1. Purpose of the University

This proposal is aimed at creating a revolutionary education system that brings back the original educational system, introduced by prophets in every epoch. As stated in Qur'an, every nation had a prophet, tasked with the duty of purifying the general mass, teaching them from the book, and teaching them what general public didn't know (Qur'an 2:151). This education system empowers with true knowledge. The education system that would correctly put prophet Muhammad and his righteous followers as the most educated while putting Satan and his followers as the most ignorant/uneducated. The knowledge would be true knowledge, in line with the word 'ILM', which was made mandatory by the prophet Muhammad. Never before a university with the curriculum that produces true scholars has been established. Every epoch had a prophet, who revived the educational system, which then quickly succumbed to a cultural version, tainted with corrupted dogmatic 'education' system. This is true for every ancient culture. However, modern educational system does not recognize this face and has created a infrastructure that creates imposters, devoid of real knowledge, nevertheless being portrayed as scholars and academic leaders. Figure 1 shows how the real history of knowledge has been twisted around and turned today's Abu Jehels into Abu alAhkam and vice versa.

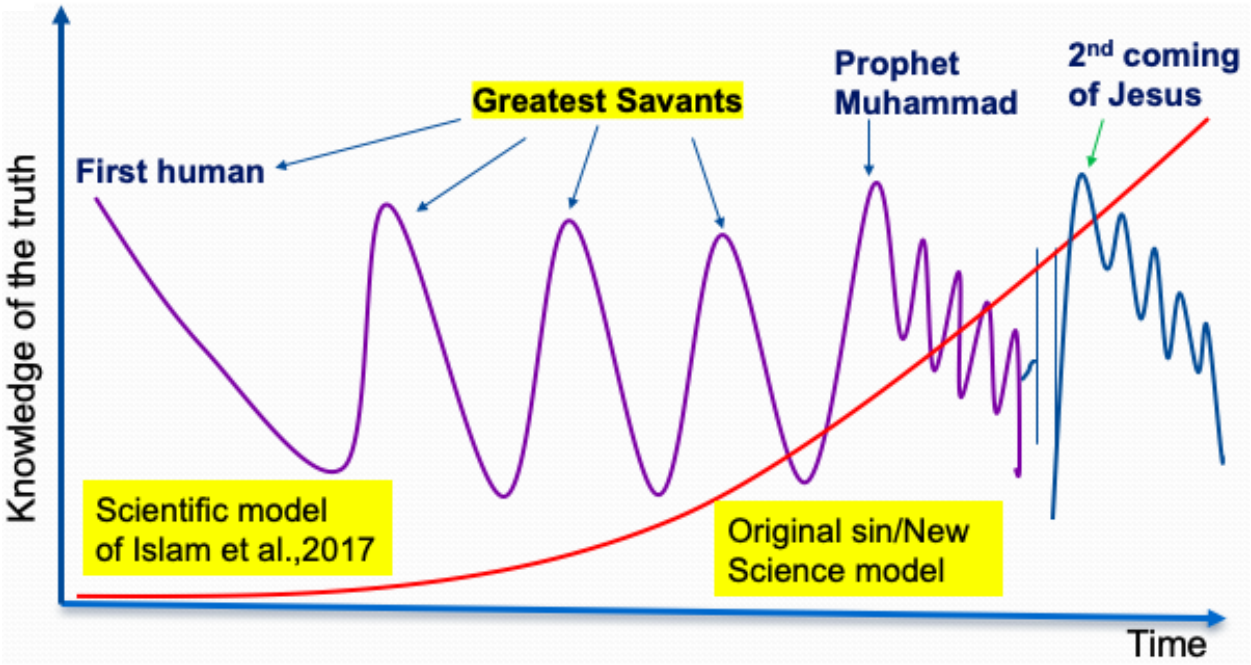

Figure 1. The real history of knowledge

2. Vision of the University

To be a preeminent institution known in history for its truly scholarship in all disciplines of knowledge, including law and jurisprudence (Shariah), economics (Islamic economics and labour laws), sustainable technology development (halal technology), health (competitive graduates, cutting edge research, and leadership in promoting true education and sustainable living. The

University is aimed at revolutionizing the education system with its own commercial operations, which will be fueled by the research conducted by the students and faculty members alike. The combination of fundamental knowledge with technological advances is unprecedented in modern history. In Islam, there is no difference between 'religious' knowledge and 'worldly' knowledge. The distinction is a western invention of the colonial era. All technologies before Newtonian era were sustainable. Today, no technology is truly sustainable and admitted by even Nobel laureate scientists (Khan and Islam, 2016). Unsustainable technologies cannot be halal (a word that means inherently beneficial and legitimate).

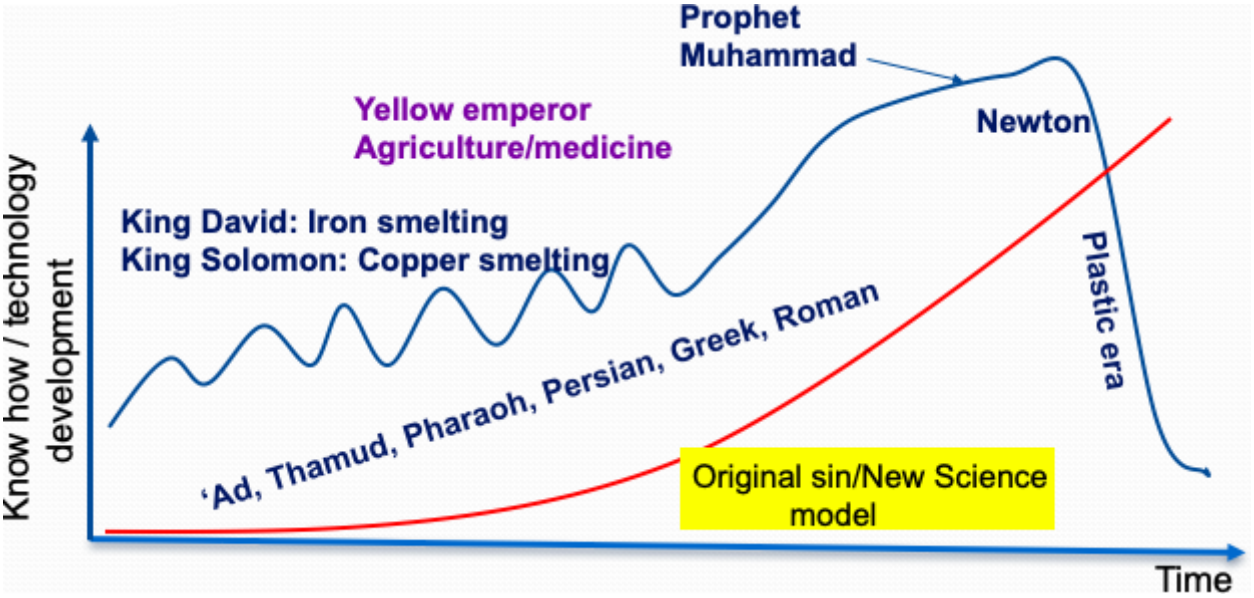

Figure 2: In Islam, there is no difference between 'religious' knowledge and 'worldly' knowledge. The distrinction is an European phenomenon. All technologies before Newtonian era were sustainable. Today, no technology is truly sustainable (Khan and Islam, 2016)

3. University curriculum and how it is different from modern curriculum

Modern educational system has many shortcomings. Islam et al. (2014) summarized them as:

- Money is the motivator, as well as the metric of success, for both students and teachers
- Compartmental curriculum (tunnel vision)
- Standardized with false standard
- Vulnerable to plagiarism
- Disconnected from Quran and Hadith (the two pivotal source)
- Not true education, it's rather a training program for robotic thinking ('Factory school' model)
- Low retention of lectures
- Low enthusiasm

The curriculum can be best described as 'prophet's educational system'. Islam et al. (2014) detailed the most important features of the prophet Muhammad's teaching style and educational system. The following 4-stage process summarizes the essence as follows:

