



CES CIVIL NEWS

The Student Newsletter of the Department of Civil and Environmental Engineering at the American University of Beirut

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Photo by Weam Alawar



Photo by Carine Choubassi

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Photo by Hani Bou Lattouf

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HEADLINES

EDITOR'S LETTER



Four years! This is how old the civil newsletter is already. And now, in its 5th edition, I am honored to have the chance to be part of it for the second consecutive year.

One thing worth highlighting is that the Civil and Environmental Engineering (CEE) department is the only one in the Faculty of Engineering and Architecture (FEA) to have its own Newsletter ran by its own

students. This, I believe, is a privilege for us students, being always backed-up and even encouraged by our professors to play active roles in our community. As a matter of fact, with the Civil Engineering Society (CES) and the Civil News, each and every one of the students has the opportunity to be active on the extracurricular level. And after two years of experience in AUB, I can say that the Civil Engineering students have been more than worthy of this privilege, making the best out of it year after year.

This said, I'd like to add that we, as engineering students, learn a lot inside the classrooms.

We actually learn enough to become adequate engineers. However, a lot is yet to be learnt outside the classrooms in order to become, not only adequate, but high-achieving and outstanding engineers. Indeed, some of the most important skills learnt on our own are the ones acquired through experience. They mainly consist in dealing with others and facing challenges. This experience, I believe, starts now, in our campus and among our peers, which is why I encourage every one of you to step forward and play a role in their community, regardless of its scale. Finally, concerning this issue (issue no. 9), this year's Civil News' team agreed to launch a new idea: THE SUMMER ISSUE! In the previous years, the newsletter used to consist of only two issues: one for the Fall semester and one for Spring, leaving Summer uncovered. Despite being the shortest, the Summer semester is one of the busiest and probably most interesting. You may wonder what the reason is. Well, I hope this issue, prepared by a great team of dedicated reporters, will be more than a clear answer to you dear readers. Enjoy!

Emile Zankoul
Editor-in-Chief

AUB OUTDOORS' "BEST DECORATION TROPHY" GOES TO CES!

Wagm Alawar

It is the combination of fun, hard work and excitement that makes AUB Outdoors one of the most awaited events on campus. And except for the unprecedented success of the event, this year was no different: a record-breaking number of attendees populated the old Beirut city that emerged on campus.

The CES contributed to the festivities by setting up two stands. The first of which served delicious combinations of "Kaak" and spreading along with tasty corn, and the second filled the air with competition and fun by hosting the Can Shooter and the Air Hockey games. Queues formed as gamers returned over and over again for another round of exciting games while they enjoyed the served food.

The 21st and 22nd of May, the days of Outdoors, were not the only busy days for CES members. The society's hard work at preparing the stands won them the Best Decoration trophy of the event. Their designs were

beautiful: the food stand was the outer face of an old house, decorated with flowers and vines climbing the walls, and the games stand was set up in an antique living room.

It is on days like these that hard work, fun and unforgettable memories become one. CES once again gives a new flavor to the AUB experience and deserves sincere congratulations.



Photo by Carine Choubassi

THE CES GALA DINNER

Christina Teokari

This year's traditional Civil Engineering Gala, organized by the Civil Engineering Society (CES), took place on Thursday, June 16, 2011, in Sursock Palace located in Achrafieh. At 8:30 PM, most of the attendees had already reached the Palace. The garden looked so lovely with shimmering lights, artistic flower arrangements, soft music, etc. All the ladies were all dressed up with the most beautiful dresses and the gentlemen were suited up very sharply for the occasion. It was such a dazzling atmosphere; everyone was mingling in the beautiful garden, talking about future plans, congratulating the graduates and taking pictures



