AR. HABEEB KHAN
PRESIDENT

Ref. No.CA/5/Academic/2023
January 9, 2023

1. **TO ALL THE HEADS OF ARCHITECTURAL INSTITUTIONS IMPARTING RECOGNIZED ARCHITECTURAL QUALIFICATIONS IN THE COUNTRY**

2. **TO ALL THE VICE-CHANCELLORS & REGISTRARS OF UNIVERSITIES AWARDING B.ARCH./M.ARCH. DEGREE IN THE COUNTRY**

3. **ALL PRACTISING ARCHITECTS IN THE COUNTRY**

Sub. : Architecture Education Way ahead, in pursuit of Education Reforms – Interim Report released by the Council - reg.

Dear Sir/Madam,

As you are aware, the National Education Policy of India 2020 (NEP 2020), which was approved by the Central Government in July 2020, outlines the vision of India's new education system and aims to transform India's education system by 2040.

The NEP envisions establishment of a National Higher Education Regulatory Council (NHERC) which will be a single point regulator. Multiple regulatory bodies such as COA, AICTE, UGC, NCTE etc. will be restructured to enable NHERC to act as a single point regulator.

With a view to understand and define the role of Council of Architecture within the framework of NEP, the Council has prepared an "**Interim Report - Architecture Education Way ahead, in pursuit of Education Reforms**". The Interim Report is being released for circulation amongst all stakeholders for their opinions and comments.

In view of the above, all stakeholders are requested to communicate their opinions and comments at email: **coa.educationreforms@gmail.com** within a month of its circulation, so that the Council may collate the responses/comments received and proceed with the final road map for education reforms.

Thanking you,

With best wishes,

HABEEB KHAN

Encl. : as above

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Council of Architecture
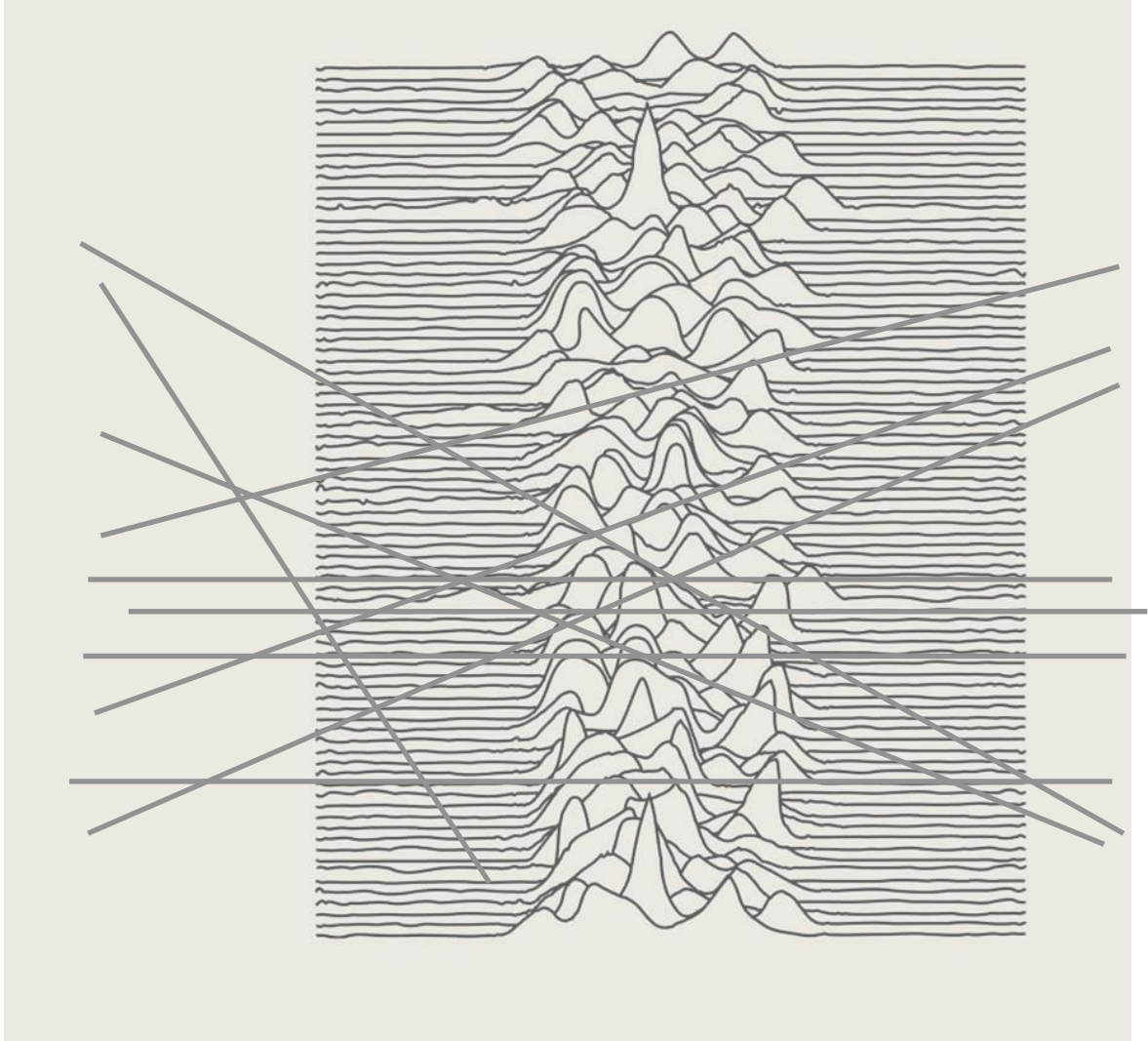
ARCHITECTURE EDUCATION
Way ahead, in pursuit of Education Reforms

INTERIM REPORT

COUNCIL OF ARCHITECTURE

JANUARY 2023

PRESIDENT'S MESSAGE
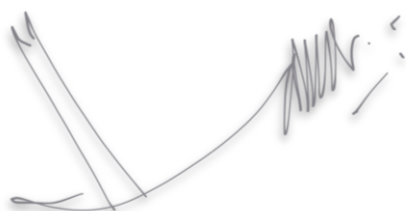
Dear Colleagues,

Greetings.!

Architectural education since its initiation in our country has been multi-disciplinary, amalgamating quite a few parallel and lateral fields into its fold, making it more versatile and holistic. The New Education Policy 2020 which also talks of a similar structure will further liberate architecture education and if implemented effectively will improve its quality substantially.

