



STUDENT

HANDBOOK

2022 - 2023



KMEA COLLEGE OF ARCHITECTURE
STUDENT HANDBOOK
2022-2023

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Cover Page Design: Vignesh P. V (2019-24 Batch)

Principal's Note



We are indeed happy to welcome our 10th batch of students at KMEA College of Architecture. You are here on an exciting journey of 5 years that could become the most important transforming years in your life.

Your time here is patterned to challenge you to think creatively and to turn you into a professional. You will explore new territories and break your own limitations. You will have to move out of the comfort zones that you enjoyed until now so that you are able to produce the right results. Newer challenges would come your way and would expose you to a different genre of learning.

Our teaching method is interactive and will need you to think and respond well. Architecture is interdisciplinary and would have to be looked at from various viewpoints to produce workable creative solutions for issues that constantly confront us in this fast changing world. You are not alone in this journey.

We have an excellent pool of experienced faculty and also practicing professionals who are there to guide you here on campus. The student body here is a very vibrant group and brings on board the right creative energy and passion. We are all there running alongside you to assist you, engage you, push you and support you. We trust that you would, in the course of time, create outcomes that neither you, nor we, have ever seen before. You will enjoy a lot of freedom too. We will expect you to learn and grow responsibly in this environment. We believe that you will learn to balance your commitments by working smart!

We also have the right infrastructure that is administered well. This would help you through this exciting journey. Wherever we find that we need to expand and add to our strengths, we would not hesitate to add more so that our students and faculty benefit. The active support that we enjoy from the Management and the Academic Council has helped us steer to this credible position in the field of architectural education in such a short time. We have much more to realize and we will not be slack in our efforts to achieve them.

The fundamentals that you would receive here in design education would enable you to confidently explore a wide range of career options after you have graduated from here.

We look forward to know you and we hope and trust that this would be the best chapter in your life.

Welcome to KCoA.

Prof. Joseph John
(Principal)

Design Chairs' Note



KMEA College of Architecture has a vision into the future and fully realizes the essentiality and criticality of aligning the design studios to anchor its intent and perspectives in tune with and within the vision.

The office of the design chair in this context plays a pivotal role. It remains committed in its mission to create ideating opportunities amongst faculty and encourage them to consistently debate and even creatively contest to create pedagogical underpinnings within design studios across semesters.

It also remains on track to create a reasonably clarified design philosophy applicable for the various studios, remaining progressive and building on complementary strengths within the philosophical streams of thoughts.

The office fully realizes that unity does not necessarily mean uniformity and thus encourages diverse thinking patterns within studios while still galvanizing and coalescing the institution towards a common goal of creating a philosophy, pedagogy and process discipline distinct to KMEA architectural design studios.

Prof. George Mathai

(Chair of Design Stream)



KMEA College of Architecture deems it essential that graduating students in their B.Arch degree course are fully equipped with the necessary skill sets to join the Architectural Profession as competent individuals.

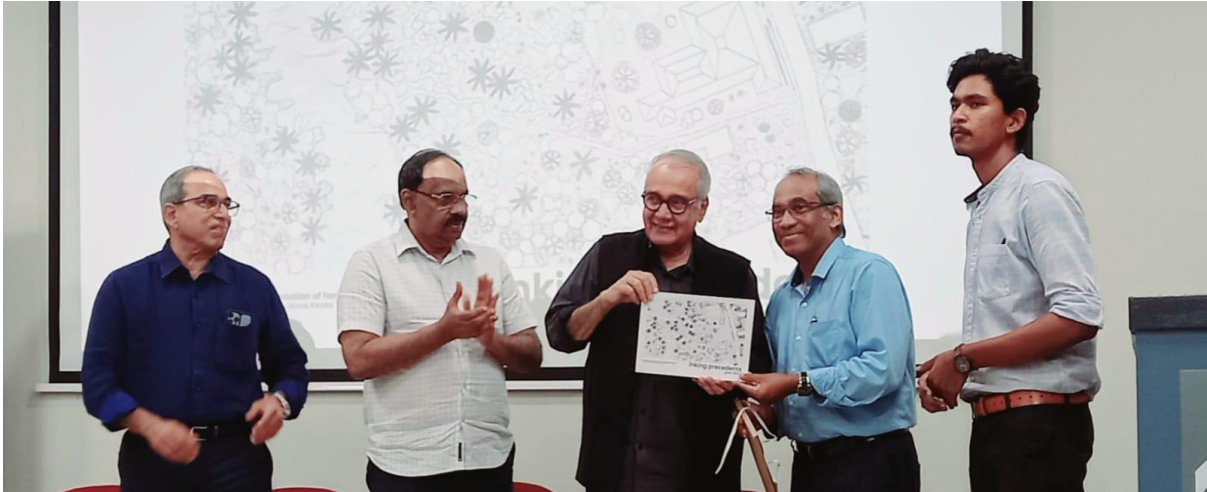
As part of the learning process students would have exposure to various Professionals in the field by way of Practicing Architects and Consultants in allied fields who will guide them in the various streams of Professional Practice.

Particular emphasis will be in developing Critical Thinking, Speaking and Writing skills.

Professor Emeritus. Ramesh J. Tharakan

(Chair of Professional Practice)