- start with the following **Major premise**: there is no *Ilah* (= "some- one worthy of being obsessed with") except Allah; and the **Minor premise**: Muhammad is the messenger of Allah;

- memorize the *Qur'an*. The *Qur'an* is accepted as coming 100% from Allah and 100% in its original form. Start each deduction (=*Iqra*, the first word revealed on Prophet Muhammad) from the *Qur'an*. This acceptance, including each *iqra*, is axiomatic;

- using the books of the Hadith — books that have been preserved for some 1200 years — the investigator forms an axis in order to scale time (*qias)* according to any epoch of interest;

- the investigator treats stories from the past, as recounted in the *Qur'an* or in the book of Hadith, as the equivalent of "case law". The lives and judgments of the other 'rightly guided' Caliphs are similarly to be regarded as examples of "case law"

The cognition process that can be called Islamic (in the sense of "endorsed by the Prophet") may best be comprehended as a five-point cycle set out below, it being understood that humans' primary purpose is to obey Allah's order (in conformance with universal order), according to which the seeking of knowledge is obligatory (*Faridatun ala kulle muslemin wa muslemat*): [1]

1. cognition starts with a real question that has only Yes (1,+) or No (0,-) answer. This question is: What would the prophet do? Or, is this action permissible? Such question doesn't arise if it has already been resolved in the *Qur'an* or Hadith;
2. make *niyah* (original intention) to start the cognition process solely in search of the truth (*haq*) so a right (*haq*) decision is made at the end of the cognition process;
3. collect all available data and filter out questionable sources;
4. fuzzy logic (*manteq*) phase: ask questions of dialectical nature (*manteq*) that will have qualitative answer (by collecting a series of yes/no answers). Each *manteq* questions should be motivated by *qsd* (dynamic intention) that is in line with *niyah*; and
5. logic (*aql*) phase: Ask the final question to determine the yes/no answer to the question asked in Point 1.

This five-point process constitutes the essence of 'seeking knowledge', something that is obligatory in Islam. When it comes to collecting and disseminating knowledge, this active seeking of knowledge is of utmost importance. For the first time in history, knowledge-gathering, knowledge-based practice and knowledge dissemination became an obligation from the moral as well as the practical point of view.

To exist in, and contribute fully and properly to, Islamic society, one must strive to gather knowledge, so one can become closer to Allah, whom one represents in actions and to whom one

[1] Ilm is the second most frequently used word of the Quran and is in the core of education in any discipline.

is accountable. This knowledge will help the person to follow the path conformant with *shariah*, leading one to success in the hereafter, which is the ultimate purpose of life in this world.

Why education?

This purpose of gathering knowledge marks the sharpest departure away from the education system to which Europe, overwhelmingly Christian in its religious outlook and including the Americas and other colonial extensions, had become accustomed from the days of the earliest popes.

The four main features of this Islamic purpose may be summarized as follows:

6. Seeking knowledge is obligatory; without this knowledge (ILM) no conscious action can begin;
7. Knowledge for sake of determining one's duty toward the Creator;

- دَاَبِعْنِمَهَّللاىَشْخَياَمَّنِاِ (Knowledge brings one closer to the Creator Those who fear Allah are the ones who have knowledge...ءاَمَلُعْلاِهُ ... [*Qur'an* 35:28];
- Knowledge is through use of Aql (conscientious logic), without which a human is reduced to the lowest of creature (Quran 8:22)
- Knowledge is synonymous with being guided (Quran 4:7-9)

3. Knowledge is the reason for succession to authority and power; this process is automatic and was the trait of the prophet Muhammad;

- Knowledge is the first trait of prophet Adam (Quran 2:31)
- Prophet Muhammad had the distinct responsibility of purifying, teaching from the book, and teaching what people don't otherwise know (Quran 2:151),
- In absence of prophet, Knowledge determines the status of a person ("Scholars are the inheritors of the prophets." [Tirmidhi, Abu Dawud). This hadith is inspired by Quran 35;;32 ("Then We gave the Scripture as inheritance unto those whom We elected of Our slaves.")

4. Knowledge repulses unfair gains and undue favors from the ruler (rulers seek out scholars, scholars don't seek rulers out)

The proposed educational system offers a unique methodology, which eliminates all shortcomings of modern education system, including plagiarism, low retention, and lack of enthusiasm. The methodology is motivated by prophet Muhammad's hadith, 'cure to ignorance is to ask (question)'. All students will learn to master the art of academic research through courses on methodology, and cap their education with a one-of-a-kind thesis for each subject and will form the basis of a final comprehensive thesis prior to graduation. Instead of classroom lectures, students will receive a list of research questions related to each subject that will form the basis of their individual education. These questions will include guiding questions as well as real questions. By researching the answers to each question, they will automatically gain full perspective of the current state of the art of each topic as a precondition to discovering new knowledge. Each year research questions will be upgraded based on the renewed state-of-the-art of the subject.

How is it different from conventional educational system?

The most important distinction of the proposed educational program is the starting point. Unlike any other principle, Islam has a golden standard, reflected as the decision making processs that sees solution to any problem as something derived from Quran by contextualizing with the hadith. This standard is the criterion that has been used used in every ancient civilization (Dao in ancient China) and has been characterized as *Furqan* in the Qur'an. Following this standard marks the middle pathway (*wasata*) that has been hailed in the Quran. Deviation from this standard represents extremism (Figure 3).

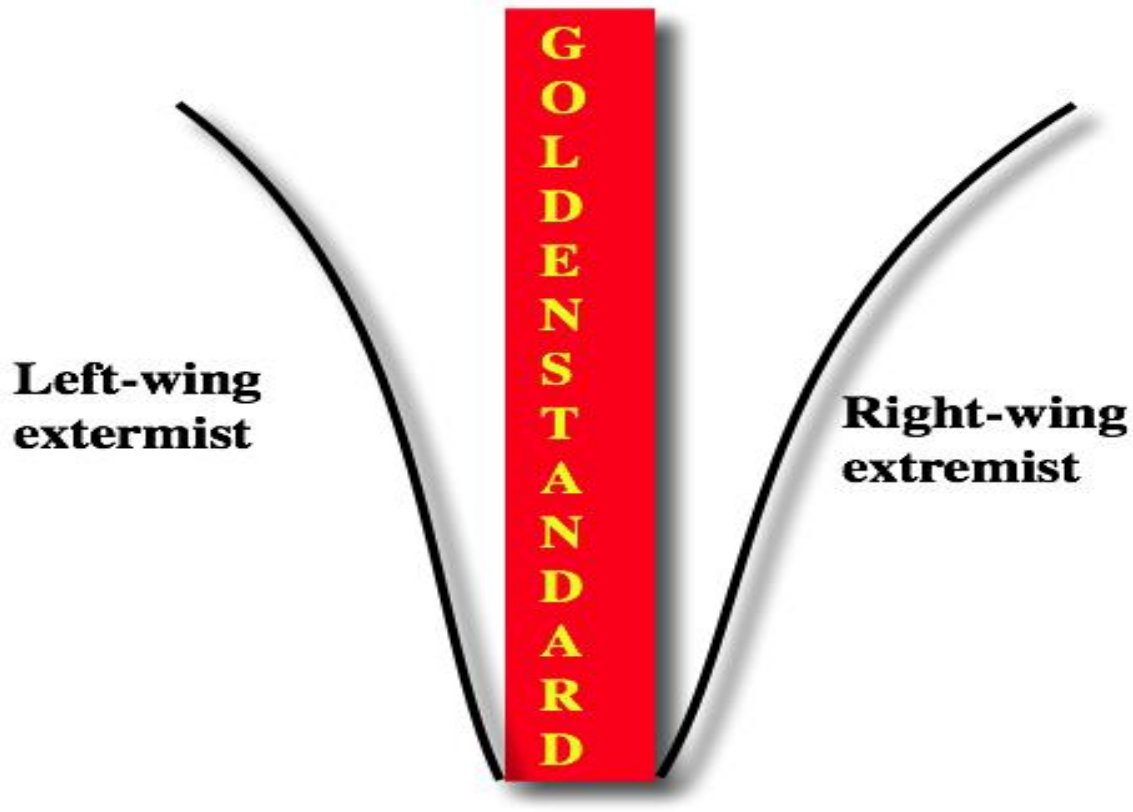

Figure 3. Having a golden standard is a hallmark of Islam

Starting with Quran and Hadith, the student is launched into a path of true knowledge. The conventional education system starts with false premises and continue to travel the path of ignorance, while maximizing hubris. This is the path prophet Muhammad called 'jahilya', the

manifestation of which was done when he renamed ‘abu al ahkam’ to Abu jehel. Figure 4 shows this paradigm shift. This figure shows how the model proposed by Ibn Rushd was corrupted by Thomas Aquinas, who replaced Quran as the starting point to Bible as the starting point (Khan and Islam, 2016).

