“Essential Elements for Structuring Academic Programs in Higher Education”

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Dedication

“In recognition of their role in enabling me, I dedicate all good aspects of today’s presentation to my elders, teachers, colleagues and students”.

(Prof. Syed M. Awais)

It is the mark of an educated mind to be able to entertain a thought without accepting it.

Aristotle (384 – 322 BC)
OUTLINES OF THE SEMINAR

1. Part-1
   Introduction to Educational Philosophies

1. Part-2
   Best International Practices

Part - 1

Introduction to the
Educational Philosophies
Philosophies are like Religion.

This is like mathematics where symbols + - × ÷ Mean; plus, minus, multiply and divide the numbers without asking the logic. If you need it, you follow it. (unlike religion policies can be modified over time)

1. Modernization is the normal tool in the hands of the mankind to continuously evolve this universe.

2. Fix the Problems First, and Place the Blames Latter.

2. Trust and Hope in the human beings must be the spirit behind modernization.

VISION

(Marefat) (Metaphysics) (Invisible Movements)

(1) Excellence in Education Means Quality of Life

(2) To grow the Profit, increase the business volume instead of increasing the price.

(3) While Moving Forward maintain Legitimacy and Validity.
Three mile stones
of Revolution in Learning.

1. The first vehhi, sent by the Almighty Allah to “Hazrat Muhammad (saww)” started with the word “Iqra” meaning “Read”, in 547 AD.
Both Reading & Writing of Quran started during the life of Hazrat Muhammad (saww)

2. Mechanized Printing Press was invented by two brothers in Gutenberg, Germany, in 1455 AD

3. World Wide Web (W.W.W) was invented by two brothers in CERN, Geneva, Switzerland, in 1983 AD.

WHAT IS EDUCATION?

Education is not Information But Formation

Education is Teaching and Training of Mind & Character
Wisdom

- Knowledge and Character when exist together

Modernization

1. Identify Problem
2. Admit Problem
3. Find Solution
4. Apply Solution
5. Question? Solution

Independent of the Nationality, Religion and Geographic Location
Individual as well as Society's Capital

Moral Capital
- Behaviors
- Skills

Knowledge Capital
- Width
- Depth

Economic Capital
- Kind
- Cash

Transformation of Knowledge into Economy *(for well being of Society)*

1. Applied Knowledge is converted into Skills/Services
2. Skills/Services bring Money
3. Money improves Prosperity and Well Being

The Theoretical Knowledge Is given to learn the “Practical Skills”
Knowledge Capital of the Society
(How to Measure)

X-Axis: No. of Subjects in all Disciplines

<table>
<thead>
<tr>
<th>No. of Super Specialties in each subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. X multiply Y =</td>
</tr>
<tr>
<td>2. Edu. Delivery Org to Population Ratio =</td>
</tr>
<tr>
<td>3. Education Providers to Population Ratio =</td>
</tr>
<tr>
<td>4. Students to Population Ratio =</td>
</tr>
<tr>
<td>5. Publications/yr to Population Ratio =</td>
</tr>
<tr>
<td>6. Innovations &amp; Patents to Population Ratio =</td>
</tr>
<tr>
<td>7. Quality at each Level of Learning.</td>
</tr>
</tbody>
</table>

TIME FRAME OF EDUCATION

Theoretical Knowledge
Hours/Day

Technical Skills & Behaviors
3 – 5 Years

Attitude
Over Generations
Teaching Equipment

• “State of the Art” Vs “State of the Practice”

During early 20th Century, the US apex court gave a decision that “where ever Public Interest is at risk, the concerned organizations must use the “State of the Art” equipment”.

Those who use the “State of the Practice” equipment will compensate the Public in case of any claim for losses.

Since 1985 in USA, this is considered as policy guide line to equip the educational institutions with the “state if the art” equipment in Public Interest.
Science Culture

• Evidence Based Decisions
• Data Directed Decisions.
• Transparency & Independent Decisions.

Forward Progression

• With common sense (intuition) & logic (knowledge)

Research Greats Human Progression

• Research Methods are Integral Part of Good Management
• Science and Human Goals are same Wellbeing.
• Tension between Flame of Research and problems of Commercialization need stable approach.
Elements of Human Progression

- Realization for Social Development.
- Leadership of Ideas.
- Knowledge Generation

- And here comes role of education.

Social Development

- **Soft Framework.**
  - Education.
  - Health
- **Hard Framework**
  - Communication (Roads, Railway, Air, Sea)
  - Structures
  - Productions
  - Services
  - Markets and Economy
Assumption; Only Young will Give to the Society

1. The Quality Assurance Systems,
2. The Devolution of “Power, Resources and Accountability” to make decisions.
3. Common Language to encourage contributions by all.

