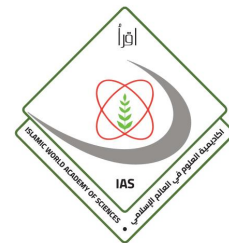


ISLAMIC WORLD ACADEMY OF SCIENCES

Newsletter



September - December 2020

Volume 28

Number 43

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HIGHER EDUCATION DURING COVID-19 PANDEMIC AND AFTERMATH

Prof. Abdullah Al-Musa

Director General, Islamic World Academy of Sciences

The world declaration on higher education for the 21st century enumerated many challenges facing higher education at international, national and institutional levels. At the international level, cooperation, networking and twining programs are scarce and need to be encouraged. Nationally, most Higher Education Institutions (HEI) suffer from dwindling public funds coupled with many inequalities that mare their systems.



At the institutional level, autonomy is an issue specially in developing countries. Lack of autonomy could be manifested in poor management of the institution resources and hinder the ability to undertake the necessary swift changes in response to changing circumstances.

Advent of COVID-19 pandemic aggravated these problems and instigated conspicuous changes in political, economical and social landscapes across the globe.

Under these conditions HEI were forced to a physical closure which entails cessation of face-to-face interactions through lectures. This rather awkward position pushed HEI to hastily rushed to unfamiliar domain of digital delivery with inadequate or often poor preparation and planning. A condition that highlights nascent problems regarding pedagogy, teaching/learning methodology and culture.

The transition and shift of teaching/learning environment is faced with obstacles and difficulties that need to be addressed.

Pedagogy and teaching/learning environment

The classical teaching model is not suddenly a viable option and the new digital approach is urgently needed which necessitate investment in student learning capabilities using on-line technological possibilities. The chances of success of this endeavor is enhanced if it is accompanied with a **shift in paradigm regarding pedagogy, didactics and learning design**. The new model is to be articulated to emphasize peer grouping and interaction and is supposed to develop students' abilities for life-long learning. The curriculum should be impregnated with human-domain soft skills that enhance employability after graduation in a world where intelligent machines can execute tasks that otherwise only man can do. These skills are but not limited to sound judgment, collaboration, curiosity, communication, empathy, teamwork and leadership. The new pedagogy should stress active, self-guided learning capability. This shift had been out into action by the University of Texas (EL PASO). **The classes were delivered in the form of small units** through which students, depending on their preparation can achieve targets at differential rates. The system allows students to repeat the unit if his/her level of achievement in that unit falls below mastery level. This model encourages students to assume responsibility for their learning system without sacrificing the quality. **The grading system** under this model should be changed from norm-referenced grading or standard-based grading system to the **mastery system** which measures the student level of mastery on knowledge test before allowing his/her to move forward to successive modules (units). **Mastery level** should be achieved before students can acquire **credit for the course**.

This active learning system is facilitated by the newly developed technological innovations that can discern responses at individual student level in the class. These individual response systems are now available such as Khoot, Socrative and Verso. The latter is free and works with teacher's Google drive accounts.

Faculty members

The COVID-19 pandemic presented abrupt disturbances to routine work of instruction and caught professors unprepared for the work load required by on-line teaching methodology. Preparation for online delivery is supposed to be different from that of addressing rather a passive audience in a lecture room. Prior planning and designing of the digital format is a

must for successful learning environment. Thus it is imperative to expose faculty members to rigorous training programs to enable them to master the practical skills needed to handle the technological platforms.

As a **stimulus to innovative and effective teaching methodology, student learning-outcome should be an integral part of academic promotion. This could be measured by the student-self assessment** of their learning gains at the end of the course replacing the traditional end-of-the-course evaluation.

Students' digital divide

It is not safe to assume that students in different localities and coming from various socioeconomic background stand on equal footing with regard to quality access of the internet signal. Some are most likely living in areas where weak or restricted connectivity is a common place, let alone the financial burden that families of disadvantaged students have to incur to acquire necessary resources to satisfy the need for digital learning. In view of economic hardship and rampant unemployment caused by the pandemic, education expenses may fall back in the families' budgeted priorities. Under these conditions some students may lag behind in their learning compared to their peers from well-off families.

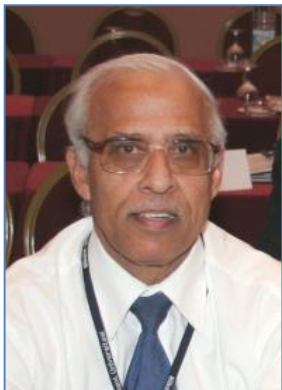
A help mechanism should be designed and implemented by the government and HEI to help bridge this digital divide with the aim not to leave any student behind.

Leaders of HEI

The higher tier of the HEI management are required to provide vision and clear perspective through effective communication of guidelines to delineate the framework of activities and responsibilities of the institution community. This could be achieved by **forming task teams across the institution** mandated to overlook and respond to challenges facing all concerned stakeholders. They are expected to provide direction and formulate schemes aimed at familiarizing faculty members with the major tenets of digital platform including publishing forms for student assessment, performance and evaluation of learning outcome.

THE PERFORMANCE OF HIGHER EDUCATION INSTITUTIONS UNDER AND AFTERMATH OF COVID-19 PANDEMIC CRISIS

Prof. M. Asghar
Council Member, IAS



The presence of Covid-19 pandemic imposes strict restrictions on the mutual contacts and movements in the society such as the distancing constraint imposing at least a 2m diameter circular self-isolation zone for each person in a group of persons along with the presence of appropriate insulating and “anonymizing” masks. Such space restrictions drastically reduce the feasibility/possibility of organizing the educational meetings and lecturing in rather small lecture halls, and even in the relatively large attendance-capacity of amphi-theatres, this possibility is hugely reduced. Moreover, the draconian restrictions on the different means of transport, exclude the general movement of the students and the educational personnel to their specific educational institutions, where the different types of set ups and material have to be constantly and meticulously “sanitized” against the Covid-19 virus.

One can face this highly anormal situation through the use of the up to date electronic means of information gathering and transmitting through tele-lecturing, tele-conferences at the same time ensuring that on the receiving side, all of those who are expected to receive these lectures and talks in their “personal places”, have the appropriate means of visual and vocal reception via the laptops, tablets,... with the possibility of mutual and vocal exchanges during the talks and lecturing. The advantage of these tele-means is that the persons concerned can be anywhere near or far away from the institutions transmitting the Higher Educational programs. Moreover, the absence of movement of persons from different places to different places, should help to reduce the overall carbon-foot print for a good climate on the Earth.

However, these tele-means will face serious obstacles in the case of experimental work in the laboratories without the physical presence of the students and their guides. Moreover, the long term use of these tele-means and the absence of face-to-face contacts and communications could seriously hamper the progress of science and

damage the necessary mutual social links and the relationship to the society at large, as a city cannot survive without a lively social tissue. These the face-to-face discussions and exchanges build mutual trust and lead to new ideas, new topics, new collaborations in science among persons with different backgrounds, but carrying on similar activities.

PROF. MUHAMMAD ASGHAR FIAS

Prof. Asghar was awarded a BSc (1956) and LLB (1960) degrees from the University of Punjab. He obtained his DPhil from the University of Oxford in 1964. The title of his Doctorate thesis was “Investigation of nuclear energy levels using photo neutrons.”

After spending about 3 years at the Atomic Energy Research Establishment at Nilore (PINSTECH, Pakistan), Harwell (UK), and Saclay (France), Dr Asghar joined the University of Bordeaux (France), as an associate professor (1968-1971).

He worked as a physicist, Institute Laue-Langevin, Grenoble, France (1971-1978); at CCR Euratom, Ispra, Italy (1978-1980); at CEN, Grenoble, France (1980-1981); and as a professor of Physics at Houari Boumedienne University in Algiers, Algeria (1981-1994). Since 1994, he has been at the Institute of Nuclear Sciences at Grenoble, France.

Of the responsibilities he undertook was the supervision and installation of experimental set-ups at the Laue-Langevin Institute (ILL), Grenoble, France, and the establishment of the research programme at the CEA, Algiers, Algeria.

As well as directing the thesis work of about 20 PhD students at the University of Bordeaux, Grenoble and Algiers, Dr Asghar authored about 200 research papers. He is internationally known for his work in the field of nuclear fission. For many years, he co-ordinated major experiments on nuclear fission at the high flux nuclear reactor in Grenoble (France) with the participation of several international groups.

Prof. Asghar’s specific fields of scientific interest are:

1. Low energy nuclear physics; production and study of radioactive nuclei along with radioactive secondary beams;
2. New and safer ways of producing nuclear energy and the treatment of nuclear waste produced by the existing power reactors; and
3. Development of new detection systems.

Areas of research:

1. Different aspects of nuclear fission;
2. Nuclear Energy: Critical and sub-critical hybrid nuclear reactors; and
3. Charged particles production with neutrons on stable and radioactive target.

<https://www.iasworld.org/prof-muhammad-asghar/>

PROF. DR. M. IQBAL CHOUDHARY FIAS
APPOINTED COORDINATOR GENERAL,
COMSTECH

The President of Pakistan, Chairman COMSTECH has appointed Prof. Dr. M. Iqbal Choudhary (H.I., S.I., T.I.) the Coordinator General of OIC Standing Committee on Scientific and Technological Cooperation (COMSTECH), the only OIC institution chaired by Pakistan (comstech.org).