Council was one of the first to notify Council of Architecture (Minimum Standards of Architectural Education) Regulations, 2020, after the announcement of the NEP 2020 and initiated work through an empowered committee, so as to facilitate our institutes to be equipped for education reforms. The committee consisted of Prof. Pushkar Kanvinde as convenor and Prof. A. Srivatsan, Prof. Binumol Tom, Prof. Durganand Balsavar, Prof. Jeetkumar Gupta, Prof. Mamtha P. Raj, Prof. Persi Engineer, Prof. Rupinder Singh, Prof. Sanjeev Singh, Prof. Vandana Sehgal and Prof. Ujjwala Chakradeo. The committee deliberated over few months before arriving at this interim report which was approved in the Council for circulation amongst all stakeholders for their opinions and comments. The response so received shall be collated and a final report prepared. The final report, I am sure shall be an effective road map to prepare our institutes for education reforms. I sincerely thank each and every member of the committee and staff of the Council who have put in a lot of their precious time, energy and thoughts into producing this interim report and contributing meaningfully to improve quality in Architecture education.

I am pleased to present to you this Interim report for your kind perusal, observation, opinion and comments. Please feel free to revert back with the same within 30 days of the circulation of this, so as to enable us to proceed with the final road map for bringing fruitful reforms in Education.

Awaiting your feedback,

With best wishes,

HABEEB KHAN

President

January 9, 2023

"Together we can bring about a change"

ARCHITECTURE EDUCATION: WAY AHEAD

PREAMBLE

National Education Policy (NEP) 2020, if implemented in its present form, will bring in sweeping changes to field of education in general and architecture education in particular. It will also significantly change the activities, structure and role of Council of Architecture.

It is needed to see how and in what way we need to restructure architecture education in light of proposed changes in higher education for education reforms.

There is a need to transform current scheme of higher education into that of multidisciplinary undergraduate education where the student can choose combination of courses across the streams as per choice. For the purpose, large multidisciplinary institutes of higher education are to be created to facilitate cross disciplinary learning and research. In the process, current single-discipline institutes offering single stream/ program will have to expand horizontally to offer multiple disciplines or perish. Further, there will be no affiliating universities. All the institutions of higher learning shall be either stand-alone university with constituent colleges of autonomous colleges offering degrees on their own.

Most of the institutes imparting education in Architecture today are single program institutions. However, many of them have sister institutes under management of same trust/ society that offer variety of disciplines. Such a situation may facilitate smooth conversion to multi-disciplinary institution. For example, many architecture colleges are part of technical education, art education or design education campus, thus with some restructuring such institutions will be in a position to transform into large universities or cluster of higher education institutes offering multi-disciplinary undergraduate education. At the same time, they must also offer post-graduate programs and pose themselves as Teaching Universities/ Research Universities of Autonomous colleges offering their own degrees.

This process of key transformation must be properly conceived and monitored, as the colleges may need support to turn the event to benefit the quality of education and strengthen one or many disciplines. At such a juncture, in interest of profession of Architecture, Council of Architecture, has proactively engaged with brining education reforms to provide guidelines that will facilitate mapping/ smooth transformation while enhancing quality of Architecture education. *(10.5: Imaginative and flexible curricular structures will enable creative combinations of disciplines for study and would offer multiple entry and exit points, thus removing currently prevalent rigid boundaries and creating new possibilities for life-long learning.)*

Since the beginning, Architecture has remained one stream of education that is holistic in nature and therefore offers possibility of horizontal expansion through variety of courses from liberal arts, technology, humanities and more such backgrounds. While facilitating such an expansion, we need to keep in mind the training/ learning required to perform duties of a professional architect. We must prescribe the requirements of such training through well-crafted path to acquire required credits for seeking registration as an architect.

In light of above, Council had formulated a sub-committee to prepare such guidelines. After much deliberations over more than eight months, the committee has come up with the following recommendations suggesting certain modifications to the undergraduate, graduate education, professional training and process of registration as an architect.

REGULATION OF ARCHITECTURE EDUCATION AND REGISTRATION

As of now both regulation of education and registration as an architect are under purview of Council. As such, Council is able to keep watch on quality of education imparted by an institute through periodic inspection of facilities as well as outcome (Students' work), thus ensuring certain minimum quality or standard of professionals entering the profession. This practice is ideal and has been very well established over the period. Addition of accreditation scheme would make this practice complete in all respects. However, now with NEP being implemented, regulation of education proposed to be under the different bodies formulated by the government. Council of Architecture, in the new situation, is expected to play a role in only three of the four verticals proposed and that also in a very limited way. In its **first vertical** a National Higher Education Regulatory Council (NHERC) will be established and will be a single point regulator. Multiple regulatory bodies (such as COA/ AICTE/ UGC) will be restructured to enable NHERC to act as a single point regulator. Here it is important to understand how COA can play a role which a point of discussion within the framework of NEP. Here, representation of COA in the regulatory Council is suggested. The **second vertical** will be a mechanism to enable regulations as prescribed by NHERC through accreditation which will be governed by National Accreditation Council (NAC). The accreditation will be based on the basic norms as prescribed by NHERC, public self-disclosure, good governance, and outcomes. The accreditation will be carried out by an independent ecosystem supervised and overseen by NAC. COA can assist NAC in formulating the parameters for accreditation of institutions. At this juncture it is suggested that Council may frame the accreditation guidelines take into consideration requirements and provisions of the *Canberra Accord* and look forward to be signatory of the accord. The **third vertical** will General education Council (GEC) who will be forming the National Higher Education Qualification Framework (NHEQF) and will be defining the "Graduate attributes" such as learning outcomes, credit transfer, equivalence, specific skills to be acquired by the student with an aim to have well rounded graduate. All the professional Councils will be invited to be member in the GEC. The Council may not have much role to play in the **fourth vertical** dealing with funding of institutions and research.

Thus, role of Council, will mainly be to set professional standards as well as registration of architects. As a **Professional Standards Setting Body** (PSSB), Council can prescribe the content and duration of education and also prerequisites for registration. Council has to set high standards of expectation on education as they directly impinge on professional standards. A mechanism of examination for registration as an architect (license to practice) can be adopted by COA. The rules governing this examination needs to be formulated by COA and the mechanism for the examination be finalized within those rules. We propose the following process of registration.

The candidate applying for registration shall fulfil the following requirements:

a. Must have acquired a Master's degree in Architecture from a program duly accredited by the National Accreditation Council (of India or respective country where the program is attended). Such degree shall have minimum five years learning after 12th standard or equivalent schooling and the candidate must acquire **core architecture credits** as prescribed by the Council. Any shortfall in credits may be covered by undergoing bridge course/ additional semester of coursework.

b. The candidate shall acquire professional experience by working in an architect's office or in an organization involved in architecture/ real estate development/ construction, under supervision of a registered architect (with at least 5 years standing), full time, for minimum two years. This training could be in two parts of one year each. The first part can be after completing three years of learning (acquiring UG Degree) while the second part, shall necessarily be after acquiring above referred degree after five years of learning. **The second part must be undertaken in India irrespective of from where the degree is acquired.**

c. The candidate, on complying above two requirements, shall be considered eligible to appear for examination for registration conducted by Council of Architecture through a designated arm or agency.

d. On passing the examination the candidate may seek registration as an architect with the Council.