Photo by Hani Bou Lattouf

with groups of friends under a sparkly sky and a majestic mood. As everyone took their place on the tables assigned (ranging from Universal to Powerpuff girls, fitting the dinner's theme: superheroes), Dr. George Ayoub took the stage to give his speech welcoming everybody and proudly congratulating his students for graduating. Then a bunch of comedians followed to interactively play games with the audience, lightening up everyone's mood. After that, the buffet was opened and everyone got up to choose a plate from the wide variety served. When things couldn't get any better, delicious food, good company and a lovely atmosphere, a great duet took the stage. The singer Mayssa Jallad and acoustic guitarist Elie Abdel Nour were applauded continuously. Then it was time to draw the winners for the tombola as many gifts and vouchers were won. After the celebration cake was cut, with all the graduates surrounding it, it was time to dance. In a matter of seconds, the DJ took over and everyone was on the dance floor! Ziad El Bizri, Civil Engineering Graduate and one of the organizers of the dinner, later commented on the event: "It was a great experience," he added regretfully, though: "I wish more E1s and E2s could have made it to celebrate with us"

CEE STUDENTS GET INVOLVED IN THE SOUTH

Rayane Zahreddine

In early May, the Lebanese public eye was turned to the South, where illegal constructions on public property were rising almost everywhere. Internal Security Forces entering the areas in order to demolish illegal buildings were met with protest from the residents. Several injuries and deaths accompanied the clashes. More importantly, the houses, either newly constructed or added to existing ones, were built in most cases without the supervision of experienced engineers or regard to construction standards. The UN-Habitat program initiated a study aimed at understanding the reasons behind the outburst of illegal houses and buildings as well as understanding the opinions of the residents and assessing the structural safety of these buildings. For the purpose of these houses' safety, the Center for Civic Engagement and Community Service (CCECS) at AUB gathered a team of 12 civil engineering students led by Dr. Mounir Mabsout of the CEE department. On June 17 and 18, the CEE team accompanied the UN-Habitat team to three locations in the city of Tyr (Alziraa, Almassakin and Almaashouk) where a sample of 43 houses was assessed.

The preliminary results of the structural assessment were alarming, where although the quality of normal strength concrete was acceptable according to building standards, many problems in design and construction were observed such as thin slabs, excessive deflections and cracks, poor steel reinforcement, and lack of seismic resistance measures.

Hassan Al Hajj Hassan, one of the CEE volunteers commented: "These two days gave us an experience of the humanitarian side of our profession which we do not find a lot these days." Christina Teokari, another CEE student added: "It was an interesting experience where I could see this recent phenomenon up close for myself, not from a camera lens and not influenced by a reporting voice. And for the first time, civil engineering required of me to be emotionally connected to the issue because we were dealing the problems of less fortunate people and families."

This project, like the summer volunteering camp, is one of the opportunities for civil and environmental engineering students to get involved in and benefit the Lebanese community while also connecting with their major.

INTERVIEW WITH DR. MALAEB: FIRST AUB GRADUATE WITH A CE PHD!

Dr. Lilian Malaeb is one of the first AUB graduates who worked passionately and diligently to fulfill her dream of receiving a doctorate degree in civil engineering. Civil News decided to interview her to shed some light on her journey to help prospecting graduates who consider following her footsteps.

Edrees Eltrachidi & Christina Teokari

Civil News (CN): Why did you decide to do a Civil Engineering related PhD and what track did you choose?

Dr. Malaeb (DM): It was a long-held dream. I enjoyed pursuing the degree as I had a high affinity towards research and the field of water resources and environmental engineering drew me in. I took several courses related to this field and worked with my advisor, Professor George Ayoub, on the development of a solar still system to enhance its performance and productivity.

CN: Where and what did you previously study prior to starting your PhD and did you begin your studies right after graduation?

DM: I received my BE in Civil Engineering in 2002 from AUB and immediately started my Master's at AUB in Water Resources engineering and graduated in 2004. I then worked with Khatib & Alami for three years, after which I applied to the PhD program, which was just starting at the time.

CN: How old are the CE PhD programs at AUB?

DM: The program was initiated in the Fall of 2007.

CN: What are your comments about the program? Advantages? Disadvantages?

DM: I believe we were blessed to do our PhD at AUB, the university in general and the department in particular treated us very well and sought to provide us with all what we needed.

The challenges that I personally faced were what made the experience worthwhile.

One of the experiences I faced upon initiating my project on solar stills (solar powered desalination systems) on

top of the Raymond Ghosn Building, brought some difficulties in assembling and building the stills in addition to transporting the water. Both my advisor and the department were effectively able to find a solution for these problems.