The appointment is for a period of four years. He has joined the organization effective from April 10, 2020.

Prof. Dr. M. Iqbal Choudhary is a Distinguished National Meritorious Professor and Director at International Center for Chemical and Biological Sciences (H. E. J. Research Institute of Chemistry and Dr. Panjwani Center for Molecular Medicine and Drug Research). He is among the most prominent scientists of Pakistan, recognized for his original contributions in the fields of natural products and bioorganic chemistry. He has written and edited 76 books, most of which have been published in USA and Europe.

He is also the author of over 1,175 research papers and chapters in top international science journals of the West, as well as 40 US patents. This is by far the largest number of quality publications from any scientist in Pakistan. He has been among the most cited scientists of Pakistan in last five years with citations exceeding 27,407 (h-Index: 68). He has served as a visiting faculty in many prestigious universities of the world, including Cornell University (New York), Purdue University (Indiana), Pennsylvania State University (Pennsylvania), Scripps Institution of Oceanography (San Diego, California), The University Rhode Island (Rhode Island) and various top Universities of UK, China, Saudi Arabia, Malaysia, Kazakhstan, and Iran.

Prof. Choudhary has won several national and international awards, such as Hilal-e-Imtiaz, Sitara-e-Imtiaz and Tamgha-e-Imtiaz by the President of Pakistan, Pakistan Academy of Sciences Gold Medal, National Book Foundation Prize on best book and the Third World Academy of Sciences Young Scientist Prize. He received the prestigious title of "Distinguished National Professor" from the Higher Education Commission in 2004 and Meritorious Professor by the University of Karachi 2013. He is a member and fellow of many prestigious societies including Fellow of the Academy of Sciences for the Developing World, Islamic Academy of Sciences, Chemical Society of Pakistan, Royal Society of Chemistry (London) and LEAD-International. He is also the recipient of the 1st



Khawarizmi International Award and Prize from the President of Islamic Republic of Iran, Economic Cooperation Organization (ECO) Award in Education by the President of Azerbaijan, COMSTECH Award in Chemistry by the Prime Minister of Pakistan and more recently Chinese Academy of Sciences Distinguished Foreign Scientist Award.

PROF. MALIK MAAZA FIAS AWARDED THE
GALILEO GALILEI AWARD 2019



PROF. MALIK MAAZA FIAS (South Africa) was awarded the Galileo Galilei Award 2019 "for extensive contributions to the frontiers of interdisciplinary research that involved both theoretical and experimental developments in the fundamental aspects of femtosecond laser-matter interactions under comparatively difficult circumstances".

The award was presented to Prof. Maaza, who is the incumbent of the UNESCO-Unisa Africa Chair in Nanosciences and Nanotechnology at Unisa, for "his numerous original contributions in the field of nanophotonics and his training of postgraduates in the field Optics and Photonics in Africa as well as cementing Optics and Laser-based sciences in South Africa and the African continent under significantly unfavourable circumstances, compared to his colleagues from the Western countries".

The International Commission for Optics was created in 1947. It is an Affiliated Commission of the International Union of Pure and Applied Physics (IUPAP), and a Scientific Association of the International Council of Science (ISCU). Its objective is to contribute, on an international basis, to the progress and diffusion of knowledge in the fields of optics and photonics.



*Prof. Wejdan Abu Elhajja*¹



*Prof. Abed Al-Wabadni*²

In an effort to curb the spread of the COVID-19 pandemic, several governments around the world temporarily closed educational institutions. Such national closures affect more than eighty per cent of the student population worldwide. To overcome this, Universities find no solution but to teach remotely. Distance learning, provides opportunities in circumstances where conventional education has trouble functioning. This article provides a summary of e-learning / distance learning, including perspectives on on-line tests that may be useful to decision-makers.

Higher education institutions have many assignments on their priority list. E-learning is among them – unfortunately, it is not the highest priority on the list. This is especially true in applied science colleges, which focus on teaching and project work in small classrooms. Strategic steps should be pursued to improve this situation with the goal of promoting e-learning. The academic set-up must be evaluated and changed: after an initial evaluation of the learning target, the lecturers need to determine what learning material are going to be taught online, what learning material should be addressed in campus classes, what kinds of activities are expected, etc.

There is currently a mixed situation where on-site teaching is combined with online learning elements, but without any grand scheme or university-level plan: some professors use e-learning elements in their regular teaching, others do not. And the professors who use the elements of e-learning do so in very different ways. Using online videos may exemplify the situation: some lecturers make their own videos, and place them on the university's media server. Many lecturers make videos of their own, and put them on YouTube. Some lecturers have links to existing YouTube videos. A significant

number of lecturers do not use videos at all. The same applies to the use of didactic scenarios: some lecturers are experimenting with new set-ups like flipped classes, and other lecturers are simply continuing their conventional lectures.

The university should have a team of professional technology specialists who provide resources for e-learning to lecturers and academic partners. Many lecturers struggle with technology, and fear the extra effort that needs to be made before participating in e-learning. Weaknesses in e-learning can be found at public and private universities alike. Also technological problems such as the lack of access privileges, browser incompatibilities and/or confusing access procedures tend to scare students and teachers away.

University should propose a model to incorporate e-learning. The policy, the technological dimension, the didactics, financial and organizational dimensions and finally the socio-cultural dimension should be taken into account in this model. The e-learning strategy should describe why e-learning should be used, and with what goals.

Effective instructional design for e-learning projects is central to their success. E-learning can add value to conventional learning models, such as improved learning incentive, better access to learning resources, or enhanced cost-efficiency. On the one hand, e-learning programs are more likely to be successful if teachers believe they are given adequate time and get support for their work, too. So, the institutional strategy must understand that e-learning is a valid part of job efficiency, and ensure that it does not generate an unnecessary workload. Unfortunately this is not the case very often.

E-learning experts accept, when debating online examinations and assessments that examinations should never be taken at home because the opportunities for cheating and future legal problems are too daunting. Yet in two situations where you can take electronic tests at home: The first case takes the form of oral exams via a video link: there are only restricted opportunities for cheating in an oral examination and hence it does not make a significant difference if the test is taken online via a video link, rather than in a campus classroom. Besides,

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the video exam option could be even more useful because the entire video session can be saved and later re-played for verification purposes. The second case is written assessments that take the form of a small essay or other bits of free-text answers. Reason: An online test is carried out under strict time constraints, so it is very difficult to cheat in free text responses, even in a home setting. The teachers know their students well enough that they can guess whether the student, or anyone else, has written an essay or a project job.

E-learning per se is not a target. It is a path to an educational end. And you will consider the setup as a whole of the instructions. It's incredible to see how many teaching and learning processes are still being performed with very little added instructional value: for instance, some interactive online lessons are delivered without a specific learning goal and in a mechanical manner-the result is inefficient and quite boring. Also today, in large lecture halls, much repetitive factual material is still being taught on-site. Here it needs realistic approaches. Finally, whether you use on-site lecturing, a discussion board, multimedia videos, or anything else, it doesn't matter – as long as your students are able to meet the requisite learning goals in an efficient manner, you are doing the right thing.

University also often makes promotional videos which are then posted via YouTube. Such videos are generally correlated with low click rates, and thus their cost-effectiveness is poor. Whereas, some university lecturers, publish their lectures via YouTube. Very often these lecture videos get more relevant clicks and thus more important coverage. Assume, then, that publishing lecture videos is a far better way to promote a university than publishing promotional videos.

In that sense, one should consider participating in Massive Open Online Courses (MOOCs) to provide an in-depth overview of any e-course topic and to develop innovation from work with peers. The MOOCs are on-line courses for university and graduate students to provide education and training. The MOOCs are approved online courses. Not only does these courses take advantage of computer-based content (videos, graphics, and online tests), they also build a group and provide a new learning experience. They are outsourced by both non-governmental and non-profit sectors. It provides scientists with an excellent opportunity to carry out peer analysis and associate their experience with other scientists. Students can choose to learn at their own time or follow the course program with weekly lessons and receive feedback on learning and will have the opportunity to repeat a lesson before they master it. MOOCs are expanding to include courses on and off campuses because some institutions take advantage of

this new learning method and include MOOCs in their curricula, replacing traditional courses.

Online education gives both students and teachers a win / win scenario. This has helped to increase the quality of the internet knowledge and is a way to promote and place other organizations around the world. The results of this education model are still scary, but those who embrace it will benefit a great deal.

PRINCESS SUMAYA UNIVERSITY FOR TECHNOLOGY'S EXPERIENCE WITH "DISTANCE LEARNING" IN RESPONSE TO COVID-19



Prof. Mashboor Al-Refai
President of Princess Sumaya University for Technology

We are still living in exceptional circumstances that pervade our world, which is struggling and watching with a suspicious eye, the outcome of the open battle with the COVID-19 pandemic which has imposed its agenda on the course of events and every aspect of our lives.

