ACADEMIC AFFAIRS OFFICE
INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

No. Acd./1143 /Senate-86 Dated: March 04, 2021

NOTIFICATION

Subject: Inclusion of Minor Specialization and Departmental Honours Courses (MSC/DHC) in the existing B. Arch curriculum (86.6)

The Senate in its 86th meeting held on 09.02.2021 considered and approved the proposal of Department of Architecture & Planning to include Minor Specialization and Departmental Honours Courses (MSC/DHC) in the existing B.Arch. curriculum.

The approved proposal is attached as **Appendix-A**.

Assistant Registrar (Curriculum)

Copy to (through e-mail):-

1. Chairman Senate & Director
2. All faculty
3. All Head of Departments/ Centres
4. Dean, Academic Affairs
5. Associate Dean of Academic Affairs (Curriculum)/(Evaluation)
6. Assistant Registrar (Admission)/(Evaluation)
7. Meeting Section
8. Channel I/ Acad portal/ Academic webpage of iitr.ac.in

Department of Architecture and Planning
Indian Institute of Technology Roorkee

Date 4th November 2020
Revised 18 November 2020
(Options A, B, C rearranged, DHC courses added)
Revised after IAPC held on 11th December
(corrections/suggestions incorporated)

Proposal for Introduction of Minor Specialisation in B. Arch Curriculum

Background

At IITR, students can take up and complete at least 18-20 credits (in addition to the own departmental credit) of courses of their interests from a pool of courses offered by a specific department to obtain a Minor Specialisation along with their majors. All the other departments already have the above option for UG students except Architecture and Planning.

The context and the need

In recent times, the field of Architecture has become multifaceted. The diverse job market of architecture is no longer limited to architectural design and construction of buildings. Instead, the application of multidisciplinary knowledge has emerged due to the increasing complexity of the design, management, and construction of buildings. A few of those aspects are material science, digital fabrication, mathematical modeling, civil Infrastructure development, coding, and development design-related software, building automation, security systems etc. (An indicative full list in Annexure 1). Naturally, there is a growing enthusiasm among the architecture students to pursue such minor specializations. Architects graduating from IITR can develop such skills from the sister department if the minor specialization is allowed.

On the other hand, many graduating engineers from the department like civil engineering, electrical, mechanical, computer science, mathematics, and materials science can avail MSC in architecture. Minor specialization in Architecture will provide them an edge to deliver good results. Therefore the minor specialization in Architecture is the need for the hour.

Process

Based on the student's requests, the DAPC, in its meeting dated 22nd October and 4th November, deliberated the matter at length and proposed the addition of MSC in the curriculum. For a better consolidation, all the faculty involved in B. Arch teaching were invited to the extended DAPC meeting on 4th November. Besides, officials from the academic section were consulted for clarification and guidance.

Challenges

MSC courses of 18 to 20 credits are distributed in 6th, 7th, and 8th semesters of four years B. Tech and in 6th, 7th and 8th and 10th semesters in five years IDD/MSc course. B. Arch is a five-year course with a training component for a full 8th semester. Therefore MSC courses have to be distributed in spring and autumn semesters during the 6th to 10th semester except for the 8th like a typical five-year program.

Department of Architecture and Planning
Indian Institute of Technology Roorkee

Existing B. Arch Curriculum

Semester	Number of courses	Credit	Remarks
1st	8	25	
2nd	7	25	
3rd	7	23	
4th	7	24	
5th	6	21	
6th	6	20	
7th	6	20	
8th	1	10	Six-month Training
9th	6	20	
10th	3	22	Including a Thesis project
Total		210	

The proposed addition of MSC courses in B. Arch Curriculum

Based on students' preference, input from the academic sections, and faculty deliberations, following distribution of slots for MSC courses across semesters are proposed:

Semester	Number of courses	Existing Credit	Proposed credit including MSC	Remarks
			No change	
2nd	7	25	No change	
3rd	7	23	No change	
4th	7	24	No change	
5th	6	21	No change	
6th	6	20	**20+ 6/8***	
7th	6	20	**20+ 3/4***	
8th	1	10	No change	Six-month Training
9th	6	20	**20+ 3/4***	
10th	3	22	**22+ 3/4***	Including Thesis project
Total		210	210 without MSC	
			228-230 With MSC	

*Credit for MSC courses, shaded cells contains revisions

The above additions of MSC courses are proposed to be applicable for the present B. Arch-II (2018) and B. Arch-I (2019) students and new students (2020) in the current B. Arch Program

Department of Architecture and Planning
Indian Institute of Technology Roorkee

MSC courses proposed to be offered in the department of Architecture

A combination of 10-12 spring and autumn semester courses are proposed so that non-architecture students can opt for the courses at their convenience.

