engineering	10/20/2016	4.40	4.40	Guide students meticulous, detailed, promoting the initiative of the students. Good expertise, meet outline Institute
6	Vu Huy Khue	SHEER	Refrigeration plant and equipment	02/11/2016	4.20	4.20	Explain clearly experiments, methodically questioned for graduates. There should be furnished for all student records
7	Du Tuan Dat Nguyen Tien Dung	STE	Introductory to Transport Mechanical Engineering	02/11/2016	4.47	4.53	Pedagogy good, solid professional. Should enhance the TV screen so that students can see clearly behind.

8	Nguyen Duc Khanh	STE	Using and repairing ICE	11/08/2016	3.93	3.93	Enthusiastic guide students. Expertise satisfactory
9	Nghiem Xuan Giang	STE	Hydro engineering	09/11/2016	4.27	4.13	Presenting lectures coherent. Expertise satisfactory
10	Do Bien Cuong	SBFT	Testing enzyme technology	11/11/2016	4.47	4.40	Good pedagogy, professional unsatisfactory
11	Vu Van Truong Cong Thanh	STE	Hydro Engineering	11/15/2016	4.13	4.13	Overarching good grades, communicated clearly. Students should have a table to record cards. Note to wear labor protection and labor safety
12	Pham Gia Diem	STE	Aero engine I	16/11/2016	4.27	4.20	Communicate clearly and coherently. Expertise satisfactory
13	Le Xuan Tuan	SBFT	Technical Thermodynamics	16/11/2016	4.40	4.07	Overarching good class, professional unsatisfactory. Should create conditions for students to practice more.
14	Nguyen Dong	STE	Fluid engineering	11/17/2016	4.53	4.33	Good pedagogy, professional unsatisfactory
15	Pham Tuan Anh	SBFT	Testing on Fermentation technology	11/23/2016	4.46	4.38	Good pedagogy, professional unsatisfactory
16	Chu Ky Son	SBFT	Tobacco Technology	11/22/2016	4.20	4.33	Qualified
17	Chu Ky Son	SBFT	Light Wine Technology	11/23/2016	4.67	4.67	Carefully prepared lectures, professional well
18	Ngo Van He	STE	Introduction to Shipbuilding engineering	11/24/2016	4.27	4.40	Presenting lectures coherent, overarching good grades.
19	Do Viet Long Truong Van Thuan	STE	Transmission and automatic pneumatic	11/24/2016	4.60	4.40	Good pedagogy, professional unsatisfactory

20	Nguyen Viet Thanh	STE	Technical maintenance and repair ICE	02/12/2016	4.40	4.40	Good pedagogy, professional unsatisfactory
21	Pham Gia Diem	STE	Aviation engines II	11/30/2016	4.27	4.47	Good pedagogy, professional unsatisfactory
22	Vu Hong Son	SBFT	Analytical methods and food quality inspection	11/30/2016	4.65	4.90	Good pedagogy clearly communicated lectures. Good professional
23	Luong Hong Nga	SBFT	Cereal Technology	08/12/2016	4.80	4.85	Pedagogy good, good expertise
24	Pham Ngoc Toan	STE	Technical maintenance and repair of automobiles	12/09/2016	4.80	4.75	Pedagogy good, good expertise
25	Do Viet Long	STE	PLC applications in automation systems	06/12/2016	4.15	4.15	Qualified

List of 25 people

HANOI UNIVERSITY OF TECHNOLOGY AND SCIENCE SCHOOL OF TRANSPORT ENGINEERING

Socialist Republic of Viet Nam Independence - Freedom - Happiness

SURVEY

Competency of Graduate Students in Transport Mechanical Enginerring At Hanoi University of Technology and Science

I. Individual Information	
Full name:	Gender:
Tel:	Email:
Work place:	
 Position:	
Address	of
work:	
Number of TME Bachelor with:	/ Engineer / Master Whom working
II. ARTICLE AND EVALUATION RAT	Έ
A. Importance	
Level A: Not Important	Level C: Moderately Important
Level b: Slightly Important	Level D: Very Important

B. Knowledge, Skills attained

Level 0: Unknown or lacked	Level 3: Can Understand and explain
Level 1: Known or seen	Level 4: Practiced or deployed
Level 2: Can join to execute	Level 5: Can train others

C. Knowledge, Skill print NEED (Attainable)

Level 0: Unknown or lacked	Level 3: Can Understand and explain						
Level 1: Known or seen Level 4: Practiced or deployed							
Level 2: Can join to execute	Level 5: Can train others						
Please Contribute more to each	skill group (need, actual name, level of						
popularity, personal point of view, etc.) for each Criterion (if needed).							

III. SURVEY CONTENT (Circle) in the selected content)

	A	A	В	С
	Ітро	rtance	Level students achieved at present	Level of students SHOULD gain (additional NEED)
	a: Unimpo b: Less Im c: Quite in d: Very im	ortant portant nportant nportant	0: Do not know 1, I: Knowing o 2, II: Can implementation 3, III: Can u explain 4, IV: Has implemented 5, Q: Can guide	y or no or saw participatory nderstand and practiced or e others
Knowle	dge and arguments on majors			
1.1	Basic scientific knowledge			
1.1.1	Math Calculus (derivatives, differential, integral,), algebra	abcd	012345	I II III IV V 0
1.1.2	Physical (mechanical, thermal, electrical, optical)	abcd	012345	I II III IV V 0
1.1.3	Information Technology	abcd	012345	I II III IV V 0
1.1.4	Technical Graphics 1 (Graphical)	abcd	012345	I II III IV V 0
1.1.5	Statistical probabilities and experimental planning	abcd	012345	I II III IV V 0
1.2	Technical knowledge background			
1.2.1	Electrical Engineering	abcd	012345	I II III IV V 0
1.2.2	Electronic Engineering	abcd	012345	I II III IV V 0
1.2.3	Mechanical Engineering	abcd	012345	I II III IV V 0
1.2.4	Heating engineering	abcd	012345	I II III IV V 0
1.2.5	Tolerances and Measurement techniques	abcd	012345	I II III IV V 0
1.2.6	Strength of Materials	abcd	012345	I II III IV V 0
1.2.7	TechnicalGraphics2(drawing, AutoCAD)	abcd	012345	I II III IV V 0
1.2.8	Materials	abcd	012345	I II III IV V 0
1.2.9	Principle of Machines, Machine Part, Project of Machine Part	abcd	012345	I II III IV V 0

1.2.10	Manufacturing technology	abcd	012345	I II III IV V 0
1.2.11	Hydro Engineering Technical	abcd	012345	I II III IV V 0
1.2.12	Introduction of Transport Mechanical Engineering	abcd	012345	I II III IV V 0
1.2.13	Combustion engine	abcd	012345	I II III IV V 0
1.2.14	Automobile Structure	abcd	012345	I II III IV V 0
1.2.15	Hydro Engineering	abcd	012345	I II III IV V 0
1.2.16	General mechanical engineering	abcd	012345	I II III IV V 0
	Knowledge base of the			
10	industry Transportation			
1.3a	Engineering (Automotive			
	Engineering)			
* The B	achelor			
1.3a.1	Automotive Engine Theory	abcd	012345	I II III IV V 0
1.3a.2	Automtotive Electrical and Electronic Systems	abcd	012345	I II III IV V 0
1.3a.3	Fuel Systems	abcd	012345	I II III IV V 0
1.3a.4	Theory of Automobile	abcd	012345	I II III IV V 0
1.3a.5	Automotive Design and Calculations	abcd	012345	I II III IV V 0
1.3a.6	Technical Maintenance and Repair in Automobiles	abcd	012345	I II III IV V 0
1.3a.7	Automotive Chassis -Frame Technology	abcd	012345	I II III IV V 0
1.3a.8	Internal Combustion Engine Design	abcd	012345	I II III IV V 0
* Integr	ated Bachelor - Engineer Progr	am	-	
1.3a.9	Fundamental Automobile Dynamics	abcd	012345	I II III IV V 0
1.3a.10	Computational Applications in Automotive design	abcd	012345	I II III IV V 0
1.3a.11	Automotive Mechatronics	abcd	012345	I II III IV V 0
1.3a.12	Testing of Automobile	abcd	012345	I II III IV V 0
1.3a.13	Specialized Automobile	abcd	012345	I II III IV V 0
1.3a.14	Automotive Specialized Projects 1	abcd	012345	I II III IV V 0
1.3a.15	Automobile and Pollution Problems	abcd	012345	I II III IV V 0
1.3a.16	Dynamics and Vibration in Internal Combustion Engine	abcd	012345	I II III IV V 0
1.3a.17	Automotive Specialized project 2 (internal combustion engine)	abcd	012345	I II III IV V 0
* Integr	ated Bachelor - Master Progran	n	Τ	Γ
1.3a.18	Automotive Drivetrain	abcd	012345	I II III IV V 0
1.3a.19	Smart Automobile	abcd	012345	I II III IV V 0