Encourage representation of young’s in higher management.
ACHIEVING THE VISION OF THE COUNTRY

(1947 to 2008)
Excellent Brain

Rest of the Brain Down the

Drain

UK

USA

Existing Education and future of REFORMS

• Need
• is the mother of Invention

• Dissatisfaction
• is the father of further development
Do we need to change?

If yes, We must follow educational philosophies & strategies.

Strategy to bring Change

- Best International Practices
- Modernization: Identify and Solve the Problems with Modern Knowledge and Technology
- Existing Education
Major shift.

The major shift is based on three philosophies.

1. What students are taught, to what trainees have learnt.
2. Acquisition of knowledge, to the application of knowledge.
3. Topic oriented teaching to objective oriented learning.

Uplift Education

• To produce more number of highly educated and trained “Men Power” to improve the GDP and well being of the Society.

• To achieve highest share in knowledge market and improve recognition of the Country

• To improve income and standards of living of the families of the Society.
Goals to Achieve

Launch,
“Legitimate Policies based upon Valid Philosophies”.
and
• Unlock the Education Delivery Potentials of the Education Delivery Institution by launching maximum number of Programs.
• and
• Increase the Income Generation Potentials of the Education Delivery Institution by increasing the student enrolments.

No. of Programs and Enrolments

<table>
<thead>
<tr>
<th>Major Faculties / Subjects</th>
<th>Level -0</th>
<th>Level-1</th>
<th>Level-2</th>
<th>Level-3</th>
<th>Level-4</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graduation Simple 2-years</td>
<td>Graduation Hons 4-6 years</td>
<td>PG Intermediate 2-years</td>
<td>PG Terminal 4-5 years</td>
<td>PG Super Specialize 2-years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medical</td>
<td>1 (600)</td>
<td>50 (500)</td>
<td>50 (400)</td>
<td>150 (300)</td>
<td>251 (1800)</td>
<td></td>
</tr>
<tr>
<td>Dental</td>
<td>1 (500)</td>
<td>10 (100)</td>
<td>10 (200)</td>
<td>30 (60)</td>
<td>51 (860)</td>
<td></td>
</tr>
<tr>
<td>Nursing</td>
<td>1 (100)</td>
<td>1 (400)</td>
<td>10 (100)</td>
<td>10 (50)</td>
<td>30 (60)</td>
<td>52 (710)</td>
</tr>
<tr>
<td>Allied H S</td>
<td>20 (400)</td>
<td>25 (1000)</td>
<td>25 (250)</td>
<td>25 (100)</td>
<td>75 (150)</td>
<td>140 (1900)</td>
</tr>
<tr>
<td>TOTAL</td>
<td>21 (500)</td>
<td>23 (2500)</td>
<td>90 (950)</td>
<td>90 (750)</td>
<td>270 (570)</td>
<td>394 (5270)</td>
</tr>
</tbody>
</table>
Part 3

Best International Practices

Essential Elements of Quality Higher Education
(Derived from Best International Practices)

1. Education Levels, Qualification Framework.
2. Education Levels’ Learning Objectives.
3. Qualification Descriptors in terms of Student’s achievements.
4. Levels of Learning Objectives (Blooms Taxonomy)
5. Credit Accumulation and Transfer System
7. Evaluation – Formative & Summative (Grades-Marks-Grade Points)
8. Program Specifications.
10. Learning Strategies
11. Faculty Recruitment & development
12. Student Support
13. Institutional Governance
14. Quality Assurance
15. Diploma Supplement.
Education Levels and their Learning Objectives.

(EU- Education Commission)

1. Level 1 recognize basic general knowledge and skills and the capacity to undertake simple tasks under direct supervision in a structured environment.
2. Level 2 recognize a limited range of knowledge, skills and wider competences that are mainly concrete and general in nature.
3. Level 3 recognize broad general knowledge and field-specific practical and basic theoretical knowledge; they also recognize the capacity to carryout tasks under direction.
4. Level 4 recognize significant field-specific practical and theoretical knowledge and skills. They also recognize the capacity to apply specialist knowledge, skills and competences and to solve problems independently and supervise others.
5. Level 5 recognize broad theoretical and practical knowledge, including knowledge relevant to a particular field of learning or occupation. They also recognize the capacity to apply knowledge and skill in developing strategic solutions to well defined abstract and concrete problems.
6. Level 6 recognize detailed theoretical and practical knowledge, skill and competence associated with a field of learning or work, some of which is at the forefront of the field.
7. Level 7 recognize self-directed, theoretical and practical learning, some of which is at the forefront of knowledge in a specialized field that provides a basis for originality in developing and/or applying ideas, often within a research context.
8. Level 8 recognize systematic mastery of a highly specialized field of knowledge and a capacity for critical analysis, evaluation and synthesis of new and complex ideas.