CN: Dr. Lilian, would you kindly add a few words here about other characteristics of the program? Thank you.

DM: In my four years in the program, I took an equivalent of 24 credits in terms of courses i.e. 8 courses and another 24 credits for the dissertation, which comprise the program requirements. I also worked on few other research topics that are directly related to my field. A nice characteristic of the program is that you feel you are on your own and totally responsible for your work. This sense of responsibility motivates you to work with all your enthusiasm and delight.

CN: So how would you improve the program?

DM: I would say that the program is on the right track. It doesn't need much improvement, but it would certainly help to get more funding for research.

CN: What are your future plans?

DM: I'm currently trying to decide between pursuing a post-doctorate overseas or pursuing a teaching-related career. The former is more likely at the present moment.

CN: Any last words, quotes, or advice?

DM: My advice to all students is to specialize in what you enjoy working in. Seek to find your own unique path and go for it.

CN: Dr. Malaeb, thank you for your time.



THE ENGINEERING LOUNGE... FINALLY RENOVATED

On the first days of August 2011, the Bechtel building student lounge was at last renovated when fifteen new leather couches were brought in at noon. In fact, the student lounge had been in a terrible shape for quite a while as the last renovation took place around five years ago and most of the couches were in a bad condition, some with the leather ripped and others completely broken! Many students complained about the lounge because it was an uncomfortable and messy room. Now, with colorful red, blue and yellow couches, the lounge has been completely transformed to their delight by the FEA-SRC. Elias El-Murr, 2nd year

Mechanical Engineer and a member of the Faculty of Engineering and Architecture Students Representative Committee (FEA-SRC) commented: "The renovation of the lounge was our supreme objective and I'm very happy that after all this hard work, we achieved our goal. I would like to thank all those who supported us in our project, especially Mr. Samir Bassil (Bechtel Maintenance Supervisor) and Mr. Fady Dgheim (Purchasing Office)."

Photos by Emile Zankoul



Rayane Zahreddine

CIVE 360: SURVEYING

Quotes brought by Ghida Ismail.
Photos by Rayane Zahreddine and Emile Zankoul.



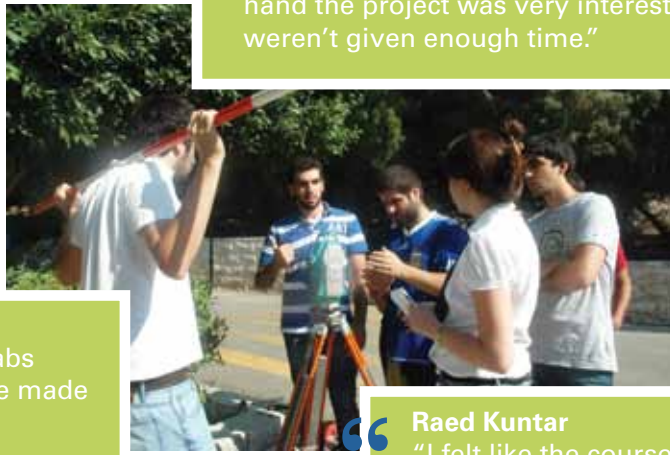
“ Rouba Onaissi
“I had fun despite the endless hours in the sun, the burning weather and the yellow paint on my hair and bag.”

“ Roba Olabi
“It was interesting. The material was commonsense and easy. But, it was tiring to stay a long time out especially in the summer.”



“ Mariana Abou Diwan
“After a long summer’s hard work, we’ve developed various land surveying techniques and an appreciation for a main domain of our major thanks to the help of our teacher and handy GAs.”

“ Nihal Abughali
“It’s a very nice course. I loved the labs, they were very interesting. I especially liked the group work. However, the lectures were boring, and some material was repeated, and there was a lot of memorizing. On the other hand the project was very interesting but we weren’t given enough time.”



“ Jad Sabra
“The material was interesting, the labs were fun. I loved the group work. We made new acquaintances.”