Glimpses of KCoA Student life



KCoA Publications



K Talk: Meeting experts @ campus



K Walk: Exhibitions



Study tours



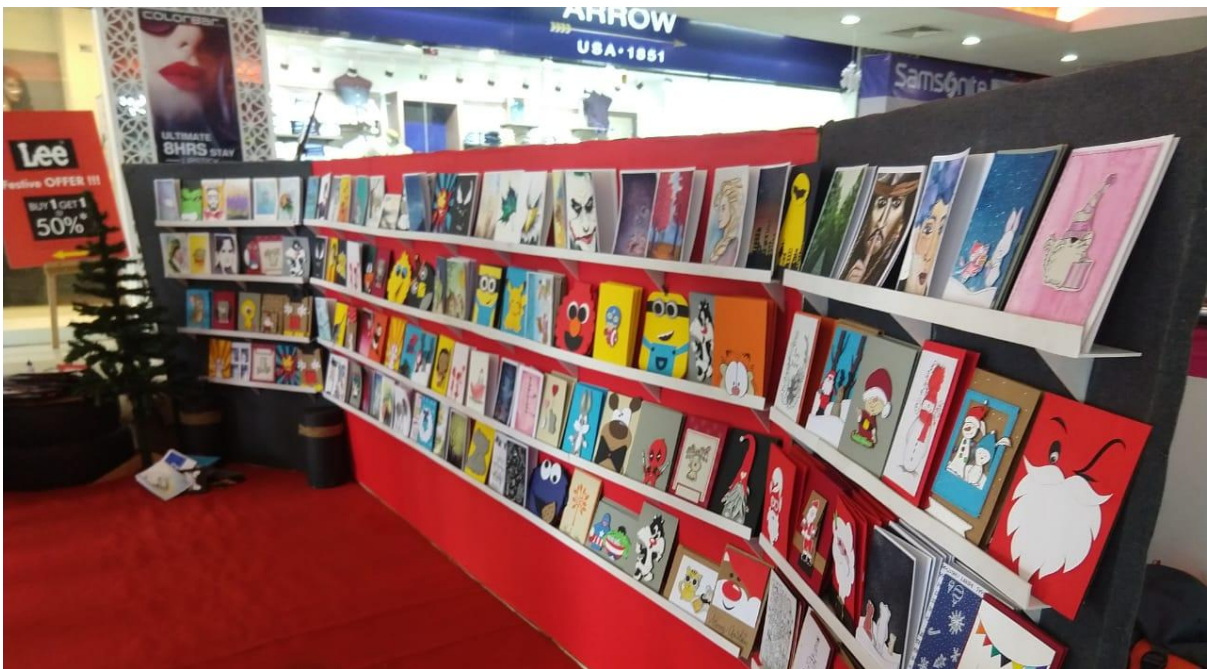
Exploratory tours



Experience tours



Celebrations



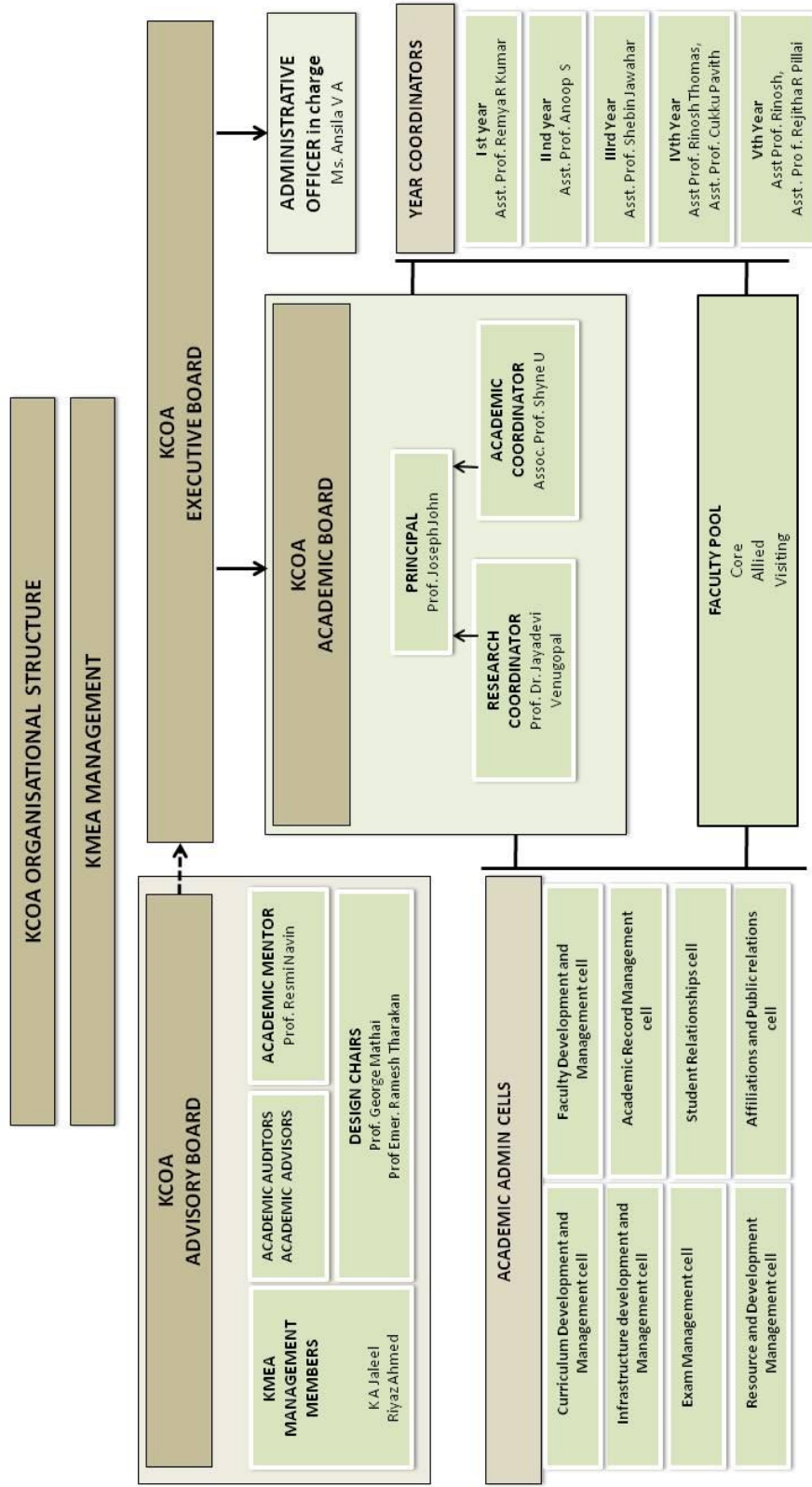
Public outreach



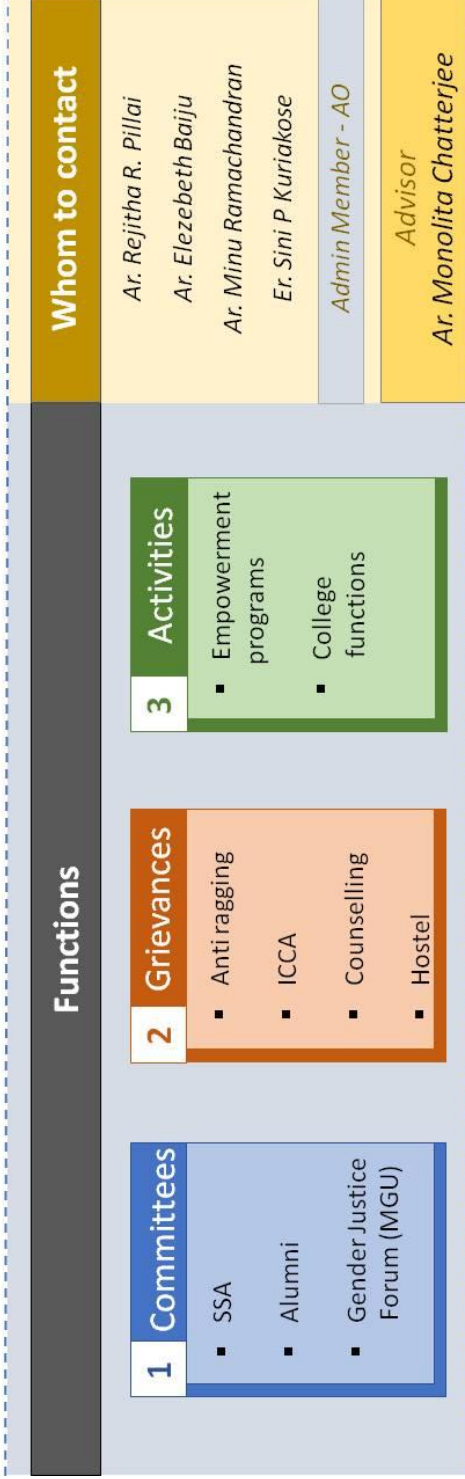
K Laterals: Workshops



College fests



Student Relationship Cell



FACULTY DETAILS			
Name	Degree & Specializations	Designation	e mail id
Joseph John	B.Arch,MS Habitat Technology	Professor, Principal	principal@kmeacoa.ac.in joseph.john@kmeacoa.ac.in
George Mathai	B.Arch	Professor, Design Chair	george.mathai@kmeacoa.ac.in
Ramesh J Tharakan	B.Arch	Professor Emeritus	ramesh.jt@kmeacoa.ac.in
Jayadevi Venugopal	B.Arch, M.Arch (ID), PhD	Professor	jayadevi.venugopal@kmeacoa.ac.in
Shyne U	B.Arch, M.Arch (UD)	Associate Professor	shyne.u@kmeacoa.ac.in
Resmi Navin	B.Arch,M.S (Env. Engg)	Associate Professor	resmi.navin@kmeacoa.ac.in
Anitha Kumari	B.Arch, M.Arch (Arch.Education)	Associate Professor	anitha.kumari@kmeacoa.ac.in
Chithralekha K	B.Arch, M.Arch (UD)	Associate Professor	chithralekha.k@kmeacoa.ac.in
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Anjith Augustine	B.Arch,M.Arch (UD)	Assistant Professor	anjith.augustine@kmeacoa.ac.in
Rakhi Mariam Johnson	B.Arch M.Arch (Arch. Conservation)	Assistant Professor	rakhi.mariam@kmeacoa.ac.in
Rejitha R Pillai	B.Arch, M.Plan (Housing)	Assistant Professor	rejitha.r@kmeacoa.ac.in
Anoop Sivanandan	B.Arch, M.Arch (Advanced Architecture)	Assistant Professor	anoop.sivanandan@kmeacoa.ac.in
Nishan Nabeel	B.Arch, M.Arch	Assistant Professor	nishanknabeel@kmeacoa.ac.in
Cukku Pavith	B.Arch, M.Plan (Housing)	Assistant Professor	cukkupavith@kmeacoa.ac.in

Rinosh Cherian Thomas	B.Arch, M. Plan - Urban & Regional Planning	Assistant Professor	rinosh@kmeacoa.ac.in
Anoop P	B.Arch, M.Arch	Assistant Professor	anoop.p@kmeacoa.ac.in
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Ashwini Sreekumar	B.Arch, M A Landscape Architecture	Assistant Professor	ashwinisreekumar@kmeacoa.ac.in
Elezebeth Baiju	B.Arch, M.Plan (Urban Housing)	Assistant Professor	elezebethbaiju@kmeacoa.ac.in
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Monolita Chatterjee	B.Arch	, Visiting Faculty	monolita@kmeacoa.ac.in
Sanjeev Joseph	B.Arch	Visiting Faculty	
Joseph Chandy	B.Arch	Visiting Faculty	Joseph.chandy@kmeacoa.ac.in
Sini P Kuriakose	B.Tech, M.Tech(Civil Engg)	Assistant Professor	sini.anil@kmeacoa.ac.in
Hashim K Abdul Azeez	B.Tech,M.Tech(Structural Design)	Assistant Professor	hashim.k@kmeacoa.ac.in
Praseetha C P	BSc,MSc. Mathematics	Assistant Professor	praseetha.cp@kmeacoa.ac.in
Lekha Narayanan	B.A,MA (English & Literature), B.F.A.Diploma, MVA (Painting)	Assistant Professor	lekha.narayanan@kmeacoa.ac.in
Ayyappadas I R	B.FA, M.FA	Assistant Professor	ayyappadas@kmeacoa.ac.in

ADMINISTRATION DETAILS				
Name	Designation	Mail id	Contact number	Extension
Adv.Sheeba M T	Estate Manager	Administrator@kmeacoa.ac.in	9645172411	(Extn- 22)
Ansila V A	Administrative officer in Charge	Administrator@kmeacoa.ac.in	9645172411	(Extn- 22)
Saritha V Nair	PRO	Administrator@kmeacoa.ac.in	0484-2411006	(Extn- 21)
Shameena Haris	Accountant	accountant@kmeacoa.ac.in	9745172411	(Extn- 26)
Sulzila	Asst.Accountant	accountant@kmeacoa.ac.in	9745172411	(Extn- 26)
Sindhu S	Librarian	librarian@kmeacoa.ac.in	0484-2411007	(Extn- 25)
Meera S	Asst.Librarian	librarian@kmeacoa.ac.in	0484-2411007	(Extn- 25)
Azhar P A	Lab in charge	Lab@kmeacoa.ac.in	0484-2411007	(Extn- 28)
Salih V M	Lab Assistant	Lab@kmeacoa.ac.in	0484-2411007	(Extn- 28)
Shamla V A	Store Keeper	storekeeper@kmeacoa.ac.in	9562660276	(Extn- 21)
Nadeera Muhammed	Attender			(Extn- 22)
Padmakumar	Attender			(Extn- 22)

KCoA Code of Conduct

Working days

Teaching days will be from Monday to Friday. These are also the university working days. Any holidays due to unforeseen events such as harthal /bandhs shall be announced by the Administrative Officer through email announcement and the same shall be compensated by an additional working day in the nearest first or third Saturdays .

