

REGULATIONS AND MANUALS

B. ARCH. DEGREE COURSE (2013 SCHEME)

**UNIVERSITY OF KERALA
THIRUVANANTHAPURAM**

B.ARCH DEGREE COURSE (10 SEMESTERS)

REGULATIONS AND MANUALS 2013 SCHEME

1. Conditions for admission

Candidates for admission to the B.Arch. Degree course shall be required to have passed the Higher Secondary Examination, Kerala or 12th standard V.H.S.E, C.B.S.E, I.C.S.E or any other examination accepted by the University as equivalent there to, with Mathematics as an optional subject and obtaining not less than 50 percent marks in aggregate or a Diploma in Engineering awarded by the Board of Technical Education, Kerala or an examination recognized as equivalent thereto after undergoing an institutional course of at least three years securing a minimum of 50% marks in the final diploma examination or International Baccalaureate Diploma, after ten years of schooling, with not less than 50% marks in aggregate and with Mathematics as compulsory subject of examination, subject to the usual concessions allowed for backward and other communities as specified from time to time.

All Admissions to Architecture degree course shall be subject to passing of National Aptitude Test in Architecture (NATA) conducted by the Council of Architecture. No lateral admission shall be permitted as per the minimum standards of Architectural Education Regulations 1983 of Council of Architecture and AICTE notification, July 1992.

2. Duration of the Course

2.1 The course for the B. Arch Degree shall extend over a period of 10 semesters which include 2 semesters practical training.

Practical Training I after the completion of the 6th semester B. Arch examination and Practical Training II after the completion of the 9th semester thesis project.

The I and II semesters shall be combined and considered as an even semester.

2.2 The course shall cover the group of subjects as given in the curriculum and scheme of Examination given in the annexure

2.3 Each semester other than thesis work and practical training I & II shall ordinarily comprise of not less than 16 working weeks.

2.4. A candidate who could not complete the programme and pass all examinations within Twelve (12) years since his first admission to the B. Arch programme will not be allowed to continue and he has to quit the Programme. However he can be readmitted to the first year of the programme if he/she satisfies the eligibility norms applicable to the regular candidates prevailing at the time of readmission.

3. Eligibility for the Degree

Candidates for award of the Degree of Bachelor of Architecture shall be required to have undergone the prescribed course of studies in an Institution maintained by or affiliated to the University of Kerala for a period of not less than 10 semesters (including Practical training and Thesis Project) and to have passed all the B. Arch Degree Examination specified in the annexure and conducted by the University.

4. Subjects of Study

The subjects of study shall be in accordance with the scheme and syllabi prescribed in the annexure

5. Evaluation

Candidates in each semester will be evaluated both by continuous assessment and end semester University examination. The individual maximum marks allotted for continuous assessment and University examination for each subject is as prescribed by the scheme of study.

6. Continuous Assessment (C.A)

The marks awarded for the continuous assessment will be on the basis of the day-to-day work, periodic tests (minimum two in a semester) and assignments/class projects (minimum of two). The faculty member concerned will do the continuous assessment for each semester. The C.A. marks for the individual subjects shall be computed by giving weightage to the following parameters.

6.1 All subjects of the B. Arch Degree Course excluding Dissertation, Practical Training I&II Thesis & Viva Voce are grouped into two. They are: Group I: Basic Design, Architectural Designs I, II, III, IV, V, and VI, Building Materials and Construction – I, II, III, IV, V and VI, Architectural Drawing and Graphics, Architectural Graphics I and Architectural Graphics II, and Interior Design. Group II: All subjects other than mentioned in Group I.

6.2 C. A. Marks shall be awarded as per the following norms for each group.

Group I: Assignments/class projects – 70%

Test – 20%

Attendance – 10%

Group II: Assignments – 30%

Test – 50%

Attendance – 20%

6.3 The C. A. marks allotted for attendance for all subjects shall be awarded full only if the candidates have secured the 90% attendance in the subject. Proportionate reduction will be made in the case of subjects in which he/she gets below 90% of the attendance for the subject. The CA marks obtained by the student for all subjects in a semester is to be published at least 5 days before the commencement of the University examinations. Anomalies if any may be scrutinized by the department committee and the final CA marks after publication in the Dept. notice board are to be forwarded to the university within the stipulated time.

6.4 The Practical Training I&II, the Dissertation and the Thesis and Viva Voce, Jury for Basic Design, Architectural Design II to VI, Tour & Documentation, shall be conducted as per the manuals given along with the syllabus.