“ Raed Kuntar
“I felt like the course was useless, we could have read the guides of the instruments we used and it would have been enough. Plus in the lectures there was a large number of students which made it almost impossible to concentrate.”



“ Omar Ellaz
“In this course, I found out that some theoretical measurements, that we use very easily, take some real effort to be reported experimentally. Plus I think that the course concentrated too much on the theory, it should have been more application and less theory.”

“ Malek Kronfol (transferred from architecture)
“I loved the course. It convinced me that I made the right decision when I transferred to civil engineering. What I liked the most was the final project, it was very interesting.”

THE CES SUMMER CAMP 2011

Description: Volunteer work and community service paired with thrilling fun and an unforgettable 9-day hotel stay.

Edition: Volume 5

Duration: Wednesday, September 7 – Thursday, September 15

Destination: West Bekaa, Hotel Khraizat in Kherbet Qanafâr

Organizers: Civil Engineering Society (CES) in collaboration with the Center for Civic Engagement and Community Service (CCECS)

Camp Coordinator: Christopher Sassine (E3 Civil Engineer)

Contributors: Hussein Kassem (E4 Civil Engineer), Olga Majzoub (Project coordinator CCECS)

Sponsors: SKP, CCC, USFC, MEAB, ACEC, FEA, CEE Department

Attendees: ~110 students (60 Civil Engineering Students, 50 Non-Civil including Engineering, FAS, Business and 2 Costa Rican exchange Students).

Project Objectives:

JOUB JANNINE: PLANT TREES AFTER FIXING THE ROADSIDE

BEFORE



AFTER



From the site:

Ghida Adra: The community was very friendly. We had a lot of fun and it wasn't very tiring. The group I worked with was very pleasurable. I felt like I was doing something useful, I was helping the society.

AMMIK: BUILD A STAIRCASE

BEFORE



AFTER



From the site:

Dana Kawa: It's a small village. The community over there was very friendly. They offered us food and drinks. The project, which was building a staircase, was very interesting especially because it concerned the field of civil engineering. But it was quite tiring.

QARAOUN – MISSION 1: RENOVATE "AIN EL DEIR"

BEFORE



AFTER



From the site:

Elias Haber: We were surrounded by the citizens of the lovely village of Qaraoun. Our project, "Ain El Deir"; was completed with more than 8 working hours/day. Along with the hard work, fun and creativity accompanied the crew that became like a family. Thank you CES!

QARAOUN – MISSION 2: CONSTRUCT A TRIANGULAR GARDEN

BEFORE



AFTER



From the site:

Issam Kayssi: It was a pleasure working with the Municipality of Qaraoun, which took good care of our students. While it might have seemed that they did prefer the Spring project over the Garden (where I was stationed), we never felt on our own! There was always someone there to guide us and provide us with the tools and skills needed to complete the project. The food was always good, the work fun, and the people of Qaraoun kind-hearted and very generous!

TAANAYEL: ASSEMBLE MUD BLOCKS AND SET UP FOUNDATIONS FOR A MUD HOUSE



From the site:

Jad sabra: It was a great experience. I enjoyed the work. I got to know a group of amazing people that turned six hard working days into fun and joy. However we didn't expect the weather to be this hot.

IRSAI: IMPROVE COMPUTER LITERACY THROUGH WORKSHOPS

From the site:

Samir Nasr: It was a nice experience. It was like watching a war movie in Afghanistan. It's a desert with trucks. The way of life over there is completely different from ours.

Special thanks to Ghida Ismail, who acquired the quotes from site!

CAMP DIARIES

DAY 1: Campers toured around all sites during the day and enjoyed a rally paper event during the night. Congratulations for the winners!



DAY 2: After the first day of hard work, the volunteering campers dined in Al Kanz restaurant in Rachayya. They later rocked the floor with dance and dabke.



DAY 3: Campers attended a festival in Ammik, where they had fun, won prizes and danced the night away.

DAY 4: On this day, the group headed to Kefraya. The stunning greenery and acres of vines were nothing compared to the wine tasting. In addition, the attendees toured around the Kefraya wine cellars and brewery, after watching a documentary about winemaking.