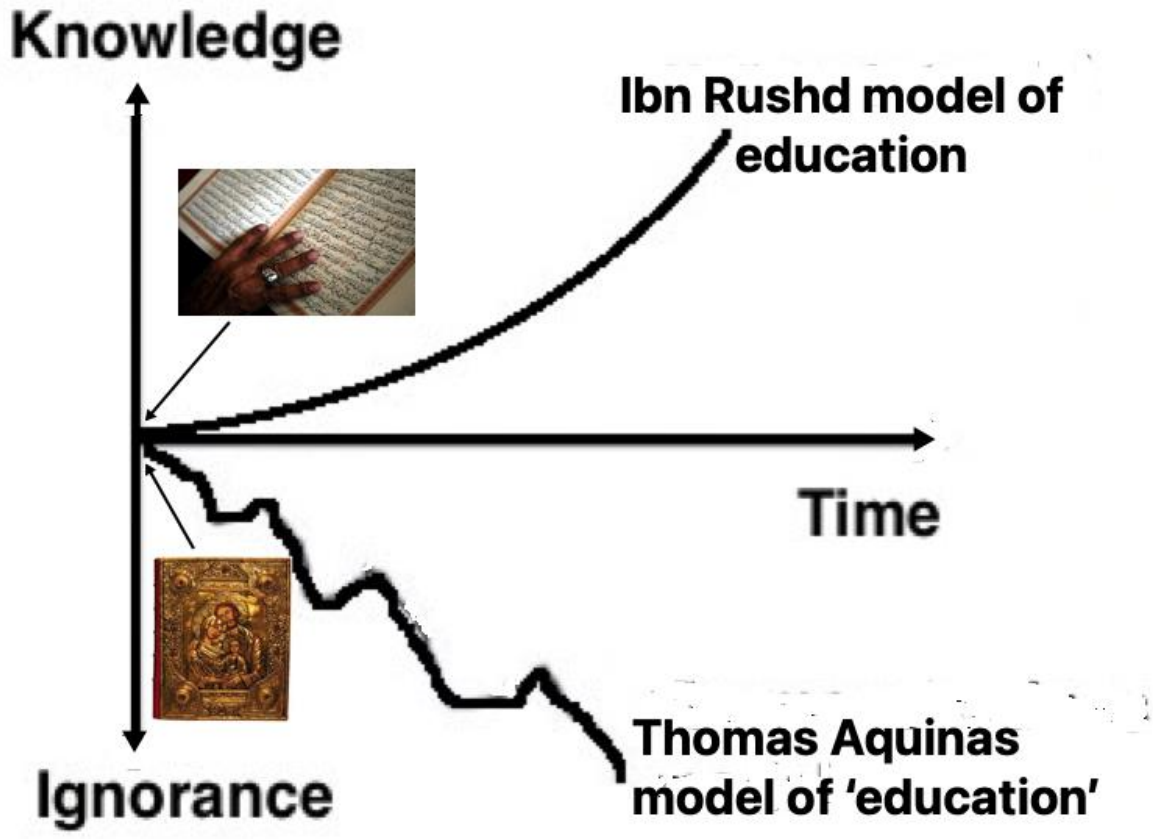

Figure 4. Modern ‘education’ system is a variation of the Thomas Aquinas model.

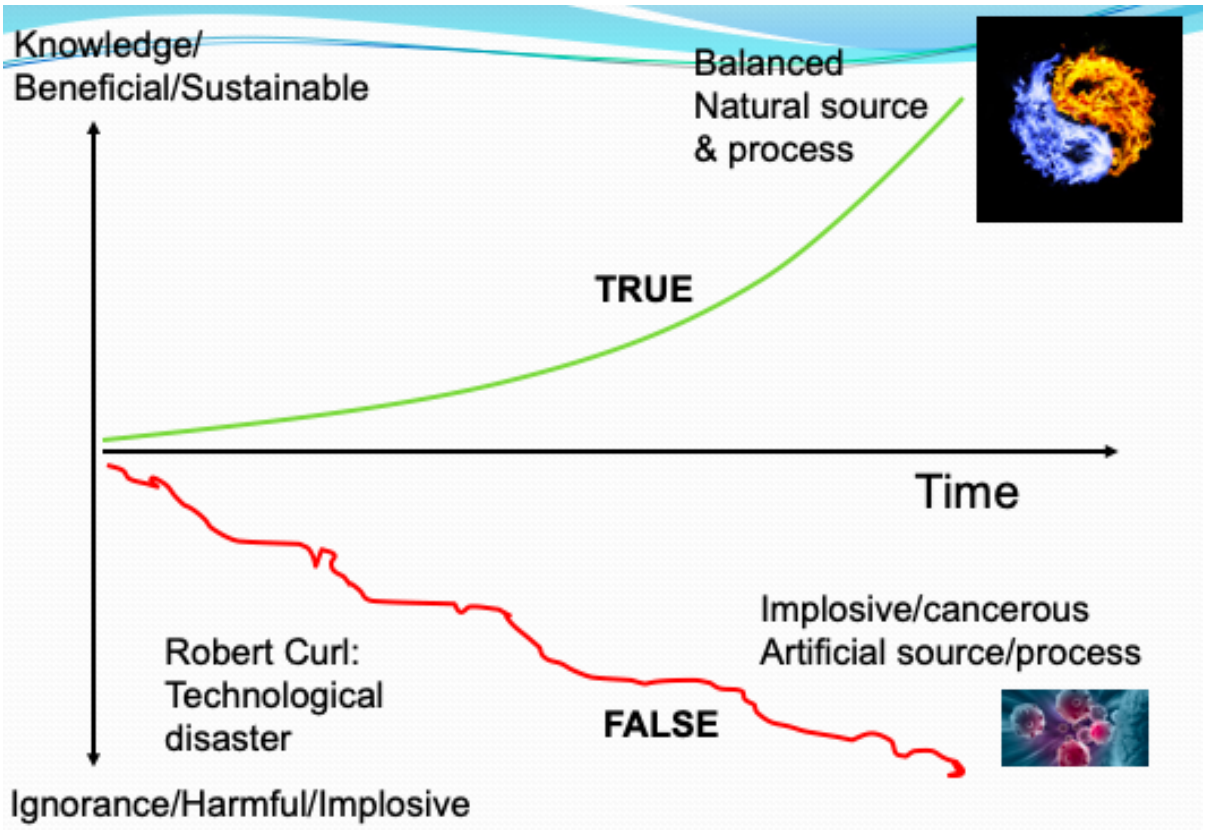

Figure 5: Education is about traveling the knowledge path, not memorizing falsehood

The next important distinction is in the fact that the proposal curriculum recognizes skill development and training for specific tasks as distinctly different from education, whereas conventional educational system conflates training and education. As a system, conventional education system makes students memorize falsehood and then ask them to regurgitate during the examination. The system has become progressively worse. With the advent of internet and access to search engines, such as Google, students can access false answers to irrelevant questions, thus making the classroom lectures obsolete. This has become an extreme case of indoctrination. See depiction in Figure 6.