1.3a.20	Mechatronic Systems in	abcd	012345	
	Automobile	uoeu	012313	
1.3a.21	Dynamics of Automobile	abcd	012345	I II III IV V 0
1.3a.22	Automobile	abcd	012345	I II III IV V 0
1.3a.23	Vibration of Automobile	abcd	012345	I II III IV V 0
1.3a.24	Dynamics and Vibration in Internal Combustion Engine	abcd	012345	I II III IV V 0
1.3a.25	Forming Mixture and Combustion in Internal Combustion Engine	abcd	012345	I II III IV V 0
1.3a.26	Alternative Fuels for Internal Combustion Engines	abcd	012345	I II III IV V 0
1.3a.27	Vibration and noise in Automobile	abcd	012345	I II III IV V 0
1.3a.28	Automotive Diagnosis engineering	abcd	012345	I II III IV V 0
1.3a.29	Safety of Automobile	abcd	012345	I II III IV V 0
1.3a.30	Computational Method in Fluid Mechanics (CFD)	abcd	012345	I II III IV V 0
1.3a.31	Emission Control in Internal Combustion Engines	abcd	012345	I II III IV V 0
1.3a.32	Fuel Systems in Modern Engines	abcd	012345	I II III IV V 0
1.3b	Background knowledge of			
	Transport Mechanical			
	Engineering (Fluid Power &			
	Automation Engineering)			
* The B	achelor	1	1	
1.3b.1	Wing Theory	abcd	012345	I II III IV V 0
1.3b.2	Pump Blades Fan I	abcd	012345	I II III IV V 0
1.3b.3	Water Turbines I	abcd	012345	I II III IV V 0
1.3b.4	PLC Applications in Control of Volume Transmission	abcd	012345	I II III IV V 0
1.3b.5	Hydraulic Volume Machine	abcd	012345	I II III IV V 0
1.3b.6	Hydraulic and Pneumatic Transmission	abcd	012345	I II III IV V 0
1.3b.7	Basis Technical of Wind and Ocean Energy	abcd	012345	I II III IV V 0
1.3b.8	Pump station and hydropower station system	abcd	012345	I II III IV V 0
1.3b.9	Hydraulic and Pneumatic Control Systems	abcd	012345	I II III IV V 0
* Integr	ated Bachelor - Engineer Prog	ram		
1.3b.10	Pump Fan Blades II	abcd	012345	I II III IV V 0
1.3b.11	Water Turbines II	abcd	012345	I II III IV V 0
1.3b.12	Hydraulic Transmission	abcd	012345	I II III IV V 0

1.3b.13	Manufacturing Technology	abcd	012345	
	of Hydro Machinery	abcu	012345	
1.3b.14	Industrial Robot	abcd	012345	I II III IV V 0
1.3b.15	Applied Hydraulic Circuit	abcd	012345	I II III IV V 0
1.3b.16	Design and Simulation			
	Hydro Machinery on	abcd	012345	I II III IV V 0
	Computers			
1.3b.17	Specialized Project 1	abcd	012345	I II III IV V 0
1.3b.18	Specialized Project 2	abcd	012345	I II III IV V 0
* Integra	ited Bachelor - Engineer Prog	ram	I	
1.3b.19	Wing Theory II	abcd	012345	I II III IV V 0
1.3b.20	Cavitation and Quick Flow	abcd	012345	
	Dynamics	uovu	012010	
1.3b.21	Modeling And Simulating of			
	Engineering of Hydraulic-	abcd	012345	
	Pneumatic Machines in	uocu	012515	
	Renewable Energy			
1.3b.22	Fluid engineering in	abcd	012345	
	renewable energy	uovu	012010	
1.3b.23	Digital Hydraulics	abcd	012345	I II III IV V 0
1.3b.24	Advanced Hydraulic and	abed	012345	
	Pneumatic Circuits	uocu	012515	1111111111111
1.3b.25	Hydraulic - Pneumatic			
	Robots in Automation	abcd	012345	I II III IV V 0
	Production			
1.3b.26	The Hydraulic Transmission	abcd	012345	
	System for Monitoring	uocu	012313	111111111111
1.3b.27	Advanced Hydraulic	abcd	012345	
	Machinery	uovu	012010	
1.3b.28	Computational Method in	abcd	012345	
	Fluid Mechanics (CFD)		012010	
1.3b.29	Compressor	abcd	012345	I II III IV V 0
1.4	The other knowledge			
	Skills and ability to use the			
141	techniques and special tools	abcd	012345	
1.1.1	(programming CNC,	uovu	012010	
	PLC,)			
	Numerical Methods,			
1.4.2	Modeling, Oscillating ,	abcd	012345	I II III IV V 0
	Optimizating			
2	Personal skills, career and			
	qualify			
2.1	Technical arguments and			
	solve problems			
2.1.1	Identifying and determining	abcd	012345	
	technical issues			
2.1.2	Modeling technical issues	abcd	012345	I II III IV V 0

2.1.3	Estimates and qualitative analysis problems	abcd	012345	I II III IV V 0
2.1.4	Analysis of random factors	abcd	012345	I II III IV V 0
2.1.5	Conclusions, and propose solutions	abcd	012345	I II III IV V 0
2.2	Testing and widen knowledge			
2.2.1	Make a hypothesis about possibilities	abcd	012345	I II III IV V 0
2.2.2	Learn information through paper and electronic documents, Internet,	abcd	012345	I II III IV V 0
2.2.3	Experimental survey	abcd	012345	I II III IV V 0
2.2.4	Verification of hypotheses and proofs	abcd	012345	I II III IV V 0
2.3	System Thinking			
2.3.1	Recognize the whole problem	abcd	012345	I II III IV V 0
2.3.2	Identify problems that arise and interact in the system	abcd	012345	I II III IV V 0
2.3.3	Sort and identify the key elements	abcd	012345	I II III IV V 0
2.3.4	Analyze the advantages and disadvantages and offer solutions	abcd	012345	I II III IV V 0
2.4	Skills and personal attitude			
2.4.1	Proactive and willing to take risks	abcd	012345	I II III IV V 0
2.4.2	Perseverance and flexibility	abcd	012345	I II III IV V 0
2.4.3	Applying creative thinking	abcd	012345	I II III IV V 0
2.4.4	Apply thinking assessment	abcd	012345	I II III IV V 0
2.4.5	Self assessment of knowledge, skills and attitudes	abcd	012345	I II III IV V 0
2.4.6	Being able to self- and and lifelong learning	abcd	012345	I II III IV V 0
2.4.7	Know how to manage time and resources	abcd	012345	I II III IV V 0
2.5	Professional skill			
2.5.1	Be professional ethics, honesty and sense of responsibility	abcd	012345	I II III IV V 0
2.5.2	Have a professional attitude	abcd	012345	I II III IV V 0
2.5.3	Be proactive in planning your profession	abcd	012345	I II III IV V 0
2.5.4	Update the information in the technical field	abcd	012345	I II III IV V 0

2	Communication skills and			
3	teamwork			
3.1	Working group			
3.1.1	Establishing group	abcd	012345	I II III IV V 0
3.1.2	Organizing group activities	abcd	012345	I II III IV V 0
3.1.3	Developting group	abcd	012345	I II III IV V 0
3.1.4	Leading group	abcd	012345	I II III IV V 0
3.1.5	Organizing technical group and multidisciplinary team	abcd	012345	I II III IV V 0
3.2	Communication			
3.2.1	Selecting of communication strategy	abcd	012345	I II III IV V 0
3.2.2	Building communication structures	abcd	012345	I II III IV V 0
3.2.3	Writting communication	abcd	012345	I II III IV V 0
3.2.4	Multimedia communication	abcd	012345	I II III IV V 0
3.2.5	Graphic communication	abcd	012345	I II III IV V 0
3.2.6	Effective Presentation	abcd	012345	I II III IV V 0
33	Communicate in foreign			
5.5	languages			
	English (CDR 500 TOEIC or equivalent)	abcd	012345	I II III IV V 0
4	Making ideas, designing, deploying and operating in the corporate and social context			
4.1	Social context			
4.1.1	Recognizing the role and responsibility of the bachelor / Engineer/ MSc towards society	abcd	012345	I II III IV V 0
4.1.2	Recognizing the impact of technical applications for society	abcd	012345	I II III IV V 0
4.1.3	Awareness of historical and cultural context	abcd	012345	I II III IV V 0
4.1.4	Cognitive context and cultural history	abcd	012345	I II III IV V 0
4.1.5	Awareness of lastest issues	abcd	012345	I II III IV V 0
4.1.6	Identify the prospects of global development	abcd	012345	I II III IV V 0
4.2	Business context and business			
4.2.1	Respect for cultural diversity now	abcd	012345	I II III IV V 0
4.2.2	Strategy, objectives and business plan of the	abcd	012345	I II III IV V 0

