

## Section Name

## Lebanon Section

### Section Vitality

Please provide information about the date of last Section elections, date of next elections, and do you have the practice of Vice-Chair becoming the next Section Chair. Section ExCom meetings (list them and provide brief summary if appropriate). List the activities carried out to retain and recruit members and the results obtained.

- *The last elections took place on December 29, 2020. The next elections will take place in December 2022.*
- *The vice-chair is in general the favorite candidate to become the next section chair, but it is not automatically done.*
- *Four executive committee meetings were held in 2021, and one (so far) in 2022. In these meetings, we planned the work to be done in 2021 and started its execution. The main event that was organized and took most of the discussion time during these meetings is the section biannual conference: IMCET 2021 conference that took place between 8 – 10 December 2021.*
- *IEEE Lebanon section got the gold award of the membership recruitment and retention performance for 2021. To retain regular members, we supported each member with about 25% of the membership fees and each student member with more than 50 % of the student's membership*
- *Finally and even in the economic situation in Lebanon, many events took place in 2021 and were very fruitful.*

*We are working on engaging our members in continuous education and life-long learning by cooperating with different communities. For instance, we have recently partnered with BeirutAI, the largest applied Artificial Intelligence community in Lebanon. This partnership empowers our IEEE members and provides them with the needed expertise to apply AI in different fields.*

*The IEEE- Lebanon Section MD is also representing the IEEE Lebanon Section in many events in - including webinars and IEEE day celebrations on different university campuses and working towards recruiting new students and empowering the student branches. Furthermore, the MD is collaborating with student branches and organizing events including technical and non-technical workshops to help our members gain and develop new skills and be active life-long learners.*

*To grow and attract new members, we are also regularly promoting IEEE in different events and workshops by giving a presentation about the importance of IEEE and the main benefits of becoming an IEEE member.*

*Recently, our secretary appeared on a national TV station to talk about Metaverse technologies.*

### Students

List of Student Branches (SB) in your Section, the newly formed or dissolved SBs, if any since the last meeting reporting (Oct 2020). List the student meetings held and Section activities addressed to Students and Young Professionals.

- *American University of Beirut*
- *Saint Joseph University School of Engineering*
- *University of Balamand*
- *Lebanese University – Tripoli*
- *Lebanese Univ Faculty Of Engineering-Hadath*
- *Lebanese University Faculty of Eng – Roumieh*
- *Lebanese University, Faculty of Sciences*
- *American University of Science and Tech*
- *Beirut Arab Univ – Dibbiyeh*
- *Beirut Arab University – Tripoli*
- *Holy Spirit University of Kaslik*
- *Notre Dame University-Lebanon*
- *Islamic University of Lebanon*
- *Lebanese American University*
- *Lebanese International University*
- *Rafik Hariri University*
- *Antonine University*
- *City University – Tripoli*
- *Arts, Sciences & Technology University in Lebanon AUL.*

*The majority of the student branches are very active. They organize regular and yearly events. Each year, 2 or 3 student branches from the Lebanon section receive the outstanding student branch award of Region 8.*

**The main challenge** this year (and the coming years) is the membership renewal of students due to the economic collapse in Lebanon and the devaluation of the Lebanese currency to about 5% of its original value. This resulted in the inability of

*a vast majority of members, especially students, to renew their memberships. The IEEE Lebanon section stood by the student branches and provided direct financial support. We provided USD325 to each of our 19 student branches to support student membership renewals and retention. We are still investigating possible ways to financially support IEEE members and cooperate with IEEE to come up with solutions for paying the membership fees. We are also trying to contact IEEE and we really appreciate any kind of financial support.*

### **Affinity Groups**

List of Affinity Groups (YP, LM, WiE, SIGHT, etc.), list of SB AGs, newly formed or dissolved AGs/SB AGs, if any since the last meeting reporting (Oct 2020). List the activities intended to support affinity groups.

*IEEE Lebanon section has 4 affinity groups:*

- *Young Professional Affinity Group*
- *Life Members Affinity Group*
- *Women In Engineering Affinity Group*
- *SIGHT*

*The four affinity groups are very active as reported next.*

*The **Young Professional Affinity Group** is very dynamic. Each year, the group organizes the IEEE Students and Young Professionals Lebanon Congress. In 2021, amidst the economic and political crises in Lebanon, students and YP activities focused on spreading awareness about IEEE and organized technical and soft skills workshops and events to empower university students and give them the self-confidence to develop their competencies and compete in the labor market under the “Compete to Complete” umbrella, compete to complete our country’s needs and improve our lives... They hosted technical experts to talk about trending topics such as Power Electronics Systems, Future Trends In Sustainability, AI in Renewables, and Artificial Intelligence Hackathon.*

*More than 50 events were organized by student branches and YP between march and October 2021. We also partnered with the Arab IoT & AI Challenge and co-organized a local Lebanon IoT and AI Challenge, which we believe will upskill our members and provide them the opportunity to reveal their innovative ideas in the areas of Internet of Things and Artificial Intelligence.*