National Qualification System

• "National qualifications system" means all aspects of Education activity in the country is related to the recognition of learning and other mechanisms that link education and training to the labour market and civil society. This includes the institutional arrangements and processes relating to quality assurance, assessment and the award of qualifications.

• A national qualifications system may be composed of several subsystems and may include a national qualifications framework.

• In Europe this is called “European Qualification Framework” (EQF) and has 8 levels. First 4 for school education, 5th can take place at school/university/Vocational institution and last 3 at university.
### Education, Qualification Framework - EQF

<table>
<thead>
<tr>
<th>Level of qualifications</th>
<th>Category of qualifications</th>
<th>Nomenclature of Qualifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 (EU-5)</td>
<td>Undergraduate Simple</td>
<td>BA/ B.Sc</td>
</tr>
<tr>
<td>I (EU-6)</td>
<td>Undergraduate Hons</td>
<td>B.Sc. (Hons) / Equivalent /Professional</td>
</tr>
<tr>
<td>II (EU-7)</td>
<td>Postgraduate Intermediate Qualifications</td>
<td>M. Phil / Equivalent</td>
</tr>
<tr>
<td>III (EU-8)</td>
<td>Postgraduate Terminal Qualifications</td>
<td>PhD /Equivalent MD /MS /MDS /FCPS</td>
</tr>
<tr>
<td>IV</td>
<td>Postgraduate Super Specialization</td>
<td>Super Specialist / Post doc.</td>
</tr>
</tbody>
</table>

"Qualification"

- "Qualification" means a formal outcome of an assessment and validation process which is obtained when a competent body determines that an individual has achieved learning outcomes to given standards.
"Competence"

- "Competence" means the proven ability to use knowledge, skills and personal, social and/or methodological abilities, in work or study situations and in professional and personal development. In the context of the European Qualifications Framework, competence is described in terms of responsibility and autonomy.

"Skills"

- "Skills" means the ability to apply knowledge and use know-how to complete tasks and solve problems. In the context of the European Qualifications Framework, skills are described as:
  - cognitive (involving the use of logical, intuitive and creative thinking) or
  - practical (involving manual dexterity and the use of methods, materials, tools and instruments).
Implementation of EQF

- The EQF is a tool based on learning outcomes rather than on the duration of studies. The main reference level descriptors are:
  1. Knowledge.
  2. Competences.

- The core element of the EQF is a set of eight reference levels describing:
  1. what the learner knows;
  2. what the learner understands.
  3. what the learner is able to do.

Levels of Learning Objectives
(Bloom’s Taxonomy)
(Prof. Benjamin Bloom – USA - 1956)

Predetermined LEVELS of learning objectives

There are three (3) Levels of Learning objectives.

1. Cognitive Domain (Theoretical Knowledge)
2. Affective Domain (Attitudes/Emotions/Feelings)
3. Psychomotor Domain (Physical and Technical Skills)
Each Level of Learning Objective have further sub-levels.

**Cognitive Domain (Theoretical Knowledge)**
- C.1 - Knowledge; (Remember & Recall)
- C.2 - Comprehension; (Grasping / Understanding)
- C.3 - Application; (Use of concept in new situation)
- C.4 - Analysis; (Breakdown of inf. into components)
- C.5 - Synthesis; (Use knowledge to derive new knowledge)
- C.6 - Evaluation; (Judgment about value of ideas)

**Affective Domains (Attitudes / Emotions / Feelings)**
- A.1 - Receiving; (Willingness / Attention to hear)
- A.2 - Responding; (Willingness to respond / Motivation)
- A.3 - Valuing; (Attaching value to object / behavior)
- A.4 - Organization; (comparative prioritization)
- A.5 - Internalizing values; (Behavior controlled by values)

**Psychomotor Domain Physical / Technical skills**
- P.1 - Perception; (Sensation / Imagination to guide action)
- P.2 - Set; (Mental, emotional + physical willingness to act)
- P.3 - Guided response; (Imitation / Trial and Error)
- P.4 - Mechanism; (actions with confidence + Proficiency)
- P.5 - Complex Response; (Performing Correct without Hesitation)
- P.6 - Adaptation; (Can modify skills for special needs)
- P.7 - Organization; (create new skills for special needs)

