Executive Summary:

SPIE – QAU chapter was formed in April 2012 to organize and strengthen collaboration between researchers in the field of optics and other related disciplines. It has successfully continued sharing knowledge, experiences and creating environment for sustainable development in targeted fields.

Being associated to the number -1 ranked university in Pakistan, the potential to enhance international collaboration and creating opportunities for effective learning are immense.
Chapter successfully organized multiple activities in which participants from within the university and outside university were given a platform where they expressed themselves and learnt from one other.

Contact Information:
Email Address Advisor: gaisar@qau.edu.pk
Email Address president: Kiranmujeeb99@gmail.com

2018 - 2019 Officer Listing:

Kiran Mujeeb
President
PhD Scholar
Kiranmujeeb99@gmail.com

Adil Qayyum
Vice President
PhD Scholar
adilqayyum@ele.qau.edu.pk

Sundus Naseer
General Secretary
PhD Scholar
Sundusnaseer0@gmail.com

Tehreem Qasim
Treasurer
PhD Scholar
tehreemqasim@yahoo.com

In March 2019 we have updated our members.
Currently our Treasurer is Sami Ullah Yousaf and General Secretary is Hina Shoukat

Office Bearers 2018-19:

<table>
<thead>
<tr>
<th>S. No.</th>
<th>SPIE Designation</th>
<th>Name</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>President</td>
<td>Ms. Kiran Mujeeb</td>
<td>Ph.D. Scholar</td>
</tr>
<tr>
<td>2</td>
<td>Vice-President</td>
<td>Mr. Adil Qayyum</td>
<td>Ph.D. Scholar</td>
</tr>
<tr>
<td>3</td>
<td>Secretary</td>
<td>Ms. Hina Shoukat</td>
<td>M.Phil. Scholar</td>
</tr>
<tr>
<td>4</td>
<td>Treasurer</td>
<td>Mr. Sami Ullah Yousaf</td>
<td>M.Phil. Scholar</td>
</tr>
</tbody>
</table>
Student and Community Membership:

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Name</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Kiran Mujeeb</td>
<td>PhD Scholar</td>
</tr>
<tr>
<td>2</td>
<td>Tehreem Fatima</td>
<td>PhD Scholar</td>
</tr>
<tr>
<td>3</td>
<td>Adil Qayyum</td>
<td>PhD Scholar</td>
</tr>
<tr>
<td>4</td>
<td>Samra Kanwal</td>
<td>M.Phil Scholar</td>
</tr>
<tr>
<td>5</td>
<td>Aniqa Mehoob</td>
<td>M.Phil Scholar</td>
</tr>
<tr>
<td>6</td>
<td>Rashda Parveen</td>
<td>PhD Scholar</td>
</tr>
<tr>
<td>7</td>
<td>Hina Shoukat</td>
<td>M.Phil Scholar</td>
</tr>
<tr>
<td>8</td>
<td>Sami Ullah Yousaf</td>
<td>M.Phil Scholar</td>
</tr>
<tr>
<td>9</td>
<td>Hamza Sagheer</td>
<td>BS</td>
</tr>
</tbody>
</table>

Regular Members:

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Name</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Dr. Qaisar Abbas Naqvi</td>
<td>Professor</td>
</tr>
<tr>
<td>2</td>
<td>Mr. Tayyab Malik</td>
<td>Alumini</td>
</tr>
</tbody>
</table>

Activities Report

1. Seminar Series

The SPIE – QAU Chapter along with department of electronics organized one day seminar series on weekly basis for students of QAU regarding the career development and future job perspectives in different fields including the field of optics and photonics. The seminars were attended by approximately 40+ QAU students. The seminars conducted are as follows:

I. Role of different Telecom Technologies in Today’s World

The "Role of Different Telecom Technologies in Today’s World" was held on Oct 17 2018 at Department of Electronics in collaboration with SPIE – Student Chapter, QAU. Use of various means of telecommunication now becomes an integrated part of society. The objective of the Seminar is to create awareness among students about important role of technology in the human life
II. Cyber Security and Emerging Technologies

The seminar was held on 24th October 2018, in objective to aware the students about the networking and the cyber crimes. This includes how to transfer data from one end to another end securely and shared information about server and cloud.
III. Efficient Management of Rivers with Uncertain In-flows

The "Efficient Management of Rivers with Uncertain In-flows" was held on 31st October 2018. The objective of the Seminar is about the simulation of rivers, save water from getting wasted and to avoid flood. It has setup the prediction area of flood or any alarming situation.

Speaker: Dr. Hasan Arshad Nasir
Assistant Professor
Department of Electrical Engineering
NUST (SEECS)

IV. Efficient Ray Tracing Algorithm for Radio Wave Propagation in Urban Areas

The third seminar was held on 7th November 2018. The objective of the Seminar is to make students aware of the latest technology of efficiency of the propagation of radio waves on advance level in city or mobile areas. It makes us able to rationalize the knowledge that how we can use this area to do more work efficiently within least consumed time.

Speaker: Dr. Sajjad Hussain
Assistant Professor
Department of Electrical Engineering
NUST (SEECS)
V. Awareness of S&T Information Services Offered by PASTIC

Speaker: Mr. M. Ayub Dogar  
Senior Scientific Information Officer  
Pakistan Scientific and Technological Information Center (PASTIC)

The seminar was held on 14th November 2018 to make students familiar of how to use search engine that has links within the campus and outside at very large scale as well.