DAY 5: Sunday came and campers set off for Saida and visited the Sidon Sea Castle. They headed for the Jezzine waterfalls and had lunch in Al-Chalal restaurant. Later that night, they accompanied the full moon as they treaded the Qaraoun Dam overlooking the magnificent lake of Qaraoun.



DAY 6: The week of the 12th of September kicked off with a night at the West Bekaa Country Club, which hosted a set of games such as Football and Basketball.



DAY 7: A team of AUB engineers competed against Ammik Club in a football game in Ammik before a camp fire was lit and surrounded by the campers' stories from site.

DAY 8: On this day, the final reception took place in the presence of municipality presidents and camp organizers. The assembly shared the events of camp and the campers enjoyed a DJ party and dinner afterwards.

DAY 9: Al-Khraizat Hotel woke up late to the sounds of luggage being dragged out of the rooms and into the busses, signaling the end of an unforgettable summer camp. During the trip back to Beirut, everyone was already talking about next year's camp, and savoring their fresh memories that will remain in their minds for years to come.



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WELCOME NEW STUDENTS

We have all been first year students at some point and we have all been through this new, interesting, first week of university. To some, things can go smoothly, whereas to others, things can get rough! Regardless of which category you belong to, you could always use some good piece of advice to start your journey at AUB. Therefore, CIVIL NEWS warmly welcomes all of you new students, and hopefully, you could benefit from the tips we have to offer:

- Make sure NEVER to ask who or where **TBA** is. It actually means To Be Assigned.
- Bechtel is pronounced 'Bektel' and not 'BeSHtel'. Also, **West Bathish** is pronounced 'West Bat7ish'
- Make sure to check <http://imail.aub.edu.lb/> (**I**mail) and <http://moodle.aub.edu.lb/> (**M**oodle) regularly. *(Note: under AUB connection you may simply type imail or moodle in the address bar, then press 'Enter' to access the websites)*
- **Dr. Maryam Ghandour:** You will be reading her name a lot! She is responsible for providing you with any available job opportunities. She might overwhelm your inboxes from time to time, but you will most probably be thankful one day.
- **Cafeterias:** You should know that there are four main cafeterias.
 1. Charles Hostler Center Cafeteria. (Useful if you're close to the gym)
 2. OSB (Olayan School of Business) Cafeteria. You could use it whenever you want to enjoy a beautiful view (sea view!)
 3. The Bechtel cafeteria: Home court advantage!
 4. Last but not least, the Mary Dodge Hall Cafeteria, the main one near Main Gate.

- You might **print** through AUB printers from your laptop using <http://print.aub.edu.lb/>

- **CCC SRB** (Scientific Research Building) is where the Engineering Labs are. The best place whenever you need to use a computer or printer.

- **Minors:** A minor requires taking 15 to 18 credits (~5-6 courses) from the same department. Of course you might need much more details than that. The most common minors that Engineers do are in Math, Economics, Engineering Management or in any Humanity or Social Science. Always refer to the department in question and they will provide you with all the details you need to know.

- **Dropping a course:** If you feel that there is no chance that you will pass a course, or that it is too heavy for you and that the semester has started, you may drop it. There is a specific period of the semester after which you can't drop a course. Dropping a course results in having the letter 'W' on the transcript for "Withdrawal"

instead of the grade. You also won't be able to be on the Dean's Honors List regardless of your GPA for the concerned semester only, and for the semester where you repeat the dropped course as well.

- **Distinction:** You've had a slow start, grades not as high as expected? Well it's good to know that to graduate with distinction, only the last 60 credits (about the last two years) are taken into consideration. (Doesn't mean that you shouldn't study well during the first two years!!)

- **Probation:** Summer courses' grades will be counted with the Fall Term grades. No probation can take place at the end of the first semester. Probation at the end of the 2nd semester is given if your average is less than 68, less than 69 for the 2nd year, and less than 70 in the later years. (Each semester should have at least 12 credits. If less, credits will be added to the subsequent semester)

- **Events not to miss:** The FEA Christmas Dinner, The CES Happy Hours, The CES ski-trip, The CES Spring dinner, and The CES summer camp!!! Also keep on the lookout for other upcoming events!