Here at PSUT, our viewpoint is to continue to see every challenge as an opportunity to build, work and accomplish. In this way, we have been able to overcome the severe circumstances; we have trained faculty and students to build plans for the future, not based on what is easily available, but to assume that we will meet obstacles, some of which may be unforeseeable. The road to success is not always paved and smooth.

The wheels of university production have not stopped, but have rather continued to spin at an accelerated pace, and the teaching line has not stood idle for a moment. For this we are extremely proud. We belong to the future in all its dimensions and spaces, and we see in every ordeal an opportunity, if it is dealt with in an innovative way.

Since the first indications of the pandemic, under the guidance of HRH Princess Sumaya bint El Hassan, Chair of PSUT's Board of Trustees, we recognized that events

would impose themselves on our reality, and would change the methodology and way in which we work. For this reason, the university immediately took it upon itself to be the first, as it so often does, and got involved in preparing its distance education platform. It also prepared its faculty and students, letting them know that the course of work has changed, and we have to be up to the challenge, with the result that distance education very quickly began to run on a smooth course.

Regarding the number of courses in which e-learning was used, the King Hussein School of Computing Sciences had 104, the King Abdullah II School of Engineering had 135, and the King Talal School of Business Technology had 217. The participation rate exceeded 95% of the students. The important thing is that the reaction was widespread, growing, and comfortable, which gave the process a new dynamic that will serve our future.

The university did not stop there. Rather, it responded to the initiative of His Royal Highness, Prince El Hassan bin Talal, Chairman of the Higher Council for Science and Technology, for university e-learning: (Teach Yourself), and began broadcasting its lectures in all academic courses to the entire student body of Jordanian public and private universities, and to the world in general.

From the outset, we viewed distance education as a strategic juncture, and as a framework-able and institutionalized initiative. It was clear that this form of teaching would become an essential part of the future university education system, which places Jordan on the road to realizing the implementation of online education.

Seeing that the success achieved can be used as a foundation for further successes, the university has drawn up plans aimed at adopting the teaching of some distance courses on a permanent basis, as the experience was rich and inspiring.

We are a technology university that has mustered all of its capabilities to overcome the difficulties it faces. Following the same track, the laboratory sessions were taught by default in a successful way, after adopting online programs that are compatible with the nature of the work of these laboratories, taking into account their technical content, with close follow-up from the course instructor and laboratory supervisors.

The major dilemma faced by the majority of those charged with teaching remotely is how to conduct successful examinations which are capable of measuring the level of knowledge and skills acquired by students.

Our experience has been mature in this regard, thanks to careful planning and preparation. Exams were adopted that were able to measure the knowledge and skills, and they were monitored in a disciplined manner. The students were divided into groups of no more than 20, with an observer for each group, and cameras and microphones were used as additional support tools for monitoring. The pleasing thing is that we did not find a difference between students' results in these online tests and their results in the classroom tests that they took previously.

All of these factors left us with a positive perspective on benefitting from the agreements concluded with international universities on the matter of e-learning, the optimal use of available information and data, encouraging scientific research, archiving all course lectures, providing technical support to teachers and students, and cooperating with local and international institutions to find creative solutions when we are challenged. We are therefore encouraged to integrate the effective systems in the field of online testing, establish a national center for e-learning, and consider the adoption of blended learning, combining classroom and online teaching.

THE IAS SIGNS AN AGREEMENT WITH KAWAR ENERGY CO. TO INSTALL PHOTOVOLTAIC CELLS

The IAS Director General signed a Solar Energy agreement with Kawar Energy Co. to install Solar Panels on the rooftop of the IAS building to generate electricity to cut on the energy costs. Work will commence in September and is expected to be operating by October.



COVID & HIGHER EDUCATION: AN OPTIMISTIC FUTURE PERSPECTIVE



Hina Jaffery

Ph.D. Candidate, National College of Business & Administration

Lecturer, The University of Lahore, Pakistan

The COVID pandemic has undoubtedly hit the world with vengeance by shattering every sector across the globe, including the Higher Education. This sudden transition within the higher education dynamics, has given an impetus to a new paradigm shift. For some academicians, this era may be recorded as the worst of all, while others believe it to be a blessing in disguise. The Muslim countries and their Higher Education Commissions have left no stone unturned and deserve commendation for providing online classes, training workshops and seminars to the key players of this sector. This has strengthened the teacher-student nexus and bolstered quality education in the Muslim nations.

Seen from the lens of optimism, the COVID pandemic has reinforced the culture of information technology and globalization in the education sector. Transition of classes from the traditional to online set-up, have introduced a new perspective of distant learning. This connection between the academic practitioners and students has been for the greater good of the society, as it has nurtured both stakeholders to become tech savvy and henceforth, competitive with the future digital world.

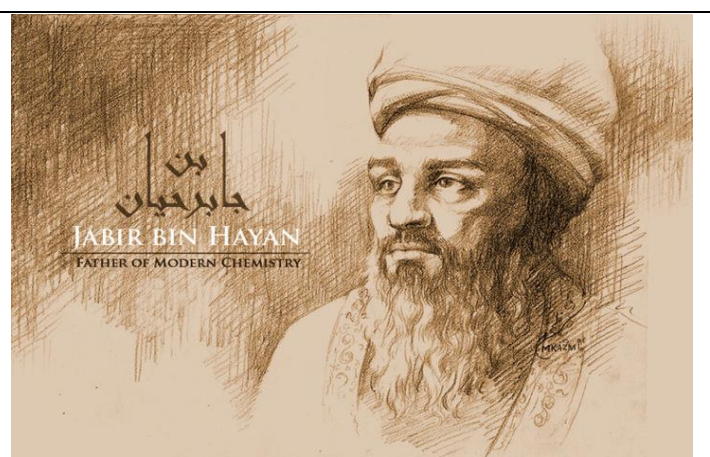
The Higher Education Commissions of the Muslim world adopted effective measures to maintain the continuous flow of education, thereby, creating an education-friendly environment. The online platform provides easy accessibility to masses, thus, should be continued even after the pandemic ends, to increase the literacy rate. These online mechanisms can be used to expand the boundaries of education, particularly in the rural and remote areas of Muslim countries, where there is deprivation of infrastructure, resources and reluctance of qualified teachers to stay posted in the area.

The COVID pandemic has served as a stepping stone towards ushering the concept of virtual affiliations. It is high time we realize the need of the hour and affiliate

with foreign universities to provide students with the opportunity to earn foreign degrees through an online forum. These opportunities will attract a larger number of students who were previously deprived of exchange programs and foreign education due to lack of financial resources. Moreover, this will propel the local degree programs to elevate their teaching standards and improve their curriculum to meet the high caliber of international education. This step if taken, will drag the developing Muslim countries out of the abyss and turn there dark days into brighter ones by achieving educational excellence.

The 21st century has witnessed Muslim women playing an active role in different working spheres, particularly the education sector. However, in most instances they have to sacrifice their careers due to family priorities and maternity issues. The COVID pandemic has shown us an alternate arrangement of teaching-from-home in which women can fulfil both their duties as a homemaker as well as a professional. In addition, work-from-home culture, if implemented, will increase the number of employed members within the country, which will have a macro-level impact on the country's GDP as well.

The Muslim World should try to emulate the lessons learned from the pandemic in order to compete with the challenges of the rapidly changing global culture, since the COVID crisis has bred opportunities for us. These adaptations will prove as a game-changer for the Muslim Society and will help in overcoming the hurdles in the way of prosperity of the Ummah.



Abū Mūsā Jabir ibn Hayyān, is the author of an enormous number and variety of works in Arabic often called the Jabirian corpus. The scope of the corpus is vast and diverse covering a wide range of topics, including alchemy, cosmology, numerology, astrology, medicine, magic, mysticism and philosophy. Born: 721 AD, Tons, Iran. Died: 813 AD, Kufa, Iraq. Nationality: Abbasid, Umayyad

RESPONSES TO THE COVID-19 BY HIGHER EDUCATION INSTITUTES: A CASE STUDY OF KARAKORAM INTERNATIONAL UNIVERSITY (KIU) GILGIT-BALTISTAN, PAKISTAN

*Prof. Dr. Attaullah Shah
Vice Chancellor, KU Gilgit Baltistan*

Background of the Karakoram International University (KIU) Gilgit Baltistan (GB)

Gilgit Baltistan has a distinction of being the converging point of three of the mightiest mountain ranges in the world, namely: Himalaya, Karakoram and Hindu Kush. These ranges have many of the world's highest peaks and the world's largest concentration of glaciers outside the Polar Region, also called “**Third Pole**”. In the Karakorams alone 30 peaks soar over 24,000 feet (7,500 m) and culminate in the 28,250 feet (8,612 m) high K2, second only to Mt. Everest in elevation. Sheer rock walls and ravines, plunging thousands of vertical feet down to the rivers flowing below, mark the unique panorama. These lofty mountains and valleys boast a spectrum of wildlife such as the snow leopard, brown bear, Marco Polo sheep, Himalayan ibex, Astor markhor, golden marmot, woolly flying squirrel and other species, some of which are rare or endangered. Substantial deposits of various minerals and semi-precious stones add to the natural wealth of the region. Glacier and snow melts are the source of fresh water in this arid region. Water flows into the valleys in the form of nullahs (streams) and makes human existence possible.