The process shall be common for all candidates who have studied architecture from anywhere in the world. Candidate may also have to undergo a bridge course during professional experience, if required, to homogenize with the local context.

Architect's Act 1972 should be duly amended to incorporate these changes.

ACADEMICS/ PROGRAM STRUCTURE

Professional degree program for architecture shall be of minimum duration of five years after completing high school education. (12th Standard). The institutes may foster novel and engaging courses either by coursework or by research. To facilitate multi-disciplinary undergraduate education, we can offer multiple entry and exit provisions to the candidate.

A. Candidate entering after SSC (10th) having option of 3+2+2 or 3+3+1 to acquire professional degree.

B. Candidate entering after HSC (12th) having option of 3+2, 4+1 or 3+3 to acquire professional degree.

C. Candidate entering after Bachelor's degree having option 1+2 to acquire professional degree.

Category A candidate will have three exit options, after 3 years (Diploma), further 3 years for Diploma in other than Architecture/2 years for Diploma in Architecture (UG degree), further 2/1 years (PG Degree – professional) whereas **Category B** will have two exit options, after 4/3 years (UG degree) further 2/1 years (PG Degree – Professional).

Undergraduate degree program can be of three- or four-year duration after 12th. Three years degree program may offer major in architecture while the four years program with fourth year dominated by research, may offer honours in Architecture. **However, both will not be considered as degree sufficient for registration**. Completing one-year additional year bachelor's professional degree OR two years post graduate degree in **architecture** will lead to partial completion of requirements for registration as architect.

First year of undergraduate degree program can be foundation course common to multiple disciplines with major portion of curriculum devoted to imparting common necessary skills, including technical as well as soft skills. The programs may be so tailored that the candidate undergoes a foundation course common to the cluster of programs. During this basic training/education, the institute may administer an aptitude test and as per inclination of aptitude the candidate may be advised to choose courses across disciplines offered by the institution and based on number of credits acquired receive the undergraduate degree that may be oriented to a particular discipline. Institutes may offer **exit after foundation year with Certificate** stating acquired skills of knowledge. Such certificate should possibly prove useful for the candidate to further his studies in other disciplines. **Candidate with prescribed Core Architecture credits at 10+3 diploma level may seek admission directly to second year of under graduate degree skipping the foundation year.**

Completing three-year undergraduate program will equip the students with enough skills that will help him/her get a job placement in the architectural offices/ building industry at appropriate level as per skills acquired or may help him/her in enrolling in architecture or **may seek exit with bachelor's degree** and pursue other allied courses such as design, management or construction fields as per his choice/ aptitude. This course can also give an opportunity window for a student to take a break and can re-register in Master's course later. This entry and exit option also need to be considered from the perspective that which courses in other allied disciplines could be permitted for admission to architecture in the next stage of Architecture course.

Post graduate education, however, will be more focused to acquire specialization in a particular discipline, including architecture that forms part compliance of eligibility requirements for registration as an architect.

Some universities may offer one year program after bachelor's degree and one-year professional training leading to bachelor's degree in architecture (B. Arch.) as professional degree, however, candidate seeking exit through this program will need to acquire prescribed **Core Architecture credits** for part compliance of eligibility requirements for registration as an architect. **This option will be available only for Category A and B candidates**.

COA may recommend subjects/ courses to become eligible to gain entry to post graduate program in architecture and also to be eligible to seek registration. At undergraduate level such credits should be majority of the total credits required to acquire undergraduate degree.

Master's degree program leading to required professional qualifications in architecture stream can be flexible. With basic duration of two years for those who have acquired three-year undergraduate degree. Candidate passing Bachelor's Degree with Honours (4-year duration) choose to complete the program with one year of learning. Similarly, **Category C** candidate joining from various bachelor's

degree programs and not having sufficient Core Architecture Credits to his account may have to put in one additional year/ semester as pre-master's program and acquired required credits before joining the regular master's program.

Candidate with sufficient research credits to his account on completion of masters and not wanting to pursue professional stream, may join doctoral program (Ph.D). One not having required research credits may have to complete coursework before continuing with doctoral program. Registration as an architect shall be considered equivalent to Ph.D. in architecture.

To facilitate these kinds of entries and exits to and from program, CoA shall define the nature of courses and program outcomes (PO).

Note: It is suggested that one must acquire 200 to 220 credits to get professional degree. These could be 120-132 credits till undergraduate degree and 80-88 during graduate degree. Council shall prescribe nature of courses and streams to be undertaken for UG and PG program. Credits acquired through these courses shall be termed as core architecture credits. As NEP suggests bachelor's degree of three- or four-years duration whereas currently bachelor's degree in architecture is of five years duration. This degree program cannot be reduced to three or four years. Keeping in tune with NEP it may be practical to scrap nomenclature of B. Arch. To avoid confusion with current degree and replace the professional degree with nomenclature of M. Arch. without any specialization.

OUTCOME BASED EDUCATION

GRADUATE ATTRIBUTES

Graduates Attributes (GAs) form a set of individually assessable outcomes that are the components indicative of the graduate's potential to acquire competence to practice at the appropriate level. The attributes shall be broadly categorized into Critical/Reflective thinking and
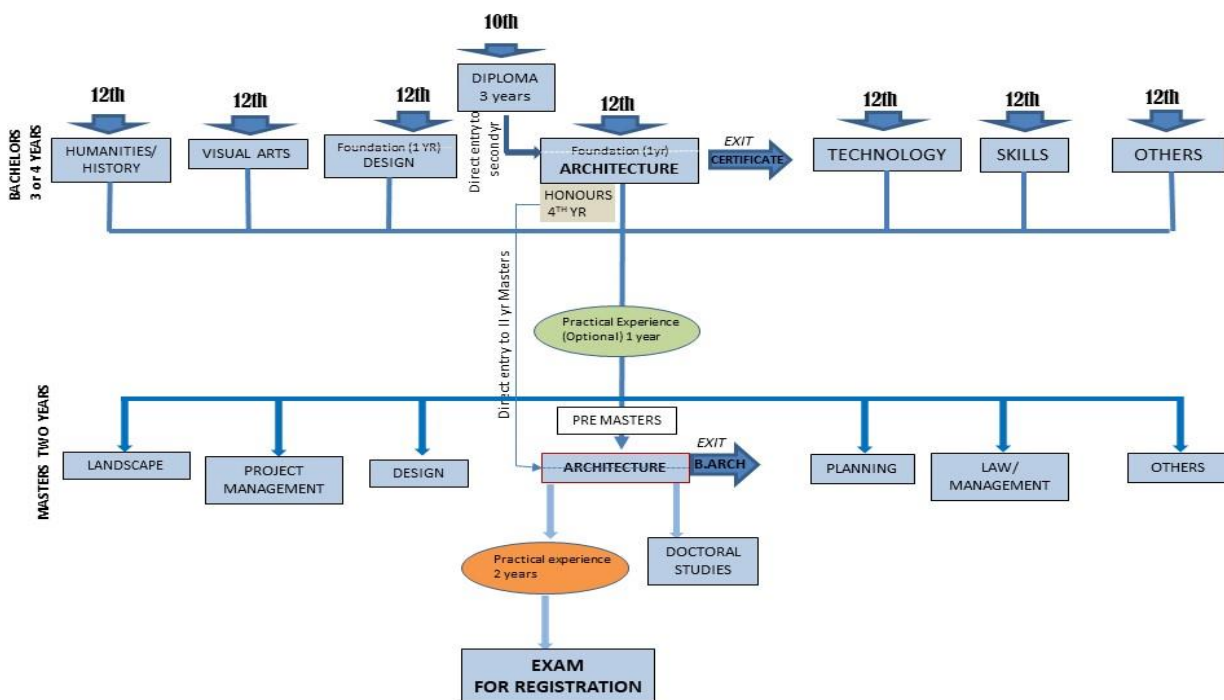
communications, Design and Technical skills, Comprehensive design and Leadership and Practice. The GAs are examples of the attributes expected of a graduate from an accredited program. CoA has suggested the Graduate Attributes as below:

To understand Architecture as a language, knowledge in the following subjects is to be acquired by the student:

1. **Architectural Design:** *To create* architectural designs that satisfy aesthetic, functional and technical requirements creating liveable habitat imbued with an understanding of social responsibility.

2. **Inter relationships between Buildings, People and Environment:** *To understand* the relationship between people and buildings, and between buildings and their environment, and of the need to relate buildings and the spaces between them to human needs and scale.

3. **Formal Ordering Systems in Architecture and Visual Arts:** *To understand* the fundamentals of visual perception and the principles and systems of order that inform two- and three-dimensional design, architectural composition, and urban design.

4. **Social responsibility in Architectural education and practice:** *To understand* the profession of architecture and the role of the architect in society,–particularly in preparing briefs that take into account social factors.

5. **Human Behaviour:** *To develop* knowledge of the theories and methods of inquiry that seek to clarify the relationship between human behaviour and the physical environment.

6. **Human Diversity:** *To be aware of* the diverse needs, values, behavioural norms, physical ability, and social and spatial patterns that characterize different cultures and individuals especially sensitisation about the various gender needs (women and LGBTQA+) and the implication of this diversity for the societal roles and responsibilities of architects.

7. **Fine art traditions:** *To grasp* fine arts (local, regional, national and international) as an influence on the quality of architectural design.

8. **Contexts and traditions in India:** *To develop* sufficient knowledge about the various local and regional contexts in which architects work in terms of continuing traditions, crafts, vernacular practices, climatic, technological, socio-economic, and other cultural factors that have shaped and sustained them.

9. **Global practices:** *to develop* knowledge of divergent histories, traditions practices, and conditions of architectural practice across the world.

10. **Cultural Heritage:** *To be aware of* responsibilities toward human, social, cultural, urban, architectural, and environmental values, as well as architectural heritage.

11. **Building Science Concepts:** *To recognize* physical problems and technologies and of the function of buildings so as to provide them with internal conditions of comfort and protection against the climate.

12. **Introduction to the theory and practice of Industry Institute Interface:** *To be aware* of the role of the industries, organizations, regulations, and procedures involved in translating design concepts into buildings and integrating plans into overall planning.

13. **Introduction to Sustainability and environmental conservation:** *To know* the means of achieving ecologically sustainable design and environmental conservation and rehabilitation. Understand the principles of sustainability in making architecture and urban design decisions that conserve natural and built resources, including culturally important buildings and sites, and in the creation of healthful buildings and communities.

14. **Accessibility:** *Ability to* design both site and building to accommodate individuals with varying physical abilities.

15. **Program Preparation:** *Ability to* prepare a comprehensive program for an architectural project, including assessment of client and user needs, a critical review of appropriate precedents, an inventory of space and equipment requirements, an analysis of site conditions, a review of the relevant laws and standards and assessment of their implication for the project, and a definition of site selection and design assessment criteria.

    To realize the methods of investigation and preparation of the brief for a design project.

16. **Site Design:** *Ability* to analyze and respond to context and site conditions in the development of a program and in the design of a project.

17. **Structural Systems:** *Understanding of* principles of structural behavior in withstanding gravity and lateral forces and the evolution, range, and appropriate application of contemporary structural systems.

18. **Building Techniques:** *Development* of a creative competence in building techniques, founded on a comprehensive understanding of the disciplines and construction methods related to architecture.

19. **Environmental Systems:** *Understanding of* the basic principles and appropriate application and performance of environmental systems, including acoustical, lighting, and climate modification systems, and energy use, integrated with the building envelope.

20. **Life Safety:** *Understanding of* the basic principles of life-safety systems with an emphasis on egress.

21. **Building Envelope Systems:** *Understanding of* the basic principles and appropriate application and performance of building envelope materials and assemblies.

22. **Building Service Systems:** *Understanding of* the basic principles and appropriate application and performance of plumbing, electrical, vertical transportation, communication, security, and fire protection systems.

23. **Building Systems Integration:** *Ability to* assess, select, and conceptually integrate structural systems, building envelope systems, environmental systems, life-safety systems, and building service systems into building design.

24. **Building Materials and Assemblies:** *Understanding of* the basic principles and appropriate application and performance of construction materials, products, components, and assemblies, including their environmental impact and reuse.

25. **Urban Design and Conservation:** *Understanding* the principles and approach/ methodology of urban design and architectural and urban conservation of cities and towns so that the student himself will reflect on why the contemporary cities and towns are not worth upkeep and preservation.

26. **Use of Precedents:** *Ability to* incorporate relevant precedents into architecture and urban design projects.

27. **Construction Cost Control:** *Understanding of* the fundamentals of building cost, life-cycle cost, and construction estimating.

28. **Technical Documentation:** *Ability to* make technically precise drawings and write outline specifications for a proposed design.

29. **Client Role in Architecture:** *Understanding of* the responsibility of the architect to elicit, understand, and resolve the needs of the client, owner, and user.

30. **Comprehensive Design:** *Ability to* produce a comprehensive architectural project based on a building program and site that includes development of programed spaces demonstrating an understanding of structural and environmental systems, building envelope systems, life-safety provisions, wall sections and building assemblies and the principles of sustainability.

31. **Architect's Administrative Roles:** *Understanding of* obtaining commissions and negotiating contracts, managing personnel and selecting consultants, recommending project delivery methods, and forms of service contracts.

32. **Architectural Practice:** *Understanding of* the basic principles and legal aspects of practice organization, financial management, business planning, time and project management, risk mitigation, and mediation and arbitration as well as an understanding of trends that affect practice, such as globalization, outsourcing, project delivery, expanding practice settings, diversity, and others.