- **The Civil Engineering Society:** You may register by passing by the stand in Bechtel when announced. It regroups civil engineering students represented by 2 cabinet members from each year. The CES is a very active society for the students by the students and it is strongly advised that you join it!

Remember that our Department is well known to be the most informative and friendly of all other engineering departments (thanks to Mrs. Zakia Deeb). Make good use of this and remember to thank her at the end!

Also, make sure you get your student handbook to plan your courses and learn about the list of electives.

GOOD LUCK FOR YOUR FIRST YEAR AS CIVIL ENGINEERING STUDENTS!



Prepared by Emile Zankoul

NAME: AZMY RAJAB



My internship at the University of Wisconsin Madison was an opportunistic and very fun experience, I definitely advise you to go for it. It's worth it because I can guarantee that you'll have an amazing time; you'll be exposed to

a different state of mind, discover new things and make new lasting friends. Moreover, there's a good chance that you can secure a scholarship for a master's education at the university or at least one recommendation letter. As a civil engineer, I worked for the Wisconsin Transportation Center (WisTrans) and the National Center for Freight & Infrastructure Research & Education (CFIRE) with Mr. Jason Bittner, and we were given the opportunity to choose from a variety of possible topics for projects. The staff was informed, hardworking, and very friendly. Communication was relaxed and straightforward. Work hours were relatively flexible too.

If you manage to get a 'student' ID you can obtain a free bus pass to all Madison and access to several things including discounts to gyms and shops. Investing in a cheap bicycle is a smart idea, as Madison is very biker friendly. I'd also suggest that you meet up with other students going with you and plan early on where you want to live.

In case you wind up in Madison know that you are going to have the time of your life. Be open-minded and adventurous, this is your chance to try new things out. Remember to balance out time for work and for fun, and by all means go out – daily!

NAME: NADIA EL JAMAL



My internship at Petrofac (UAE, Sharjah) was a great experience. I worked in the civil department and

in the HSE design department (HSE stands for Health, Safety and Environment). In the first two weeks, we attended induction lectures held by graduate engineers, first aid workshop and several general lectures to get a sense of the oil and gas industry. In the second part of the internship, we worked in the office mainly on readings; excel sheets, data entry, checking drawings, etc. I admit that the office work was kind of boring but overall the internship was fun. The hotel accommodation, the transportation arrangements, the interns' outing and the salary are all very satisfactory. If you're interested in the oil and gas field and you want to enjoy your summer, Petrofac is your internship destination!

NAME: DANA KAWWA



This summer, I did my training at Dar Al-Handasah (Lebanon) in the Project Management and Contracts (PMC) Department. It is

a department that provides pre-contract, post-contract, and project management services. I decided to join this department because it is the one I know about the least, and also because I am interested to pursue a career in the Engineering Management track. During the seven weeks I spent there, I was exposed to many topics such as quantity take-offs and BOQ preparation, planning and scheduling techniques, cost management, contracts and tendering, etc. I had the chance to work on actual projects that fall under these topics. I also worked with the technical unit of the PMC department whose work includes the review of building facades design. The work in this department allowed me to see the "big picture" of the project and made me realize that coordination between the departments is a must to ensure the success of a project. Since I covered many topics, I met many of the PMC staff from whom I learned a lot. To sum it up, although the training was short in duration, it answered many of the questions I had about engineering work.

NAME: NASSIM HAMED

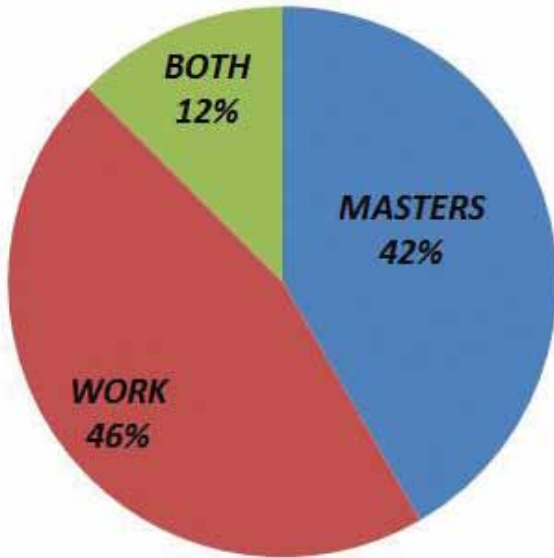


As part of the third year internship program, we were requested to complete an 8 week internship course related to our field of studies.