Panoramic View of Lakes and Landscape of Gilgit Baltistan Pakistan

KIU was established in 2002 in Gilgit by a charter from the Federal Government on the orders of General Pervez Musharraf, the then President of Islamic Republic of Pakistan. The main campus is situated against a dramatic backdrop of steep mountains at the confluence of the Gilgit and Hunza rivers. The main Campus at Gilgit and sub campuses at Hunza, Ghizer and Chilas provide education and research opportunities to more than 6000 students, under four faculties of Life

Sciences, Natural Sciences & Engineering, Social Sciences and Arts & Humanities.



Aerial view of the KIU Main Campus Gilgit

The severe winter season starts in the early January and continues till the end of February. The spring semester, hence starts in the first week of March and continues till the end of June. Summer is the most enjoyable part of the year at GB and KIU. The COVID-19, triggered in Pakistan, at the time when, the Campus was just opened for the Spring 2020, semester, but it was closed in consultation with the Provincial Government and Federal Government/Higher Education Commission initially towards the end of March 2020 but later extended for indefinite period. At KIU, we have developed three prong strategy, firstly saving the health of every one at the main campus sub campuses, continuing with teaching and learning and Financial survival of the HEIs/KIU.

Safety First at the Campus(es)

The health crisis due to pandemic COVID-19, is unprecedented in terms of number of infections and casualties. The top agenda for all Higher Education Institutes (HEIs), is thus to provide safety against infection of COVID-19. HEC has provided clear policy guidelines. At KIU, we constituted a broad based Safety committee with Dr. Tasawwar Baig Associate Professor and Chair International Relations Department, as its lead. The committee worked meticulously and collaborated closely with the GB government, local administration and Higher Education Commission (HEC), to develop the safety protocols, movement plans and NoC for the staff, creating awareness about the preventive measures in students, faculty and staff. This improved the safety and security culture at KIU. In general, the level of lock down and preventive measures, at GB were initially witnessed as better than rest of the country. The number of infections were relatively with more recovered cases (65%), as a result but during the

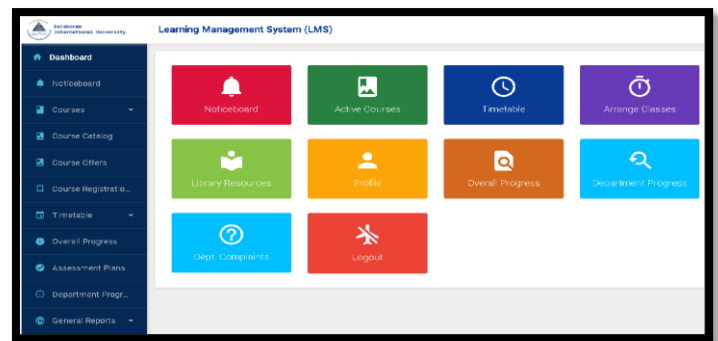
Eid holidays, the relaxation in the lock down and resulting close physical interactions in the people led to sharp increase in the number of infections and casualties. At HEIs, no relaxation in the SoPs, physical distancing can be afforded to save the lives of everyone at the Campus. At KIU we are resolved to make a safety based culture, in which everyone at the campus is provided with better awareness and guidance about the healthcare and prevention against the COVID-19.

Continuity of the Semester and Saving the Academic Year of Students

Initially when the HEIs were closed in early March 2020, there was a common understanding that Universities will be opened soon probably at the end of April, 2020 and the Government will be able to control the pandemic. However, the unprecedented sprawl of the COVID-19, across the world and in Pakistan, forced the HEC and Federal Education department to extend this closure initially to end of June, later 15 July and now up to September, 2020. This uncertainty is growing further due to growing number of infections and casualties in Pakistan, where the pandemic has now entered the most critical stage.

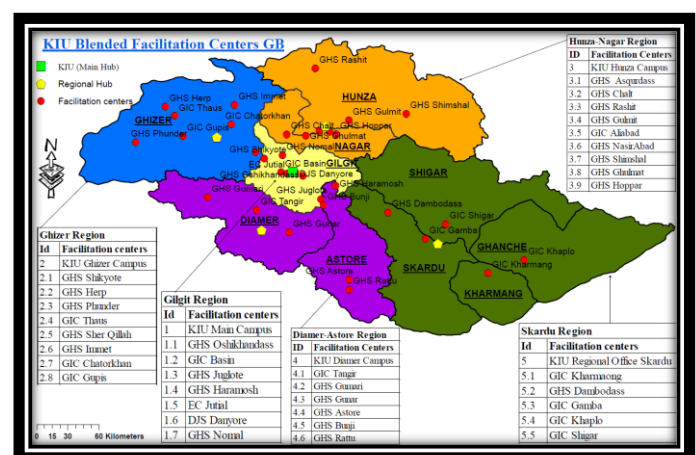
There is general apprehension that the HEIs may not be opened before the spring semester 2021, which means March 2021 for KIU. The biggest challenge for the mountain universities was their inability to start the spring 2020 semester initially due to severe winter and later due to COVID-19 in March, 2020. During the lock down period, we have been closely working to develop the KIU Learning Management System (KLMS) for at least the months of March and April, 2020. The series of iterations and collaboration with the faculty led to refinement and crystallization of the LMS, which progressively transformed to a robust platform, for uploading, sharing, teaching and assessment of students at KIU. Initially the faculty was advised to upload and teach one course on the LMS, on trial basis till end of May, 2020. Later due to extension in the closure period of Universities, the formal online and blended learning classes have been started from June 2020.

The HEC policy for Online Readiness and approval of the process by Online Academic Council (OAC), provided, timely guiding principles to introduce online/blended education in the HEIs of Pakistan. This readiness was divided into two major components viz. a viz. System Readiness and Course/Program readiness. The system readiness mainly demands to deploy a well-placed governance system for development, review and approval of the courses and contents with the main role of OAC.



Snapshot of KIU Learning Management System (KLMS)

During the trial period of LMS, it was observed that the speed and connectivity of internet at GB has not been reliable for pure online education, hence the concept of blended learning model has been coined. Under this model, six main hubs and 35 facilitation centers across GB are being established with the support of Education department GB, Aga Khan Education Services and other stakeholders. The main hubs at KIU Main Campus and Sub Campuses at Hunza, Ghizer and Chilas as well as KIU Coordination office Skardu, will collect the soft teaching, learning and assessment material from various teaching departments and provide these to various small hubs across the particular region, in possible manner. Student volunteers have already been approached from different parts of the GB to provide their support to the success of the system. The KIU Blended Education Policy has been approved by the Online Academic Council (OAC) and implemented under the guidelines of the Higher Education Commission. The demographic distribution of the Blended Learning Facilitation Centers (BLFC) are given in Figure below.



Map of the Main Hub and Blended Learning Facilitation Centre of KIU across GB

During fortnightly review of the blended learning on July 03, 2020, it has been revealed that about 60-70% students are availing the online education facilities with varying quality and satisfaction levels. This indeed is a great achievement as with the challenges of scattered mountainous geography, limited connectivity and speed

of internet, this seems a reasonable progress. The students' connectivity will improve further, with the strengthening of the internet facilities by the Internet Service Provider (ISP), Special Communication Origination (SCO). The facilitation centers across the GB will also provide the teaching, learning and assessment material to the remote areas where the reliable speed and connectivity of internet is not possible.

Saving University from Financial Miseries

Though KIU is a public sector University, yet it receives only 40% of the total expenditures as grant from the Federal Government through HEC. The University has to generate about 30% from tuition revenue, 20% from the External Exams and 10% from other resources. In this context, KIU was supposed to collect about 30% of the total revenue during the March-June, 2020. However, this remained an uphill challenge in the wake of COVID-19 as majority of the population belong to lower income group and their income is mainly based on the Tourism, small businesses and agricultural activities. The continuous lock down of these sectors for last almost 4 months now, has seriously crippled the businesses and livelihood of the majority of the region. KIU has planned a flexible fee payment schedule, where students are advised to pay their dues in three monthly installments. A rebate of 15% of total fee has been given to all students. Online payment facility has been provided across the GB to facilitate students. At the other hand, stringent austerity measures have introduced at University to cut down non salary expenses by 30-40%. A contingency plan has been developed to ensure that no financial upset in terms of payment of salaries and other essential needs of University are met. The Financial year 2019-20 finished on June 30, 2020 and KIU managed to pay its liabilities. The COVID-19 and its challenges to higher education institutes will continue for many month and years, hence there is a need for integrated approach for dealing with the threats of the new Normal and exploiting its opportunities.

Ana Botín, Executive chairman, Santander rightly quoted "One of the critical things in this crisis we've been trying to get across... is that we have to throw away the rule book. We've never seen this kind of crisis in our lives."