Class timing

The classes will commence at 9.00 AM and ends at 4.00 PM. Faculties will be available till 4.30 PM. Lunch break is between 12.00 PM to 1 PM on all days except Fridays. On Friday the lunch break shall be 12.00 p.m. to 2.00 p.m.

Uniform regulations

KCoA has designed a uniform for our students considering the environment, educational demands and identity of the school. All students are required to wear the prescribed uniform and carry their ID card while on campus. Attendance will not be marked for the student who does not comply with these regulations regarding uniform.

Use of mobile phones

Mobile phone is often a distraction to both staff and students and their inappropriate use can affect your concentration. In view of this students are requested not to use mobile

phones during class hours. Non-compliance of this by any student will result in confiscation of their handset, which shall be returned only after submitting a written apology. If the offence is repeated the phone will be permanently confiscated.

Semester registration

Students will need to clear the dues before the commencement of every semester and submit no dues certificate in order to register for the new semester.

Vehicle entry

1. In the interest of student safety entry of two wheelers beyond the boom barrier is strictly prohibited.
2. Two wheelers should be parked in the designated parking close to the boom barrier.
3. Only registered vehicles with approved parking stickers will be permitted to enter the campus.
4. **First years are not permitted to bring vehicles to the campus.**
5. Parking stickers will be provided from the College office to the students (except first year).
6. Application for parking stickers need to be duly endorsed by the parent and supported by a copy of the registration certificate of the vehicle and driving license. These have to be submitted to the College office.
7. Students should obey the rules and regulations of the Motor Vehicle Department. College authorities will not be responsible for any loss or damage to the vehicles.

Disciplinary proceedings

Students shall not indulge in any anti-social or immoral activities (viz. smoking, alcohol and substance abuse, harassment of women etc.). Strict disciplinary action will be taken by the college management on any offenders.

Irregular attendance, insubordination to lecturers, habitual in-attention in class, obscenity in word or deed is sufficient reasons for permanent or temporary dismissal of a student.

Displaying notices/banners without the principal's permission is forbidden

Political activities are banned in the campus by rule (Vide W A No. 535 of 2003 – judgement dt 26/05/2003) of the Honourable High Court of Kerala. Student should not resort to gheraos, bandh, hartal and any sort of violence within the campus.

Ragging

Ragging is strictly prohibited in both college and hostel premises and the norms of the Anti-Ragging Cell of UGC shall be applied in case of any report of ragging in college or hostel premises. Any intimidation or coercion by seniors or classmates should be reported to the Coordinator or any of the faculty.

Attendance

University regulation for examinations requires that a student should have a minimum attendance of 75%. Attendance will be recorded at the start and sometimes the end of every class.

In case of continuous absence without informing the college for more than 14 working days, the student will be automatically removed from the rolls.

Absence for any internal examination or continual assessment conducted by faculty in class may be detrimental to the overall performance and results. No re-examination will be conducted for students absent for internal examinations.

General rules

It is mandatory to carry the college identity card while on campus. In case of loss of ID card you should apply for a duplicate. Duplicate ID card will be issued on a payment of Rs.100.

Students can convene meeting only with the prior permission of the Principal. Persons who are not on the rolls of the college register will not be allowed to take part in any propaganda work on the college campus

You are expected to take care of college property. Loss, damage or destruction of college property will be chargeable individually or collectively as to recuperate the cost of damage/repair/replacement.

The Principal has the complete authority to amend or modify any rule or regulation.

Misbehaviour in class or campus will be severely punished. The nature of punishment will depend upon the severity of the offence and will be decided by the Principal/ Management committee of the college

Bonafide letters

1. Requests for Bonafide letters must be endorsed by Year Co-ordinators before submitting to the office for approval.
2. A list of the full names of the students must be attached with the request letter, if a group is involved.
3. Draft of the Bonafide letter also must be attached with the request.
4. The request should contain the full address of the establishment against which the Bonafide should be issued
5. The request must be given 24 hours prior to the date of submission to the principal.
6. Urgent request will be considered with minimum 2 hours delay if counter signed and recommended by the Academic co-ordinator.
7. Request for out of station visits or stay out visits must be accompanied by
 - A. Consent of parents duly signed by the parents.
 - B. Trip schedule

C. List of students with contact numbers

8. Every request must be submitted by the student/students in person.
9. Students without proper uniform will not be permitted to submit requests unless special permission is obtained from the competent authority.

Requests for administrative approval

1. All Official and academic requests need prior consideration from administrative/academic coordinator before final approval from principal
2. All Requests by the students must be endorsed by year coordinators and placed for administrative consideration before final approval from the Principal.
3. To avoid any delay in getting approval every request must be placed for consideration at least two days before.
4. Any delay in getting administrative sanction after two days can be reported to academic coordinator.
5. Any Urgent Requests has to be sanctioned by Academic Coordinator before submission
6. Request for studio and class room key can be made by entering the name purpose and contact number in the KEY HOLDERS book in the office during office hours.
7. Request for night outs or stay on holidays has to be endorsed duly by the year coordinator and Academic co-ordinator accompanied with the list of students and contact numbers.

Special rules

1. Any damage or destruction of properties of college, If reported, during stay back /night outs shall be compensated or recovered by way of damages from students collectively as part of disciplinary proceedings
2. Night out stay is limited to 10.p.m and permission beyond 10.00 p.m. shall be permitted only on special circumstances with approval of the Principal.
3. Girls are permitted to stay back only till 6.30 p.m. in ordinary circumstances and beyond 6.30 only under the supervision of a lady faculty member.
4. Inmates of girls hostel should get permission from the office for any such stay back
5. Sports goods will be issued only if endorsed with name and contact number of the concerned students. The goods need to be returned within 24 hours.

Library rules

1. Silence shall be strictly observed inside the library.
2. Library membership is open to all the students, faculty members and permanent non-teaching staff.
3. Those who enter the library shall produce their identity cards and sign the register kept on the counter.
4. Users are free to choose books from the shelf except those in the reference section which shall be left on the table after reading. Reference section shall be accessed

only with the consent of the librarian. Users are directed not to replace books on the shelf.

5. Members/users have to keep their personal belongings at the property counter, near the entrance. Strictly no bags will be allowed inside reading the reading area.
6. Books, journals, documents, and any library equipment should be handled with care.
7. Any disfiguration of books or damage to binding will lead to fine and other punishments.
8. Period of loan is 7 days for students and 1 month for staff members unless and there is a request for the same book from another user.
9. One renewal is permitted to all members. In case of requests for the same book from other users, the book will not be renewed.
10. Overdue charges of Rs 1 per day for a book will be levied from students after the due date and Rs 2 per day for faculty and staff.
11. Users have to examine the books carefully and report damages if any to the librarian at the time of issue of books.
12. The borrowers will be held responsible for any damage discovered subsequent to the issue of book to him/her.
13. In that case the borrower has to replace it with a copy of the same edition/subsequent edition within the due date.
14. General reference books and reference text books will not be issued. They can be read only in library.
15. Reference book can be availed by faculty, one book per faculty for two working days only.
16. Librarian reserves the right to recall at any time any book issued from the library.
17. The library rules may be altered, modified or amended from time to time.
18. Users of the library shall take care not to damage or deface any item or furniture. Wrong doers stand the risk of inviting stringent disciplinary action against them. Repeated offenders may lose library membership for a year.
19. Any infringement of the above rules may result in the cancellation of the membership.
20. Library working hours: 8.30 am to 5 pm

Rules for internal examinations

1. No candidates will be admitted to Examination hall without his/her College ID card and without complete uniform.
2. Candidates should enter the hall at least 10 minutes before the commencement of examination.
3. Candidates presenting themselves more than 30 minutes after the appointed time will not be admitted to the examination hall.
4. Candidates are meant to sit for the whole two hours, till the exam is over.