As a consequence, I have chosen CCC (Consolidated Contractors Company), in UAE Dubai, as my summer internship contracting company in an attempt to gain full insight on how the construction world operates. Aside from further widening my scope of information related to my field of studies, the summer internship program has introduced me to how the construction world works. The most important aspect learned in my 8 weeks stay on site was how to manage a group of labor effectively. Moreover, the internship program increases the respective person's self confidence and helps in introducing the trainee to the problems that he/she might face later on during work. I recommend trainees next year to apply for CCC and to gain full experience and knowledge during their 8 weeks in work.

GRADUATION FROM A STATISTICAL POINT OF VIEW

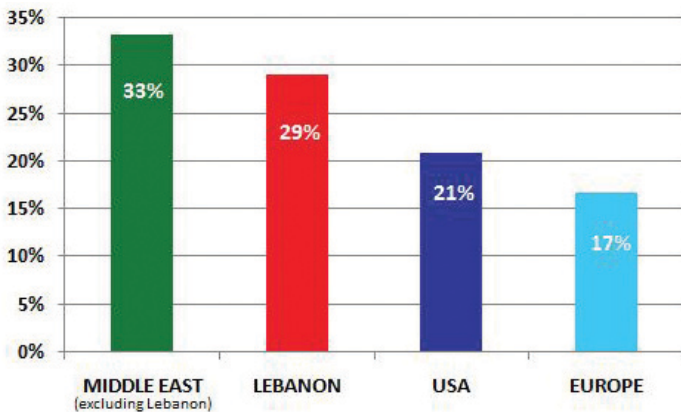
MASTERS VS. WORK



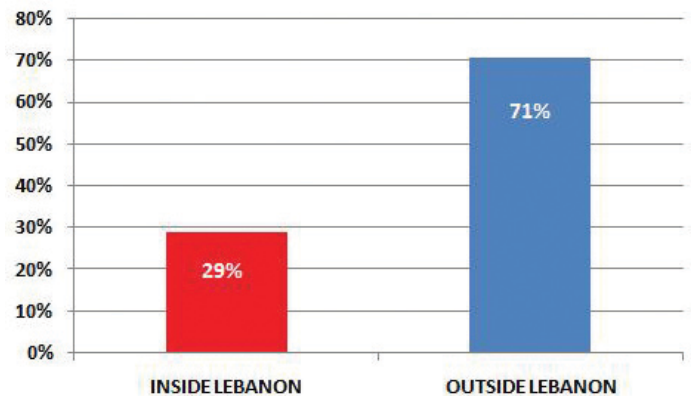
Another year passes by with yet another class of graduating civil engineers ready for the challenges and the opportunities awaiting them around the world! We can only wish them the best of luck. And hopefully, we will all be joining them in the coming years.

Enjoy this analysis done on about 30 of the graduating students of the class 2011.

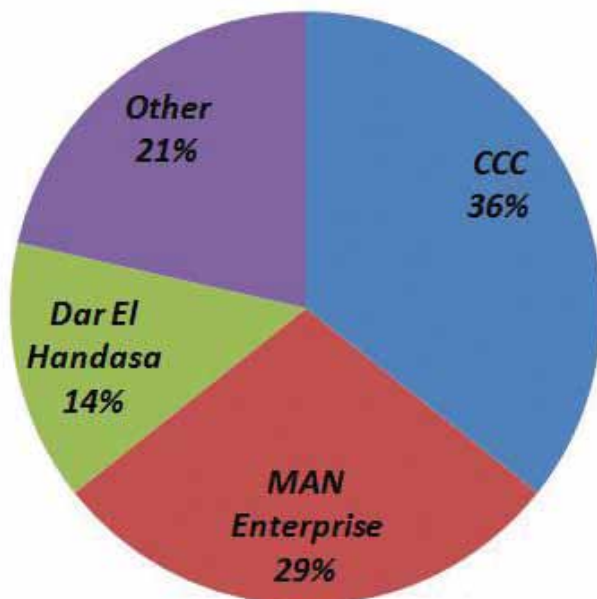
SPREADING AROUND THE WORLD!