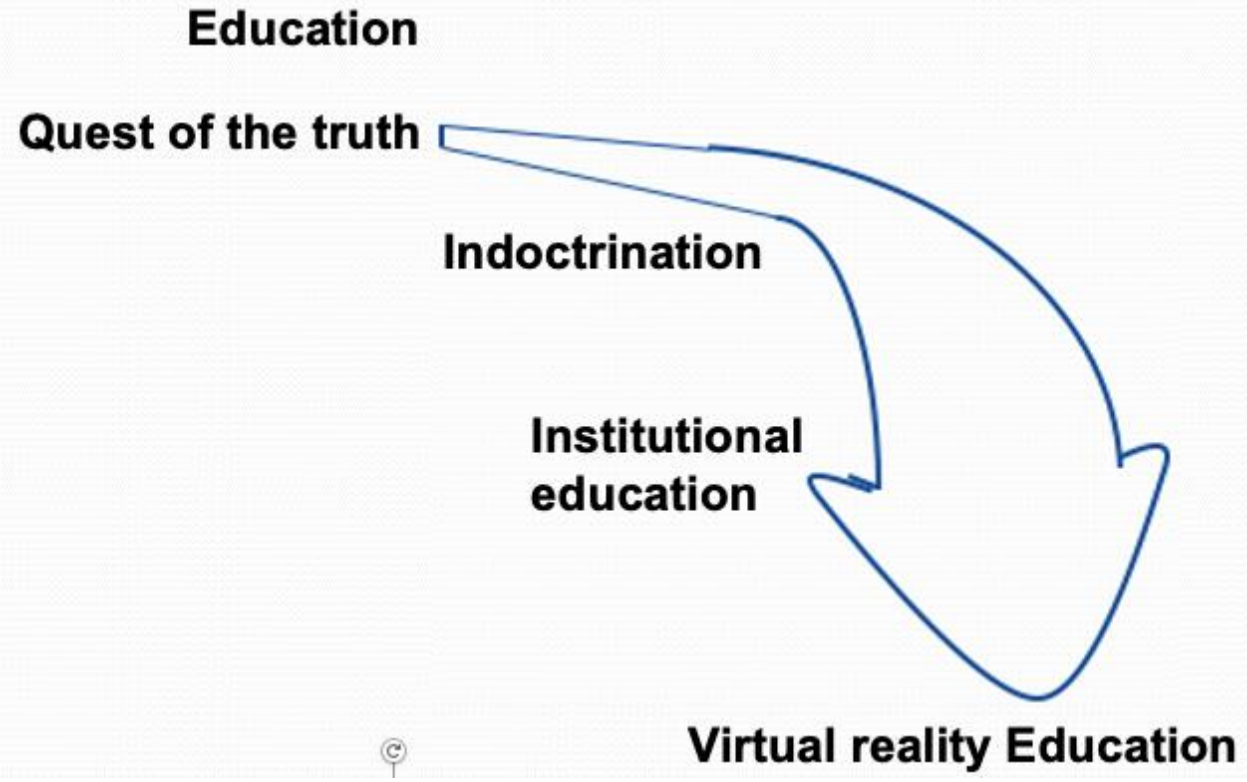

Figure 6 :Education used to be about searching the truth, now it's memorizing falsehood

Conventional education system is motivated by money. Money has been the driver of modern civilization. This is one form of extremism and launches Figure 7 shows spiralling down degradation from total sustainability to total implosiveness with the transition from gold standard to Bitcoin. In the post-Renaissance allegorical transition, HSSAN (Honey → Sugar →Saccharine→ Aspartame → Nothing) symbolizes degradation from honey (a real source with real process) to nothing via Aspartame (with both source and pathway that are highly artificial). This transition has been the hallmark of environmental degradation that has been fuelled by equally toxic profiteering through standards that dropped from Gold → coin → paper → Bitcoin → Nothing, thus causing black hole like degradation in global geopolitics. Sustainability can be restored only if this trend is reversed from artificial to real.

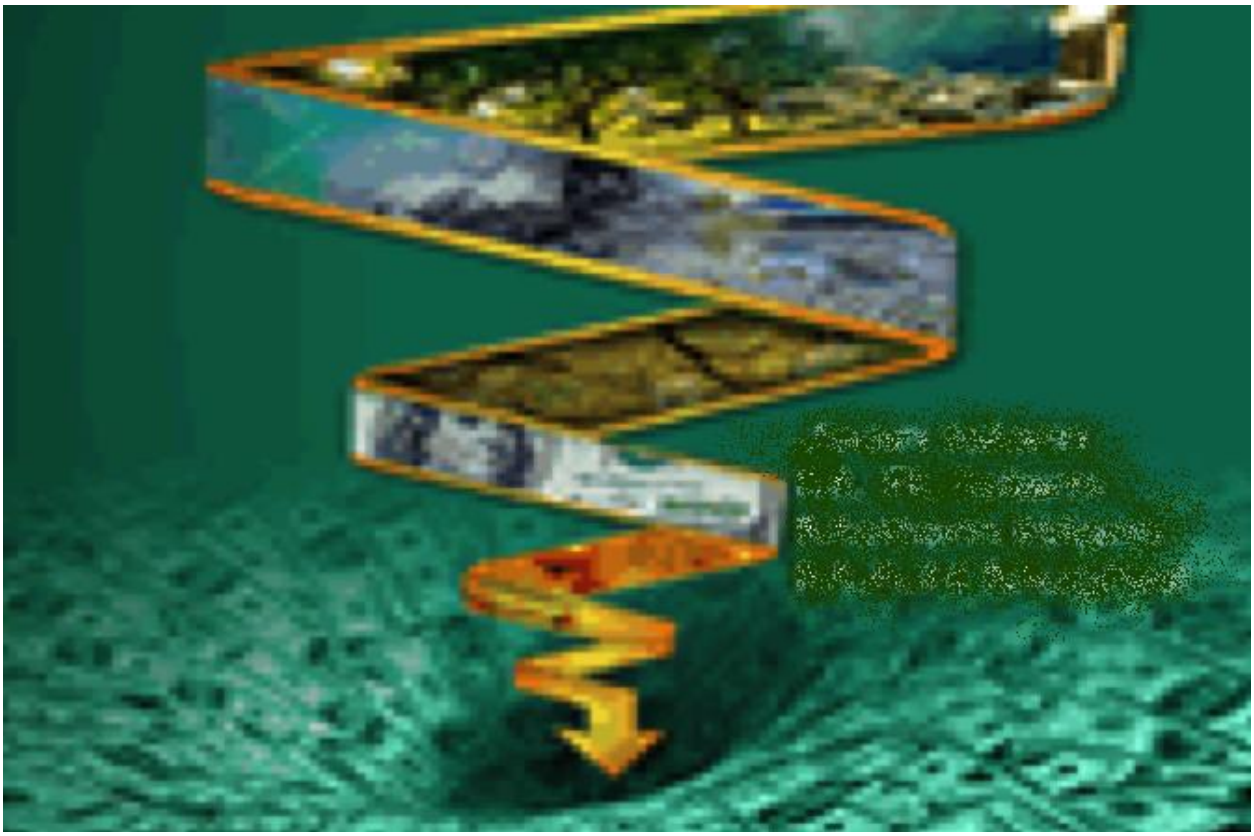

Figure 7. Money being the primary motivation of education, the civilization has been launched into a spiralling down mode

The other distinctive feature of the proposed educational system is that students are introduced to research at an early age. The university will recruit students as soon as puberty, so their most important phase is utilized. This is the stage, a human is at the optimum of fluid intelligence and crystalized intelligence. In other words, this is the age when humans are at the highest level of creativity while retaining their innocence. Aql (conscientious logic) starts with niyah (conscious intention, ownership of which sets in at puberty) and is instrumental to research, which is the essence of the new educational system.