5. In the event of a candidate disobeying instructions of the Examiner, the candidate may be excluded from the day of the Examination or rest of the examination.
6. Strict silence shall be maintained in the examination hall.

Malpractice

1. All books, notebooks, manuscripts etc. brought by the candidates should be placed outside the examination hall.
2. Do not copy from your neighbour or from any other source.
3. Any type of electronic device other than calculators is prohibited during Examination in the Examination hall.
4. Use of calculators is allowed only for those subjects which University permits from time to time.
5. Violation of these instructions may involve cancellation of the concerned examination and debarring from further appearance in the series exam.

KCoA Statutory committees 2022-23

Anti-Ragging Committee

Representatives	Name & Designation	Phone Number
Head of the Institution	Prof. Joseph John, Principal, KMEA COA	98951 75099
Civil Administrator	Mrs. Ligi, Panchayath Member, Edathala	8606275904
Police Administrator	Mr. Arun G, SHO, Edathala Police Station	9497975488
Local Media Person	Mr. Vinayachandran P S, The New Indian Express, Cochin	9388372662
NGO- Youth Activist	Mr. Sreekumar C, Director, SOS, Edathala	9744045544
Faculty Members	Shyne U, Associate Professor, KMEA COA	9895719009
	Rejtha R, Assistant Professor, KMEA COA	99019 25956
Parent	2022-27 batch parent, KMEA COA (to be elected)	-
Students	2022-27 batch student, KMEA COA (to be elected)	-
	Anu Krishna 3rd year student, KMEA COA	9567732207
Non-teaching staff	Mrs Ansila, Administrative Officer, KMEA COA	7994036884

Anti-Ragging Squad

Name	Designation	Phone Number
Prof. Joseph John	Principal	98951 75099
Asso Prof. Shyne U	Faculty	9895719009
Asst Prof Rejitha	Faculty	99019 25956
Ar. Rinosh	Faculty (Year Coordinator)	98098 75969
Ar. Cukku Pavith	Faculty (Year Coordinator)	82815 17742
Ar. Anoop S	Faculty (Year Coordinator)	9496463501
Ar. Remya	Faculty (Year Coordinator)	99903 84600
Er. Sini. P Kuriakose	Faculty (Hostel Warden)	9400293514
Mrs. Sajitha	Hostel Matron	9495396232
Mrs Ansila	Administrative Officer	9645172411
Mr Suresh	Boys Hostel warden	9567024013

Internal Complaints Committee (ICC)

Name	Designation	Phone No:
Prof Joseph John	Principal	98951 75099
Prof. Jayadevi Venugopal	Presiding Officer	95260 43335
Ar. Monolita Chatterjee	Faculty cum NGO Volunteer	98461 21125
Asso. Prof. Resmi Navin	Faculty	81368 88010
Ms. Reshma (2018-23 batch)	Student	75920 88454
Ms. Amina (2019-24batch)	Student	99957 30274
Ms. Aparna (2020-25 batch)	Student	96330 74805
Ms. Alna (2021-26 batch)	Student	88912 64044
Mrs. Sindhu S	Librarian	94001 37792
Mrs. Sajitha	Girls Hostel Matron	94953 96232

Grievance Cell

Name	Designation	Phone No:
Prof Joseph John	Principal	98951 75099
Asst Prof Rejitha	Convener	99019 25956
Prof Jayadevi Venugopal	Member	81368 88010
Asso. Prof. Shyne U	Member	9895719009
Asst Prof Elezebeth Baiju	Member	97460 43093
Mrs. Sindhu S	Librarian	94001 37792
Ms. Amal Krishnan (2018-23 batch)	Student	9526436513
Ms. Reshma (2018-23 batch)	Student	75920 88454
Mr. Adarsh Nair	Student	80781 30413
Mr. Shibin Fasid (2019-24batch)	Student	77362 01823
Ms. Saranya Rajan	Student	79022 55319
Mr. Goutham Krishna (2020-25 batch)	Student	98472 40987
Ms. Surya Suresh Menon (2020-25 batch)	Student	73063 51961
Mr. Mohammed Ameen (2020-25 batch)	Student	75919 16939
Ms. Miza Ashik (2021-26 batch)	Student	77366 66952
Mr. Ahmed Suhail (2021-26 batch)	Student	80757 96784

MG University Curriculum (Program Structure)

First and Second Semester Courses

Subject Group	Course Code	Subject	Hours/week			Credits	Credits (doubled)	Marks			
			T	S	W/L			CA	Final Evaluation		Total
									Jury	Written	
I (a)	19AR12001	Architectural Design 1 & 2		9		12	24	300	300		600
I (b)	19AR12002	Building Materials and Technology 1 & 2	1	3		6	12	100	100		200
I (c)	19AR12003	Professional Skill Enhancement 1 & 2			4	2	4	50	50		100
II	19AR12004	History of Architecture 1 & 2	2			2	4	50		100	150
II	19AR12005	Theory of Structures 1 & 2	2			2	4	50		100	150
II	19AR12006	Theory of Design	2			2	4	50		100	150
II	19AR12007	Architectural Graphics			4	2	4	100		100	200
II	19AR12008	Mathematics for Design	2			2	4	50		100	150
Total Hours				29		30	60	750	450	500	1700

First and Second Semester Syllabus

Sem	Subject Group	Course Code	Subject	Hours/week			Credits	CA	Marks		
				T	S	W/L			Viva	Written	Total
I & II	I (a)	19AR12001	Architectural Design 1 & 2		9		24	300	300		600
Course Overview:											
<p>The course aims to deliver the fundamentals of Architecture and provide a brief Introduction to the design process.</p> <ul style="list-style-type: none"> To Introduce architectural and design vocabulary to familiarize students with the grammar of design To introduce the elements and principles of basic design To enable design thinking and basic principles of 2D and 3D composition To develop an understanding of the methods of architectural drawing To develop the ability to translate abstract principles into design solutions To familiarize students with design development methodology and the process involved 											
Course Outcomes:											
<p>Upon completion of the course, the student should have an:</p> <ul style="list-style-type: none"> Understanding of definition of architecture Understanding of elements of space making, various design principles and its application Understanding of architectural drawings and various techniques for visual representation Understanding of design as a multidimensional creative art Understanding nature as a contextual setting Understanding of design development methodology and its process. 											
Module 1: Orientation Course											
Module Contents:											
<ul style="list-style-type: none"> Introduction to the fundamentals of architectural education Introduction to how Architecture is connected to other realms of knowledge Introduction to the multi-faceted role of an architect 											

- Exposure to the works of master architects and their philosophies
- Introduction to tools and mediums of visual representation

Module 2: Fundamentals of Design and Drawing

Module Contents:

- Exploring Elements and Principles of Design by creating 2 dimensional and 3 dimensional compositions
- Introduction to Principles of two-dimensional compositions- Balance, Movement, Scale, Proportion, Rhythm etc.
- Introduction to principles of three-dimensional composition - Form, Mass, Volume, Scale etc.
- Introduction to Color Theory
- Introduction to fundamentals of architectural drawing. Measured drawing exercise of familiar objects & spaces
- Introduction to dimensioning systems and standard unit conversions

Module 3: Art in Design & Space Articulation

Module Contents:

- Introduction to the evolution of Art and Design
- Factors influencing the process of Art, Design and Architecture.
- Relationship of art and design with space and environment
- Introduction to Perceptual bases for Architectural Design
- Introduction to theories of scale and proportion in Space articulation
- Introduction to anthropometry
- Observation and study on People-Space interaction

Module 4: Introduction to Design Process

Module Content:

- Introduction to Concepts in Design
- Introduction to Design in Nature and Context
- Introduction to methods of design in architecture through Generation of Circulation diagram, Bubble Diagram and Activity Proximity Matrix to establish a functional relationship among various spaces.
- Introduction to basic concepts of structures in design
- Architectural study tour of spaces or buildings which has to be concluded with a report incorporating studies based on the aspects discussed in the syllabus
- **Time bound project:** Design of a functional space to demonstrate the process of design development and fundamentals of architectural design representation

Reference:

- Broadbent, G. (1973). *Design in Architecture - Architecture and Human Science*. New York: John Wiley and Sons.
- Ching, F. (2014). *Architecture: Form, Space, and Order, 4th Edition*. John Wiley & Sons.
- Ching, F. (2015). *Architectural Graphics*. Wiley & Sons Canada, Limited, John.
- Ching, F., Jarzombek, M. and Prakash, V. (2010). *A global history of architecture*. 2nd ed. John Wiley & Sons.
- Conway, H. and Roenisch, R. (2003). *Understanding architecture: an introduction to architecture and architectural history*. London: Routledge.
- Kleiner, F. (2009). *Art through the ages a Global History*. 3rd ed. Clark Baxter.
- Pramdar, V. (1973). *Design fundamentals in architecture*. Bombay: Somaiya Publications.
- Roth, L. (n.d.). *Understanding architecture: Its Experience History and Meaning*.

- Snyder, J. and Catanese, A. (1979). *Introduction to architecture*. New York: MacGraw-Hill.
- Unwin, S. (2009). *Analyzing architecture*. London: Routledge.