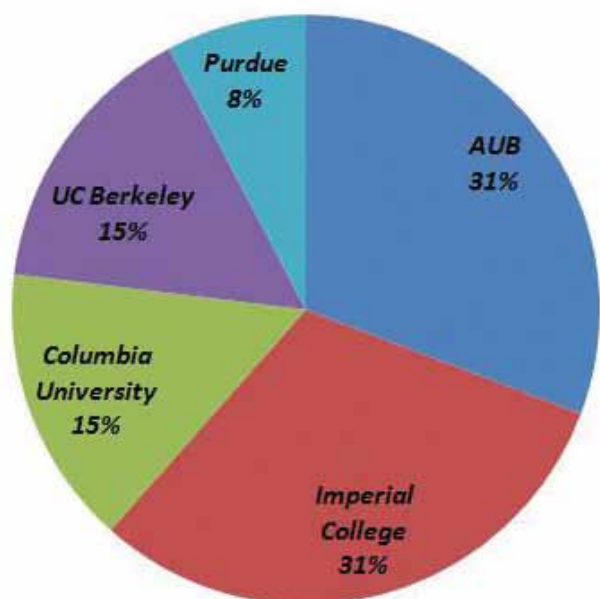
NATIONALLY VS. INTERNATIONALLY



GRADUATES IN DIFFERENT COMPANIES



GRADUATES IN DIFFERENT UNIVERSITIES



Prepared by Emile Zankoul

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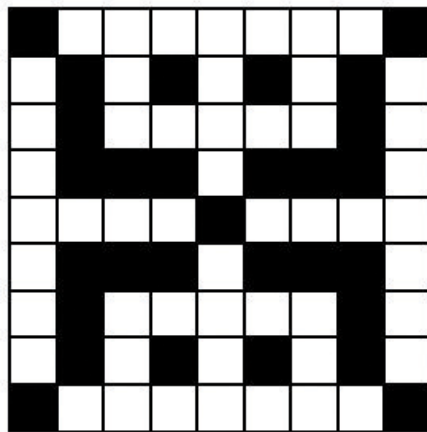
Strike out all of the words from the list. Then read the secret sentence by joining all the remaining letters horizontally from left to right, except for the last 18 remaining letters.



- BEACH
- BEDROCK
- CANYONS
- CERAMICS
- DEPOSITS
- DUNES
- GARNET
- GLASS
- GRAINS
- GRANITE
- GRAVELS
- MOUNTAINS
- MUDSTONE
- OCEAN
- OFFSHORE
- PARTICLES
- QUARTZ
- ROCK
- SAND
- SEDIMENTARY
- SHELL
- STREAMS

SUDOKU

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8		3		5		9		2
							3	6
9	6					3		8
7				6	8			
	2	8						



1. One of the two horizontal 7-letter words is a month of the year and the other is easily broken.
2. One of the two vertical 7-letter words is a top prize and the other is a record of past events.
3. One of the 5-letter words is a detection instrument and the other is a large marine mammal.
4. The 4-letter words are betting ratio; female relative; snake tooth; male monarch.
5. The two 3-letter words on the left are automobile and armed conflict.
6. The two 3-letter words on the right are organ of hearing and snakelike fish.

YOUR FEEDBACK, SUGGESTIONS, COMMENTS, AND CONTRIBUTION ARE WELCOME!

Please direct them to: civilnews@aub.edu.lb

CEE Department website: <http://webfea.fea.aub.edu.lb/fea/cee>

CES email: ces@aub.edu.lb

Solutions



References

<http://www.puzzlechoice.com/cw/Xwise02x.html>

<http://www.websudoku.com/images/example-steps.html>

http://www.utahrockhounds.com/tooelegem/kids_corner/sandpuzzle.html

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