

University of Mumbai



AAMS_UGS /ICC/2022-23/ 80

CIRCULAR:-

Sub :- Certificate Course for Forrocement Technology and Architecture.

Ref :- RB/MU-2022/CR-207/Edn-5/899, dated 18th August, 2022.

Attention of the Principals of the Affiliated Colleges and Directors of the recognized Institutions in Faculty of Science and Technology is invited to this office Circular No. UG/86 of 2021, dated 25th January, 2021 relating to the Syllabus Certificate Course for Forrocement.

They are hereby informed that the recommendations made by the Ad-hoc Board of Studies in **Architecture** at its online meeting held on **8th March, 2022** vide item No. 3(b) and subsequently passed in the faculty of Science and Technology and then by the Board of Deans at its online meeting held on 23rd February, 2022 vide item No. 6.2 have been accepted by the Academic Council at its meeting held on 23rd July, 2020 vide Item No. 4.117 and earlier 17th May, 2022, vide item No. 6.2 and subsequently approved by the Management Council at its meeting held on **28th August, 2020**, vide item No. 2 and earlier **25th May, 2022** vide item No. 4 and that in accordance therewith, in exercise of the powers conferred upon the Management Council under Section 74(4) of the Maharashtra Public Universities Act, 2016 (Mah. Act No. VI of 2017) the Ordinance 6607 & 6608 Regulations 9351 & 9352 and the syllabus of **Certificate Course for Forrocement Technology and Architecture** and the same have been brought into force with effect from the academic year **2020-21**, accordingly. (The same is available on the University's website www.mu.ac.in).

MUMBAI - 400 032

20th August, 2022

To,

(Dr. Vinod Patil)
I/c. REGISTRAR

The Principals of the Affiliated Colleges, the Head of the University Department and Directors of the recognized Institutions in Faculty of Science and Technology.

A.C/6.2/17/5/2022

M.C/4/25/5/2022

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20th August, 2022

Copy forwarded with Compliments for information to:-

- 1) The Chairman, Board of Deans
- 2) The Dean, Faculty of Science and Technology,
- 3) The Chairman, Ad-hoc Board of Studies in Architecture,
- 4) The Director, Board of Examinations and Evaluation,
- 5) The Director, Board of Students Development,
- 6) The Director, Department of Information & Communication Technology,
- 7) The Co-ordinator, MKCL.

(Dr. Vinod Patil)
I/c. REGISTRAR

Copy to :-

- 1. The Deputy Registrar, Academic Authorities Meetings and Services (AAMS),**
- 2. The Deputy Registrar, College Affiliations & Development Department (CAD),**
- 3. The Deputy Registrar, (Admissions, Enrolment, Eligibility and Migration Department (AEM),**
- 4. The Deputy Registrar, Research Administration & Promotion Cell (RAPC),**
- 5. The Deputy Registrar, Executive Authorities Section (EA),**
- 6. The Deputy Registrar, PRO, Fort, (Publication Section),**
- 7. The Deputy Registrar, (Special Cell),**
- 8. The Deputy Registrar, Fort/ Vidyanagari Administration Department (FAD) (VAD), Record Section,**
- 9. The Director, Institute of Distance and Open Learning (IDOL Admin), Vidyanagari,**

They are requested to treat this as action taken report on the concerned resolution adopted by the Academic Council referred to in the above circular and that on separate Action Taken Report will be sent in this connection.

- 1. P.A to Hon'ble Vice-Chancellor,**
- 2. P.A Pro-Vice-Chancellor,**
- 3. P.A to Registrar,**
- 4. All Deans of all Faculties,**
- 5. P.A to Finance & Account Officers, (F.& A.O),**
- 6. P.A to Director, Board of Examinations and Evaluation,**
- 7. P.A to Director, Innovation, Incubation and Linkages,**
- 8. P.A to Director, Board of Lifelong Learning and Extension (BLLE),**
- 9. The Director, Dept. of Information and Communication Technology (DICT) (CCF & UCC), Vidyanagari,**
- 10. The Director of Board of Student Development,**
- 11. The Director, Department of Students Welfare (DSD),**
- 12. All Deputy Registrar, Examination House,**
- 13. The Deputy Registrars, Finance & Accounts Section,**
- 14. The Assistant Registrar, Administrative sub-Campus Thane,**
- 15. The Assistant Registrar, School of Engg. & Applied Sciences, Kalyan,**
- 16. The Assistant Registrar, Ratnagiri sub-centre, Ratnagiri,**
- 17. The Assistant Registrar, Constituent Colleges Unit,**
- 18. BUCTU,**
- 19. The Receptionist,**
- 20. The Telephone Operator,**
- 21. The Secretary MUASA**

for information.

UNIVERSITY OF MUMBAI



Syllabus for the Certificate Course for Ferrocement Technology and Architecture

(To Introduced with effect from the academic year
2020-21)

UNIVERSITY OF MUMBAI



Syllabus for Approval

Sr. No.	Heading	Particulars
1	Title of the Course 0.6607	Certificate Course for Ferrocement Technology and Architecture.
2	Eligibility for Admission 0.6608	Bachelor degree in Architecture / Diploma in architecture / Bachelor degree in civil engineering or /Diploma in Civil engineering. OR Any other course considered to be equivalent to B. Arch degree, by Council of Architecture
3	Passing Marks	40%
4	Ordinances / Regulations (if any)	
5	No. of Years /Semesters / Duration of Course	ONE (Total No. of Hours 40)
6	Level	Certificate/ Diploma /UG/PG (Strike out which is not applicable)
7	Pattern	Semester/Yearly (Strike out which is not applicable)
8	Status	New/ Revised (Strike out which is not applicable)
9	To be implemented from Academic Year	From Academic Year : 2020-2021

Signature Chairman of BoS
Name of BOS Chairman:- Dr. Mustansir Dalvi

Dr. Anuradha Majumdar
Dean, Science and Technology



O.6607 Certificate Course for Ferrocement Technology and Architecture

O. 6608 Eligibility:

Bachelor degree in Architecture / Diploma in architecture / Bachelor degree in civil engineering or /Diploma in Civil engineering,
OR

Any other course considered to be equivalent to B. Arch degree, by Council of Architecture

Assessment:

The course coordinator will be in charge of the examination and assessment

The assessment will include evaluation of participation in hands on training and theory examination.