*The **IEEE Women in Engineering Affinity Group** organized the following virtual events:*

- *International Women’s Day on March 8, 2021: we celebrated Wise, Inspiring, and Exceptional Lebanese Women. They were combining Engineering with Business and Community Services*
- *Girls In ICT Day on April 22, 2021: We raised the question of Wondering about Information, and we addressed being Inspired by Communications and Empowered by Technology.*
- *In collaboration with IEEE Wie – Turkey, we organized a webinar & panel about “Future Trends in Sustainability – AI in Renewables on May 21, 2021”.*
- *Technical Co-Sponsor of a Workshop on Deep-Learning @ The Lebanese University on May 29, 2021.*
- *International Women in Engineering Day (INWED 2021) on June 23, 2021: We discussed the Engineering field from both Academic, Professional, and Business Perspectives.*
- *Partner of the Arab IoT & AI Challenge – Lebanon on August 10&11, 2021.*
- *In collaboration with IEEE Wie – Miami, we organized a webinar & panel about “Adjusting Our Sails - We are Resilient, WiE are Unstoppable”, on October 12, 2021, to celebrate IEEE Day and in commemoration of Ada Lovelace\* Day (\*1st Computer Programmer).*
- *All these events can be watched on our Facebook Page: @wielebanon.*

*The Lebanon Section **SIGHT** was established in 2018. It was one of the first associations that worked on the ground after the fateful explosion of the Port of Beirut. SIGHT had a big role in recruiting volunteers from IEEE Lebanon Section to help those affected by this explosion.*

***Life Members Affinity Group** is growing in Lebanon. LMAG got last year a grant of about USD 25,000 for a renewable energy project in Lebanon that is still in progress.*

## Chapters

List of Chapters and SB Chapters in your Section, the newly formed or dissolved Chapters, if any since the last meeting reporting (Oct 2020). Indicate how many have reported on time and received rebate. Highlight some of the activities.

*IEEE Lebanon section has three chapters and three joint chapters:*

- *IEEE Communications (ComSoc) Society Lebanon Chapter*
  - *IEEE Computer Society Lebanon Chapter*
  - *IEEE Engineering in Medicine and Biology Society (EMBS) Lebanon Chapter*
  - *Joint Chapter, AP03/MTT17/MAG33 (CH08691)*
    - *Antennas and Propagation Society*
    - *Microwave Theory and Techniques Society*
    - *Magnetics Society*
  - *Joint Chapter, IE13/PE31/CAS04/PEL35 (CH08625)*
    - *Industrial Electronics Society*
    - *Power and Energy Society*
    - *Circuits and Systems Society*
- 
- EMBS Lebanon Chapter has a flag conference that is held every 2 years: ICABME, The sixth edition of this conference took place in October 2021 and was very successful.
  - ComSoc organizes each year the IEEE Lebanon communications workshop (IEEE LCW) that took place more than 10 times and they are a technical sponsor of MENACOM '22, which will take place in Morocco.
  - RAS is always an important partner of all robotics competitions that take place in Lebanon. Members of RAS serve always as co-organizers and Jury members of those competitions.
  - Computer Society started last month cooperation with Arab AI organization and will be responsible of the competition of Arab AI in Lebanon.
  - Power Chapter got the award of the most active chapter in Lebanon during 2020. They are also very active in 2021.

## Industry

*List the activities carried out to foster relations with Industry and the results obtained.*

IEEE Lebanon Section continues its deep cooperation with industry and maintains its previous relations established during the last years with many Lebanese industrial entities:

Alfa, Ericsson, Nokia, ZRE Lebanon, BDD, Foo, Arabnet, and the order of engineers of Tripoli.

The IEEE cooperation with Lebanese industry has a positive effect on the IEEE Lebanon section:

- Internships for IEEE student members \*Support of IEEE Lebanon Section activities. \*Improve the knowledge of IEEE Members
- Presentations about IEEE and its activities and the benefit of being an IEEE Member are done. Thus big numbers of Lebanese Electrical engineers will have the opportunity to learn about IEEE.

It is worth mentioning that in order to improve the relation of all our affiliated chapters with the industry sector, a new subcommittee called the Industry Subcommittee was established. All chapters and affinity groups had a representative in this subcommittee and it is coordinated by the Section's industry Ambassador.

## Activities since the last report

*Highlight some of the activities in your Section, with special attention to the things that work well, and things that don't, so that your acquired know-how can be used by other Sections.*

The most important activities that took place in the Lebanon section are:

- EMBS Students competition that took place in July 2021
- ICA BME 2021, The sixth edition of EMBS conference that took place in October 2021
- A full day of IEEE CAS-IF SUMMER-I 2021: “Rapid Development of Artificial Intelligence (AI), Electronic Systems and IOT Technologies” which held hybrid in Tripoli-Lebanon jointly with CASS Egypt.
- A five days of IEEE CASS Seasonal School on “Domain-Specific Accelerator Architectures” which held in Dubai jointly with The IEEE CASS Chapters of UAE, Lebanon, Egypt, Columbia, and Hyderabad.
- 7 events of WIE (Listed before)
- More than 40 events organized by student branches and Young professionals
- IEEE Days are organized by different student Branches.