	enterprise			
	Commercially minded			
4.2.3	technical	abcd	012345	I II III IV V 0
	Adaptability in different			
4.2.4	work environments	abcd	012345	I II III IV V 0
	Conceiving and huilding			
4.3	conceiving and ballating			
	Establishing goals and			
121	requirements of the technical	abad	012245	
4.3.1	system	abcu	012343	
422	Determining functions,	-11	012245	
4.3.2	concepts and structure of the	abca	012345	
	technical system			
4.2.2	Utilizing technical system	1 1	010045	
4.3.3	modeling and ensuring that	abcd	012345	
	goals can be achieved			
4.3.4	Planning for deployment	abcd	012345	
	(Management) schemes			
4.4	Design			
4.4.1	Construction and design	abcd	012345	
	analysis processes			
442	Analysis of the stage in the	abcd	012345	
4.4.2	design process and approach	uocu	012010	
443	Use knowledge in the design	abcd	012345	
1.1.5	and analysis	uocu	012515	1111111111111
444	Use knowledge specialized	abed	012345	
	design	uocu	012343	
445	Design and work in	abed	012345	
т.т.Ј	multidisciplinary teams	abeu	012345	
4.4.6	Multi-purpose design	abcd	012345	I II III IV V 0
4.5	Deployment			
151	Planning for the deployment	abad	012245	
4.3.1	process	abcu	012345	
152	Constructing and analysis	abed	012345	
4.3.2	system	abcu	012345	
	Applying knowledge of the			
4.5.3	control system and	abcd	012345	I II III IV V 0
	programming diagnostics			
1 5 1	Hardware (4.5.2) and	ahad	012245	
4.3.4	software integration (4.5.3)	abcu	012343	
	Understanding of testing			
4.5.5	standards, test, evaluation	abcd	012345	I II III IV V 0
	and certification			
155	Managing the deployment	1 1	010245	
4.5.6	process	abcd	012345	
4.6	Operation			
4.6.1	Building and optimizing the	abcd	012345	I II III IV V 0

	operation process			
4.6.2	Training operating procedures	abcd	012345	I II III IV V 0
4.6.3	Operational support during operation of the system	abcd	012345	I II III IV V 0
4.6.4	Improving and developting the system	abcd	012345	I II III IV V 0
4.6.5	Handling system after expiry (after system lifecycle)	abcd	012345	I II III IV V 0
4.6.6	Operational management	abcd	012345	I II III IV V 0

Sincerely thank the cooperation of Sir and Madam!

		1.1	1.1.1	1.1.2	1.1.3	1.1.4	1.1.5
		Basic scientific knowledge	Math Calculus (derivatives, differential, integral,), algebra	Physical (mechanical, thermal, electrical, optical)	Information Technology	Technical Graphics 1 (Graphical)	Statistical probabilities and experimental planning
Automotive "online"	Importance		3.30	3.86	3.88	3.77	2.89
	Current level students ACHIEVED		2.61	2.76	2.79	2.89	1.77
	Student level SHOULD be achieved (NEED in addition)		3.06	3.51	3.83	3.66	3.02
	Importance		3.26	3.86	3.79	3.93	2.55
FPAE "online"	Current level students ACHIEVED		2.49	2.66	2.66	3.23	1.62
	Student level SHOULD be achieved (NEED in addition)		3.28	3.62	3.72	3.91	2.79

Survey Results - Graduate Students on Learning Outcome Standard 2017

		1.1	1.1.1	1.1.2	1.1.3	1.1.4	1.1.5
		Basic scientific knowledge	Math Calculus (derivatives, differential, integral,), algebra	Physical (mechanical, thermal, electrical, optical)	Information Technology	Technical Graphics 1 (Graphical)	Statistical probabilities and experimental planning
	Importance		3.28	3.86	3.83	3.85	2.72
Summary "online"	Current level students ACHIEVED		2.55	2.71	2.72	3.06	1.69
	Student level SHOULD be achieved (NEED in addition)		3.17	3.56	3.77	3.79	2.90
Average "online"			3.00	3.38	3.44	3.57	2.44
	Importance		3.69	3.92	3.69	4.10	2.70
Data "offline"	Current level students ACHIEVED		2.89	2.81	2.78	3.05	1.97
	Student level SHOULD be achieved (NEED in addition)		3.49	3.46	3.68	3.84	2.89
Average "offline"			3.36	3.40	3.38	3.66	2.52

		1.2	1.2.1	1.2.2	1.2.3	1.2.4	1.2.5	1.2.6
		Technical knowledge background	Electrical Engineering	Electronic Engineering	Mechanical Engineering	Heating engineering	Tolerances and Measurement techniques	Strength of Materials
Automotive "online"	Importance		3.71	3.94	3.33	3.86	3.69	4.10
	Current level students ACHIEVED		2.47	2.30	2.51	2.31	2.52	2.44
	Student level SHOULD be achieved (NEED in addition)		3.41	3.34	3.37	3.06	3.52	3.36
	Importance		3.19	3.05	3.83	2.87	4.11	3.94
FPAE "online"	Current level students ACHIEVED		2.51	2.32	2.70	2.28	2.89	2.91
	Student level SHOULD be achieved (NEED in addition)		3.21	3.30	3.68	3.23	3.79	3.62

		1.2	1.2.1	1.2.2	1.2.3	1.2.4	1.2.5	1.2.6
		Technical knowledge background	Electrical Engineering	Electronic Engineering	Mechanical Engineering	Heating engineering	Tolerances and Measurement techniques	Strength of Materials
	Importance		3.45	3.50	3.58	3.37	3.90	4.02
Summary "online"	Current level students ACHIEVED		2.49	2.31	2.61	2.29	2.71	2.68
	Student level SHOULD be achieved (NEED in addition)		3.31	3.32	3.52	3.15	3.65	3.49
Average "online"			3.08	3.04	3.24	2.93	3.42	3.39
	Importance		3.65	3.69	3.87	3.60	3.87	3.78
Data "offline"	Current level students ACHIEVED		2.76	2.73	2.81	2.59	2.62	2.70
	Student level SHOULD be achieved (NEED in addition)		3.54	3.65	3.70	3.49	3.68	3.49
Average "offline"			3.31	3.36	3.46	3.23	3.39	3.32

		1.2.7	1.2.8	1.2.9	1.2.10	1.2.11	1.2.12	1.2.13
		Technical Graphics 2 (drawing, AutoCAD)	Materials	Principle of Machines, Machine Part, Project of Machine Part	Manufacturing technology	Hydro Engineering Technical	Introduction of Transport Mechanical Engineering	Combustion engine
Automotive "online"	Importance	3.40	3.72	3.43	3.32	3.45	4.17	4.37
	Current level students ACHIEVED	2.99	2.35	2.61	2.41	2.47	2.84	3.03
	Student level SHOULD be achieved (NEED in addition)	3.79	3.17	3.38	3.30	3.16	3.42	3.88
	Importance	4.54	3.62	4.04	3.97	4.11	3.19	2.94
FPAE "online"	Current level students ACHIEVED	3.53	2.53	3.06	2.94	3.15	2.91	2.47
	Student level SHOULD be achieved (NEED in addition)	4.11	3.62	3.79	3.72	3.85	3.55	3.02

		1.2.7	1.2.8	1.2.9	1.2.10	1.2.11	1.2.12	1.2.13
Turn orten oc		Technical Graphics 2 (drawing, AutoCAD)	Materials	Principle of Machines, Machine Part, Project of Machine Part	Manufacturing technology	Hydro Engineering Technical	Introduction of Transport Mechanical Engineering	Combustion engine
	Importance	3.97	3.67	3.74	3.64	3.78	3.68	3.66
Summary "online"	Current level students ACHIEVED	3.26	2.44	2.84	2.67	2.81	2.88	2.75
	Student level SHOULD be achieved (NEED in addition)	3.95	3.40	3.58	3.51	3.51	3.49	3.45
Average "online"		3.73	3.17	3.39	3.27	3.37	3.35	3.29
	Importance	4.41	3.42	4.10	3.65	3.74	3.74	4.37
Data "offline"	Current level students ACHIEVED	3.19	2.65	2.97	2.76	2.95	3.03	3.38
	Student level SHOULD be achieved (NEED in addition)	4.16	3.49	3.70	3.51	3.73	3.59	3.95
Average "offline"		3.92	3.19	3.59	3.31	3.47	3.45	3.90

		1.2.14	1.2.15	1.2.16	1.3a	ase of dustry on * The Bachelor	1.3a.1	1.3a.2
		Automobile Structure	Hydro Engineering	General mechanical engineering	Knowledge base of the industry Transportation Engineering (Automotive Engineering)	* The Bachelor	Automotive Engine Theory	Automtotive Electrical and Electronic Systems
Automotive "online"	Importance	3.50	2.94	2.47			4.03	4.27
	Current level students ACHIEVED	3.05	2.60	2.28			2.58	2.59
	Student level SHOULD be achieved (NEED in addition)	4.03	3.36	3.13			3.54	3.83
	Importance	2.84	4.04	3.30				
FPAE "online"	Current level students ACHIEVED	2.36	3.26	2.68				
	Student level SHOULD be achieved (NEED in addition)	3.06	3.89	3.28				