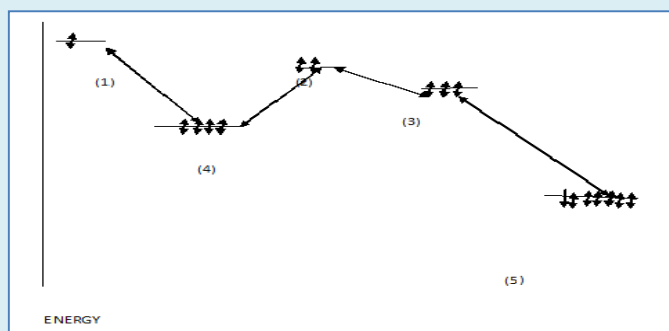
A NOTE ABOUT THE STRENGTH WEAKENING OR "FAINTING" OF COVID-19 VIRUS

Prof. Muthana Shanshal, Baghdad University (FLAS)
Rahma M. Shanshal (MBCHB, Baghdad)

Recently prominent European medical virologists [1,2] declared that Covid-19 virus is losing its activity and is about to faint in a coming noticeable period. Their predictions were based on the analysis of infection and mortal cases data in the European counties.

It is remarkable to note that the findings of both virologic-medicinal groups might be easily understood on the basis of a straightforward quantum molecular dynamic consideration.

Covid-19 is a molecular aggregate composed mainly of nucleosides and polypeptide segments with different 3-dimenaional space orientations. The total energy of this aggregate may be described in terms of a force-field relation as follows ; $E = \sum_i q_i f_i$; q_i are coordinates and f_i are forces of the atoms or molecular segments .



With time the global energy of Covid-19 changes due to nucleic acid replications, hydrogen bridges isomerizations, stereochemical reorientations of the polypeptides...etc.

These global energy changes compel quantized energy states in a manner as shown in the scheme above. The total entity of the virus (ensamble) gets distributed then among the various existing quantized energy levels in a (Boltzman) distribution manner. Accordingly virus species with lower energies occupy the energetically lower levels, those with higher energies proceed to the levels of higher energies.

The result of the redistribution process is the increased enrichment of the low energy (timid) virus species in the levels of lowest energy. These of course are of minor activity due to their (force field) thermodynamic properties. They are thermodynamically more stable. The low energy levels act as converters of high energy virus to low energy virus and thus lead to the diminished activity of the Covid-19.

The question whether the virus species faint with time remains open however, since this depends on various environmental conditions.

[1] Guiseppe Remuzzi, Drug Research Institute, Milano, Italy. [2] Rault Didier, Marsiele University, France.

The Late Prof. Mohammad Hamdan FIAS (Jordan)



It is with a sense of sadness and sorrow that the President and the Director General of the Islamic World Academy of Sciences (IAS) in Amman, Jordan, announce the passing away of the eminent Jordanian scientist: Prof. Mohammad Hamdan.

Prof. Hamdan received his BSc in Mathematics from Cairo University in 1957, and his PhD in Mathematical Statistics from Sydney University in

1963.

He was appointed Senator at the Upper House of Parliament in Jordan in December 2007 by Royal Decree. He served as Minister of Higher Education and Scientific Research in Jordan for three terms, and as Secretary General of The Higher Council for Science and Technology from September 1998 – July 1999.

He joined the Arab Open University as Rector and Founding Member from 1999 – 2001 and as Senior Advisor from October 2001 – August 2002. He had to leave the University to serve as Minister of Higher Education and Scientific Research from September 2002 – November 2003, but immediately after his term ended, he was re-appointed Senior Advisor of the Arab Open University. He was also a Senator at the Upper House of Parliament in Jordan, Vice President of Jordan Academy of Arabic Language, and Vice President of The World Academy of Sciences/ Arab Region (TWAS), and President of the Union of Arab Statisticians. He was also President of two public universities in Jordan: the Yarmouk University and the Hashemite University.

Earlier in his career, he held several posts at the University of Jordan including Professor of Mathematics, Dean of Faculty of Science, Dean of Scientific Research and Dean of Student Affairs.

At the academic level outside Jordan, Professor Hamdan served as Faculty Member (Assistant Professor, Associate Professor, and Professor) at the American University of Beirut/Beirut (1965 – 1976), and as Visiting Professor of Mathematics at the American University of Cairo/Egypt, the Virginia Polytechnic Institute and State University/USA, and Riyadh University/Saudi Arabia.

In terms of academic research, Professor Hamdan was a Member of the Editorial Board of several research journals. He supervised several PhD dissertations and MSc theses throughout his career, and was keynote speaker in numerous scientific conferences; and national and international consultations in the areas of Mathematics, Mathematical Statistics, Education and Higher Education. He was also member of several academic and cultural institutions, including the Arab Thought Forum. He published numerous papers in the area of Mathematical Statistics.

Prof. Hamdan was an elected Fellow of the Islamic World Academy of Sciences (1990), and a former Council Member (1994-1999).

The Late Prof. Subhi Qasem FIAS (Jordan)



It is with a sense of sadness and sorrow that the President and the Director General of the Islamic World Academy of Sciences (IAS) in Amman, Jordan, announce the passing away of the eminent Jordanian scientist: Prof. Subhi Qasem.

Prof. Subhi Qasem was a former Minister of Agriculture in the government of Jordan (1991). An IAS Fellow since 1988, Prof. Qasem was previously a professor of agriculture at the University of Jordan.

Prof. Qasem studied at Kansas State University and graduated from the University of Minnesota, St Paul, Minneapolis, with a PhD in Plant Pathology and Plant Breeding in August 1959. He worked with the Ministry of Agriculture for 5 years before joining the University of Jordan, Amman, Jordan.

Prof. Qasem occupied various academic and administrative posts at the University of Jordan, the last of which was the deanship of the Faculty of Graduate Studies in 1986. He is accredited with being the founding dean of the Faculties of Sciences, Agriculture and Graduate Studies.

In 1992, Prof. Qasem established himself as a full-time consultant working in the area of S&T education and R&D as well as agricultural policy and the environment. He has numerous publications to his credit covering the above aspects including a number of mission reports commissioned by UNESCO, FAO, UNDP, the World Bank, UNEP, ALECSO, IDRC, USAID as well as the IAS.

Prof. Qasem's outstanding services to science in the Third World and Jordan, have been recognised culminating in the Medal of the Kawkab (Star) Award and the Istiklal (Independence) Medal, both of Jordan, which were bestowed upon Prof. Qasem by the late King Hussein of Jordan.

Dr. Qasem's most recent research focused on Quality Issues of Arab Educational System: Option and Solutions.



Prof. Hamdan and Prof. Qasem will be greatly missed by their colleagues and fellow scientists in Jordan and the Islamic World. "Ina Lillab Wa Ina Ilaibi Raj'oon." LAS President, Fellows and staff offer their heartfelt condolences to their families and friends throughout the world.

NEW HEADQUARTERS OF THE ISLAMIC WORLD ACADEMY OF SCIENCES



In 2016, the IAS received a generous grant from the Arab Fund for Economic and Social Development (AFESD) for its 'Waqf'. The said contribution was primarily earmarked for the construction of the IAS permanent headquarters in Amman. Construction work on the permanent headquarters of the IAS commenced fully in May 2017 and with the help of generous donations from Fellows and other institutes. The IAS moved into its permanent headquarters in West Amman in October 2019. The building has a large auditorium (Petra Conference Hall) that fits around 200 people and is equipped with cameras, screens and a sound system. It also has three training halls, each has a large TV screen that can be used to display presentations or hold online meetings and can accommodate up to 25 participants.