VI. Can an Electronics Engineer be a Data Scientist?

Speaker: Dr. Jamal Nasir  
Assistant Professor  
Department of Computer Science & SE  
International Islamic University Islamabad

The seminar was held on 28th November 2018.
VII. Relationship of Technology & Entrepreneurship:

Mr. Tayyab Malik is one of the founding and regular members of SPIE – QAU Chapter as well as the successful entrepreneur. Many entrepreneurs believe that the most important factor that will determine their level of success with a startup relates to their overall experience and skills in the niche area. However, the most successful entrepreneurs have developed a certain set of skills that have helped them reach their goals. While you need nerve and patience to launch and run a new business, you also need to focus on nurturing the critical skills that are integral to your future success in very important ways.
VIII. Let’s Prepare Ourselves for the Future!

Speaker: Prof. M. Junaid Mughal  
In-charge Academics  
Chairman & Head of Electrical and Computer Engineering Department  
COMSATS University

It was a motivational lecture about the future progress of students. Speaker put emphasis on new opportunities available for the students and motivated them to go ahead.

IX. Hands-On Skill for Fiber Optic Cable Splicing

Speaker: Mr. Naeem Anwar  
Master Trainer, Harmony Technologies
X. An Overview of Software Defined Radio (SDR)
Speaker: Dr. Qasim Mahmood Chaudhari
Research Fellow, School of Engineering Cluster
RMIT University, Australia

This seminar, held on 26th December 2018, covers some neat concepts about "Orthogonal Frequency Division Multiplexing (OFDM)" to the students since it forms the basis for most high-speed wireless communication standards. Lecture covers OFDM and SC-FDMA as well as multi-carrier modulation and demodulation are also explained in detail.

XI. Hands-On Skills for Microwave Communication

Speaker: Mr. Naeem Anwar
Master Trainer, Harmony Technologies
This seminar covers the practical training of the students on optical fiber splicing.

XII. A Kiwi Perspective into 5G

Speaker: Prof. Dr. Faraz Hassan
Senior Lecturer at the School of Engineering and Advanced Technology
Massey University, New Zealand.

XIII. Student Seminar:

Speaker: Mr. Tehreem Qasim
(PhD Scholar, Ex- Treasurer SPIE)
This last seminar was conducted on 9th January 2019.

2. **National Workshop on Optics of An-Isotropic Media and Metamaterials**

The four-day national workshop on Optics of An-isotropic Media and Metamaterials organized by the SPIE – QAU Chapter at Department of Electronics, Quaid-e-Azam University (QAU) concluded successfully. The workshop covered a diverse range of topics related to isotropic Media and Metamaterials in fields of Electronics. An isotropic media the propagation characteristics of electromagnetic waves are independent of their propagation direction. This generally implies that there is no direction within such a medium which is any different from any other. Clearly then, we can class gases and liquids, but not liquid crystals, as isotropic media, provided there are no externally applied fields present. Such a field would, of course, imply the existence of a unique direction in the medium - that of the field. As an example of a situation where an isotropic medium becomes an-isotropic in an external field, we mention the case of a gas in a magnetic field, where the gas changes the polarization characteristics of a wave which propagates in the field direction.

![Speaker Dr. Fayad along with the SPIE – QAU Chapter Advisor Dr. Qaisar and other teachers busy in discussion during lunch](image-url)
Dr. Faryyad while delivering his lecture

The President, Ms. Kiran Mujeeb, and General Secretary, Ms. Sundus Naseer, while attending the workshop session.
Financial Statement:

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Description</th>
<th>Expense Head</th>
<th>Amount Spent (USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Weekly Seminar Sessions</td>
<td>Marketing &amp; Advertisement</td>
<td>$100</td>
</tr>
<tr>
<td>2</td>
<td>Weekly Seminar Sessions</td>
<td>Certificates &amp; Souvenirs</td>
<td>$250</td>
</tr>
<tr>
<td>3</td>
<td>Weekly Seminar Sessions</td>
<td>Food &amp; Beverages</td>
<td>$100</td>
</tr>
<tr>
<td>4</td>
<td>National Workshop</td>
<td>Marketing &amp; Advertisement</td>
<td>$100</td>
</tr>
<tr>
<td>5</td>
<td>National Workshop</td>
<td>Food &amp; Beverages</td>
<td>$300</td>
</tr>
<tr>
<td>6</td>
<td>National Workshop</td>
<td>Certificates &amp; Souvenirs</td>
<td>$150</td>
</tr>
<tr>
<td></td>
<td><strong>Total Expenditure</strong></td>
<td></td>
<td><strong>$1000</strong></td>
</tr>
</tbody>
</table>

Details of Income

<table>
<thead>
<tr>
<th>S. No</th>
<th>Description</th>
<th>Amount Spent (USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>SPIE Chapter Activity Grant</td>
<td>$0</td>
</tr>
<tr>
<td>2</td>
<td>Contribution from Dept. of Electronics QAU</td>
<td>$500</td>
</tr>
<tr>
<td>3</td>
<td>Contribution from Harmony Technologies Pvt. Limited</td>
<td>$500</td>
</tr>
<tr>
<td></td>
<td><strong>Total Income</strong></td>
<td><strong>$1000</strong></td>
</tr>
</tbody>
</table>

Future Planning:

Science Café
Seminar, Workshop and Lecture Series
Poster Competition
Student Conference
Visiting Lecturer
Industrial Visits
Outreach Program
Conclusion:

SPIE Student Chapter at Department of Electronics, QAU has added to exposure of students and facilities available to collaborate between different disciplines. Rapid growth in terms of events and participation by the students has been recorded. The student activities under SPIE – QAU umbrella have provided many opportunities of networking for students and have provided with the updated information about various scholarship programs. As a result, a large number of students have secured admissions in foreign universities in last couple of years.