		1.2.14	1.2.15	1.2.16	1.3a		1.3a.1	1.3a.2
		Automobile Structure	Hydro Engineering	General mechanical engineering	Knowledge base of the industry Transportation Engineering (Automotive Engineering)	* The Bachelor	Automotive Engine Theory	Automtotive Electrical and Electronic Systems
	Importance	3.17	3.49	2.88			4.03	4.27
Summary "online"	Current level students ACHIEVED	2.71	2.93	2.48			2.58	2.59
	Student level SHOULD be achieved (NEED in addition)	3.55	3.63	3.20			3.54	3.83
Average "online"		3.14	3.35	2.86			3.38	3.56
	Importance	4.28	3.96	3.20			4.25	4.37
Data "offline"	Current level students ACHIEVED	3.14	3.03	2.57			3.07	2.66
	Student level SHOULD be achieved (NEED in addition)	3.89	3.65	3.16			3.69	3.79
Average "offline"		3.77	3.55	2.98			3.67	3.60

		1.3a.3	1.3a.4	1.3a.5	1.3a.6	1.3a.7	1.3a.8	
		Fuel Systems	Theory of Automobile	Automotive Design and Calculations	Technical Maintenance and Repair in Automobiles	Automotive Chassis - Frame Technology	Internal Combustion Engine Design	* Integrated Bachelor - Engineer Program
	Importance	4.17	4.22	3.67	4.39	3.98	3.47	
Automotive "online"	Current level students ACHIEVED	2.72	2.64	2.61	2.71	2.49	2.42	
	Student level SHOULD be achieved (NEED in addition)	3.68	3.68	3.50	3.95	3.60	3.30	
	Importance							
FPAE "online"	Current level students ACHIEVED							
	Student level SHOULD be achieved (NEED in addition)							

		1.3a.3	1.3a.4	1.3a.5	1.3a.6	1.3a.7	1.3a.8	
		Fuel Systems	Theory of Automobile	Automotive Design and Calculations	Technical Maintenance and Repair in Automobiles	Automotive Chassis - Frame Technology	Internal Combustion Engine Design	* Integrated Bachelor - Engineer Program
	Importance	4.17	4.22	3.67	4.39	3.98	3.47	
Summary "online"	Current level students ACHIEVED	2.72	2.64	2.61	2.71	2.49	2.42	
	Student level SHOULD be achieved (NEED in addition)	3.68	3.68	r_{ile} Automotive Design and CalculationsTech Main and Auto13.67112.61113.50113.26112.66113.623.47	3.95	3.60	3.30	
Average "online"		3.52	3.51	3.26	3.68	3.36	3.06	
	Importance	4.37	4.19	4.14	4.42	3.73	4.19	
Data "offline"	Current level students ACHIEVED	2.93	2.69	2.66	2.83	2.34	2.76	
	Student level SHOULD be achieved (NEED in addition)	3.76	3.62	3.62	3.83	3.41	3.55	
Average "offline"		3.69	3.50	3.47	3.69	3.16	3.50	

		1.3a.9	1.3a.10	1.3a.11	1.3a.12	1.3a.13	1.3a.14	1.3a.15
		Fundamental Automobile Dynamics	Computational Applications in Automotive design	Automotive Mechatronics	Testing of Automobile	Specialized Automobile	Automotive Specialized Projects 1	Automobile and Pollution Problems
	Importance	3.88	3.74	3.94	3.91	3.55	3.88	3.76
Automotive "online"	Current level students ACHIEVED	2.66	2.59	2.45	2.50	2.40	2.61	2.52
	Student level SHOULD be achieved (NEED in addition)	3.57	3.67	3.70	3.60	3.50	3.69	3.54
	Importance							
FPAE "online"	Current level students ACHIEVED							
	Student level SHOULD be achieved (NEED in addition)							

		1.3a.9	1.3a.10	1.3a.11	1.3a.12	1.3a.13	1.3a.14	1.3a.15
		Fundamental Automobile Dynamics	Computational Applications in Automotive design	Automotive Mechatronics	Testing of Automobile	Specialized Automobile	Automotive Specialized Projects 1	Automobile and Pollution Problems
	Importance	3.88	3.74	3.94	3.91	3.55	3.88	3.76
Summary "online"	Current level students ACHIEVED	2.66	2.59	2.45	2.50	2.40	2.61	2.52
	Student level SHOULD be achieved (NEED in addition)	3.57	3.67	3.70	3.60	3.50	1.3a.13 1.3a.14 Pecialized Automotive Automotive Specialized Projects 1 Pol 3.55 3.88 1 2.40 2.61 1 3.50 3.69 1 3.15 3.39 1 3.62 4.48 1 2.41 2.45 1 3.52 3.66 1 3.18 3.53 1	3.54
Average "online"		3.37	3.34	3.37	3.34	3.15	3.39	3.27
	Importance	3.73	4.02	4.25	3.96	3.62	4.48	4.19
Data "offline"	Current level students ACHIEVED	2.66	2.45	2.45	2.38	2.41	2.45	2.83
Summary "online" Summary "online" Average "online" Data "offline" Average "offline" Average "offline" Average "offline"	Student level SHOULD be achieved (NEED in addition)	3.45	3.55	3.62	3.41	3.52	3.66	3.55
Average "offline"		3.28	3.34	3.44	3.25	3.18	3.53	3.52

		1.3a.16	1.3a.17		1.3a.18	1.3a.19	1.3a.20	1.3a.21
		Dynamics and Vibration in Internal Combustion engine	Automotive Specialized project 2 (internal combustion engine)	* Integrated Bachelor - Master Program	Automotive Drivetrain	Smart Automobile	Mechatronic Systems in Automobile	Dynamics of Automobile
Automotive "online"	Importance	3.47	3.81		4.03	3.84	4.11	3.94
	Current level students ACHIEVED	2.59	2.67		2.70	2.40	2.51	2.61
	Student level SHOULD be achieved (NEED in addition)	3.35	3.45		3.68	3.57	3.65	3.56
	Importance							
FPAE "online"	Current level students ACHIEVED							
	Student level SHOULD be achieved (NEED in addition)							

		1.3a.16	1.3a.17		1.3a.18	1.3a.19	1.3a.20	1.3a.21
		Dynamics and Vibration in Internal Combustion engine	Automotive Specialized project 2 (internal combustion engine)	* Integrated Bachelor - Master Program	Automotive Drivetrain	Smart Automobile	Mechatronic Systems in Automobile	Dynamics of Automobile
	Importance	3.47	3.81		4.03	3.84	4.11	3.94
Summary "online"	Current level students ACHIEVED	2.59	2.67		2.70	2.40	2.51	2.61
	Student level SHOULD be achieved (NEED in addition)	3.35	3.45		3.68	3.57	3.65	3.56
Average "online"		3.14	3.31		3.47	3.27	3.43	3.37
	Importance	3.96	4.71		4.14	3.85	4.14	4.02
Data "offline"	Current level students ACHIEVED	2.72	3.07		2.79	2.41	2.62	2.59
	Student level SHOULD be achieved (NEED in addition)	3.41	3.86		3.69	3.55	3.76	3.69
Average "offline"		3.37	3.88		3.54	3.27	3.51	3.43

		1.3a.22	1.3a.23	1.3a.24	1.3a.25	1.3a.26	1.3a.27	1.3a.28
		Dynamic Fluid Systems of Automobile	Vibration of Automobile	Dynamics and Vibration in Internal Combustion Engine	Forming Mixture and Combustion in Internal Combustion Engine	Alternative Fuels for Internal Combustion Engines	Vibration and noise in Automobile	Assessment Automotive Engineering
	Importance	3.76	3.79	3.57	3.67	3.72	3.88	3.91
Automotive "online"	Current level students ACHIEVED	2.52	2.45	2.48	2.47	2.66	2.44	2.53
	Student level SHOULD be achieved (NEED in addition)	3.52	3.48	3.32	3.41	3.46	3.48	3.64
	Importance							
FPAE "online"	Current level students ACHIEVED							
	Student level SHOULD be achieved (NEED in addition)							

		1.3a.22	1.3a.23	1.3a.24	1.3a.25	1.3a.26	1.3a.27	1.3a.28
		Dynamic Fluid Systems of Automobile	Vibration of Automobile	Dynamics and Vibration in Internal Combustion Engine	Forming Mixture and Combustion in Internal Combustion Engine	Alternative Fuels for Internal Combustion Engines	Vibration and noise in Automobile	Assessment Automotive Engineering
	Importance	3.76	3.79	3.57	3.67	3.72	3.88	3.91
Summary "online"	Current level students ACHIEVED	2.52	2.45	2.48	2.47	2.66	2.44	2.53
	Student level SHOULD be achieved (NEED in addition)	3.52	3.48	3.32	.3.124 1.3.125 amics Forming Mixture and Combustion in Internal Combustion Engine 3.57 3.67 2.48 2.47 3.32 3.41 3.12 3.18 4.08 3.91 2.79 2.45 3.52 3.55 3.46 3.30	3.46	3.48	3.64
Average "online"		3.27	3.24	3.12	3.18	3.28	3.26	3.36
	Importance	3.56	3.73	4.08	3.91	4.02	3.62	4.02
Data "offline"	Current level students ACHIEVED	2.52	2.45	2.79	2.45	2.69	2.41	2.45
	Student level SHOULD be achieved (NEED in addition)	3.48	3.52	3.52	3.55	3.76	3.41	3.66
Average "offline"		3.19	3.23	3.46	3.30	3.49	3.15	3.38