Front View of Building



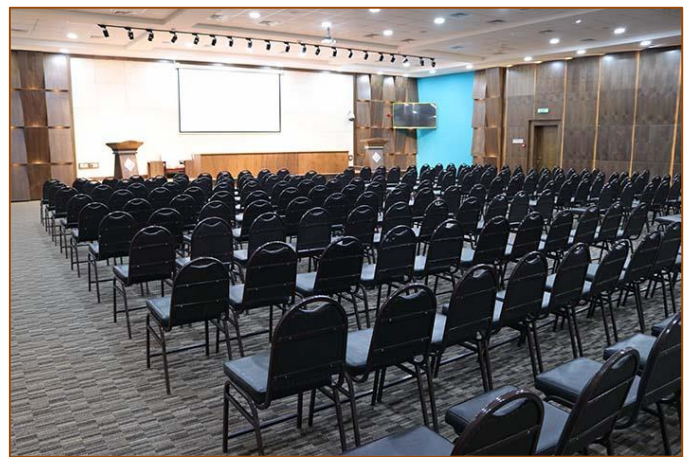
Main Entrance of Building



Side View of Building



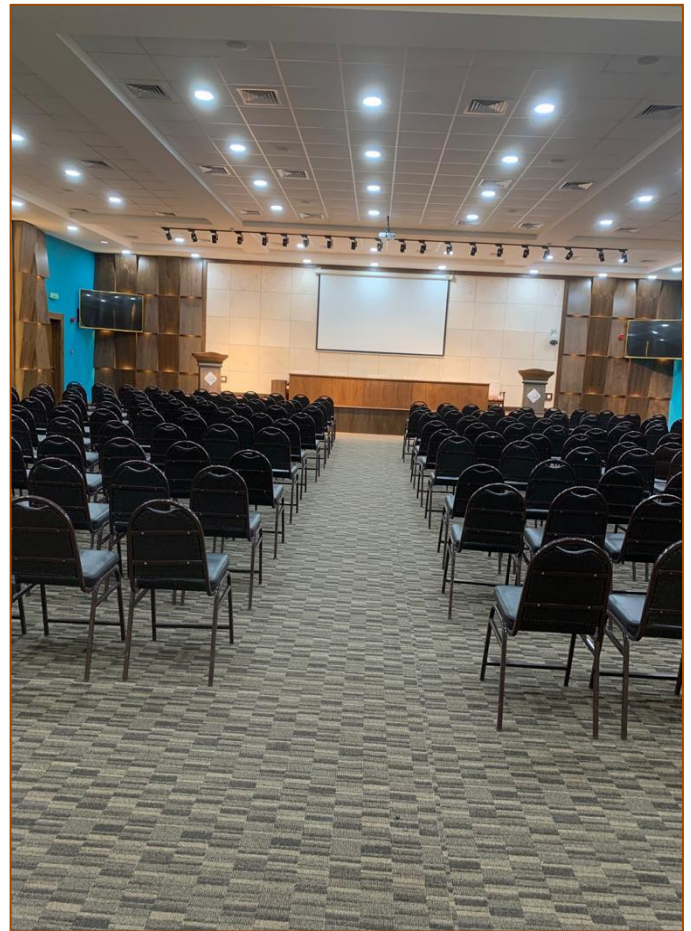
Lobby



Petra Auditorium



Contributors to Building the Academy (IAS-HQ)



Petra Auditorium



Shields and Publications of the Academy



Meeting Room



Saleh Kamel Symposium Hall



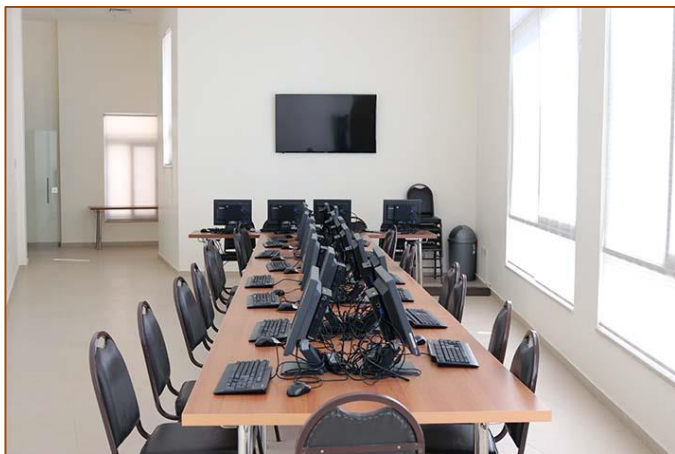
Samih Darwazeh Hall



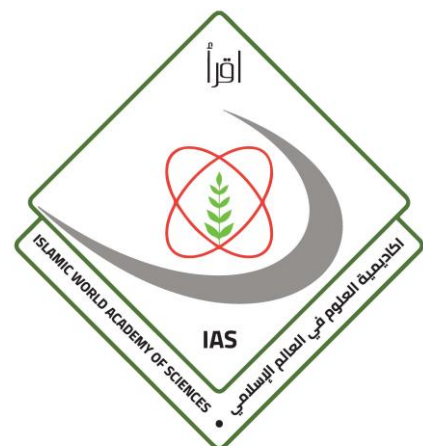
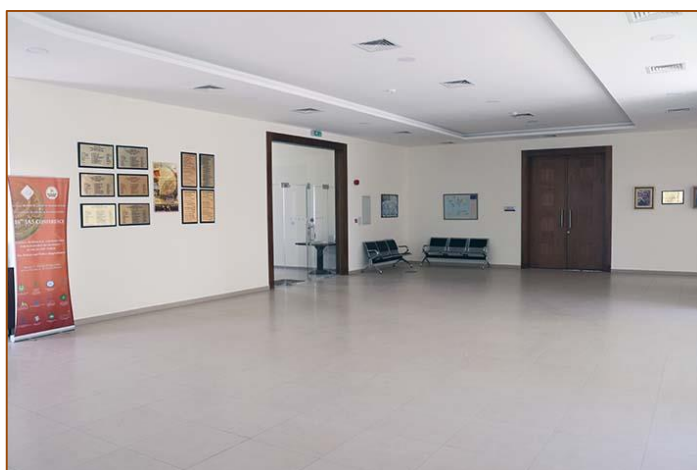
Lobby



Terrace



KFAS Training Hall



HOW UNIVERSITY OF PETRA MANAGED TEACHING AND RESEARCH DURING THE LOCKDOWN CAUSED BY COVID-19 PANDEMIC.



*Dr. Ahmed El-Qasem
University of Petra
Amman, Jordan*

Despite the ambiguity of many aspects of COVID-19 pandemic, Jordan has dealt early with this risk in an attempt to mitigate its impact on society and the economy which provided an opportunity for various sectors, including the higher education sector, to better manage their operations in a safe manner and with minimal possible damage while complying with the directions and instructions of the government.

COVID-19 pandemic directly affected all activities around the world. The higher education sector is not an exception. This pandemic has had immediate impacts on learning continuity and scientific research. University of Petra (UOP) has taken a strategic direction towards blended learning since 2014 and established the E-Learning Center for this purpose in an effort to effectively integrating technology and learning and preparing a smooth transition to the virtual and distance teaching phase which greatly benefited it during the lockdown period. It also took advantage of the learning management systems (LMS), resources, and technological infrastructure that have been in use for more than 10 years to ensure that the educational process continues in an effective manner. In addition, UOP academic staff received appropriate training and professional development resources before and during that period to developing their skills to teach and support students remotely.

From the early beginning, and without a clear idea of how long the pandemic will last, UOP effectively responded to manage all activities related to teaching and research, such as imposing strict health measures, adjusting academic calendars, the guarantee of continuity of teaching activities through distance education (online) and providing more technological resources, adopting effective formal communication as well as providing support to employees, such as paying them salaries on time and without any deductions online training courses. Further, many committees were assigned to support

administrative processes; e.g. distance learning committee, public safety committee...etc.

Although the cessation of face-to-face activities has been a major disrupt of teaching and researchers find it difficult for their data collection, and to proceed their research in their labs in UOP, the university was able, in a short period, to resume all academic activities through virtual modalities, e.g.; classes, student assessments, MSc viva examinations, labs (for the theoretical parts, while postponing the practical parts for the first semester) and discussions of graduation projects. In addition, and for the critical in-lab research activities, UOP issued permissions from the local authority for researchers to allow them to continue their research in accordance with the safety regulations.

To evaluate the distance learning process, a questionnaire was developed, verified, and disseminates among faculty staff and students. A high satisfaction rate was reported that demonstrated the existence of comprehensive and adequate e-material and its ease of access, along with the availability of appropriate technical assistance to facilitate the use of technological means.

Today, as Jordan recovers from the pandemic, the university has begun preparing for the resumption of face-to-face classes and other academic activities in a manner that ensures high levels of safety, keeping "the Blended Learning" as strategic direction in effect.



THE ISLAMIA UNIVERSITY OF BAHAWALPUR EMERGES AS A LEADING UNIVERSITY IN SOCIAL RESPONSIBILITY DURING COVID-19 CRISIS

Shahzad Ahmed Khalid
Director Media, Press and Publications
The Islamia University of Bahawalpur

The Islamia University of Bahawalpur emerged as a leading university to stand with the nation in the hard times of International crises. The University immediately handed over six girls hostels located at Baghdad ul Jadeed Campus and two in sub-campuses in Bahawalnagr and Rahim Yar Khan for Quarantine facilities on the request of the Punjab Government through District Administrations. As many as 1450 corona patients can be accommodated in these hostels. Keeping in view the precious time of around 26,000 on campus practicing social distancing at their homes, it was decided to engage them in productive manner, fast paced steps were taken to establish an Information



Communication Technology blended distance education platform. The Pharmacy Department having laboratory facilities available having willing faculty members and students of IUB Science Society started preparing WHO Standard bottled hand sanitizers. On urgent basis these sanitizers were provided to on-duty Security and Estate Care Staff. The volunteer students moved to Bahawal Victoria Hospital and handed over these sanitizers to on-duty doctors. They also distributed these sanitizers to Police Constables performing duties in the city areas. Recently, these sanitizers were dispatched to Lodhran Police, DHQ Lodhran, THQ Yazman and Radio Pakistan and on-duty FM Radio staff.

Faculty members and students of University College of Engineering and Technology are working on a low cost ventilator, a prototype has been prepared.



IUB employees have contributed more than Rs 7.0 Million in Chief Minister Punjab's Corona Relief Fund. The University College of Veterinary and Animal Sciences carrying a consultancy campaign for thousands of livestock owners both in rural areas and Cholistan region where millions of livestock is present and they direly need medical advisory to look after their animals. The University College of Conventional Medicine has also started tele-medicine service for public who are unable to approach medical service due to lockdown. They are entertaining both male and female patients separately.