33. **Project financing and management:** *To understand* the nuances of project financing, project management, cost control, and methods of project delivery.

34. **Professional Development:** *Understanding of* the role of internship in obtaining licensure and registration and the mutual rights and responsibilities of interns and employers.

35. **Legal Responsibilities:** *Understanding of* the architect's responsibility as determined by registration law, building codes and regulations, professional service contracts, zoning and subdivision ordinances, environmental regulation, historic preservation laws, and accessibility laws.

36. **Ethics and Professional Judgment:** *Understanding of* the ethical issues involved in the formation of professional judgment in architectural design and practice.

> Architectural students should be made critically aware of the political and financial motivations behind client's briefs and building regulations in order to foster an ethical framework for decision making within the built environment.

37. **Self-awareness and achieving higher goals in Architectural Education**: Understanding of Self-deception and leadership, Cognitive intelligence, Moral intelligence, Emotional and social intelligence, Ecological intelligence, Spiritual intelligence, Mind-centered and Heart-centered living, Self-actualization and beyond. "Know thyself", as Socrates said, is an important first step. Self- awareness is a powerful means of discovering one's true nature and potential. The approach will be broadly universal and exploratory (not narrow or dogmatic), including both traditional and modern wisdom, aimed at developing a broad open mind and a big heart. The higher goals of education include developing multiple dimensions of intelligence, not just the cognitive, but also, the physical, the moral, the emotional, the social, the ecological and spiritual dimensions.

The Program Outcomes (PO) formulated for each program by the institute must be consistent with the CoA's Graduate Attributes.

PROGRAMME OUTCOME AND MEASUREMENT

The program shall indicate the process involved in defining and redefining the PO. It shall also provide how and where the POs are published and internally disseminated. How they address the needs of the stakeholders of the program and are aligned with the Graduate Attributes prescribed by the CoA. The ways to measure the outcome of the course is defined in the sections below.

COMPETENCIES AND MEASUREMENT

A consummate architectural professional must demonstrate four kinds of competencies:

a. Vocational Skills
b. Professional Skills
c. Critical/ Responsive Thinking
d. Ethical Sensibilities

A. *Vocational Skills* include the seven basic R's:
1. Art and Architecture Graphics (including physical model making)
2. Digital Competency: including BIM and Parametric Design
3. A core understanding of structures and the ability to design a 4 story structure with details
4. Site analysis and understanding of suitable building in a given climate and orientation as well as the other tenets of sustainability
5. Construction materials, techniques, practices and management.
6. A basic understanding of urbanism, landscape, ecology, environment and other allied fields
7. Soft and life skills such as communication, cooperation, teamwork and resilience.

Above skills to be demonstrated in the integration of the 4Ss in Design: Space Allocation, Structures, Site and Services in a 3D format.

B. ***Professional Skills*** is the ability to design a building <u>beyond</u> the 4Ss of Design. For example, to address the local or regional needs, materials, context, an aesthetic approach or any other. In other words, to demonstrate a reiterative, reflective and critical approach to design, that which may be called "discourse" *through* design. Demonstrating the integration of the 4Ss in a 3D format that satisfy the technical requirements and design spatial brief *cannot* be considered professional proficiency. Furthermore, given that there is such proliferation of designs readily available on digital archives, it is imperative that design, construction and other professional skills move beyond functional building typology.

Professional skills are first of all to be demonstrated by a critical and reflective design sensibilities.

C. ***Critical/Reflective Thinking*** *is the ability to think, argue, analyze and synthesize—and that too without a pre-meditated "end."* This is largely textual and also include an understanding of cultural discourses, history and theoretical discourses as well as urban, landscape and settlement pattern. History is not the handmaiden of design, and too often it is denoted as a formal evolution with the same terms as a studio design. In teaching history of Art and Architecture a textual analysis is often replaced with a drawing exercise, or worse as a Post-Modernistic Design appropriation exercise. By placing it under the title critical/reflective thinking, students will acquire a fully rounded education.

Critical/Reflective thinking to be demonstrated by a thorough knowledge of history of visual arts, architecture, urban and landscape architecture. And through textual logical and original work, to demonstrate the ability to make a cogent scholarly argument relating to architecture/settlement culture, theory and design.

D. ***Ethical Sensibilities*** is the ability to act in the interest of the larger good, to understand the role of an architect in society. This will include respecting other professionals, human diversity, accessibility concerns and the good of the earth—ecological sustainable design and building practices.

E. ***Additional Coursework*****:** Universities may not limit the education to these credits only. Students are expected to have at least 30 to 70 hours of additional instruction in the same or allied field to create a comprehensive education with both breadth and depth. Sectoral Skills development may also form integrated part of coursework and a sector skill development plan and maintaining skill inventory shall be part of the process.

All "competencies" to be demonstrated not through examinations but through demonstrable outcomes. Universities to minimize theory examinations and attempt to limit them to the first two years of undergraduate education.

1. ***Arts, Graphics and 3Dimensional formal composition*:** A portfolio of pencil sketches and any other media as well as physical models of Euclidian forms as well as actual buildings.

2. ***Architectural Graphics*:** Measured Drawing with dimensions and details of an existing heritage building, monument or vernacular. Same with physical models. Report should also include aspects of traditional settlements and cultural heritage

3. ***Digital Competency:*** Through 3 finished projects at three different stages of education – A. Modelling and 3D Render | B. BIM model with services etc. | C. An original Parametric Script and construction

4. ***Structure Design*** Plan with full set of drawings. This can be divided into two parts: A and B. Here the emphasis will be on a design of a full building, not just a beam or column. Software such as Staad-Pro or equivalent software used in industry as well as an intuitive understanding of such aspects as shear, bending moment, slenderness ratio to be encouraged and expected.

5. ***Construction*:** Working Drawings, BOQ and a portfolio of Construction drawings and materials. Again, this can be divided into three parts, A, B and C. Part C may also include some aspects of project management.

6. ***Building Materials*:** Consummate understanding of current building materials as well as emerging ones and traditional ones, e.g. lime or Mud phaska, etc. Maybe examined in the lower classes through theoretical examinations.

7. ***Building Services*:** Plumbing, HVAC, Acoustics, Lighting, must be examined through examination, but also through actual project work.

8. ***Climatology and Sustainability*:** Understanding Sun Charts, Shadow studies, active and passive energy systems and the rudiments of energy audits as well as the GRIHA and other Green systems requirements. Familiarity of energy audit software is mandatory.

9. ***Professional Skills I*:** This will be first and foremost the bringing together of the 4 S: Site, Space Planning, Structure and Services. But even at this stage, there must be other larger concerns such as that of climate, culture or building material. Thus, the emphasis should not be on "solving" the 4Ss or symbolizing or form-making. It must also include analytical, reflective and/or critical tools developed through precedent study or context. For example, traditional (vernacular) buildings are usually the manifestation of three factors: Climate, building material and technology and thus formulate culture and habitation patterns. Following Clifford Getz one can argue that they are all interdependent and not driven from any "first-principles." Students must first understand and then propose the insertion of their projects in such a context/process.