Notes:

- Students may be encouraged to read and discuss books/ journals related to the topics discussed in the semester
- Discussions of the topics given above may include relevant contents from the other subjects in the semester as well.

Sem	Subject Group	Course Code	Subject	Hours/week			Credits	Marks			
				T	S	W/L		CA	Final Evaluation		Total
							Viva		Written		
I & II	I (b)	19AR12002	Building Materials and Technology 1 & 2	1	3		12	100	100		200

Course Overview:

The subject primarily aims at developing understanding in the use of appropriate construction technique and material in building design based on feasibility of technology, physical properties (like density & specific gravity, strength, thermal properties), aesthetic value, socio-cultural impacts and relevance, socio-economic factors, Ecological footprint etc.

The course introduces the technological aspects of a building design from the perspective of functional building component where use of natural and artificial materials is discussed based on their application. Each material would be taught in a manner such that its application would be discussed in a sequential manner, starting from foundation level, followed by plinth & others (sill, lintel, sunshades, window/door openings, walling material, as a floor & flooring) and culminating at roof and parapet wall. Construction technology and appropriate materials for structural systems, roofing, enveloping and interior finishes shall be considered under this subject from simple examples to complex.

Course Outcomes:

Upon completion of the course, the student should:

- The student should develop necessary decision-making skills in using appropriate construction technologies and materials while designing buildings, based on understanding of their potentials and properties.
- The student should develop the skill to represent various construction techniques as well as materials through drawings supporting their building design.
- Three drawing sheets shall be drafted based on the contents of each module.

Module 1: Introduction to Fundamental Components of a Building

Learning Strategies:

- Lecture on various building components and various techniques as well as materials used.
- Demonstration at building construction sites, workshops etc. on various building components and various techniques used.
- Market study on materials.
- Drawing studios on representation of different building components and materials.

Module Contents:

- Foundation: Function, Types based on structure, Techniques & materials used in construction.
- Building envelope: Function, Desirable properties, Types based on materials.
- Floor: Function, Types based on material and construction used, Techniques used in construction.
- Fenestrations: Function, Types based on application, Techniques & materials used in construction.
- Roof: Function, Types by shape and structure, Techniques & materials used in construction.
- Overview of load bearing and framed structures – related components – columns, beams, trusses etc.

Module 2: Soils and Foundations**Learning Strategies:**

- Lecture on various soil types, various techniques of soil tests for different properties of soil and types of foundations for each situation.
- Demonstration at building construction sites, workshops etc. on various building foundations used for different types of buildings.
- Site visits to soil testing facilities.
- Drawing studios on representation of different foundation types.

Module Contents:

- Soils – Their classification, physical properties and behavior – Bearing capacity, safe bearing capacity, Determination of SBC, Standard Penetration test – Sand – fineness, bulking qualities - Methods of improving bearing capacity.
- Shallow Foundations – Types- Pad, Strip, Raft-Method of construction.
- Deep Foundations-Types- Piles, Piers, Caissons-Materials and method of construction.
- Execution problems in loose and clayey soil, Shoring, Timbering.
- Vernacular construction methods of foundation – stone, rammed earth, bamboo, coconut etc.

Module 3: Construction Using Wood**Learning Strategies:**

- Lecture on various building components using wood as construction material.
- Demonstration at timber yards, saw mills, carpentry workshops etc.
- Market study on various wood and wood-based materials.
- Drawing studios on representation of different wood construction techniques.

Module Contents:

- Timber/ wood as construction material: Properties, Types of timber, defects, seasoning and preservation of timber, ecological impact due to use of wood, joinery details & systems, BIS Specifications etc.
- Wooden doors & windows - Wooden joinery & details.
- Structural members: application of wood as a structural member – framed structure, roof structure - King post truss, Queen post truss.
- Timber Floors – Single, double and framed floors with joints between joist with wall plate,

joist with beam and sub beam with main beam, strutting of joists.

- Roof & Ceiling: wooden ceiling systems – members of the system, detailing, wooden roof systems – members, detailing.

Module 4: Masonry

Learning Strategies:

- Lecture on various building components in elementary load bearing construction using concrete.
- Demonstration at construction sites on various stages.
- Market study on cement, bricks, steel etc. used in elementary concrete load bearing constructions.
- Drawing studios on representation of different building components.
- Hands on workshop on masonry types.

Module Content:

- Material Study- Burnt bricks and alternative building blocks: Mud Bricks, Stones, concrete blocks, mud blocks, rammed earth, their BIS specifications.
- Wall: Masonry techniques & tools, Types of masonry bonds – Stretcher, Header, English, Flemish, Stack, Dutch, Facing and rat trap bonds.
- Properties of cement concrete, preparation, cement, aggregates and other components of concrete, techniques and tools.
- Vernacular materials like mud, bamboo, lime, surkhi, clay products – applications, environmental aspects.

List of drawings for viva (Minimum 7 sheets)

- Typical Wall section
- Strip foundation
- Column footing
- Pile & Pile cap
- Wooden joinery
- Timber floors
- King post truss
- Queen post truss
- English bond – different thickness and T joint
- Flemish bond – different thickness and T joint

Reference:

- Barry, R. (1999). The Construction of Buildings Vol. 2. 5th Ed. New Delhi: East-West Press.
- McKay, W. B. (2005). Building Construction Metric Vol, I – IV. 4th Ed. Mumbai: Orient Longman.
- Chudley, R. (2008). Building Construction Handbook. 7th Ed. London: Butterworth-Heinemann.
- Foster, J. and Mitchell, S. (1963). Building Construction: Elementary and Advanced, 17th Ed. London: B.T. Batsford Ltd.

- H Leslie Simmons, 'Construction – Principles, Material & Methods', 7th edition, John Wiley & Sons Inc., New York, 2001.
- Sushil-Kumar, T. B. (2003). Building Construction. 19th Ed. Delhi: Standard Publishers.
- P.C. Varghese, 'Building Materials', Prentice hall of India Pvt. Ltd, New Delhi, 2005

Sem	Subject Group	Course Code	Subject	Hours/week			Credits	Marks			
				T	S	W/L		CA	Final Evaluation		Total
									Viva	Written	
I & II	I (c)	19AR12003	Professional Skill Enhancement 1 & 2			4	4	50	50		100

Course Overview:

This course intends to provide/ enhance the soft skills in order that students perform well in their academics and beyond. These skills are intended to support the student to perform better in her/his core subjects and also build up robust performance through hands-on workshops and laboratory training. This course is subdivided into two categories – Mandatory and Optional. Mandatory courses help in preparations for respective semester subjects. The optional category helps students to take personal initiatives to develop in specific areas that can widen their horizon of their understanding of architecture and also initiate action at the society level. There are also options to work on competitive exercises alongside other similar institutions.

- The aim of this subject is to familiarize students with different types of materials and manufacturing techniques for creating art forms/ models.
- Students will be able to use different kinds of tools and machinery for production of design models.
- The subject will be taught in congruence with subjects like Design and Graphics. Assignments for the subject will be linked to design exercises to achieve higher level of learning and understanding the practical application of the same.
- Considering the significance of English language as a tool for global communication, the course aims to develop and enhance the linguistic and communicative competence of the students. The focus is on honing the skills of reading, writing, listening, and speaking. By providing suitable examples, the students will be exposed to various forms of personal and professional communication. The self-learning tasks designed will facilitate to enhance effective communication skills in a modern, globalized context.

Course Outcomes:

Upon completion of the course, the student should:

- be given an exposure of varied skills that can bring in confidence in handling their core subjects such as workshops, communication skills, computer applications etc.
- be able to develop team spirit and interpersonal skills to manage complex situations.
- be able to cope with stress and develop multi-tasking capabilities.

Module 1: Architecture Model Making Workshop (Max CA marks: 20)

Learning Strategies:

- Practical hands on sessions
- Model making lab and equipment
- Suggestive Materials: Paper, thermocol, clay, ceramic, plastic sheet, sheet metal, wood etc.

<p>Module Contents:</p> <ul style="list-style-type: none"> • Training in translating ideas into three dimensional forms. • Training sessions using different materials and techniques pertaining to Architectural model making. • Training in safe handling of equipment for production of design models.
<p>Module 2: Communication Skills (Max CA marks: 20)</p>
<p>Learning Strategies:</p> <ul style="list-style-type: none"> • Language lab • Group discussions and Interactive sessions
<p>Module Contents:</p> <ul style="list-style-type: none"> • Scope and Importance of effective communication. • The Process of Communication: Levels of communication; Flow of communication; Use of language in communication; Communication networks; Significance of technical communication. • Barriers to Communication: Types of barriers; Miscommunication; Noise; Overcoming measures. • Listening Skills: Listening as an active skill; Types of Listeners; Listening for general content; Listening to fill up information; Intensive Listening; Listening for specific information; Developing effective listening skills; Barriers to effective listening skills. • Reading Skills: Previewing techniques; Skimming; Scanning; Understanding the gist of an argument; Identifying the topic sentence; Inferring lexical and contextual meaning; recognizing coherence and sequencing of sentences; Improving comprehension skills.
<p>Module 3: Co-curricular Activities (Max CA marks: 10)</p>
<p>Learning Strategies:</p> <ul style="list-style-type: none"> • Technical and hands on workshops • Group discussions and Interactive sessions • Self- initiatives
<p>Module Contents:</p> <ul style="list-style-type: none"> • Optional content to be developed by each institution in order to help students to take part in activities that involve larger groups and facilitate peer learning. • The activities could be skill oriented like Photography or Crafts training or student initiated societal activities or participation in NASA or similar student led group initiatives which has an academic content as well.
<p>Reference:</p> <ul style="list-style-type: none"> • Dunn, N. (2014). Architectural modelmaking. Laurence King Publishing. • Kaplan Test Prep. (2018). IELTS prep plus 2019-2020. Kaplan Pub. • Knoll, W. (2014). Architectural models: Construction Techniques. 1st ed. Cengage Publications. • Loughheed, L. (2010). Barron's IELTS. 2nd ed. Barrons Educational Series. • Werner, M. (2011). Model making. Princeton Architectural Press.