The University College of Agriculture and Environmental Sciences is also launching awareness campaign for farmers who are harvesting Wheat Crop, Cotton sowing and providing proper training to keep themselves safe in the fields. Kitchen gardening and crops advisory services are also being provided to local farmers. Research publications are into COVID19 early diagnosis and treatment methods are being contributed by researchers at IUB. Research projects submitted by faculty members in Biotechnology for research into prevention and cure of virus caused diseases. The Estate Care Department of the University is washing Campus roads, academic and residential blocks as well as mosques and campus entry points with Chlorine mixed water on daily basis.

LGU DIGITAL TRANSFORMATION PROMPT RESPONSE AND GOOD TIDINGS WITH FAR REACHING FUTURE IMPLICATIONS

Samreen Hamid, Assistant Professor, LGU
Brig. (R) Mahmud Bashir Bajwa, Registrar LGU
Dr. Arif Jawaid, Director Academics*

Lahore Garrison University (LGU) was high alert upon receiving the COVID 19 guidelines from HEC on 13th March 2020. A series of meetings were held, and we were ready with our action plan on 14th March 2020. We began our online classes without any delay from 15th March 2020. Yes, you have read it correct in just two days our action plan was executed and we began our online teaching and learning on 15th March 2020. Complete online courses in standardized form as per approved SOP began on 20th March 2020 with strict online monitoring using various tools. First of all a plan of online readiness was prepared and approved by respected Vice Chancellor, Maj Gen Obaid Bin Zakria (Retired) HI(M); the transition was so quick but smooth that all students were reached out and informed about their point of class contact at Google classroom involving all faculty and relevant staff.

This action plan was well checked out and began with formalizing the structure and approach towards online learning. LGU being one of the innovative universities across Pakistan, started its Moodle LMS long ago and it was ready to launch its operations for online Learning and Assessment (the most critical part).

LGU'S 5 Steps Action Plan During COVID-19

To sum up, in the light of the COVID-19 pandemic, Lahore Garrison University (LGU) has realigned its course delivery by adopting online classroom approach. LGU's very own approach emphasizes on 5 steps towards a comprehensive and successful online Teaching and Learning. These steps encompass Phase 1 and Phase 2. Currently LGU is in Phase 1 of its implementation program. The steps are:

a. Training on Awareness, Mind-Set and Skills.

Training the lecturers is crucial before any implementation program. It is done to create awareness of the current needs, change their mind-sets and enhance their IT skills.

b. Design Appropriate Model.

In teaching online, LGU has ensured that all the lecturers check with their students on their ability to get



connected before choosing the best online teaching option. The students were reached out either personally or with the help of some class representatives. Three modes were focused on Asynchronous, Synchronous and Offline to reach the students.

c. Implementation.

Three crucial considerations were needed in the implementation such as:

- i. Delivering the Teaching.
- ii. Conducting Live Activities.
- iii. Formative Assessment.

d. Continuous Monitoring.

Monitoring is done continuously on a 24/7 made by the Vice Chancellor, Academic Director and his team by joining in the live classes which have been conducted on daily basis. Regular monitoring has been carried out by conducting meetings via zoom and asking daily class reports from the Deans, HODs and Faculty Members.

e. Advance to Phase 2.

There are two Phases of this approach. Phase 1 is the current approach and Phase 2 is the future approach. This phase further explores and expands the online teaching and learning tools after the initial adaptation period. More online tools will be introduced by LGU as mentioned above.

University readiness as an important aspect to respond in COVID situation we discussed, the governance structure and policies we adopted and developed in couple of days for digital transformation. Online Academic council was established a little later, meanwhile a committee comprising all the Deans, Director Academics, Registrar and Vice chancellor were discussing all the matters online. Here is the flow of processes followed by LGU in its digital transformation journey:

1. Adoption of a Policy for approval of courses that could be delivered online

LGU instructed all Deans on the very 14th March to perform all necessary actions for adoption of policy for approval of courses that could be delivered online. A

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certificate from all the Deans for online readiness of courses was received and online courses were launched online. Departmental Board of Studies (DBS) meetings were immediately held to approve and discuss the structure of online course and their subsequent delivery online. The challenges were discussed and the Deans of respective four faculties, Computer Sciences, Basic Sciences, Languages and Social Sciences came up with their certificates of online readiness followed by quick training of teachers online.

2. Formal Adoption of Standard Operating Procedures (SOPs) for the Approval of the Courses for Online Delivery

LGU promotes superior online teaching and certifies compliance with HEC requirements. This policy establishes the review and approval process for online courses and programs.

- a. Online Course. “Online Course” means a course section in which a majority (more than 50 percent) of the instruction occurs when the student(s) and instructor(s) are not at the same place and the instruction is electronically delivered.
- b. Online Degree or Certificate Program. “Online Degree or Certificate Program” means a program in which a student may complete a majority (more than 50 percent) of the credit hours required for the program through online courses.

2.1 Procedure for Approving Online Courses

- a. The Head of Department (HOD) is responsible for the review and approval of online courses and for maintaining an inventory of courses approved for online delivery.
- b. Courses proposed for online delivery must be available in ERP and uploaded on Moodle LMS of LGU.
- c. A faculty member in consultation with his/her HOD must receive provisional approval by the DBS (Departmental Board of Studies) and FBS (Faculty Board of Studies) prior to listing any online course in the Schedule of classes.
- d. A faculty member in consultation with HOD, must receive final approval through Dean by the OAC before any online course is opened for registration. Final approval requires the completion of a successful quality review by DBS and FBS that shall ensure that the course meets online instructional design standards, in accordance with the HEC guidelines and University approved curriculum.
- e. After approval, the respective Dean and HOD ensures that online courses are reviewed for instructional design quality on a 3-year cycle.
- f. For Spring Semester 2020, special provision for approval of courses during the semester is allowed as one time activity. Where formal online DBS and

FBS approvals shall be presented at OAC for authorization of an online course delivery by Departments. HOD through Dean shall make necessary arrangements.

- g. The Deans must submit a certificate of all requirements completed and course is uploaded on Moodle as per SOS template approved and submitted the same to Director Academics at the beginning of each semester for meeting all requirements of online course delivery at LGU.

3. University Notification of a Governing System (e.g. An "Online Academic Council" OAC) Responsible for Approving Online Courses).

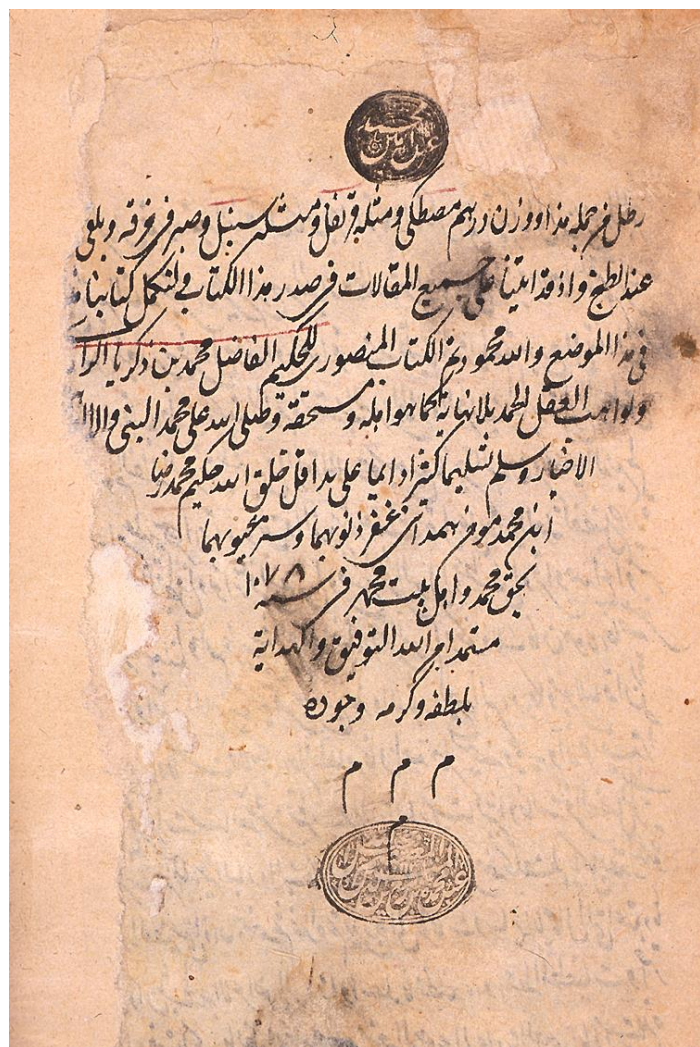
Upon receiving the instructions from HEC on 21st April 2020, LGU notified its Online Academic Council as per Notification No. 002/eReg/LGU on 24th April 2020 and held its first Online Academic Council meeting on 30th April 2020. Before such approval, LGU continued its regular practice of approving the courses through DBS and FBS. The Deans and HoDs ensured that all the courses were standardized and also personalized for making students learn to their maximum. Keeping in view the pandemic circumstances, the students' challenges faced were also accounted for and availability of video lecture recording was ensured. Reaching out to the students of remote areas was ensured through different surveys, WhatsApp contacts, messages and personal contact of student and teachers. This not only ensured maximum students' engagement but also developed a bond between students and concerned teachers for their support and guidance.