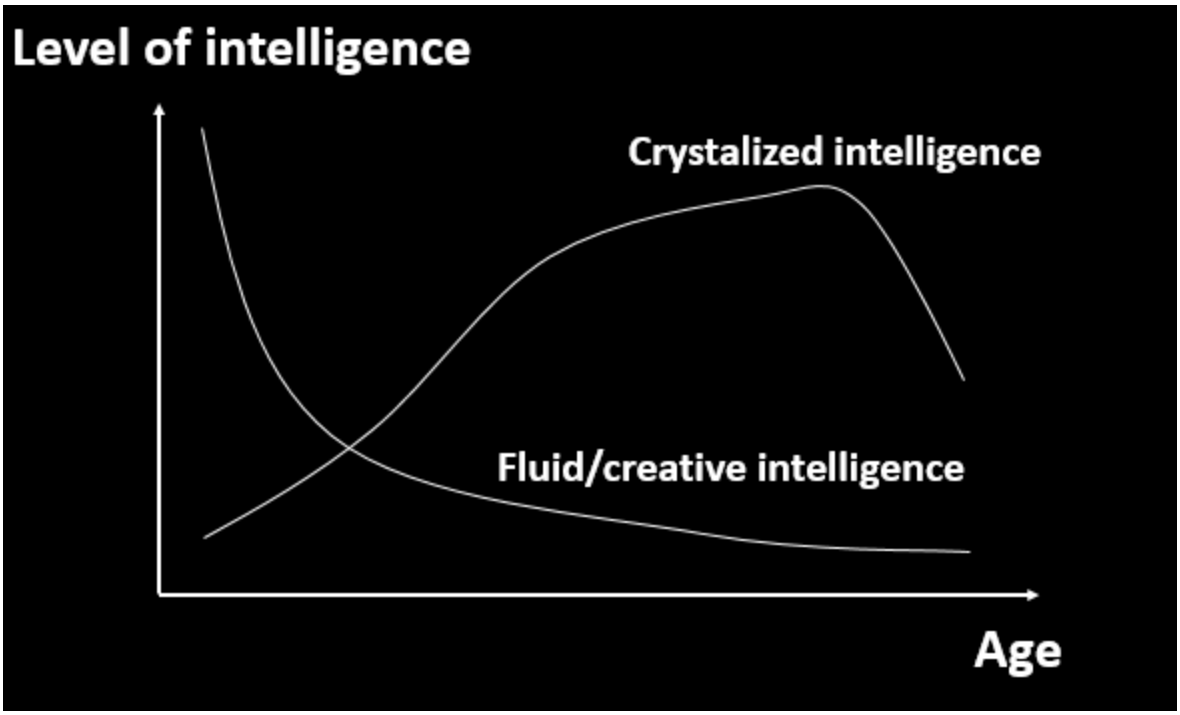

Figure 8. Human intelligence vs. age

Another unique feature is that the current curriculum recognizes the true nature of humanity and employs a holistic approach. Prophet Muhammad made it mandatory for each Muslim man and woman to seek knowledge. This follows that one must seek knowledge from the cradle to grave as each day one is faced with the question: what would prophet Muhammad do under the situation in today's context. While physical prowess vary greatly with age (Figure 8) and depends on sex, mental ability doesn't necessarily follow the same trend. In fact, in most cases mental ability continues to sharpen as one gains experience of using manteq and Aql. The educational system would recognize the strength of elderly population in having more experience, which contribute to the manteq prowess as well *hikmah*.

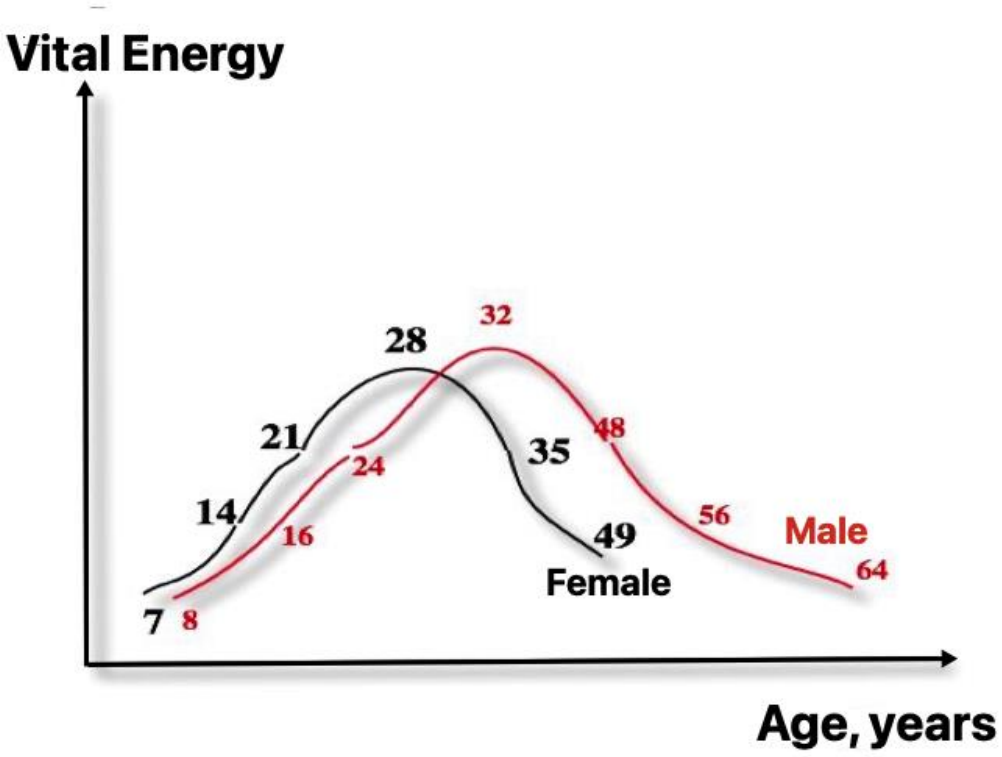

Figure 9. Progression among males (red) and female (black) members of the human community

The university will have a major trait of generating new knowledge. This knowledge is valuable to the society for applications in all disciplines. However, the principal focus of this University is to develop real knowledge base on human health, environment, shariah, and technology. Every course will generate a series of new knowledge, each of them having appeal to respective field of application.

Every discipline will have sponsorship program, funded through research funding as well as commercial partnership endeavors. Each project will benefit students while benefiting from students' involvement. Government funding, philanthropic support and volunteer contribution will be welcome. The principal incentive of funders would be the benefit derived from various projects completed by the students. Because each student will be required to answer real question throughout every phase of the curriculum, the learning outcome would literally mean commercial project ideas, which will have tremendous appeal to the funding agencies and/or philanthropic donors. Of course, the benefit of all these would elevate the standard of the industry, health clinics, and socio-economic conditions, which then will serve as icons for the rest of the world.

There will be an online component of the university. The main strength of online service is that they have global access and space and time independence for the students. A student can study at

his/her own time. Students thus are not restricted to logon at a certain time or listen to hours of lectures albeit virtually. Instead, they can conduct their research-based studies at their own time, thus freeing up time for other purposes, including working for a job. The online service will be an order of magnitude less expensive, while quality not suffering. It is also flexible to personal needs, and limitations, such as disabilities, remote locations, need of co-ed education, etc.

Table 1 summarizes the difference between the proposed curriculum and the conventional curriculum

Item	**Proposed**	**Conventional**
Course delivery	Question/answer based	Lecture based
Test/exam	Real questions	Test questions
Starting point	Intention to conform to Islam	Intention to make money
Standard	Gold standard (Quran/Hadith) *Furqan*	No fixed standard
Economics considerations	Not the starting point, it is the product	It is the starting point, irrespective of its sustianility
Time range	perpetual	limited
Legitimacy	Halal criterion	Substantiality criterion, which is variable
Technology	Halal (total sustainability)	True sustainability never reached
Health	Holistic approach	Chemical approach
Retention	High retention	Low retention
Knowledge	Continuously expanding	Limited to past experience and dogmatic assertions
Creativity	Highly creative/productive	Reproductive
Education (educere)	True education	Indoctrination
Benefit	Continuously beneficial	Harmful in the long-term

The curriculum of this University is unique in the sense that it introduces natural sequence and restores true education. It teaches holistic approach in all aspects of education, for instance in developing truly sustainable technology in Engineering, correct diagnostic methodology and health development in Medical science, truth cognition in philosophy, and others.