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**Sufi’s Taxonomy of Levels of Learning Objectives**

1. **Sheriat** – Procedure-(skilled laborer)
2. **Tareeqat**- Path/Rules- (supervisor)
3. **Haqeeqat**- destination/aims- (Group Leader)
4. **Marefat.** – beyond the destination/vision (capacity to philosophies) (community leader)
Credit Accumulation & Transfer System (CATS)

• Credit Hour or Credit Unit is basically the academic currency of the academic activities i.e. units, modules, semesters and programs.
• CATS is based on the principle that 60 credits measure the workload of a full-time student during one academic year. (30 for a Semester)
• The student workload of a full-time study program in Europe amounts in most cases to around 1500-1800 hours per year
• One credit stands for around 25 to 30 working hours

Grade Point System

1. In education, “grade or marks” is a teacher’s standardized evaluation of a student’s work.
2. In some countries, evaluations can be expressed quantifiably, and calculated into a numeric Grade Points, which is used as a metric by employers and others to assess and compare students.
3. A Grade Point (GP) of a module is derived from grades or marks of the teachers evaluation of a student.
4. A Grade Point Average (GPA) refer to a mean of Grade Points of all modules in one Semester/Term.
5. A cumulative grade point average (CGPA) is the mean of Grade Points of all modules in a prescribed academic Program/Phase/Term.
• **7.1. Grade Points of a Module**
  - True Grade Point of a Module = (number of grade point value) x (number of earned credit hours) divided by (the total credits of the module).

• **7.2. Grade Point Average (GPA) of a Semester.**
  - GPA = (sum of grade points value of all modules taught in one semester) x (Sum of the earned credit hours of the semester) ÷ (total number of the credit hours of the semester)

• **7.3. Cumulative Grade Points Average (CGPA) of more than two Semesters.**
  - CGPA of a Program / Phase / Term = (sum of grade points value of all modules taught in one Program) x (Sum of the earned credit hours of the whole program) ÷ (total number of the credit hours of the Program)

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**Semesterization and Modularization**

- **Semesterization:** Subdivision of “Annual Study Period” into two “Semesters of 16 to 18 weeks” each, in a way that the curriculum content can be “Evaluated” independently.

- **Modularization:** Subdivision of “Curriculum Content” into small packets known as Modules or Units, that can be “Taught & Evaluated” independent of rest of curriculum.

- **All Programs must have at least one Comprehensive Evaluation, before Qualification Award.**
WHAT IS CURRICULUM?
(Leiden /Glasgow 16th Century AD)
Latin word meaning “white lines in a play ground to lay general rules of the game”.

1- Entry.
2- Education Event:
   1- Curriculum Content
   2- Curriculum organizer
   3- Learning Resources
   4- Educational Strategies
   5- Counseling /Assessments /Examinations.
3- Exit

STRUCTURE OF CURRICULUM

1. Framework of the Program
   Legal Boundaries (Statutes & Regulations)

2. Academic Standards of the Program
   Explicit Statements of out-come in terms of achievements

3. Academic Quality of the Program
   Tools and Procedures of Measurement of the Effectiveness of the procedures & provisions included in standards

REGARDING
1. Entry (Qualifications & Procedure)
2. Education Event (Generic & Subject specific Competencies)
3. Evaluations ,Calendar, Tools, Techniques, Procedures
Integration

- **Social Integration:**
  Integrate Teachers and Students from different Disciplines / Subjects to stabilize the society.

- **Discipline Based Integration:**
  Integration of knowledge at discipline level (allied engineering and social sciences).

- **Subject Based Integration:**
  Integration of knowledge from different subjects related to one system or organ of the body into one packet called “Module”

- **The Multidisciplinary Universities** are Known as “the Best Stabilizers of the Society” as they integrate the Society and the Knowledge, Provide Valid Consultation/Guidance and Create New Knowledge.

Integration in Health Science Education

Transformation of Traditional Subject Based Curriculum Contents Into System or Organ Based Curriculum Contents (known as Module)

So that each module may be taught and evaluated independently.
Program Specifications

1. Awarding body / institution
2. Teaching institution (if different)
3. Details of accreditation by a professional / statutory body
4. Name of the final award
5. Program title
6. Aims of the program
7. Relevant subject benchmark statements and other external and internal reference points used to inform program outcomes
8. Program outcomes: knowledge and understanding; skills and other attributes
9. Teaching, learning and assessment strategies to enable outcomes to be achieved and demonstrated
10. Program structures and requirements, levels, modules, credits and awards
11. Date at which the program specification was written or revised
12. Criteria for admission to the program
13. Information about assessment regulations
14. Indicators of quality
15. Particular support for learning
16. Methods for evaluating and improving the quality and standards of learning

Learning Strategies

- In an attempt to achieve learning objectives in medical education, TEN educational strategies have been developed after 1950.