		1.3a.29	1.3a.30	1.3a.31	1.3a.32	1.3b		1.3b.1
		Safety of Automobile	Computational Method in Fluid Mechanics (CFD)	Emission Control in Internal Combustion Engines	Fuel Systems in Modern Engines	knowledge of Transport Mechanical Engineering (Fluid Power & Automation Engineering)	* Bachelor	Wing Theory
	Importance	3.98	3.50	3.81	3.89			
Automotive "online"	Current level students ACHIEVED	2.49	2.26	2.60	2.64			
	Student level SHOULD be achieved (NEED in addition)	3.64	3.38	3.46	3.53			
	Importance							3.69
FPAE "online"	Current level students ACHIEVED							2.51
	Student level SHOULD be achieved (NEED in addition)							3.32

		1.3a.29	1.3a.30	1.3a.31	1.3a.32	1.3b		1.3b.1	
		Safety of Automobile	Computational Method in Fluid Mechanics (CFD)	Emission Control in Internal Combustion Engines	Fuel Systems in Modern Engines	knowledge of Transport Mechanical Engineering (Fluid Power & Automation Engineering)	* Bachelor	Wing Theory	
Summary "online"	Importance	3.98	3.50	3.81	3.89			3.69	
	Current level students ACHIEVED	2.49	2.26	2.60	2.64			2.51	
	Student level SHOULD be achieved (NEED in addition)	3.64	3.38	3.46	3.53			3.32	
Average "online"		3.37	3.04	3.29	3.36			3.17	
Data "offline"	Importance	3.85	3.50	4.31	4.25			3.89	
	Current level students ACHIEVED	2.48	2.31	2.66	2.66			2.81	
	Student level SHOULD be achieved (NEED in addition)	3.55	3.45	3.66	3.76			3.70	
Average "offline"		3.29	3.09	3.54	3.56			3.47	
		1.3b.2	1.3b.3	1.3b.4	1.3b.5	1.3b.6	1.3b.7	1.3b.8	1.3b.9
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		Pump Blades Fan I	Water Turbines I	PLC Applications in Control of Volume Transmission	Hydraulic Volume Machine	Hydraulic and Pneumatic Transmission	Basis Technical of Wind and Ocean Energy	Pump station and hydropower station system	Hydraulic and Pneumatic Control Systems
	Importance								
Automotive "online"	Current level students ACHIEVED								
	Student level SHOULD be achieved (NEED in addition)								
	Importance	4.08	3.97	4.18	4.43	4.33	3.69	3.94	4.29
FPAE "online" -	Current level students ACHIEVED	2.83	2.74	2.66	3.13	2.94	2.04	2.55	2.77
	Student level SHOULD be achieved (NEED in addition)	3.68	3.62	3.89	3.98	4.02	3.49	3.68	4.00

		1.3b.2	1.3b.3	1.3b.4	1.3b.5	1.3b.6	1.3b.7	1.3b.8	1.3b.9
		Pump Blades Fan I	Water Turbines I	PLC Applications in Control of Volume Transmission	Hydraulic Volume Machine	Hydraulic and Pneumatic Transmission	Basis Technical of Wind and Ocean Energy	Pump station and hydropower station system	Hydraulic and Pneumatic Control Systems
	Importance	4.08	3.97	4.18	4.43	4.33	3.69	3.94	4.29
Summary "online"	Current level students ACHIEVED	2.83	2.74	2.66	3.13	2.94	2.04	2.55	2.77
Summary "online"	Student level SHOULD be achieved (NEED in addition)	3.68	3.62	3.89	3.98	4.02	3.49	3.68	4.00
Average "online"		3.53	3.44	3.58	3.85	3.76	3.07	3.39	3.69
	Importance	4.07	4.07	4.32	4.13	4.38	3.58	3.89	4.26
Data "offline"	Current level students ACHIEVED	2.78	2.70	2.37	2.89	2.63	2.44	2.44	2.44
	Student level SHOULD be achieved (NEED in addition)	3.81	3.70	3.81	3.81	3.78	3.59	3.56	3.81
Average "offline"		3.55	3.49	3.50	3.61	3.60	3.21	3.30	3.51

			1.3b.10	1.3b.11	1.3b.12	1.3b.13	1.3b.14	1.3b.15
		* Integrated Bachelor - Engineer Program	Pump Fan Blades II	Water Turbines II	Hydraulic Transmission	Manufacturing Technology of Fluid Machinery	Industrial Robot	Applied Hydraulic Circuit
	Importance							
Automotive "online"	Current level students ACHIEVED							
	Student level SHOULD be achieved (NEED in addition)							
	Importance		3.97	3.86	4.04	4.22	4.04	4.29
FPAE "online"	Current level students ACHIEVED		2.43	2.49	2.49	2.60	2.36	2.62
	Student level SHOULD be achieved (NEED in addition)		3.57	3.51	3.66	3.85	3.74	3.96

			1.3b.10	1.3b.11	1.3b.12	1.3b.13	1.3b.14	1.3b.15
		* Integrated Bachelor - Engineer Program	Pump Fan Blades II	Water Turbines II	Hydraulic Transmission	Manufacturing Technology of Fluid Machinery	Industrial Robot	Applied Hydraulic Circuit
	Importance		3.97	3.86	4.04	4.22	4.04	4.29
Summary "online"	Current level students ACHIEVED		2.43	2.49	2.49	2.60	2.36	2.62
Summary Unifie	Student level SHOULD be achieved (NEED in addition)		3.57	3.51	3.66	3.85	3.74	3.96
Average "online"			3.32	3.29	3.40	3.56	3.38	3.62
	Importance		3.82	4.01	4.20	4.20	3.89	4.26
Data "offline"	Current level students ACHIEVED		2.44	2.56	2.63	2.41	2.37	2.52
	Student level SHOULD be achieved (NEED in addition)		3.59	3.78	3.96	3.81	3.74	3.78
Average "offline"			3.29	3.45	3.60	3.47	3.33	3.52

		1.3b.16	1.3b.17	1.3b.18		1.3b.19	1.3b.20	1.3b.21
		Design and Simulation Hydro Machinery on Computers	Specialized Project 1	Specialized Project 2	* Integrated Bachelor - Engineer Program	Wing Theory II	Cavitation and Quick Flow Dynamics	ModelingAndSimulatingofEngineeringofHydraulic-PneumaticMachinesMachinesinRenewable Energy
	Importance							
Automotive "online"	Current level students ACHIEVED							
	Student level SHOULD be achieved (NEED in addition)							
	Importance	4.22	4.57	4.54		3.72	3.72	3.90
- FPAE "online" -	Current level students ACHIEVED	2.49	2.72	2.68		2.59	2.59	2.80
	Student level SHOULD be achieved (NEED in addition)	3.87	4.11	4.13		3.86	3.76	4.18

		1.3b.16	1.3b.17	1.3b.18		1.3b.19	1.3b.20	1.3b.21
		Design and Simulation Hydro Machinery on Computers	Specialized Project 1	Specialized Project 2	* Integrated Bachelor - Engineer Program	Wing Theory II	Cavitation and Quick Flow Dynamics	ModelingAndSimulatingofEngineeringofHydraulic-PneumaticMachinesMachinesinRenewableEnergy
	Importance	4.22	4.57	4.54		3.72	3.72	3.90
Summary "online"	Current level students ACHIEVED	2.49	2.72	2.68		2.59	2.59	2.80
Cummury Chimic	Student level SHOULD be achieved (NEED in addition)	3.87	4.11	4.13		3.86	3.76	4.18
Average "online"		3.53	3.80	3.78		3.39	3.36	3.63
	Importance	4.20	4.57	4.51		3.91	4.06	4.35
Data "offline"	Current level students ACHIEVED	2.56	2.78	2.81		2.35	2.35	2.35
	Student level SHOULD be achieved (NEED in addition)	3.93	4.15	4.15		3.78	3.65	3.74
Average "offline"		3.56	3.83	3.82		3.35	3.35	3.48