Sl no.	Category	Code	Course	Semester	Credit
1	DCC	AR-104	Introduction to Building Materials & Construction-I	Spring	3
2	DCC	AR-108	Climatology in Architecture	Spring	3
3	DCC	AR-204	Building Construction-III	Spring	4
4	DCC	AR-205	History of Architecture-I	Autumn	3
5	DCC	AR-209	Structure and Architecture	Autumn	3
6	DCC	AR-211	Principles of Architecture	Autumn	3
7	DCC	AR-206	History of Architecture -II	Spring	3
8	DCC	AR-210	Modern World Architecture	Spring	3
9	DCC	AR-212	Landscape Design and Site Development	Spring	3
10	DCC	AR-403	Urban Design	Autumn	4
11	DCC	AR-405	Sustainable Architecture	Autumn	4
12	DCC	AR-505	Urban Planning	Autumn	4
13	DCC	AR-502	Professional Practice, Valuation & Arbitration	Spring	4

Departmental Honours courses proposed to be offered

A. Elective course/s from B. Arch over and above the minimum
B. Any of the following courses from M. Arch/MURP basket

Sl no.	Category	Code	Course	Semester	Credit
1	PCC	AR-603	Contemporary Architecture- Theories and Trends	Autumn	3
2	PCC	AR-605	Urban Design	Autumn	3
3	PCC	AR-607	Advanced Building Technologies	Autumn	3
4	PCC	AR-655	Ecology and Sustainable Development	Autumn	3
5	PCC	AR-657	Planning Theory and Techniques	Autumn	3
6	PCC	AR-659	Housing	Autumn	3
7	PCC	AR-661	Planning Legislation and Governance	Autumn	3
8	PCC	AR-604	Sustainable Built Environment	Spring	4
9	PCC	AR-606	Megastructures	Spring	3
10	PCC	AR-654	Infrastructure Planning	Spring	4
11	PCC	AR-656	Rural Planning and Development	Spring	3

C. NPTEL/MOOC courses recommended by the department as DHC time to time

On behalf of DAPC, APD

Uttam Roy

Dr. Uttam K. Roy, DAPC Chair

Annexure I:

Multidisciplinary areas of specializations linked to Architecture

CIVIL ENGINEERING IN ARCHITECTURE:

Construction engineering; Earthquake resistent techniques; Environmental engineering; Gophysical aspects in building; safely and economically design foundations, retaining walls; Surveying; Structural engineering; Material Sciences; elements of hydrology, environmental science etc.

ELECTRICAL ENGINEERING IN ARCHITECTURE:

Lighting Fixture performance speci□ications and arrangements, Emergency Lighting, Exit Lighting, Lighting Control and circuiting; lighting automation, large scale electrical installations in the campuses; Standardization, integration and promulgation of smart grid technology, smart power distribution system, smart metering, smart peak load demand controls, smart building management systems etc.

MECHANICAL ENGINEERING IN ARCHITECTURE:

Heating, ventilation and air conditioning (HVAC), plumbing, and rainwater systems; Materials Properties in-depth analysis; horizontal & vertical transportation systems; integrating mechanics and designing; humidity control or air Filtration systems etc.

COMPUTER SCIENCE ENGINEERING IN ARCHITECTURE:

Virtual Reality, new softwares in the Climatology require intensive skills with coding; Augumented Reality in designing and building analysis; automating different small tasks in BIM; Using Machine learning to understand client tastes etc.

APPLIED MATHEMATICS IN ARCHITECTURE:

Algorothims and mathematics help in arti□icial intelligence in Architecture; designing ef□icient strutures; AI analysing the strucutures etc.

DOMs COURSES IN ARCHITECTURE:

Studying Marketing; Understanding the market trends; identifying target audience; selling our product; integrating economics into designing; proper Costing-Estimation of structure