1. Student-centered learning (SCL). Instead of Teacher centered Learning
5. Core curriculum design with Electives to Accommodated Knowledge Overload
7. Task-based learning (TBL) by replacing simulations with real task.
8. Evidence Based Learning (EBL). Replaced Authority of Teacher by Evidence
9. Best Evidence Based Medicine (BEBM)
10. Team Based Learning (TBL). Group of Students achieve Common Goal.
Developments in Learning Strategies

Traditional

Student Centered
Integration Based
Problem Based
Task Based
Evidence Based
BEBM Team Based

Before 1950

Step By Step


Program Progress File (EU)
Record of Student’s Learning Experience.

Personal Development File (Log Book)
Each year the student must record his experience regarding the major elements of Learning of the Program, and also raise his critical observations.

The Teachers are expected to reply to student’s critical observations.
Faculty Recruitment and Development

1. All processes must be Transparent and Competitive.
2. Selection Procedure should be based upon evaluation by the "(1) Students, the (2) Peers and the (3) Selection Board".
3. Tenure Track System must be adopted as it retains only good teachers.
4. Continuous Professional Development of Teachers must be ensured.
5. Regular Monitoring and Periodic Review of Teachers Performance must be performed in a way that Teachers, Chairmen and Deans participate in Performance Evaluations.
6. Statements of "Institutional Interest" to deal with any conflict arising from individual’s interest must be provided to teachers.
7. The “Academic Freedom” of the Teachers must be protected.
8. Ensure that “Rewards for the Teachers” are enough for a decent living.

Quality Assurance of Programs

• Three (3) Levels / Cycles of Quality Assurance.

1. Continuous Monitoring of the Program by the Program Director. (Annual Report)
2. Peer Review / Internal Review /Self Assessment; of the Program by two Peers of same specialty appointed by the University. (every 2-3 years)
3. Accreditation / External Review of the Program by the external, non governmental body not running the similar Program. (every 5- years)
Management of Programs

1. Supervisor/Mentor
2. Program Faculty
3. Program Director
4. Chairman of each Similar Programs Coordination Committees (PCC)
5. Chief of the Academic affairs of the Institution.

Management of Academic Managers

To achieve excellence in quality of education, and efficiency of the academic management, it is essential that:

1. i- Responsibilities, ii- Resources (both material and Human Resource), and iii- Accountability are given along with;
2. i- Academic, ii- Financial and iii- Administrative Autonomy to,
3. i- The Chief of Academic Affairs, ii- The Chairmen of all Similar Programs Coordination Committees and iii- The Program Directors.
Governance of Education Delivery Organization

- All written, Transparent, Fair and open to new ideas and change.
- Data Directed Decisions (Evidence Based)
- Democratization (more elections & less selections)
- Devolution of Responsibilities, Resources and Accountability at all levels of responsibilities.
- Respect and encourage Team work instead of traditional divide and rule.
- All Procedures in easy National Language.
- Promote integration of Knowledge, Students and Faculty, both vertically and horizontally.
- Committed to encourage Research for the Development and addition of New Knowledge in “World’s Literature”
- Committed to arrange and provide “State of the Art” learning technology.
- Responsible to address the knowledge needs of the society.
- Committed to participate with other players in “National Development”.

The Structure of Education in Europe:
Implementing Bologna – On the way to a European success story?
Conference 10-11 October 2008, Berlin, Germany

- 1. Modularisation
  - weakens strict separation between pre-clinical and clinical training
  - students acquire a sense of responsibility for their own studies
  - ‘exit strategies’ (paths for those who do not complete the medical PhD) are made more easily available which benefits the sector by splitting students into research and practising staff

- 2. Learning Out come Based
  - an important challenge lies is defining the learning outcomes of Bachelor, Master and Doctoral studies

- 3. Internationalisation
  - exchange of information is of vital importance for industry and society
  - Students should not embark on six years of study unless they are sure they wish to practice one day
  - There should be suitable exit and re-entry strategies
Code of Ethics

When you have Two Unavoidable Dangers on both sides Sail Carefully
End
Thank you