Sem	Subject Group	Course Code	Subject	Hours/week			Credits	Marks			
				T	S	W/L		CA	Final Evaluation		Total
									Viva	Written	
I & II	II	19AR12004	History of Architecture 1 & 2	2			4	50		100	150

Course Overview:

The subject principally aims at sensitizing the students towards understanding architecture as a product of historic evolution process of human kind along the timeline through socio cultural and political changes as well as technological advancements at different geographies around the planet earth. The subject intends to inculcate in the students a sense of curiosity to understand the origins and meanings of the various forms of architectural details, expressions as well as functional design elements or space standards used extensively in the practice.

Course Outcomes:

Upon completion of the course, the student should:

- Be able to relate and identify built forms through socio cultural, climatic, political, economic influences on them in respective geography and timeline.
- Possess the skill to formally (visually and theoretically) analyses and appreciate architectural works.

Introduction to History of Architecture and its relevance in design (not part of evaluation)

Learning Strategies

- Lecture on chronological evolution of architecture in various geographical contexts.
- Drawing exercises on various significant architectural works in various eras/ geographies.
- Lecture/ discussion on observation of changes in built form design across timeline.
- Lecture on architectural history its relevance in modern day architecture design.
- Lecture/ discussions on human experience of architectural built forms and their appreciation based on the physical and metaphysical influences on architecture.
- Drawing exercises on applications of architectural history in design.
- Lecture/discussion on Physical and metaphysical influences by architecture: Brief introduction to use of various principles of design such as Unity, Focal Point, Scale and Proportion, Rhythm and Balance using examples like Pyramid complex at Giza, Acropolis, Parthenon, Pantheon, etc. (cross-study with Theory of Design).
- Lecture/discussion on applications of architectural history: Analyzing buildings through historical perspectives, use of details, construction techniques, materials etc. in sensitive design projects with modern day examples.

Contents

Study of architectural history and its relevance in modern day architecture design

Brief Early History: A very brief introduction to landmark architectural works during different periods in different geographical regions- Early cultures (before 12,000 BCE) up to 1200 CE- Changes occurring to the built form design across timeline as well as geographies based on socio cultural, climatic, geographic, economic factors as well advancements in construction techniques (ref. Ching, Introduction to Architecture, Ch. 2)

Brief History from Renaissance to Contemporary: A very brief introduction to landmark

architectural works during different periods in different geographical regions c. 1200 CE to 1950s- Changes occurring to the built form design across timeline as well as geographies based on socio cultural, climatic, geographic, economic factors as well advancements in construction techniques (ref. Ching, Introduction to Architecture, Ch. 3)

Module 1: Architecture in Pre-Historic and Ancient Times – 1

Learning Strategies:

- Unit wise lectures on how the built form in the region is a manifestation of its socio cultural, climatic, political, economic context.
- Drawing exercises on various significant architectural works in various eras/ geographies.
- Lectures/ assignments on construction techniques.
- Lecture/ discussion on observation of periodical changes and cross influences between various geographies.
- Each lecture will have pre- requisite readings and each module will have to specify self-learning component in the lecture plans.

Module Contents:

- **Early cultures:** Paleolithic-Society, Culture & Settlements, Dolni Vestonice, Megdalenian tents, Ice age - Relevance of ice age, dwellings, Neolithic Age - Society, Culture & Settlements, Jomon Culture.
- **Indus Valley:** Introduction to Bronze Age and its impact in the region, Geography, society and culture, Dholavira, Architecture and urban infrastructure of Mohenjodaro - Citadel, Dwelling units.
- **Mesopotamia:** Sumerians- culture and social structure, City of Ur, Ziggurat at Ur.
- **Egypt:** Culture and social structure, Pre-dynastic Egypt- royal tombs at Abydos, Old Kingdom- Mortuary complex of Zosur, Pyramid complex at Giza, New Kingdom - Temple complex at Karnak, Temple of Amun.

Module 2: Architecture in Ancient Times – 2

Learning Strategies:

- Lecture on how built form is a manifestation of its socio cultural, climatic, political, economic context.
- Drawing exercises on various significant architectural works in various eras/ geographies.
- Lectures/ assignments on construction techniques.
- Lecture/ discussion on observation of periodical changes and cross influences between various geographies.
- Each lecture will have pre- requisite readings and each module will have to specify self-learning component in the lecture plans.

Module Contents:

- **China:** Early Chinese cultures- Yangshao- Banpo (brief) | Shang Dynasty- rites and rituals, tombs | Zhou Dynasty- Mandate of Heaven, Ritual complex at Feng Chu (brief), Wangcheng, an ideal city (brief) | Qin Dynasty- Tomb of first emperors (brief) | Han Dynasty - Mingtang-Biyong ritual complex (brief) | Great Wall of China (detail)

- **Greece 1:** Mycenaean civilization- Palace complex at Pylos | Geometric period- emergence of Greek temple form, Temple of Poseidon (brief) | Archaic period- architectural characteristics, Temple of Apollo at Delphi (brief)
- **Greece 2:** Classic - Athens' Acropolis(detail) | Hellenistic age- Temple of Apollo at Didyma (brief) | Greek Orders
- **Rome 1:** Founding and expansion of Rome (brief) | Engineering and construction technology | Forums- Forum of Augustus, Imperial Forums (brief)
- **Rome 2:** Roman Urban Villa (brief) | Roman Baths (brief) | Colosseum and Pantheon (detail)
- **Vedic period and Buddhist architecture 1:** Aryan invasion, Vedic village, Aryan house | Origin and spread of Buddhism | Mauryan School of Art- Asoka pillar (brief), Sanchi Stupa (brief) | Sunga school of Art- Growth of Sanchi Stupa (detail), Viharas and Chaitya halls
- **Buddhist Architecture 2:** Satvahana School of Art- Amaravati Stupa (brief), Chaitya hall at Karle (details) | Kushana School of Art- Mahayana Buddhism and monastery at Takht-i-Bahi (brief) Gupta period- Ajantha caves (detail)

Module 3: Architecture in Kerala

Learning Strategies:

- Lecture/ Individual history of Kerala Architecture during the medieval era.
- Lecture/ discussion on observation of changes and influences on Kerala architecture during the era.
- Lecture/ Individual student assignments on significant buildings.
- Drawing exercises on various significant architectural works.
- Model making exercises on significant architecture works in Kerala during the era.
- Lecture on theories such as planning principles, use of Vasthu Purusha Mandala, etc. can be added to understand its impact on the built form.

Module Contents:

- **Pre-historic built structures of Kerala:** Megalithic structures- Dolmens, Umbrella stones, Burial caves, Cave temples.
- **Influencing factors of indigenous architecture in Kerala:** Geography, Climate, Building materials, Social, Political, Religious and Traditional planning principles.
- **Indigenous residential architecture of Kerala-1:** Characteristics of sala typology of houses – Development of four types of sala house configuration, Evolution and expansion of ekasala, catusala and other complex courtyard based residential typology, example of ekasala (Thampuran, 2001 p. 143), example of catusala: (Thampuran, 2001 p. 154), example of complex sala: Pathinarukettu (Thampuran, 2001 p. 201), One example of Muslim and Christian Tharavadu.
- **Indigenous religious architecture of Kerala:** Characteristics of Kerala temple architecture- Types of Kerala 'Sreekovils'(Moola-prasada) Five types- with/without Antharala and with/without Mukhamandapa.
- Schematic layout of a full-fledged Kerala temple with names of important structures. Sectional elevation of a typical Kerala Sreekovil (Moola-prasada).
- Architectural characteristics of Kerala type mosques and churches (Study of relevant examples).