### Planned activities

*Highlight some of the future activities and initiatives in your Section.*

*We are planning to hold this year the second IEEE Lebanon section student competition. It is an opportunity to make a deep cooperation among all chapters and all affinity groups. Each chapter will be in charge of one track. Also it will improve the relations between students and all the chapters. We are planning to make this competition in June 2022*

### How Region 8 can be of help to your Section, members, and activities

*List any challenges your Section is facing and what support is required from Region 8. Please, also, give us your suggestions for agenda items that you want to be discussed during the R8 Committee meeting.*

The major challenge that we are facing is the actual nonstable situation in Lebanon. We are afraid currently of not being able to maintain a proper membership renewal process, which would directly affect membership retention. As it is known, IEEE Lebanon section has grown up quickly during the last years and has reached more than 1700 members in 2018 which lead to the reception of many membership retention awards. During the last year, the economic situation collapsed dramatically. A huge devaluation of the Lebanese Lira occurred. The price of one USD passed from 1500 LBP to more than 20000 LBP today. As a direct consequence, the banking system put very restrictive conditions on withdrawal and on online payment. To reduce bank runs and prevent the default of Lebanese banks, several restrictions were enforced including:

- Heavy limitations on cash withdrawals in Lebanese pound and in foreign currency (small to none)
- No exchange from Lebanese pound to US Dollar using the official rate of 1515 LBP/USD. In that case, people have to reply on exchange offices with rate exceeding 20000 LBP/USD
- Very big Limitation or cancellation of the use of credit cards for online payments or payments outside Lebanon.

We have received many request from IEEE members to find a solution for the payment of their membership renewal fees. Other members especially students asked to waive them or alternatively help them with a reduction of the fees. The IEEE Lebanon Section is seriously concerned about losing a big portion of its members due to the current crisis.

Attached a presentation we made about this issue. We are still hoping that IEEE will reduce membership fees to IEEE Lebanon members.

We hope that IEEE Region 8 and IEEE MGA will be able to help our members in renewing the memberships for 2022!

**Many requests were made, many emails were sent but unfortunately we did not received any response yet.**

### Any other issues of interest

Region 8 can play a very important role in fostering industry connections by helping local sections and chapters in establishing a network of connections with different international companies and entities within the Region itself. Local sections are usually unaware of potential partnerships with international companies due to a lack of information. The Region can therefore maintain and share a database of potential companies working closely with IEEE and looking for new links with different local sections and chapters.

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## • Closed Ecological Systems

**Closed ecological systems (CES) are:**

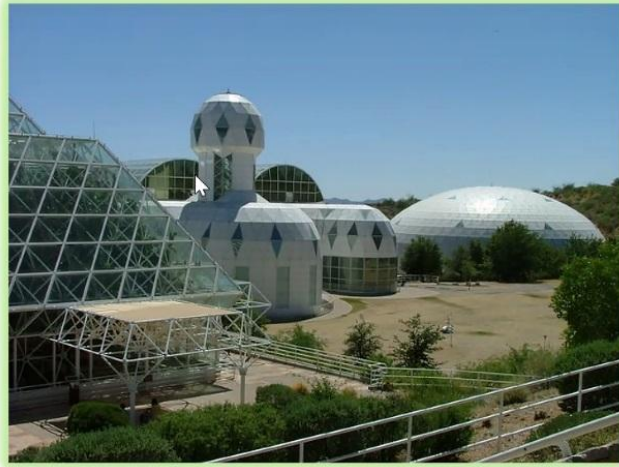
- Isolated** Ecosystems without any matter exchange with outside environment
- Ecosystems rely on recycling and reutilization

**Man-made CESs applications:**

- Investigating fundamental processes
- Gaining insight into the function of the Earth's biosphere
- Studying interactions of ecosystems
- Creating space-based life support system for space explorations**

**Examples:**

- BIO-Plex- NASA Johnson Space Research Center, Houston
- Biosphere 2- Oracle, Arizona
- BIOS 3- Krasnoyarsk, Russia
- CEEF complex- Japan
- MELISSA - Barcelona, Spain - ESA**




*Biosphere 2, Oracle, Arizona*


Source: M. Nelson, NS. Pechurkin, JP. Allen, LA. Somova, JI. Gitelson, "Closed ecological systems, space life support and biospherics," *In Environmental Biotechnology* 2010, pp. 517-565, Humana Press, Totowa, NJ.


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Mohamad Kassab



Bachar Elhassan


Josep M. Guerrero

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