10. ***Professional Skills II*:** Understanding a complex of buildings with emphasis on the spaces in-between buildings and not just within buildings. Larger sense of context of the city or culture should be included, and students should be encouraged to think beyond the "site-boundaries" and even examine prevailing FSI and byelaws which may not consider or reward sustainable design or construction. Formal abilities such as the manipulation of the section must also be demonstrated. Use of Digital Media a must. Graphic Representation as a portfolio to be emphasized.

11. ***Professional Skills III*:** A large complex that can either emphasize services (and/or sustainability) as in Hospitals and hotels, or the city or both. Students may also engage in some of the emerging digital techniques such as Grasshopper parametric in the design analyses. But the emphasis must be on a consummate design scheme and not a conceptual or urban analysis only. This exercise should also include "brief making". Ability to work within an Urban, landscape and ecology context and understanding of the basic Urban theories of 20ᵗʰ and 21ˢᵗ century as well as traditional settlements.

12. ***Professional Skills IV*:** A consummate *thesis project*. This must also include a small written document containing case-studies, analyses, brief and a *raison d'être* for the project. Thesis should not be *just* a functional building typology. Rather it should deploy design either for analyses, or for investigation an idea/argument or for raising a set of issues. As a capstone of professional education, it should demonstrate student's consummate mastery of all professional, vocational and ethical skills.

13. *Other skills:* In addition to professional skills, Soft and Life skills such as Communication, Co-operation, Teamwork and Resilience shall be developed with appropriate modules at early stage only. These skill sets shall be independently assessed and duly certified to help those exploring other streams.

14. ***Critical/Reflective Thinking I*:** A written scholarly survey on a given topic or discourse demonstrating both analytical and synthetic abilities of scholarly standard with bibliography and tested for plagiarism. Students must gain understanding of history of architecture, building practices as well as contemporary works.

15. ***Critical/Reflective Thinking II*:** An original paper of at least 3000 words of scholarly standard with bibliography and tested for plagiarism. Students must gain understanding of various Indian history of architecture, building practices as well as contemporary works.

16. ***Critical/Reflective Thinking III*:** An original paper of at least 6000 words of scholarly standard with bibliography and tested for plagiarism. Students must critically engage with discourses on Modernism and Post-independence/Post-Colonial critical practices by Indian and regional masters.

17. ***Ethical Abilities I*:** An advocacy position paper for or against a current situation

18. ***Ethical Abilities II*:** Architect's Practice, Legal Responsibilities, Administrative roles as well as other aspects such as project finance and office management.

19. ***Ethical Abilities III*:** A sustainable plan for a building, preferably with understanding of GRIHA and/or a complete Energy Audit.

20. ***Urban and Landscape*:** Ability to work within an urban context and understanding of the basic urban theories of 20ᵗʰ and 21ˢᵗ century as well as traditional settlements. Also, Landscape Design, Ecology and Environment

   To demonstrate societal concerns and engaging with NGO or demonstrating society connect; Field or Service learning Projects may be involved to assess outcomes involving social inclusion and rural/urban participation.

The attainment of POs may be assessed by direct and indirect methods. Direct methods of assessment are essentially accomplished by the direct examination or observation of students' knowledge or skills

against measurable performance indicators. On the other hand, indirect methods of assessment are based on ascertaining opinion or self-report. Rubric is a useful tool for indirect assessment. A rubric basically articulates the expectations for students' performance. It is a set of criteria for assessing students' work or performance. Rubric is particularly suited to Architecture program outcomes that are complex or not easily quantifiable for which there are no clear right or wrong answers or which are not evaluated with the standardized tests or surveys. For example, assessment of Architectural design, writing, oral communication, or critical thinking often require rubrics. The development of different rubrics and the achievement of the outcomes shall be carried out by the institutions.

CURRICULUM

The curriculum that aims to achieve above attributes and competencies needs to be interesting and relevant, and needs to be updated regularly to align with the latest knowledge requirements and to meet the specified learning outcomes.

a. Curriculum development can be done keeping in mind the structure and length of the course along with the flexibility of exit and entry from and to a given program.
b. In Architecture, as discussed before, the stages are:
    i. Foundation certificate duration 1 year (+1 year)
    ii. Bachelor's degree duration 3 years (1+2 years)
    iii. Bachelor's degree with honours duration 4 years with adequate research component (1+2+1 years)
    iv. Master's duration 5 years (1+2+2 years, 1+3+1 years, 1+2+1+2 years (inclusive of 1 year training)

c. Curriculum so to be developed may be thought from four major components in the learning outcomes:

1. **Design thinking and Design development:** that will focus on Architectural studios and modules that compliment these studios such as building sciences such as climate design, etc.
2. **Technology stream:** Will focus on the construction and building services studios and modules for e.g. Building Construction and Materials, Building Services, etc.
3. **Knowledge stream:** the modules that develop and enhance design thinking among the students such as architectural theories, history, art appreciation, humanities, etc.
4. **Skill development**: The modules that help the students to graphically analyze and present their design through manual skills or digital platforms such as Autocad, Revit, or similar AEC software, animation software, etc. Also modules to develop Soft and Life skills such as communication, co-operation, teamwork and resilience, etc.

d. It is necessary to define the proportion of these components at various levels.
    i. At the first level that is Foundation certificate (+ 1 Year) major emphasis needs to be given of Skill development among the students which could be applicable in other allied disciplines too. The foundation module which is 1 year long and comprises of two semester should give more emphasis to the skill based courses along with courses in design, technology, and

knowledge streams. It could be a possibility that the technology-based course could be introduced at the second semester as an introductory subject. The main intent of the foundation module of two semesters is develop skills that are an essential requirement for courses such as architecture, design, textile design, fine arts and other alike fields. In case a student feels or wants to opt out of the architecture stream, he/she could have a skill that would be essential for other such courses. The two-semester foundation module, therefore, shall have maximum credits allocated to skill development. At the end of this foundation module a student, based on his skill levels and exposure to subjects in the knowledge stream, will be able to decide on whether he would like to continue or take an exit from the architecture program to join another alike program.