Reference:

- Achuthan, A. and Prabhu, B. (1998). *Manushyalaychandrikabhasyam - An engineering commentary on manushyalayachandrika of Tirumangalat Nilakanthan Musat*. Calicut: Vastuvidyapratisthanam.
- Chandrashekhara, U & Joseph, S.P. & Ashtamoorthy, Sreejith. (2002). Ecological and socio-cultural dimensions of sacred groves of Northern Kerala. *Man in India*. 82. 323-340.
- Ching, F. (2013). *Introduction to architecture*. Hoboken, N.J: Wiley Publishers.
- Ching, F., Jarzombek, M. and Prakash, V. (2010). *A global history of architecture*. Hoboken, NJ: Wiley.
- Fletcher, B. (1999). *A History of Architecture*. CBS Publication (Indian Edition).
- Jarzombek, M. (2013). *Architecture of first societies: A Global Perspective*. Hoboken, N.J.: Wiley Publishers.
- Jayashankar, S. (1997). *Temples of Kerala*. Census of India.
- Koduveliparambil, J. (1997). *Construction practices in traditional dwellings of Kerala*. India: McGill University, Montreal.
- Kostof, S. (1985). *A history of architecture: Setting and Rituals*. London: Oxford University Press.
- Nuttgens, P. (1983). *The Story of Architecture from Antiquity to the Present*. London: H. F. Ullmann Publishers.
- Prabhu, B. and Achuthan, A. (1996). *A text book of Vasthuvidya, Vasthuvidya Prathishtanam*. Calicut.
- Sarkar, H. (1978). *An Architectural survey of Temples of Kerala*. Archeological Survey of India.
- Scully, V. (1991). *Architecture - The Natural and the Manmade*. New York: Harper Collins Publisher.
- Thampuran, A. (2001). *Traditional architectural forms of Malabar Coast*. Vastuvidyapratisthanam Academic Centre.
- Vatsyayan, K. (1997). *The square and the circle of the Indian arts*. New Delhi: Abhinav Publications.

Sem	Subject Group	Course Code	Subject	Hours/week			Credits	Marks			
				T	S	W/L		CA	Final Evaluation		Total
									Viva	Written	
I & II	II	19AR12005	Theory of Structures 1 & 2	2			4	50		100	150

Course Overview:

The course primarily aims at understanding importance of structures in Architecture. It focuses on making the students aware of the role of structural design as an integral part of Architecture design. It provides the fundamental understanding of various possibilities in exploring Architectural design with the help of different structural forms. It also acts as the orientation to basic structural design terms and fundamental governing principles. It also emphasizes on making students aware of different external loads and forces acting on the structural elements and giving a conceptual idea of the behavior of these elements.

Course Outcomes:

Upon completion of the course, the student should:

- be able to develop a habit of inclusive structural aspects in their Architectural design.
- be able to visualize the flow of forces in their Architectural design elements to develop a stable and practical structure.
- be able to develop basic skill to choose appropriate structural form from various possibilities.
- be able to develop an intuitive understanding of how structures behave and thereby enhancing their skills in conceptual Architectural design.

Module 1: Structural Design and its relevance in Architecture. Introduction to basic structural design and various structural forms and elements in Architecture.

Learning Strategies:

- Lectures on the below contents by presentation and discussion on Architectural projects and structural behavior diagrams to make students understand structures in the context of Architecture
- Lectures by using analogies and examples to explain structural concepts.

Module Contents:

- Introduction – Definition of Structure, Role of Structures in Architecture
- Historical evolution of structures - Walls, Post and beams, Arches, Vaults, Domes, Suspended structures, Truss, Sky scraper
- Force types – Definition of force, Moment of a force, Bending & Buckling Force concepts - principle of transmissibility, principle of super position.
- Resultant of co planar concurrent forces, parallelogram law of forces and numerical problems.
- Resolution and composition of forces, numerical problems.
- Moment of force concept, Varignon's theorem, Couple and moment of a couple concept. Numerical problems on coplanar non- concurrent force system.

Module 2: Principles of structural design.**Introduction to basic structural design terms and fundamental governing principle in behavior of the external loads (Statics) acting upon different structural elements.****Learning Strategies:**

- Lectures on the below contents by presentation and discussion with relatively accessible mathematical equations and calculations.
- Lectures by using analogies and examples to explain structural concepts.

Module Contents:

- Equilibrium concept and free body diagram. Condition of static equilibrium for different force system. Lami's Theorem. Numerical problems on equilibrium of coplanar concurrent force system.
- Types of supports and loads in statically determinate beams, equilibrium of coplanar non concurrent force system, to find the support reaction for statically determinate beams.
- Loads on structure as a whole - Dead Load - Live Load - Seismic Load - Wind Load
- Tributary Load & load path. Basic concepts of Strength - Stiffness - Stability –
- Load tracing – Understanding load flow by tributary load and load path, Load paths – Pitched Roof systems, Wall systems, Roof and floor systems, and Foundation systems.

Module 3: Principles of resistance of structural members to the various external forces acting upon them.**Importance of cross section in resisting the external loads. Truss analysis****Learning Strategies:**

- Lectures on the below contents by presentation and discussion with relatively accessible mathematical equations and calculations.
- Lectures by using analogies and examples to explain structural concepts.

Module Contents:

- Resistance of Structural Members – Material strength and cross-sectional properties.
- Centre of gravity and centroids, Locating the centroid of plane and compound figures.
- Moment of Inertia - of an area, Theorem of parallel and perpendicular axis- Principle axis and Principle moment of inertia;
- Moment of inertia of composite areas. Radius of Gyration.
- Truss analysis: - Method of joints- cantilever and simply supported trusses

Reference:

- Ambrose, J. and Tripeny, P. (2013). *Building structures*. Hoboken, N.J.: Wiley.
- Babu, J. (n.d.). *Engineering Mechanics*. Pearson Prentice Hall.
- Bansal, R. and Bansal, S. (n.d.). *Engineering mechanics*.
- Becker, H. (2015). *Structural competency for architects*. New York, N.Y: Routledge.
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- Janak, P. (n.d.). *Understanding Concept of Structural Analysis and Design*.
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- Jorg, S. (n.d.). *Structural Aphorisms*.
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- Mainstone, R. (2002). *Structure in architecture - History, Design and Innovation*. Aldershot, Hampshire: Ashgate.
- Meriam, J., Kraige, L. and Bolton, J. (2016). *Engineering mechanics*. New York: John Wiley and Sons.
- Ochshorn, J. (n.d.). *Structural elements for architects and builders*.
- Onouye, B. and Kane, K. (2015). *Statics and Strength of Materials for Architecture and Building Construction*. Boston, MA: Pearson.
- Prasad, I. (n.d.). *Applied mechanics -Dynamics & Statics*. Khanna Publishers.
- Punmia, B. and Jain (n.d.). *Strength of Materials and Theory of Structures - Vol 1*.
- Rajasekaran, S. and Sankarasubramanian, G. (n.d.). *Engineering Mechanics*. Vikas Publishing House Private Limited.
- Ramamrutham, S. (n.d.). *Strength of Materials*. Dhanpat Rai Publishing Company Pvt Limited.
- Salvadori, M. (1975). *Structure in architecture; the building of buildings*. Englewood Cliffs: Prentice-Hall.
- Salvadori, M. (2000). *The Art of Construction - Projects and Principles for Beginning Engineers and Architects*. Chicago: Chicago Review Press.
- Salvadori, M. (2002). *Why buildings stand up - The strength of Architecture*. New York, NY: W.W. Norton.
- Schierle, G. (1990). *Architectural structures*. Los Angeles: University of Southern California.
- Epsassets.manchester.ac.uk. (2019). *Seeing and Touching Structural Concepts*. [online] Available at: <http://epsassets.manchester.ac.uk/structural-concepts/>

- Schodek, D. and Bechthold, M. (n.d.). *Structures*. PHI Learning Private Limited.
- *Structure as architecture* - A source book for Architects and Structural engineers. (n.d.).
- Vaidyanathan, R. and Perumal, P. (2004). *Structural Analysis (Vol.I)*. Laxmi Publications.
- Victor E, S. (n.d.). *Structural concepts and systems for Architects*.

Sem	Subject Group	Course Code	Subject	Hours/week			Credits	Marks			
				T	S	W/L		CA	Final Evaluation		Total
									Viva	Written	
I & II	II	19AR12006	Theory of Design	2			4	50		100	150

Course Overview:

The course shall introduce the students to the basic theories of design as a cross disciplinary phenomenon. The course shall engage the students with various important design philosophies, their evolution and their major design directions. The course aims to supplement the broader understanding of design at the foundation level.

Course Outcomes:

Upon completion of the course, the student should:

- develop the vocabulary skills to effectively communicate design and its process.
- be able to critically review design and analyses them.
- be able to develop and understanding of the various design philosophies and their evolution.

Module 1: Elements of Design

Learning Strategies:

- Lecture
- Group Discussion
- Assignments

Module Contents:

- **Dot:** Illusion of roundness;
- **Line:** Types, Direction, Gesture, Contour, Quality & Value.
- **Planes:** Depth, Thickness, Boundary, Levels.
- **Shape/Volume/Mass:** Positive & Negative, Naturalism, Idealism, Abstraction, Distortion & Illusion.
- **Operations:** Detached, Within, Overlapping, Intersecting.
- **Texture:** Tactile, Visual, Actual & Implied, Pattern, Homogeneity.
- **Color:** Color theory, Psychology, Characteristics, Schemes., Properties of Color, Symbolism and Psychology.
- **Value:** Light & Dark, Variations: Movement, Pause, Control, Focus.
- **Motion:** Anticipated, Suggestive, Actual and Illusion.
- **Perception of spaces:** Elements of spatial definition, Depth, Density, Opening, Juxtaposition and interpenetration, Spatial Characteristics of elemental shapes, Perspectives and projections.