		1.3b.22	1.3b.23	1.3b.24	1.3b.25	1.3b.26	1.3b.27	1.3b.28
		Fluid engineering in renewable energy	Digital Hydraulics	Advanced Hydraulic and Pneumatic Circuits	Hydraulic - Pneumatic Robots in Automation Production	The Hydraulic Transmission System for Monitoring	Advanced Hydraulic Machinery	Computational Method in Fluid Mechanics (CFD)
	Importance							
Automotive "online"	Current level students ACHIEVED							
	Student level SHOULD be achieved (NEED in addition)							
	Importance	3.69	3.69	4.01	3.86	3.83	3.86	3.79
FPAE "online"	Current level students ACHIEVED	2.69	2.55	2.94	2.77	2.73	2.84	2.66
	Student level SHOULD be achieved (NEED in addition)	3.69	3.86	3.86	3.86	3.83	4.08	3.79

		1.3b.22	1.3b.23	1.3b.24	1.3b.25	1.3b.26	1.3b.27	1.3b.28
		Fluid engineering in renewable energy	Digital Hydraulics	Advanced Hydraulic and Pneumatic Circuits	Hydraulic - Pneumatic Robots in Automation Production	The Hydraulic Transmission System for Monitoring	Advanced Hydraulic Machinery	Computational Method in Fluid Mechanics (CFD)
	Importance	3.69	3.69	4.01	3.86	3.83	3.86	3.79
Summary "online"	Current level students ACHIEVED	2.69	2.55	2.94	2.77	2.73	2.84	2.66
Summary "online" Summary "online" Average "online" Data "offline" Average "offline" Average "offline"	Student level SHOULD be achieved (NEED in addition)	3.69	3.86	3.86	3.86	3.83	4.08	3.79
Average "online"		3.36	3.37	3.60	3.50	3.46	3.59	3.42
	Importance	3.84	3.69	4.06	4.27	3.98	4.27	4.56
Data "offline"	Current level students ACHIEVED	2.26	2.13	2.26	2.30	2.26	2.17	2.22
	Student level SHOULD be achieved (NEED in addition)	3.61	3.61	3.96	3.87	3.70	3.70	3.83
Average "offline"		3.24	3.14	3.42	3.48	3.31	3.38	3.54

		1.3b.29	1.4	1.4.1	1.4.2	2	2.1
		Compressor	Other knowledge	Skills and ability to use the techniques and special tools (programming CNC, PLC,)	Numerical Methods, Modeling, Oscillating , Optimizating 	Personal skills, career and qualify	Technical arguments and solve problems
	Importance			3.43	3.33		
Automotive "online"	Current level students ACHIEVED			1.82	1.73		
	Student level SHOULD be achieved (NEED in addition)			3.26	3.20		
	Importance	3.69		4.25	3.86		
FPAE "online"	Current level students ACHIEVED	2.84		2.40	2.04		
	Student level SHOULD be achieved (NEED in addition)	3.65		3.85	3.55		

		1.3b.29	1.4	1.4.1	1.4.2	2	2.1
		Compressor	Other knowledge	Skills and ability to use the techniques and special tools (programming CNC, PLC,)	Numerical Methods, Modeling, Oscillating , Optimizating 	Personal skills, career and qualify	Technical arguments and solve problems
	Importance	3.69		3.84	3.60		
Summary "online"	Current level students ACHIEVED	2.84		2.11	1.89		
	Student level SHOULD be achieved (NEED in addition)	3.65		3.55	3.38		
Average "online"		3.39		3.17	2.96		
	Importance	3.91		4.19	3.67		
Data "offline"	Current level students ACHIEVED	2.39		2.34	2.20		
	Student level SHOULD be achieved (NEED in addition)	3.74		3.91	3.66		
Average "offline"		3.35		3.48	3.17		

		2.1.1	2.1.2	2.1.3	2.1.4	2.1.5	2.2	2.2.1
		Identifying and determining technical issues	Modeling technical issues	Estimates and qualitative analysis problems	Analysis of random factors	Conclusions, and propose solutions	Testing and widen knowledge	Make a hypothesis about possibilities
	Importance	4.08	3.57	3.67	3.45	4.11		3.72
Automotive "online"	Current level students ACHIEVED	2.33	2.15	2.22	2.04	2.24		2.27
	Student level SHOULD be achieved (NEED in addition)	3.73	3.48	3.55	3.42	3.78		3.64
	Importance	4.33	3.90	3.83	3.58	4.36		3.79
FPAE "online"	Current level students ACHIEVED	2.36	2.21	2.19	2.13	2.36		2.43
	Student level SHOULD be achieved (NEED in addition)	3.94	3.81	3.66	3.72	4.02		3.66

		2.1.1	2.1.2	2.1.3	2.1.4	2.1.5	2.2	2.2.1
		Identifying and determining technical issues	Modeling technical issues	Estimates and qualitative analysis problems	Analysis of random factors	Conclusions, and propose solutions	Testing and widen knowledge	Make a hypothesis about possibilities
	Importance	4.20	3.73	3.75	3.52	4.24		3.76
Summary "online"	Current level students ACHIEVED	2.34	2.18	2.21	2.08	2.30		2.35
Summary Uninfle	Student level SHOULD be achieved (NEED in addition)	3.84	3.64	3.61	3.57	3.90		3.65
Average "online"		3.46	3.19	3.19	3.06	3.48		3.25
	Importance	4.24	3.90	3.71	3.38	4.14		3.76
Data "offline"	Current level students ACHIEVED	2.63	2.49	2.51	2.37	2.69		2.43
	Student level SHOULD be achieved (NEED in addition)	4.00	3.86	3.83	3.57	4.09		3.86
Average "offline"		3.62	3.42	3.35	3.11	3.64		3.35

		2.2.2	2.2.3	2.2.4	2.3	2.3.1	2.3.2	2.3.3
		Learn information through paper and electronic documents, Internet,	Experimental survey	Verification of hypotheses and proofs	System Thinking	Recognize the whole problem	Identify problems that arise and interact in the system	Sort and identify the key elements
	Importance	4.10	3.82	3.82		4.17	3.88	3.93
Automotive "online"	Current level students ACHIEVED	2.63	2.23	2.24		2.36	2.31	2.27
	Student level SHOULD be achieved (NEED in addition)	3.83	3.60	3.59		3.74	3.64	3.73
	Importance	4.04	4.15	4.01		4.22	4.22	4.08
FPAE "online"	Current level students ACHIEVED	2.64	2.45	2.43		2.55	2.53	2.49
	Student level SHOULD be achieved (NEED in addition)	3.77	3.66	3.74		3.98	3.96	3.96

		2.2.2	2.2.3	2.2.4	2.3	2.3.1	2.3.2	2.3.3
		Learn information through paper and electronic documents, Internet,	Experimental survey	Verification of hypotheses and proofs	System Thinking	Recognize the whole problem	Identify problems that arise and interact in the system	Sort and identify the key elements
	Importance	4.07	3.99	3.92		4.19	4.05	4.00
Summary "online"	Current level students ACHIEVED	2.64	2.34	2.34		2.46	2.42	2.38
	Student level SHOULD be achieved (NEED in addition)	3.80	3.63	3.67		3.86	3.80	3.85
Average "online"		3.50	3.32	3.31		3.50	3.42	3.41
	Importance	4.19	3.71	3.81		4.33	3.90	4.19
Data "offline"	Current level students ACHIEVED	2.77	2.46	2.54		2.60	2.60	2.57
	Student level SHOULD be achieved (NEED in addition)	3.91	3.74	3.86		4.11	4.00	3.94
Average "offline"		3.62	3.30	3.40		3.68	3.50	3.57

		2.3.4	2.4	2.4.1	2.4.2	2.4.3	2.4.4	2.4.5
		Analyze the advantages and disadvantages and offer solutions	Skills and personal attitude	Proactive and willing to take risks	Perseverance and flexibility	Applying creative thinking	Apply thinking assessment	Self assessment of knowledge, skills and attitudes
Automotive "online"	Importance	4.05		4.08	4.27	4.23	4.06	4.03
	Current level students ACHIEVED	2.30		2.36	2.36	2.47	2.45	2.34
	Student level SHOULD be achieved (NEED in addition)	3.78		3.82	3.84	3.81	3.81	3.84
	Importance	4.18		4.01	4.36	4.15	4.18	4.33
FPAE "online"	Current level students ACHIEVED	2.62		2.47	2.40	2.43	2.49	2.49
	Student level SHOULD be achieved (NEED in addition)	4.04		4.04	4.00	4.06	4.09	4.09

		2.3.4	2.4	2.4.1	2.4.2	2.4.3	2.4.4	2.4.5
		Analyze the advantages and disadvantages and offer solutions	Skills and personal attitude	Proactive and willing to take risks	Perseverance and flexibility	Applying creative thinking	Apply thinking assessment	Self assessment of knowledge, skills and attitudes
	Importance	4.11		4.04	4.31	4.19	4.12	4.18
Summary "online"	Current level students ACHIEVED	2.46		2.41	2.38	2.45	2.47	2.41
	Student level SHOULD be achieved (NEED in addition)	3.91		3.93	3.92	3.93	3.95	3.96
Average "online"		3.49		3.46	3.54	3.52	3.51	3.52
	Importance	4.28		4.05	4.38	4.24	4.14	4.28
Data "offline"	Current level students ACHIEVED	2.80		2.60	2.71	2.77	2.69	3.03
	Student level SHOULD be achieved (NEED in addition)	4.06		4.03	4.09	4.09	4.00	4.09
Average "offline"		3.71		3.56	3.73	3.70	3.61	3.80