4. An Operational Learning Management System (LMS)

Although LGU has established Moodle LMS for uploading all the contents for students, the live sessions were tricky to manage at Moodle so alternative strategy to start with Google Classroom and Zoom was adopted. A one-page execution of LGU Online system instructed all faculty members to immediately create their virtual classroom and take their classes as per timetable schedule using Google Classroom platform beginning from 15th March 2020. Later it was added to use Zoom for personalized student learning and interaction experience for students. A detailed guideline coupling the online tutoring and assessment/ evaluation was issued along with a series of training workshops. The plan was to begin on Google Classroom, all the materials sharing will be done using Google classroom and zoom will host the live sessions. All the Faculty geared up and had quick sessions for training beginning from 14th March 2020. All the Deans with their respective HoDs came up with certificates of online readiness after trainings and online meetings. Worthy VC LGU, took keen interest in online training and attempted live sessions by technical teams and took quizzes himself to

motivate and synergize faculty using Moodle platform. In this way, within a couple of days, Moodle was 100% functional with assessment operations for conducting quizzes, assignments and examinations. LGU conducted both Mid and Final term examination using Moodle successfully and completed Spring 2020 Semester without delay and changes in the academic calendar 2020. It is indeed a big achievement in itself that despite being a relatively young university, LGU became pioneer in online readiness response to COVID- 19 and gave assistance to a number of universities, received appreciation from all corners and specially from HEC.

A complete guidance on the subject was issued to all faculty members and respective Deans and HODs for adoption. This guidance includes standard sources, time management, class scheduling and effective learning approach. A comprehensive piece of advice to teachers for managing their online teaching and making it an effective learning experience for their students. Students' engagement using effective time management and activity planning is stressed to-date.



Colophon of Razi's Book of Medicine.

IAS HOLDS ITS 42ND COUNCIL MEETING ONLINE

The 42nd IAS Council meeting was held online with the participation of IAS Council Members including Dr. Abdullah Al-Musa, Director General, IAS who outlined the activities undertaken by the IAS during 2017-2020.

In his report to the Council, the DG talked about the various activities that the IAS has been involved in. The IAS Council undertook a thorough review of the activities of the IAS and discussed a number of possible activities that could be implemented.



TIME CRYSTALS

Prof. M. Asghar**

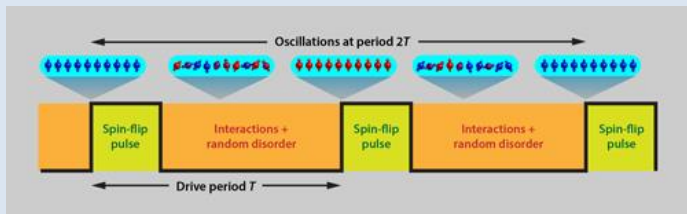
Abstract: This document analyses the technical side involved in the formation of time crystals and the physics behind this fascinating field.

Ordinary crystals such as diamond, break the continuous space-translational symmetry, because not every location is equivalent as some locations are occupied with atoms / molecules of the crystal material and the others are without them. However, because of the periodic nature of these locations, these crystals have the discrete/periodic space translational symmetry. The atoms / molecules of the crystals are in equilibrium and stable in their ground state.

In time crystals, first by proposed in 2012 by the Nobel Laureate Frank Wilczek (1), the continuous time-translational symmetry is broken, but they have the discrete/periodic time-translational symmetry. A time crystal while in the lowest energy state or is in a quantum equilibrium state, is in a state of non-equilibrium that periodically switches spontaneously among two or more configurations, but *always* remaining in a state of non-equilibrium.

These time crystals are also called the “non-equilibrium Floquet many-body systems” Out of their three distinct regimes as a function of the interaction time t_{int} against the energy density in the system, the second regime called the “prethermal regime flat plateau” is essential for the formation of time crystals, because this regime is without the excitation of quasi-particles and the non-equilibrium system remains in its ground state (2).

To understand the working of these time crystals, let us consider a one-dimensional chain of 10 trapped Ytterbium ions, where each ion behaves like an electron. Let us suppose that the spins of these ions are pointing downwards as in Fig. down here (3).



From here on, one proceeds as follows:

1. One applies a laser pulse H1 of duration T_1 tailored in such way that it rotates the ion spins by an amount

different from 180 degrees called the perturbation ϵ , so that they do not reach their starting orientation after two bursts from the spin-flip laser.

2. Then, for a duration T_2 , another laser pulse H2 introduces a long-range Ising interaction between the spins along with a third laser pulse H3 that introduces disorder in the spin chain (4). The duration of T_2 has to ensure that the system is operating on the “prethermal regime flat plateau” of the Floquet system as discussed above. The presence of the disorder term stabilizes the Floquet states such that it become a many-body localized system. The appropriate values of the disorder and of the spin-spin interaction pulses together lead *spontaneously* to the completion of the spin rotation of 180 degrees even in the presence of the perturbation ϵ after a time $T = T_1 + T_2$. Now, the spins of the ions point upwards.

3. The steps 1 and 2 are repeated allowing the spins of the ions to point *downwards* again. This sequence repeats itself after a time period of $T = T_1 + T_2$, and the *spin system* exhibits the *emergent oscillations* with a period $2T$, which is the hallmark of a discrete quantum time crystal considered to be a *new phase of matter* which does not exist for the system in a state of equilibrium.

The discrete quantum time crystals are robust against small variations of the parameters involved and the initial quantum state. Although it needs external periodic driving for its realization, no energy is lost to change the temperature of the system that always remains in its ground state causing no change in entropy during the system's periodic operation. The reason for this, as pointed out above, is that during the disorder plus spin-spin interaction, the system is operating in the “prethermal regime”, where quasi-particles are not excited and the available energy is used up towards the completion of spin rotation of 180 degrees for the spin chain; this result corresponds to a situation, where the Fourier spectrum of the system merges into a single peak.

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IAS NEWSLETTER

Published by the IAS Secretariat, Amman, Jordan.

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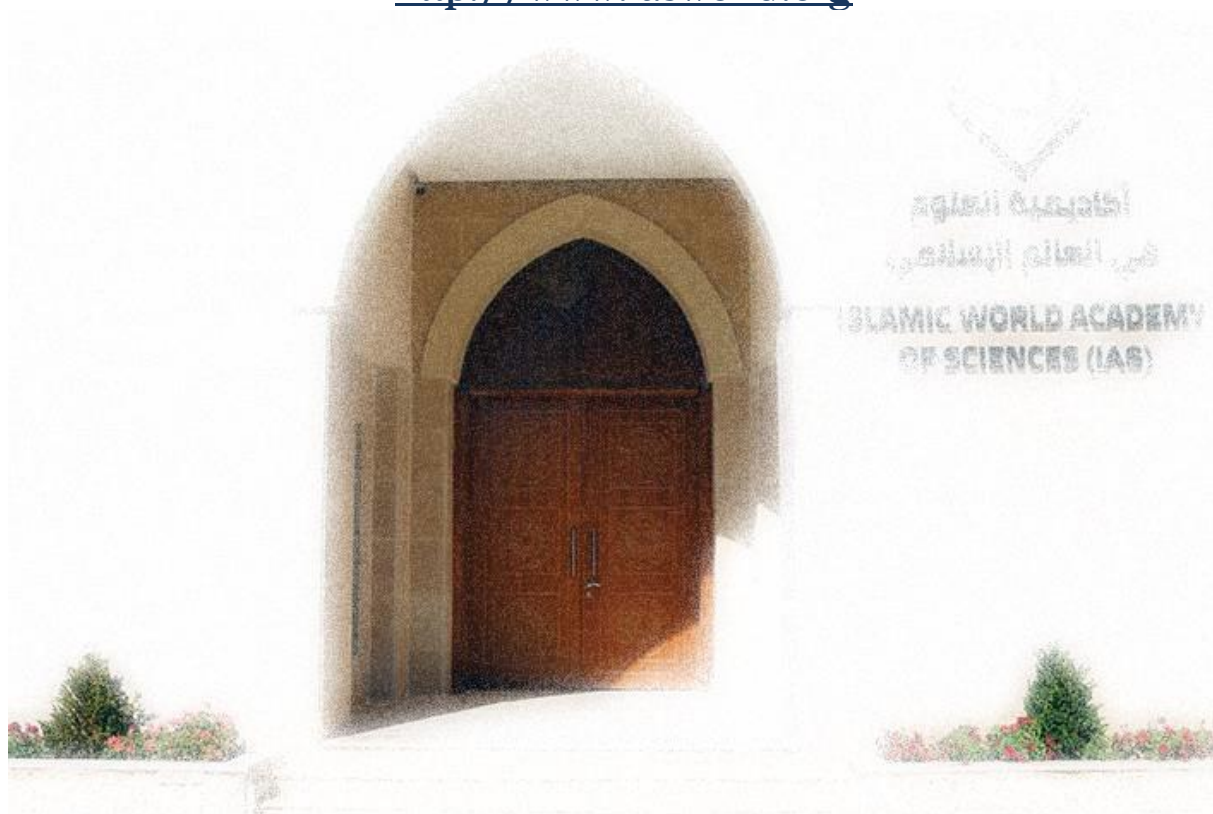
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IAS NL - VOL. 28 No. 43

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