It is established that both artificial and natural appear to be similar only for a very small span of time. In the long run, artificial and natural follow diametrically opposite pathways. With time, artificial spirals down to continuous insult and decay of the natural environment, whereas the natural ones continuously improve the natural environment. The former one is metaphorically called ‘cancer’. Every ailment is then described as a ‘cancer’, of tangible (physical ailment) and intangible (mental ailment) category. The University starts off with establishing the truth criterion, thus empowering students to discern between truth and falsehood. The consequence of this starting point is profound as modern era is characterized by a superflux of artificial objects, both in human thought material (HTM) and all aspects of technology development, leading to a socio-economic system that has become the epitome of extremism (Islam et al., 2018). This University will launch

its students on the path of sustainability and they will be empowered with true knowledge, thus becoming catalyst of change for the rest of the world.

In brief, the University revives very old concept of using Islam to heal fass*ad* of all kinds, ranging from environmental and health insult to political mischief. Such approach was once captured in the works of every prophet and the righteous followers of Islam in all epochs. Knopwledge is derived from divine books and applied to all sectors. For instance, in the post Rashedun caliphate era, Avicenna, whose 'canons of medicine' remains the most widely used for the longest time in history of medicine and human health. However, Avicenna didn't have the 'luxury' of knowing the perils of artificial medicine or corporate-sponsored policies that govern all aspects of modern society. At present, we are aware of the development in all branches of science and social science in last 900 years. They provide us with an opportunity to deconstruct of dogmas and reconstruction of truly scientific logic, empowering the students with a powerful manual for cognition as well physical welfare.

Figure 10 sums up the distinction between the proposed education system and the currently used educational system. Even in training program involving skill develops, the education sytem will contribute positively. Meanwhile the current educational system is inherently harmful and contributes only to increased ignorance of the general mass and hubris of the elite class.

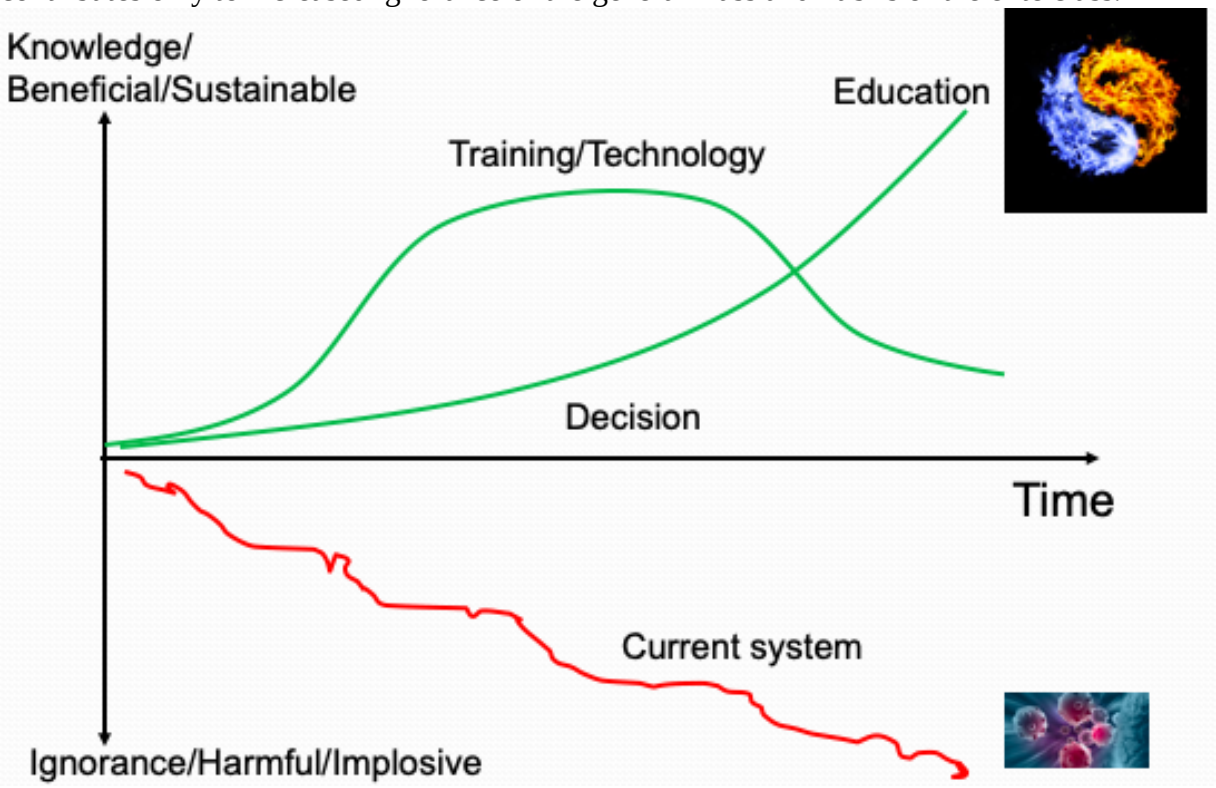

Figure 10: With the current system, the more time you spend, the prouder you become of your ignorance

THE CURRICULUM

- Foundational knowledge of Quran, hadith, Manteq for every student (Figure 11) and Islamic economics
- Specialization in four disciplines
    - Law
    - Science of health
    - Fundamental science
    - Sustainable Engineering
- Intake of students starting Age of maturity (puberty)
- Graduation with doctoral degree upon completion of a comprehensive research project
- Teachers are scholars of Islam with active research knowledge of respective discipline

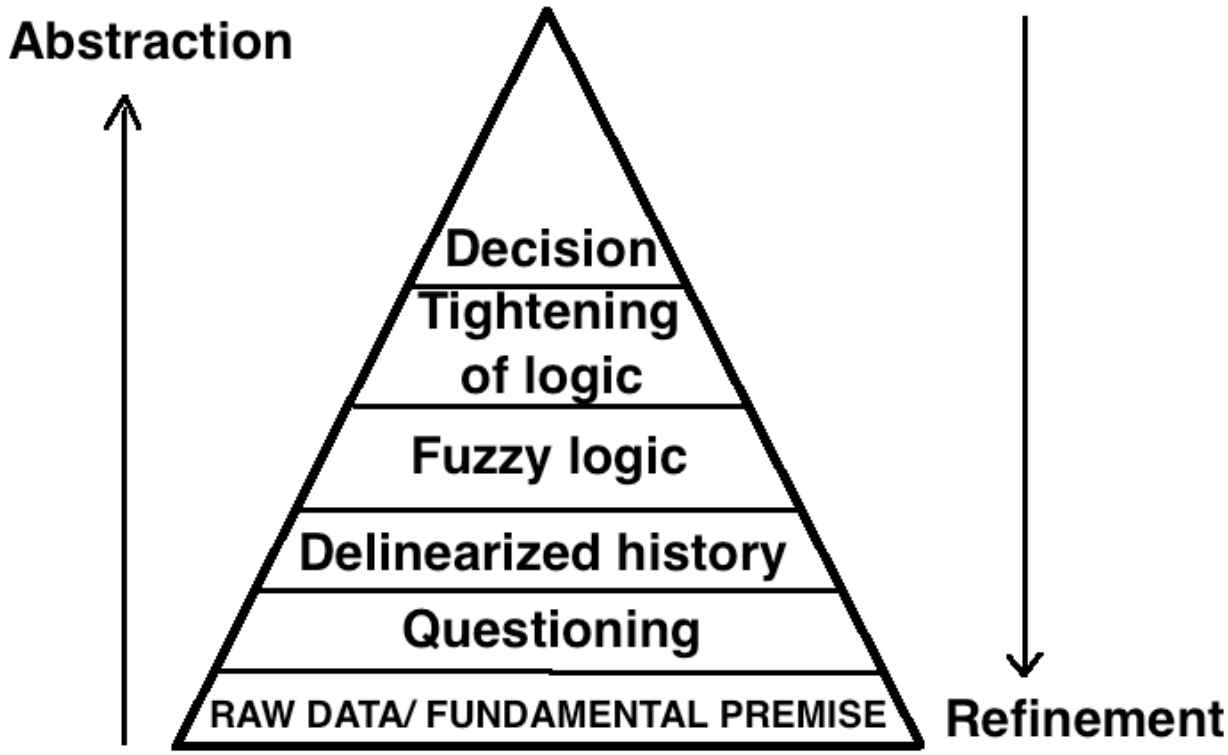

Figure 11. The mandatory course will include Manteq

Important research questions to be answered by the university students/professors

Meaningful research or even any thought process must have a real question. Real because it is relevant and it is purposeful, without having an agenda other than finding the truth.