		2.4.6	2.4.7	2.5	2.5.1	2.5.2	2.5.3	2.5.4
		Being able to self- and and lifelong learning	Know how to manage time and resources	Professional skill	Be professional ethics, honesty and sense of responsibility	Have a professional attitude	Be proactive in planning your profession	Update the information in the technical field
Automotive "online"	Importance	4.40	4.28		4.47	4.39	4.34	4.27
	Current level students ACHIEVED	2.44	2.21		2.87	2.68	2.60	2.69
	Student level SHOULD be achieved (NEED in addition)	3.93	3.94		4.12	4.09	4.08	4.05
	Importance	4.29	4.29		4.47	4.47	4.47	4.54
FPAE "online"	Current level students ACHIEVED	2.47	2.38		2.72	2.53	2.55	2.51
	Student level SHOULD be achieved (NEED in addition)	4.11	4.04		4.23	4.21	4.23	4.13

		2.4.6	2.4.7	2.5	2.5.1	2.5.2	2.5.3	2.5.4
		Being able to self- and and lifelong learning	Know how to manage time and resources	Professional skill	Be professional ethics, honesty and sense of responsibility	Have a professional attitude	Be proactive in planning your profession	Update the information in the technical field
	Importance	4.35	4.29		4.47	4.43	4.40	4.40
Summary "online"	Current level students ACHIEVED	2.45	2.30		2.80	2.61	2.58	2.60
	Student level SHOULD be achieved (NEED in addition)	4.02	3.99		4.18	4.15	4.16	4.09
Average "online"		3.61	3.53		3.81	3.73	3.71	3.70
	Importance	4.48	4.19		4.67	4.48	4.48	4.38
Data "offline"	Current level students ACHIEVED	2.91	2.74		3.26	3.03	2.94	2.86
	Student level SHOULD be achieved (NEED in addition)	4.09	4.06		4.31	4.31	4.20	4.23
Average "offline"		3.83	3.66		4.08	3.94	3.87	3.82

		3	3.1	3.1.1	3.1.2	3.1.3	3.1.4
		Communication skills and teamwork	Working group	Establishing group	Organizing group activities	Developing group	Leading group
Automotive "online"	Importance			4.00	4.08	4.08	4.05
	Current level students ACHIEVED			2.43	2.42	2.37	2.32
	Student level SHOULD be achieved (NEED in addition)			3.84	3.91	3.86	3.91
	Importance			4.04	4.08	4.11	4.01
FPAE "online"	Current level students ACHIEVED			2.36	2.30	2.30	2.11
	Student level SHOULD be achieved (NEED in addition)			4.00	4.04	3.96	4.00

		3	3.1	3.1.1	3.1.2	3.1.3	3.1.4
		Communication skills and teamwork	Working group	Establishing group	Organizing group activities	Developing group	Leading group
	Importance			4.02	4.08	4.10	4.03
Summary "online"	Current level students ACHIEVED			2.40	2.36	2.33	2.21
	Student level SHOULD be achieved (NEED in addition)			3.92	3.98	3.91	3.95
Average "online"				3.44	3.47	3.45	3.40
	Importance			4.00	4.19	4.19	4.09
Data "offline"	Current level students ACHIEVED			2.77	2.86	2.66	2.71
	Student level SHOULD be achieved (NEED in addition)			4.11	4.20	4.09	4.23
Average "offline"				3.63	3.75	3.64	3.68

		3.1.5	3.2	3.2.1	3.2.2	3.2.3
		Organizing technical group and multidisciplinary team	Communication	Selecting of communication strategy	Building communication structures	Writting communication
	Importance	3.93		3.79	3.77	4.00
Automotive "online"	Current level students ACHIEVED	2.29		2.22	2.17	2.28
	Student level SHOULD be achieved (NEED in addition)	3.84		3.78	3.77	3.84
	Importance	3.86		3.93	3.97	4.15
FPAE "online"	Current level students ACHIEVED	2.21		2.21	2.15	2.23
	Student level SHOULD be achieved (NEED in addition)	3.98		3.91	3.96	4.02

		3.1.5	3.2	3.2.1	3.2.2	3.2.3
		Organizing technical group and multidisciplinary team	Communication	Selecting of communication strategy	Building communication structures	Writting communication
	Importance	3.90		3.86	3.87	4.07
Summary "online"	Current level students ACHIEVED	2.25		2.22	2.16	2.25
	Student level SHOULD be achieved (NEED in addition)	3.91		3.85	3.86	3.93
Average "online"		3.35		3.31	3.30	3.42
	Importance	3.86		3.81	3.76	4.05
Data "offline"	Current level students ACHIEVED	2.69		2.66	2.69	2.86
	Student level SHOULD be achieved (NEED in addition)	3.97		4.06	3.94	4.00
Average "offline"		3.50		3.51	3.46	3.63

		3.2.4	3.2.5	3.2.6	3.3	
		Multimedia communication	Graphic communication	Effective Presentation	Communicate in foreign languages	English (CDR 500 TOEIC or equivalent)
	Importance	3.94	3.81	4.34		4.51
Automotive "online"	Current level students ACHIEVED	2.34	2.37	2.42		2.55
	Student level SHOULD be achieved (NEED in addition)	3.80	3.76	4.03		3.98
	Importance	4.15	4.08	4.25		4.36
FPAE "online"	Current level students ACHIEVED	2.28	2.26	2.26		2.45
	Student level SHOULD be achieved (NEED in addition)	4.04	4.04	4.13		4.21

		3.2.4	3.2.5	3.2.6	3.3	
		Multimedia communication	Graphic communication	Effective Presentation	Communicate in foreign languages	English (CDR 500 TOEIC or equivalent)
	Importance	4.05	3.94	4.30		4.43
Summary "online"	Current level students ACHIEVED	2.31	2.31	2.34		2.50
	Student level SHOULD be achieved (NEED in addition)	3.92	3.90	4.08		4.10
Average "online"		3.42	3.38	3.57		3.68
	Importance	4.00	4.05	4.33		4.43
Data "offline"	Current level students ACHIEVED	2.69	2.63	2.60		2.83
	Student level SHOULD be achieved (NEED in addition)	4.03	3.94	4.26		4.11
Average "offline"		3.57	3.54	3.73		3.79

		4	4.1	4.1.1	4.1.2	4.1.3	4.1.4
		Making ideas, designing, deploying and operating in the corporate and social context	Social context	Recognizing the role and responsibility of the bachelor / Engineer/ MSc towards society	Recognizing the impact of technical applications for society	Awareness of historical and cultural context	Cognitive context and cultural history
	Importance			3.91	3.86	3.84	3.43
Automotive "online"	Current level students ACHIEVED			2.37	2.48	2.27	2.27
	Student level SHOULD be achieved (NEED in addition)			3.65	3.69	3.66	3.56
	Importance			3.69	3.90	3.65	3.55
FPAE "online"	Current level students ACHIEVED			2.15	2.19	2.02	1.96
	Student level SHOULD be achieved (NEED in addition)			3.64	3.70	3.55	3.57

		4	4.1	4.1.1	4.1.2	4.1.3	4.1.4
		Making ideas, designing, deploying and operating in the corporate and social context	Social context	Recognizing the role and responsibility of the bachelor / Engineer/ MSc towards society	Recognizing the impact of technical applications for society	Awareness of historical and cultural context	Cognitive context and cultural history
	Importance			3.80	3.88	3.75	3.49
Summary "online"	Current level students ACHIEVED			2.26	2.34	2.14	2.11
	Student level SHOULD be achieved (NEED in addition)			3.65	3.70	3.61	3.57
Average "online"				3.23	3.30	3.17	3.06
	Importance			4.05	4.09	4.00	3.52
Data "offline"	Current level students ACHIEVED			2.74	2.74	2.63	2.34
	Student level SHOULD be achieved (NEED in addition)			4.03	3.91	4.00	3.63
Average "offline"				3.61	3.58	3.54	3.16

		4.1.5	4.1.6	4.2	4.2.1	4.2.2	4.2.3
		Awareness of lastest issues	Identify the prospects of global development	Business context and business	Respect for cultural diversity now	Strategy, objectives and business plan of the enterprise	Commercially minded technical
Automotive "online"	Importance	3.71	3.81		3.88	4.01	3.91
	Current level students ACHIEVED	2.38	2.33		2.41	2.29	2.18
	Student level SHOULD be achieved (NEED in addition)	3.65	3.68		3.74	3.72	3.69
	Importance	3.65	3.76		3.79	3.97	3.69
FPAE "online"	Current level students ACHIEVED	2.04	2.06		2.23	2.28	2.04
	Student level SHOULD be achieved (NEED in addition)	3.60	3.72		3.74	3.72	3.74