Module 2: Principles of Design

Learning Strategies:

- Lecture
- Group Discussion
- Assignments

Module Contents:

- Unity: Gestalt Laws, Harmony, Variety, Factors of Coherence, Order in disorder, Gradation.
- Emphasis and Focal point: Axis, Datum, Hierarchy, Contrast, Complexity, Contradiction, Presence and Absence, Regularity and irregularity.
- Scale and proportion: The notion of scale, Ergonomics
- Anthropology and proxemics: Proxemics and Space bubbles, Commensurate and Incommensurate proportions, Vitruvian man, The modular, Golden ratio and the Fibonacci series.
- Rhythm and Balance: Symmetry, Asymmetry, Interaction of design elements, Radial and crystallographic balance.
- Rhythm: Movement and Sensation, Shapes and Repetition, Pattern and Sequence, Progressive Rhythm and Gradation.

Module 3: Evolution of Design Discipline

Learning Strategies:

- Lecture
- Group Discussion
- Assignments

Module Contents:

- **Built Environment, human condition and Social Relevance of Design Solutions:** Abraham Maslow and built environment - needs vs wants and deficiency vs growth; Irvin Altman and behavioral concepts: Privacy, Territoriality, Crowding and Personal Space, understanding of different contexts to ascertain perception of meanings.
- **Evolution of design discipline:** Definition of design- physical, conceptual, Design since 1700s
- **Design Process:** Different maps of design process: Analysis, Synthesis and Evaluation.
- **Design Thinking:** Different Types and styles of thinking, Design strategies, Tactics and Guiding principles, Design as a communication.

Module 4: Nature as Primary Reference

Learning Strategies:

- Lecture
- Group Discussion
- Assignments

Module Contents:

- **Evolution of natural forms and Natural growth patterns:** Golden spiral, Fractals.
- **Emergent Designs:** Self -similarity, Self-organization, Indeterminacy
- **Nature-inspired design:** Biomimicry, Janine Benyus and ideas from Biology, Contributions of Michael Pawlyn.
- **Bio-inspired Design:** Material ecology, Explorations of Neri Oxman.
- **Works of Ross Lovegrove, Concept of Maximum with minimum:** Works of Buckminster Fuller and Frei Otto.

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Sem	Subject Group	Course Code	Subject	Hours/week			Credits	Marks			
				T	S	W/L		CA	Final Evaluation		Total
									Viva	Written	
I & II	II	19AR12007	Architectural Graphics			4	4	100		100	200

Course Overview:

This course is designed to generate comprehensive understanding of technical drawing techniques and architectural presentation. To introduce students to the fundamental concepts and techniques of graphical drawings, and multi-angle representations of built elements and built forms with applicable renderings.

Course Outcomes:

Upon completion of the course, the student should:

- develop visual communication through technical drawings.
- enhance 3D visualisation capability connecting to real world.
- develop 2-D & 3-D perception through observation, interpretation and logical understanding.
- stimulate and expand the skill of observing, interpreting and representing spaces and objects.

Module 1: Introduction of the Architectural Design Language – technical drafting and presentation.**Learning Strategies:**

- Lectures
- Studio

Module Contents:

- Introduction to visual communication through technical drawings, tools & techniques for

visual communication.

- Graphical Annotations and Symbols – Line types, line weights, labelling, titling etc.(T&S)
- Lettering -Introduction to Typography(T) – Free hand lettering – Block lettering (S)
- Dimensioning – Types of Dimensions with applications. (T&S)
- Scales- Plain Scale – Introduction to Graphical Scale – Diagonal Scale - Use and Applications. (T&S)

Module 2: Visual Representation

Learning Strategies:

- Lectures
- Studio
- Study Models

Module Contents:

- Orthographic projection – Introduction, Theory of projection, Systems of projection, projection of points, lines and planes - (With particular emphasis of first angle projection) (T)
- Orthographic Projection - Solids - Simple solid in simple position - top & front views, Auxiliary Projection-Axis inclined to one plane & parallel to other, Axis inclined to both planes –Altering the position method and Auxiliary plane method (T&S)
- Intersection of Solids - Method of drawing intersection between prism & prism, cylinder & cylinder, cone & cylinder. (Cases with mutually perpendicular axes only) - Applications (T&S)
- Section of Solids - (T&S) - True shape of section - Sectional views from the true shape of section
- Development of simple surfaces – Parallel Line Method- Triangulation Method – Radial Method – Approximate Method. (T&S)
- Conic Sections - Eccentricity, Types -Ellipse, parabola and hyperbola - Construction methods. Application of conics(T&S)

Module 3: Advanced Visual Representation

Learning Strategies:

- Lectures
- Studio
- Study Models
- Heliodon or related light & shadow casting equipment

Module Contents:

- Isometric and Axonometric Views (T&S)- types, construction methods, applications and advantages.
- Perspective View (T&S)– Visual Ray Method – Vanishing Point Method. Nomenclature of perspectives - Objects, study of picture plane, station point, vanishing point, eye level, ground level etc., its variation & effects.
- Application of Perspective in Architectural Drawings (T&S)– Interior and Exterior Views, Sectional perspectives.
- Sociography of Solids (T&S)- Principles of shade & shadow, shadows of architectural elements, application of sociography on pictorial views.
- Rendering Techniques (T&S)- using pen & ink, color, values, tones, and general approach to

rendering.

Reference:

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- Perard, V. (2012). *Anatomy and Drawing*. Dover Publications.
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Sem	Subject Group	Course Code	Subject	Hours/week			Credits	Marks			
				T	S	W/L		CA	Final Evaluation		Total
									Viva	Written	
I & II	II	19AR12008	Mathematics for Design	2			4	50		100	150

Course Overview:

- To equip the students with necessary mathematical background to comprehend the aspects of design elements and structural stability.
- To recap students about the mathematical concepts of geometry, trigonometry, statistics and calculus; and make them understand the application of these concepts to architecture.
- Each of these core concepts will help students learn the skills associated with various subjects studied in B.Arch. course.

Course Outcomes:

Upon completion of the course, the student should:

- Be able to understand mathematical concepts applied in architectural drawing.
- Acquire mathematical skills for analyzing and effective understanding of architectural works.

Module 1: Geometry

Learning Strategies:

- Widen knowledge 3D and 2D shapes

Module Contents:

- Basic two-dimensional shapes- curves, straight lines, triangles, quadrilaterals, rectangle, parallelogram, circles, ovals, squares, and spirals (Simple numerical problems on area, perimeter etc. and theory only)
- Basic Three-dimensional Shapes- Cube, Cylinder, Pyramid, Sphere (Simple numerical problems on Volume, Surface Area and theory only)
- Standard equation and problems based on properties of Conics
- Standard equation and problems based on properties of Parabola
- Standard equation and problems based on properties of Ellipse
- Standard equation and problems based on properties of Hyperbola
- Standard equation and problems based on properties of Rectangular Hyperbola
(Note: Problems involving foci, eccentricity, directrix, latus rectum, tangent, chord, normal-

Chap: 7,8,9,10 of Coordinate Geometry)

Module 2: Trigonometry

Learning Strategies:

- To include angles and corners in architectural design.
- Enables to draw properly load-bearing walls in the right places in the building

Module Contents:

- Trigonometrical ratios for angles less than the right angle
- Heights and Distances
- Trigonometric ratios of sum, difference and multiplication of two angles
- Identities and Trigonometrical equations
- Pythagoras Theorem and simple problems using the theorem
- Length of tangent to a circle – Simple problems
(Note: Problems involving Length of tangent to a circle from Chap: 2,3,7,8 of Plane Trigonometry)

Module 3: Calculus

Learning Strategies:

- To better define curves of a structure, in order to produce the right reverberations within the building
- Enables to evaluate the physical forces a building must tolerate during and after construction

Module Contents:

- Differentiation; Maxima and Minima
- Successive differentiation – nth derivative using Leibnitz rule
- Radius of curvature (cartesian and parametric form)
- Evolute
- Area bounded by plane curve
- Arc Length of plane curves
- Volume of a solid of revolution

Module 4: Sequences & Statistics

Learning Strategies:

- To define and understand sequence
- To learn about important statistical measures essential for data analysis.

Module Contents:

- Arithmetic, Geometric Progression
- Golden Ratio- Its application in Design
- Statistics - Measures of Central Tendency- Mean-median-mode
- Measures of Dispersion- Mean deviation-standard deviation-variance.
- Covariance, Correlation – Karl Pearson coefficient
- Rank Correlation – Spearman's coefficient for repeated and non-repeated ranks
- Regression coefficient–Lines of Regression-Fitting of straight line by method of least square

Reference:

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