R. _____ Passing of Marks

Hands on Training/ practical 30 Marks

Theory – 70 marks – passing percentage

Overall passing 40%

The following grades will be adopted for the combined marks of theory and practical work

Marks in percentage	Grade
70.00 and above	A+
65.00 to 69.99	A
60.00 to 64.99	B+
55.00 to 59.99	B
50.00 to 54.99	C+
45.00 to 49.99	C
40.00 to 44.99	P

Those who get less than 40 % marks will be given attendance certificate if they have 75% and above attendance.

R.9351 Intake capacity- 30 maximum , minimum- 20

R. 9352 Duration of course - One semester.

The course work will be of 40 hours of teaching including hands on training and or site visit. The course will start in September and conducted on Saturdays . Totally around 12 Saturdays.

Preamble

The course:

Sir J. J. College has architecture has designed a Certificate Course for Ferrocement Technology and Architecture for Architects and engineers who want to use innovative shapes and forms

Introduction:

Both RCC and ferrocement came simultaneously in construction field by middle of 19th century. J. L. Lambot made a wire reinforced boat then, but no further advancement in line with RCC took place for ferrocement.

An attempt is made through the course work to introduce ferrocement technology which has immense potential for the Architectural and Engineering applications. Ferrocement structures are simple to construct, easy to achieve any complicated architectural shape, durable, light weight etc.

Focus of the course:

To develop capacity of Architects and Civil Engineers to be able to use the technology for various applications

Faculty: Experts from Ferrocement society of India, Mumbai and Pune Chapter, Structural Consultants and Architects from industry, Prof K C Rami Sir J J College of Architecture.

Detailed syllabus of the course:-

Basic concepts like increase in bond strength. Comparison with RCC, prestress, asbestos cement, fibre reinforced, polymer concrete etc. Composition of ferrocement
Ferrocement as a substitute material for Architectural and Engineering applications.

1. Raw materials, skills, tools and plants :-

Properties and specifications of raw materials. Proportioning of cement mortar, job requirements of required skills, Tools and plants.

2. Mechanical properties of Ferrocement:-

parameters affecting, design, properties under static and dynamic loads. Shrinkage and creep. Testing of ferrocement.

3. Method of construction :-

Field work. Plus standardizing method of construction. Planning the work. Fabricating skeleton of structure, tying the meshes, mortaring, curing, maintenance, protective surface treatment etc

4. Strength through shape :-

various Architectural shapes through forms. Shapes in nature, comparative study of various forms. Typical strength of different materials

5. Structural design:-

Design for various forces .Special design consideration. Conventional design methods like working stress, load factor. Design based on equivalent area method for compression, tension and flexural members. Specific surface method and crack control

6. Cost Analysis: -

Factors governing cost of structure. Specification of ferrocement structures. Quantity analysis of material and labour, Cost analysis various ferrocement items, Cost and value of ferrocement construction

7. Water Retaining, Water proofing and irrigation structures:-

Why is ferrocement a suitable material?, storage tanks, small check dams, canal lining, water proofing etc.

8. Soil retaining structures:-

Types of retaining walls and their comparison with ferrocement arch-faced wall. Method of fabrication and casting. Ferrocement counterfort wall.

9. Ferrocement in Building construction:-

Ferrocement in foundations, walls, floors, roofs for various architectural shapes, Design and construction of houses with single and cavity walls and hollow floors and roof, Hollow beams and staircases, Earthquake resistance of ferrocement houses.

10. Rain water harvesting-

Urban and Rural Application:- Types, method of calculation of runoff, filtration system and types and design of holding tanks.

(Appendix 'B')

New ordinances 6607 & 6608 relating to the Certificate Course for Ferrocement Technology and Architecture.

1.	Necessity of starting these courses
	The knowledge and understanding of ferrocement technology allows for cheap, effective, formwork-less construction in architecture. Such buildings are a solution for creating water-tight structures and useful for repairs of RCC structures. Lost formwork increases durability. Small-span structures and domes can also be made using ferrocement. So this is an architecture that works across all available resources. It is vital for this technology to be understood by practicing Architects and associated professionals.
2.	Whether UGC recommended to start the said course?
	No
3.	Whether all courses have commenced from the Academic Year 2021-2022?
	No
4.	The courses started by the University are self financed, whether adequate numbers of eligible Permanent faculties are available?
	Yes, the course is to be self financed. In order to start this course, permanent faculty (at the level of Assistant Professor in Structures, or higher) will need to be recruited. The Ferrocement Society of India can also be approached for their expertise.
5.	To give details regarding duration of the course and is it possible to compress the course?
	One semester course. [It is not possible to compress the course.
6.	The intake capacity of each course and no. of admissions give ninth current Academic Year 2021-2022?
	There is no upper limit specified for the number of admissions to be given for this certificate course.
7.	Opportunities of Employability/Employment available after under taking this course?
	The course will impart skills to architects and allied professionals to be able to take up ferrocement Work leading to self-employment and mid-career capacity building.

Signature –



Prof. Mustan sir Dalvi
Chairperson, Ad-hoc Board of Studies
in Architecture Under the Faculty of
Science and Technology