The following series of research questions are based on a fundamentally sound premise. The fundamental premise is that natural processes are inherently beneficial to the environment whereas artificial processes are inherently harmful. The challenge is to describe the natural

processes during interactions with living bodies. Today, chemistry as well as physics are very deficient when it comes to describing the pathways of natural chemicals with living bodies.

1. Atomic theory:

By now we know atoms or any of the subatomic particles is anything but rigid, homogeneous, isotropic, or even of any known geometrical configuration. We also know that the subatomic orbits are mere speculation and definitely not constant or permanent. In fact, subatomic structure is much like a galaxy with its own 'star', 'planet', 'moon', 'asteroid', 'comet' system. By analogy, we can say that smaller the particle greater is the speed and for the entire system, we do not know anything about the direction of the movement, what we know that each has its own trajectory. We also know that these trajectories are NOT orbits, at no time a particle comes back to the same location in space. It's not only because the entire 'galaxy' is moving, it is because each orbit is never uniform. The question becomes how to describe a natural material as compared to an artificial material with the above described galaxy model.

A reference book on this galaxy theory is in Unconventional Gas Reservoirs (https://www.elsevier.com/books/unconventional-gas- reservoirs/islam/978-0-12-800390-9)

2. Medical and Pharmaceutical:

Consider interactions of natural radioactive and other heavy metal rich material (e.g. during mudbath) with human body through skin and inside. How does this compare with chemotherapy that uses synthetic chemicals to combat cancer cells. Our theory establishes that this natural process is inherently beneficial in combatting ailment such as cancer without any side effect, which is common for chemotherapy. The research question can be answered with a thorough explanation of the pathway followed by natural chemicals and tracking reaction of the human body. The fundamental science here has to be through writing of chemical equations that do NOT use elemental balance but uses material balance. For instance, natural + human body (natural) --> natural metabolic products. Here the knowledge of catalyst chemistry is helpful, meaning very small amounts that create balance within a natural system creates the metabolic products that are balanced and beneficial.

Similarly, other organic chemicals will have to be studied. For instance, how vitamin C (ascorbic acid) interacts with human body and how lemon juice interacts with human body. Then, you have to see how an organic lemon (without chemical fertilizer or pesticide or GMO) would interact with the human bodies. Once again, the challenge is to show that unnatural (vit C) + human body (organic) --> unnatural metabolic products (harmful). The chemistry of this process has to be developed and that's why it needs fundamentally creative thinking.

In studying remedy of any ailment, conventional approach has been to test a chemical (isolated from natural products or artificially created), to later mass produce the synthetic version of the 'medicine'. Even so-called alternate medicine researchers have adopted the same technique, in which they use isolated ingredients. This latter approach is not any better than the conventional synthetic chemical approach. It is because isolated ingredients become inherently unnatural and any such chemical does not behave the same way as the one produced after being processed by a

human body. Ironically, it is not the same for synthetic chemicals, as human body fails to process artificial chemicals and they retain their original inherently 'toxic' nature. So, what's the solution? When one studies natural chemicals, one must first study how these chemicals are processed in human body and then study those processed chemicals to determine if they will create an environment in which defective cells will be destroyed.

Another question is how to transport natural chemicals in human body. For instance, instead of having a synthetic inhaler (for asthma), how a natural chemical can be made into mists and what role does this play in remedying ailment (asthma attack in this case). See also under the next category, namely perfume.

Two useful reference books on this topic are: Greening of Pharmaceutical Engineering (vol. 1 and vol. 2) (https://www.wiley.com/en- us/The+Greening+of+Pharmaceutical+Engineering,+Volume+1,+Pract ice,+Analysis,+and+Methodology-p-9781119184218, https://www.wiley.com/en- us/The+Greening+of+Pharmaceutical+Engineering%2C+Volume+2%2 C+Theories+and+Solutions-p-9781119159681)

3. Perfume:

Here the challenge is distinguish between different flower extracts that are derived through solvent extraction, vapor extraction, etc. and see the difference in quality of the perfume and how they interact with human bodies, both in terms of fragrance and health. Here, once again, knowledge of catalytic chemistry is helpful.In this research, the objective is to see how the extraction process affects the final reaction in human bodies. Here the study should involve interactions with human body skin and subsequent processing within the blood cells. To be considered are such factors as human body pH, characteristic temperature, and overall lifestyle and mental state. This study will in turn help with medical applications, including aromatherapy.

4. Energy:

In petroleum engineering, the need for using natural chemicals for petroleum processing as well as enhanced oil recovery is very high. Not only these materials are inexpensive, they are also beneficial. When these chemicals are replaced with artificial chemicals, the resulting products are harmful and are also expensive. As discussed in my book on climate change (https://onlinelibrary.wiley.com/doi/book/10.1002/9781119522850), these chemicals end up in the atmosphere and contributes to the global warming system, in which CO_2 cannot be absorbed by the ecosystem. The challenge in this part is to find natural chemicals that will reduce oil viscosity and/or absorb heavier components in order to naturally refine the crude oil. Such chemicals can be present naturally or may be extracted from plants, especially from weed like plants that are not expensive to cultivate.

This aspect is discussed in detail in the book: Economically and Environmentally Sustainable Enhanced Oil Recovery (https://www.wiley.com/en-us/Economically+and+Environmentally+Sustainable+Enhanced+Oil+Recovery-p-9781119479093)

Most recently, in https://www.elsevier.com/books/reservoir-development/islam/978-0-12-820053-7

5. Mineral processing

Will include natural nanomaterials and their role in creating sustainable processes. The mineral extraction as well as processing will explore totally sustainable technologies that use direct solar energy, natural additives and avoid using artificial chemicals.

6. Water resources

Truly sustainable water management has been discussed in Rahman and Islam (2020).
Sustainable Water Purification(2020) https://www.wiley.com/en-ca/Sustainable+Water+Purification-p-9781119650997

7. Agriculture and animal husbandry: **A book series is forthcoming**

THE TYPE OF SCHOLARS WE ASPIRE TO PRODUCE
The university aims at producing graduates that would fit the following pattern chalked out by Muslim scholars.

Appendix-A: Islamic Scholars who were Founders in their Fields

The following is a list of scholars of medieval Islamic civilization who have been described as the father or the founder of a field by some modern scholars.

A1. Al-Kindi (801–873)

In all measures, he is the father of Information age (Khan and Islam, 2012). He was instrumental in the adoption of the Indian numbering system, later known as Arabic numerals. His developed algebra, which also had Indian antecedents, by introducing methods of simplifying the equations. He used Euclidian geometry in his proofs. He is one of the few 'pure polymaths' to collide with the ruling class for his adherence to pure logic, which is Islamic but wasn't popular with the rulers who only liked Islamic ruling when the ruling favored status quo.