		4.1.5	4.1.6	4.2	4.2.1	4.2.2	4.2.3
		Awareness of lastest issues	Identify the prospects of global development	Business context and business	Respect for cultural diversity now	Strategy, objectives and business plan of the enterprise	Commercially minded technical
	Importance	3.68	3.78		3.83	3.99	3.80
Summary "online"	Current level students ACHIEVED	2.21	2.20		2.32	2.28	2.11
	Student level SHOULD be achieved (NEED in addition)	3.62	3.70		3.74	3.72	3.72
Average "online"		3.17	3.23		3.30	3.33	3.21
	Importance	3.95	3.90		4.05	3.90	3.95
Data "offline"	Current level students ACHIEVED	2.60	2.63		2.71	2.46	2.49
	Student level SHOULD be achieved (NEED in addition)	3.71	3.80		3.86	3.80	3.91
Average "offline"		3.42	3.44		3.54	3.39	3.45

		4.2.4	4.3	4.3.1	4.3.2	4.3.3	4.3.4
		Adaptability in different work environments	Conceiving and building engineering systems	Establishing goals and requirements of the technical system	Determining functions, concepts and structure of the technical system	Utilizing technical system modeling and ensuring that goals can be achieved	Planning for deployment (Management) schemes
Automotive "online"	Importance	4.28		3.94	3.79	3.67	3.79
	Current level students ACHIEVED	2.43		2.23	2.28	2.22	2.14
	Student level SHOULD be achieved (NEED in addition)	3.91		3.60	3.55	3.55	3.69
	Importance	4.08		4.01	3.79	3.79	4.04
FPAE "online"	Current level students ACHIEVED	2.21		2.17	2.13	2.09	2.06
	Student level SHOULD be achieved (NEED in addition)	3.85		3.74	3.83	3.81	3.85

		4.2.4	4.3	4.3.1	4.3.2	4.3.3	4.3.4
		Adaptability in different work environments	Conceiving and building engineering systems	Establishing goals and requirements of the technical system	Determining functions, concepts and structure of the technical system	Utilizing technical system modeling and ensuring that goals can be achieved	Planning for deployment (Management) schemes
	Importance	4.18		3.97	3.79	3.73	3.92
Summary "online"	Current level students ACHIEVED	2.32		2.20	2.20	2.15	2.10
	Student level SHOULD be achieved (NEED in addition)	3.88		3.67	3.69	3.68	3.77
Average "online"		3.46		3.28	3.23	3.19	3.26
	Importance	4.38		4.09	4.09	3.76	4.05
Data "offline"	Current level students ACHIEVED	2.60		2.71	2.54	2.49	2.46
	Student level SHOULD be achieved (NEED in addition)	4.11		3.91	3.94	3.86	3.89
Average "offline"		3.70		3.57	3.53	3.37	3.46

		4.4	4.4.1	4.4.2	4.4.3	4.4.4	4.4.5
		Design	Construction and design analysis processes	Analysis of the stage in the design process and approach	Use knowledge in the design and analysis	Use knowledge specialized design	Design and work in multidisciplinary teams
	Importance		3.91	3.86	3.94	4.05	3.88
Automotive "online"	Current level students ACHIEVED		2.29	2.27	2.32	2.39	2.27
	Student level SHOULD be achieved (NEED in addition)		3.65	3.58	3.64	3.69	3.58
	Importance		4.11	4.22	4.08	4.22	4.08
FPAE "online"	Current level students ACHIEVED		2.11	2.13	2.19	2.26	2.09
	Student level SHOULD be achieved (NEED in addition)		3.68	3.72	3.74	3.79	3.81

		4.4	4.4.1	4.4.2	4.4.3	4.4.4	4.4.5
		Design	Construction and design analysis processes	Analysis of the stage in the design process and approach	Use knowledge in the design and analysis	Use knowledge specialized design	Design and work in multidisciplinary teams
	Importance		4.01	4.04	4.01	4.13	3.98
Summary "online"	Current level students ACHIEVED		2.20	2.20	2.25	2.32	2.18
	Student level SHOULD be achieved (NEED in addition)		3.67	3.65	3.69	3.74	3.70
Average "online"			3.29	3.30	3.32	3.40	3.28
	Importance		3.95	3.76	3.90	4.14	3.52
Data "offline"	Current level students ACHIEVED		2.31	2.43	2.63	2.60	2.40
	Student level SHOULD be achieved (NEED in addition)		3.69	3.71	3.89	3.91	3.71
Average "offline"			3.32	3.30	3.47	3.55	3.21

		4.4.6	4.5	4.5.1	4.5.2	4.5.3	4.5.4
		Multi-purpose design	Deployment	Planning for the deployment process	Constructing and analysis system	Applying knowledge of the control system and programming diagnostics	Hardware and software integration
Automotive "online"	Importance	3.77		3.96	3.82	3.76	3.69
	Current level students ACHIEVED	2.23		2.22	2.21	2.17	2.11
	Student level SHOULD be achieved (NEED in addition)	3.58		3.62	3.59	3.55	3.49
	Importance	4.04		4.04	2.09	2.11	2.02
FPAE "online"	Current level students ACHIEVED	2.11		2.09	2.11	2.02	1.94
	Student level SHOULD be achieved (NEED in addition)	3.74		3.66	3.68	3.66	3.60

		4.4.6	4.5	4.5.1	4.5.2	4.5.3	4.5.4
		Multi-purpose design	Deployment	Planning for the deployment process	Constructing and analysis system	Applying knowledge of the control system and programming diagnostics	Hardware and software integration
	Importance	3.91		4.00	2.96	2.93	2.86
Summary "online"	Current level students ACHIEVED	2.17		2.15	2.16	2.10	2.02
	Student level SHOULD be achieved (NEED in addition)	3.66		3.64	3.64	3.61	3.54
Average "online"		3.25		3.27	2.92	2.88	2.81
	Importance	3.43		3.86	4.09	3.85	3.62
Data "offline"	Current level students ACHIEVED	2.23		2.37	2.43	2.49	2.29
	Student level SHOULD be achieved (NEED in addition)	3.71		3.77	3.74	3.80	3.74
Average "offline"		3.12		3.33	3.42	3.38	3.22

		4.5.5	4.5.6	4.6	4.6.1	4.6.2	4.6.3
		Understanding of testing standards, test, evaluation and certification	Managing the deployment process	Operation	Building and optimizing the operation process	Training operating procedures	Operational support during operation of the system
Automotive "online"	Importance	3.81	3.76		3.88	3.76	3.77
	Current level students ACHIEVED	2.17	2.13		2.20	2.16	2.27
	Student level SHOULD be achieved (NEED in addition)	3.58	3.62		3.64	3.65	3.63
	Importance	1.94	1.98		3.94	3.90	3.94
FPAE "online"	Current level students ACHIEVED	1.98	2.04		1.96	1.91	2.04
	Student level SHOULD be achieved (NEED in addition)	3.66	3.70		3.72	3.74	3.77

		4.5.5	4.5.6	4.6	4.6.1	4.6.2	4.6.3
		Understanding of testing standards, test, evaluation and certification	Managing the deployment process	Operation	Building and optimizing the operation process	Training operating procedures	Operational support during operation of the system
	Importance	2.87	2.87		3.91	3.83	3.85
Summary "online"	Current level students ACHIEVED	2.08	2.09		2.08	2.04	2.15
	Student level SHOULD be achieved (NEED in addition)	3.62	3.66		3.68	3.70	3.70
Average "online"		2.86	2.87		3.22	3.19	3.24
	Importance	3.95	3.90		3.86	3.81	3.66
Data "offline"	Current level students ACHIEVED	2.40	2.31		2.43	2.31	2.54
	Student level SHOULD be achieved (NEED in addition)	3.86	3.86		3.83	3.83	3.89
Average "offline"		3.40	3.36		3.37	3.32	3.36
Survey Results

		4.6.4	4.6.5	4.6.6
		Improving and developting the system	Handling system after expiry (after system lifecycle)	Operational management
Automotive "online"	Importance	3.98	3.69	3.89
	Current level students ACHIEVED	2.21	2.20	2.19
	Student level SHOULD be achieved (NEED in addition)	3.65	3.61	3.64
FPAE "online"	Importance	3.93	3.86	4.08
	Current level students ACHIEVED	1.94	1.85	1.94
	Student level SHOULD be achieved (NEED in addition)	3.77	3.77	3.85

		4.6.4	4.6.5	4.6.6
		Improving and developting the system	Handling system after expiry (after system lifecycle)	Operational management
Summary "online"	Importance	3.96	3.78	3.98
	Current level students ACHIEVED	2.08	2.03	2.07
	Student level SHOULD be achieved (NEED in addition)	3.71	3.69	3.75
Average "online"		3.25	3.16	3.27
Data "offline"	Importance	3.95	3.47	4.00
	Current level students ACHIEVED	2.43	2.31	2.37
	Student level SHOULD be achieved (NEED in addition)	4.06	3.71	3.94
Average "offline"		3.48	3.17	3.44