ii. At the undergraduate (1+2 years) level the proportional weightage for the skill development should be a balanced one when compared between design thinking and knowledge stream keeping in mind the employability of the student who exits at this stage but also his prospects to join allied field where his skills and knowledge will be useful. The main objective and intent of the +2 years should be a balanced design /technology /skill and knowledge stream that could be enough to make the student employable or prepare him to join another program that he/she wants to pursue. After the skills acquired in the foundation module the skill levels would be further expanded to advanced levels enough to have professional skills. The second stage in this three-year program will be of four semesters and will have a balanced approach through all the given streams. In the initial semesters the Design and technology stream could be given more emphasis with later going to a framework where knowledge stream also comes in with choice-based credit allocations. The overall component of skill stream will be limited to the advanced level of skills and so its content in the total will be reduced. The Design stream and Technology stream should have a major role to play in development of the student as a person with skills and knowledge who could be employable by architectural firm and others. Also, the student could be able to gain a level of understanding about the profession where he/she could make a decision whether to go further to learn architecture or quit and work for a couple of years and then come back for major in Architecture/ opt for admission to an alike field etc.

iii. At post graduate (1+2+2 years) level as the skill development could be over by then and more emphasis should be given on the knowledge stream and design thinking and advanced skills should be taken into consideration. Choice based credit system in the knowledge stream could be introduced at this stage. This course could culminate into a design or research dissertation. A student could also be allowed to choose a specialisation at this stage and the choice-based credit system should be able to help him/her in choosing modules that are closely related to his/her specialization. The final dissertation of the student should be as per his/her chosen specialization.

iv. In addition to the above stages there should be an integrated doctoral study (PhD) program for available.

v. A Choice Based Credit System (CBCS) and a Criterion Based Grading System shall be evolved that will assess students' achievement based on the learning goals and outcomes of each program.

e. Examination system shall move away from high-stakes examinations towards more continuous and comprehensive evaluation.

    i. The institutions should move away from high stakes examination system to continuous and comprehensive evaluation system especially in studio-based modules.

    ii. The evaluation system should be transparent and the criterion for assessment should be clearly mentioned.

    iii. High stakes examination system may be applicable to only those subjects where a continuous system is not possible, restricted to first two years of bachelor's program.

    iv. Credit system allocated to each of the modules should be complimented by a similar proportion of contact hours per week.

    v. Number of contact hours for students should be kept in such a way that the students could get sufficient time for self-study and other activities for a holistic development. We suggest between 20-22 contact hours per week. Plenty of opportunities to students in sports, cultural and literary activities, community activities and service, etc. should be available.

f. Research collaboration and student exchange between Indian HEIs and Global institutions will be promoted through special efforts at Council/ Government level.

    i. An institutional mentorship framework should be formulated so as to bring academic and research collaboration among institutions.

    ii. Institutions of National Importance (INI) like IIT's, SPA's and other institutions with long legacy since pre-Council era like CEPT, JJ, MSU, etc. should play the role of mentor institution to other institutions in their region in more active manner.

    iii. The curriculum development and other academic activities in such institutions could be mentored by INI's. Further joint studios and virtual lectures could be arranged that will benefit institution in the given region. In lieu, these mentor institutions must be encouraged to experiment.

g. Institutions need to have a very systematize recruitment system and career progression for their faculty and will ensure equitable representation from various groups.

    i. Recruitment policies to be formulated keeping the above mentioned point in mind.

    ii. The recruitment rules need to be reviewed to identify and support teaching aptitude and quality as well as research in the given institution rather than paper qualifications only.

    iii. Recruitment can be done under three categories:

        a. Teaching Stream: Here the teaching load of the faculty would be more and his/her main emphasis will be on enhancing the teaching quality, developing curriculum, and teaching instruments that will improve the quality of teaching in the given institution. The promotion rules for this stream may be based on the evaluation of the concerned faculty in the teaching stream such as student evaluation of the course offered by the concerned teacher, his/her teaching quality, and innovation in the teaching methodology.

        b. Research Stream: The faculty under this stream could be given less teaching contact hours per week so that he/she may undertake research more actively. The promotion rules need to evaluate the research outcome and publications in top tier journals and research projects under taken by him/her apart from the teaching evaluation he/she has be undertaking.

        c. Practice Stream: The faculty under this stream should be drawn from profession. These teachers can be on fixed tenure basis and be extended support to carry out their

       professional practice, preferably with their professional offices located within the premises of the institutions. This will facilitate exposure to the profession for students and other faculty members and help bridge the gap between the profession and academics.

iv. There has always been a need for internal promotion mechanism which needs to be transparent with the inclusion of accountability by the concerned faculty with limited discretionary power to the competent authority. This will motivate the faculty to get more involved in teaching, research or practice.

v. Rules for promotion should be uniform across the institutions.

vi. Till twenty years ago good number of teachers were also engaged in practice and hence brought in the practical experience and professional outlook to the classrooms. Today, most of the teachers are career teachers with hardly any exposure to practice. Therefore, as very important and essential component, in addition to practice stream teachers mentioned above, the institutions must also engage professionals as visiting faculty to take up to 25% teaching load in undergraduate courses and 40% teaching load in accredited post graduate courses.

THE CREDIT DISTRIBUTION

Curriculum so developed may be thought from three major components in the learning outcomes as mention in 'c' above. The curriculum development should also keep in mind the learning outcomes that are strongly linked to the employability of the student as well as the flexibility or freedom for entry and exit from a given course at the levels mention before.

CREDIT SYSTEM

The credit system needs to be defined in such a way that each exit/entry levels should be complete in its own respect.

In order to move from one level to the other (after foundation course to the undergraduate) one should have acquire or cleared minimum credits as required and decided by the institution. For example, from moving from the foundation course to the Bachelors one needs to have cleared the 32 credits as compulsorily required or could have accumulated at least 16 credits out of 32 credits as required. Which means minimum 50% shall be the passing criteria and eligibility to move to the next level course. Such minimum credit requirements need to be established for moving from one level to the other. This could be decided by the institutions with a given framework. While deciding the scheme the institutes will take into consideration **Architecture Core Credits** requirement of Council of Architecture.

The entire curriculum should be divided into major four components: *1. Design Stream 2. Technology Stream 3. Knowledge Stream 4. Skill Stream*. The nomenclature of these broad bifurcations could vary from institutions but the conceptual approach could be the same. For example, as given in COA norms also, i.e. 1. Professional Core Courses (PC) 2. Building Science and Applied Engineering (BS& AE) 3. Elective Courses (i) Professional Electives (PE) (ii) Open Electives (OE) 4. Professional Ability Enhancement Courses (PAEC): (i) Professional Ability Enhancement Compulsory Courses (PAECC) (ii) Skill Enhancement Courses (SEC).