Al-Kindi contributed a great deal in various subjects ranging from meta-physics, ethics, logic and psychology, to medicine, pharmacology, mathematics, astronomy, astrology and optics, and further afield to more practical topics like perfumes, swords, jewels, glass, dyes, zoology, tides, mirrors, meteorology and earthquakes. In the field of mathematics, al-Kindi played an important role in introducing Indian numerals to the rest of the world. He was a pioneer in cryptanalysis and devised several new methods of breaking ciphers. Using his mathematical and medical expertise, he was able to develop a scale that would allow doctors to quantify the potency of their medication. Al-Kindi was the first in known history to formalize theory of logic (*Aql*) with science (*Ilm*), the second
most used word of the *Qur'an*. He saw no contradiction among Islamic theology, philosophy and science.

A2. Abu al-Qasim al-Zahrawi (936-1013)

Al-Qasim Al-Zahrawi, also known as Abulcasis, has been called the "father of modern surgery" and the "father of operative surgery". He was an Arab/Muslim physician who lived in Al-Andalus. He has been described by many as the father of modern surgery. His greatest contribution to medicine is the *Kitab al-Tasrif*, a thirty- volume encyclopedia of medical practices. His pioneering contributions to the field of surgical procedures and instruments had an enormous impact in the East and West well into the modern period, where some of his discoveries are still applied in medicine to this day (Cosman and Jones, 2008). He was the first physician to describe an ectopic pregnancy, and the first physician to identify the hereditary nature of haemophilia. Donald Campbell, a historian of Arabic medicine, described Al-Zahrawi's influence on Europe as follows (Campbell, 2001):

The chief influence of Albucasis on the medical system of Europe was that his lucidity and method of presentation awakened a prepossession in favour of Arabic literature among the scholars of the West: the methods of Albucasis eclipsed those of Galen and maintained a dominant position in medical Europe for five hundred years, i.e long after it had passed its usefulness. He, however, helped to raise the status of surgery in Christian Europe; in his book on fractures and luxations, he states that 'this part of surgery has passed into the hands of vulgar and unculti- vated minds, for which reason it has fallen into contempt.' The surgery of Albucasis became firmly grafted on Europe after the time of Guy de Chauliac (d.1368).

In the 14th century, the French surgeon Guy de Chauliac quoted al-Tasrif over 200 times. Pietro Argallata (d. 1453) described Abū al-Qāsim as "without doubt the chief of all surgeons". Abū al-Qāsim's influence continued for at least five centu- ries, extending into the Renaissance, evidenced by al-Tasrif's frequent reference by French surgeon Jacques Delechamps (1513–1588).

A3. 'Ali ibn al-'Abbas al-Majusi (d. 982)
One scholar asserts al-Majusi "must be acknowledged as a founder of anatomic physiology". In addition, the section on dermatology in his Kamil as-sina'ah at- tibbiyah (Royal book-Liber Regius) has one scholar to regard him as the "father of Modern dermatology". He discussed Neuroscience and psychology in The Complete Art of Medicine. He described the neuroanatomy, neurobiology and neurophysiology of the brain and first discussed various mental disorders, including sleeping sickness, memory loss, hypochondriasis, coma, hot and cold meningitis, vertigo epilepsy, love sickness, and hemiplegia. He placed more emphasis on preserving health through diet and natural healing than he did on medication or drugs, which he considered a last resort (Haque, 2004).

A4. Ibn-Haitham (Alhazen, 965-1040)
Alhazen is considered the "father of modern optics", the "father of physiological optics", and the "father of optics". His work has been summarized recently by Khan and Islam (2012).

A5. Al-Biruni(973-1043)
According to Francis Robinson, Al-Biruni earned the "founder of Indology" and "first anthropologist" titles for his remarkable description of early 11th-century India. George

Morgenstierne regarded him as “the founder of comparative studies in human culture”. Al-Biruni is also known as the “father of pharmacy”. Al-Biruni was well versed in physics, mathematics, astronomy, and natural sciences, and also distinguished himself as a historian, chronologist and linguist.

He was conversant in Khwarezmian, Persian, Arabic, Sanskrit, and also kne w Greek, Hebrew, Syriac and Berber. He spent a large part of his life in Ghazni in modern-day Afghanistan, capital of the Ghaznavid dynasty which ruled eastern Iranian lands and the northwestern Indian subcontinent. In 1017 he traveled to the Indian subcontinent and became the most important interpreter of Indian sci- ence to the Islamic world. He also made contributions to Earth sciences, and is regarded as the “father of geodesy” for his important contributions to that field, along with his significant contributions to geography.

A6. Al-Farabi(870-950)
Al-Farabi formalized Islamic logic, *Manteq*, often translated as ‘fuzzy logic’. Even though he is regarded by Eurocentric scientists as the “founder of Islamic/Arab Neoplatonism”, his work was entirely built on the logic put forward by Prophet Muhammad and practiced by his companions, including the four ‘rightly guided Caliphs’. As early as Imam Jafer As-Sadeq was an expert of Manteq. This logic is rooted in Islam and was not imported from Greek philosophy. Similar remark was also made by Peter Adamson, professor of Ancient and Medieval Philosophy at King’s College London. He said Al-Farabi “was not a political philosopher in the sense of having given concrete political proposals for running a society: Rather, his aim was to describe the societal conditions that tend to produce virtue and vice”.

A7. Al-Khawarizmi(780-850)
He was most renowned as the “father of algebra”; the word “algorithm” immortalizes his name in one of algebra’s keymost principles. Solomon Gandz states: “In a sense, Khwarizmi is more entitled to be called “the father of algebra” than Diophantus because Khwarizmi is the first to teach algebra in an elementary form and for its own sake, Diophantus is primarily concerned with the theory of numbers”. Recently, Islam et al. (2011, 2012) discussed how algebra of his time was more accurate both in approach and in form than the linear (or non-linear) algebra of today’s time.

A8 Averroes(1126-1198)
He known in Arabic as Ibn Rushd and is considered to be the ‘father of secular philosophy in Europe’. He was an Andalusian polymath born in Córdoba, Spain. Averroes was regarded by some Christian bishops as the “father of free thought and unbelief”and has been described by some as the “father of rationalism” and the “founding father of secular thought in Western Europe”. Ernest Renan called Averroes the absolute rationalist, and regarded him as the father of free-thought and dissent. Khan and Islam (2012) argued that Averroes was the last dogma-free scientist of Europe as all modern scientists adopted some form of dogma, albeit used a secular title.

A9 Ibn Hazm (994-1064)
He author of one of the earliest works on comparative religion and “honoured in the West as that of the founder of the science of comparative religion”. Alfred Guillaume refers to him the composer of “the first systematic higher critical study of the Old and New testaments”. However, William Montgomery Watt disputes the claim, stating that Ibn Hazm’s work was preceded by

earlier works in Arabic and that “the aim was polemical and not descriptive”. With proper understanding of Islamic faith, it becomes clear that Ibn Hazm demonstrated that Islam is the only dogma-free cognition process and calling it a ‘religion’ is a misnomer.

A10 Ibn Khaldun (1332-1406)
He is regarded by many as the father of sociology, historiography and modern economics. He is best known for his Muqaddimah. His description of social evolution is revolutionary and stands out as the most logical theory of political science and economics today.

A11 Jabir ibn Hayyan (721-815)
He has often been referred to as “the father of chemistry” and is widely credited with the introduction of the experimental method into alchemy, as well as with the invention of numerous important processes that are still used in chemistry today.

A12 Rhazes(865-925)
His treatise on Diseases in Children has led many to consider him the “father of pediatrics”. He has also been praised as the “real founder of clinical medicine”.

A13 Muhammad al-Shaybani (749-805)
He is considered to be the father of international law. He developed criteria for international laws based on the model demonstrated by prophet Muhammad, who implemented the model for maximizing natural justice. Such model is rarely used in today’s legal system that is inherently biased toward the more powerful of two entities that are entering a legal contractual relationship.

A14 Muhammad al-Shaybani (749-805)
He is considered to be the father of international law.