All the four streams have a different role to play at different levels. This needs to be put into the given framework with their significance and relevance at various stages. **The tables below are an indicative example.**

TABLE SHOWING THE DISTRIBUTION OF CREDITS AT VARIOUS LEVELS

<table>
<tr><th rowspan="3"></th><th rowspan="3"></th><th colspan="4">CREDIT DISTRIBUTION IN %</th></tr>
<tr><th>FOUNDATION MODULE</th><th>UNDER GRADUATE MODULE</th><th colspan="2">ARCHITECTURE (PROFESSIONAL) GRADUATE MODULE</th></tr>
<tr><th>1st – 2nd SEMESTER</th><th>3rd – 6th SEMESTER</th><th>7th – 9th SEMESTER</th><th>10th SEMESTER</th></tr>
<tr><td rowspan="4">A C A D E M I C A L L O C A T I O N S</td><td>DESIGN STREAM</td><td>20-25%</td><td>25-30%</td><td>35-40%</td><td>75-80 %</td></tr>
<tr><td>TECHNOLOGY STREAM</td><td>15-20%</td><td>25-30%</td><td>20-25%</td><td></td></tr>
<tr><td>KNOWLEDGE STREAM</td><td>10-15%</td><td>20-25%</td><td>30-35%</td><td>15-20%</td></tr>
<tr><td>SKILL STREAM</td><td>45-50%</td><td>15-20%</td><td>10%</td><td>-</td></tr>
</table>

EXAMPLE OF MEASUREMENT OF OUTCOME IN A COURSE

For Theory courses (Non design)

a. Let us say for a course there are 5 objectives – O_1, O_2, O_3, O_4 & O_5 and hence 5 outcomes Ot_1, Ot_2, Ot_3, Ot_4, Ot_5. Each objective has to be related to corresponding outcome – O_1 to Ot_1, O_2 to Ot_2, etc.

b. Go for five modules M_1, M_2, M_3, M_4, M_5. Each module to correspond with respective objective and outcome. Say, M_1 to O_1 and Ot_1, and so on.

There are two components of evaluation – Continuous Internal Evaluation (CIE) and Semester End Evaluation (SEE), each having 50% weightage.

c. For the CIE, we can have set of evaluations, one for each module. For the SEE, we can have question paper that will assess all five modules together. The performance in each module will be considered separately.

d. The CIE in M_1 and the SEE in M_1 will be clubbed with 50:50 weightage. The combined score shall indicate the performance in module M_1. Similarly, the performances for modules 2, 3, 4 and 5 will be calculated. The performance in each module will be classified with appropriate grades. We will get this measurement based on benchmark for each category. For the entire course we can have combined performance in the same category.

e. The mode of assessment for SEE and CIE is left to the faculty concerned. It may be tutorial, time bound test, quiz, write-up or some assignment that the teacher finds appropriate for the content.

For Design based course

1. Let us say for a course there are 5 objectives – O_1, O_2, O_3, O_4 & O_5 and hence 5 outcomes Ot_1, Ot_2, Ot_3, Ot_4, Ot_5. Each objective has to be related to corresponding outcome – O_1 to Ot_1, O_2 to Ot_2, etc.

2. Let us say there are two assignments (Projects) in a semester –One major and other minor. The weightages (and timeframe) have to be fixed for two assignments – say 75:25.

3. For the purpose of measurement, intermediate reviews are not to be considered. The final output of each assignment has to be considered.

4. There are two components of evaluation – Continuous Internal Evaluation (CIE) and Semester End Evaluation (SEE), each having appropriate weightage.

5. The CIE has to be evaluated for the final output of each design. The grading has to be done based on the 5 outcomes expected. The same holds good for SEE as well.

6. The combined performance in CIE and SEE will be classified as Poor, Fair, Good, Excellent and Outstanding.

7. The criteria for evaluation (Rubric) may be developed by the faculty on their own or in consultation with students for example – ability to develop design concept, ability to resolve functions and spatial arrangement, ability to integrate structure with design, ability to respond to the context (Geographic, Climatic, Visual, etc.), ability to communicate design graphically, etc.

CONCEPT OF AUDIT

There can be an audit of the measurement by senior faculty or board of reviewers who may or may not be part of the institute, where necessary.

TRANSITION

Once the systems for defining program outcome and its measurement is in place, the institute should formulate its vision statement and start planning for the transition to multi-disciplinary higher education institute with focus on architecture to begin with. To achieve this, it can undertake two tasks: visioning and assessment

VISION TASK

Through various discussions with the stakeholders, the institute shall initiate conversation on vision. The vision document can address the following:

ASSESSMENT TASK

Prepare SWOT analysis of existing situation- The institute must know where it stands, the opportunities for expansion and also possible hurdles in the process.

This shall be followed by –

a. Survey the region for its offerings and demands in terms of resources for study and capacity to absorb graduates in particular sub stream.

b. Identify the potential for horizontal growth of the institution.

c. Identify the programs and courses the institution can offer right away and with due modifications/ additions in near and far future.

d. Prepare roadmap for adding programs and courses, inducting required infrastructure and human resources. This shall include milestones and timeline.

e. Start implementation as per identified timeline.

f. Monitor the progress of implementation.

g. Explore the possibilities of academic networking with other institutions to share resources and ideas.

Institutions may be given an option to identify collaborative institutions which may initially assist and provide HR to accommodate the multidisciplinary courses.

The programs the schools may introduce to facilitate horizontal expansion and offer multiple programs could be (but not restricted to) –

Fine Arts – Drawing and Painting, Sculpture, etc.
Applied Arts – Commercial Art, Visual communication, Media design, Interface design (UI, UX), etc.
Design – Product design, Furniture design, Set Design, Graphic Design, Fashion design, etc.
Performing Arts – Indian Music, Western Music, Dance (various), Theatre, etc.
Management – Various streams. Project/ Construction/ Finance/ HR/ Facilities, etc.
Planning – Urban and Regional, Traffic and Transportation, Housing, etc.
Social sciences – Humanities, Economics, etc.
Environment studies
Urban Governance
Structural Design, Architectural Engineering

Landscape Architecture
Conservation, Indology
Interior Architecture
Urban Design
Journalism
Indology
Skill based training – Model making, Drawing, Carpentry, Metal work, 3D modelling, Communication, Cooperation, Leadership, Teamwork, Resilience, etc.

Listing should be possible potential for change/ expansion, both horizontal as well as vertical. This will call for identifying local/ regional resources: human, cultural, economic, etc.

We sincerely believe that going through the above process all the institutes currently seen as standalone institutes offering education in the field of architecture shall emerge as successful institutes of higher education offering education in multiple disciplines while keeping architecture as core of its endeavour. They can build on their strengths, build innovative alliances and achieve excellence through collective efforts.

EPILOGUE

National Educational Policy is still a while away. Although approved by the central cabinet, subsequent bills are yet to be presented in the parliament. Only after getting approval from both houses it will come to the stage of implementation. While it still may take some time, we must remain informed and prepared for accepting and absorbing the changes precipitated. We hope it will go ahead soon. However, as note of caution, we must note that twice in past similar efforts were initiated by earlier governments but aborted half way through.

We still believe that responsibility and authority to regulate both, education and profession must be vested with the same body that is Council of architecture rather than splitting it with different verticals. Further, an institute with architecture at its core and sustaining total enrolment of 3000 is a far-fetched possibility. It needs to be deliberated further how we can achieve it without diluting the core.

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End of Interim Report