7. Examinations

7.1 There shall be University Examinations at the end of combined first and second semester and at the end of every semester from III semester onwards in subjects as prescribed under the respective scheme of examinations for B. Arch Degree course except practical training. Semester classes shall be completed at least 10 working days before the commencement of the University examination.

7.2. The examinations will be held for all the semesters except for VII,IX & X, twice in a year- April/May session and October/November session.

7.3 During the first year and in each semester thereafter, a student will be permitted to appear for the end semester university examination only if he/she satisfies the following requirements:

a) The student shall be physically present in at least 50% of total working periods for each subject.

b) 1. Either the student shall have an attendance not less than 75% of the total number of working periods, including the duty leaves sanctioned by the college and, shall be physically present for a minimum of 60% of the total working periods.

2. Or the student gets condoned by the University as per clause 7.3.(a) & (d).

c) He/she must earn a progress certificate from the Head of the institution of having satisfactorily completed the course of study in the semester as prescribed by these regulations.

d) It shall be open to the Vice-Chancellor to grant condonation of shortage of attendance on the recommendation of the Head of the institution in accordance with the following norms:

- 1) The attendance including duty leaves sanctioned by the institution shall not be less than 60% of the total working periods.
- 2) The shortage shall not be condoned more than twice during the entire course. The condonation for combined 1st and 2nd semesters will be reckoned as a single condonation for shortage of attendance.
- 3) The condonation shall be granted subject to the rules and procedures prescribed by the university from time to time.

7.4 A student who is not permitted to appear for the University examinations for a particular semester due to the shortage of attendance and not permitted by the authorities for condonation of shortage of attendance shall repeat the semester at the earliest opportunity offered to him/her. This provision is allowed only once for a semester. However prior permission from the University should be obtained before readmitting the student to the respective semester.

7.5 i) A student who does not register for the university examination of a particular semester/evaluation for practical training will not be eligible to enroll for next higher semester.

ii) For promotion to higher semester, a separate minimum marks of 40% must be obtained for the jury examination for Basic Design and Architecture Design II to VI and he/she shall also secure 50% marks in aggregate (C.A marks + Jury) examination.

iii) The student who fails to get 50% marks in aggregate for Basic Design & Architecture Design II to VI and 40% marks for the jury will get a chance to get the same portfolio of the work done re-evaluated by another panel of examiners. However, he/she should request to the Chairman of Jury Examinations in the prescribed format to get the portfolio re-evaluated.

7.6 Examinations for all subjects (Theory, Drawing, Architectural Design Jury and Thesis Viva Voce) shall be conducted by the University.

7.7 Head of the Department shall publish the marks of the Jury Examination on the next working day after the completion of the Jury.

7.8 a) A student can register for VI semester University examination only if he/she has passed fully the combined first and second semester examination.

- b) A student can register for VIII semester University examination only if he/she has passed fully up to IV semester examination.
- c) A student can register for IX semester University examination only if he/she has passed fully V semester examination.
- d) Students will be getting four chances to appear for each examination (first appearance + three supplementary chances) to clear the above condition for promotion. As this is an academic prerequisite, no exemption should be granted in this case.

7.9 A student who is not permitted to appear for the University examinations for a particular semester due to the shortage of attendance and not permitted by the authorities for condonation of shortage of attendance shall repeat the semester at the earliest opportunity offered to him/her. This provision is allowed only once for a semester. However prior permission from the University should be obtained before readmitting the student to the respective semester.

7.10 The scheme of valuation for theory/drawing subjects will be decided by the respective chief examiner based on the discussions with the additional examiners. Any discrepancy in question paper shall be reported to the Chairman of Board of Studies/ Controller of Examination and the recommendation received shall be incorporated in the scheme of valuation. The scheme of valuation shall be submitted along with the mark list to the Controller of Examinations.

8. Letter Grades

- i) For each subject in a semester, a letter grade (S, A⁺, A, B⁺, B, C⁺, C, D, E and F) will be awarded, based on the total marks obtained by the student in the University examination and Continuous assessment put together.
- ii) Letter grade 'F' will be awarded to the student for a subject if either his/her mark for the University examination is below 40 % or the total mark (C.A marks + University Exam mark) is below 50 %.
- iii) For subject with no university examination, Letter grade 'F' will be awarded if CA marks is below 50%.
- iv) Both absolute mark and Grade will be indicated in the grade card.
- v) Letter grade corresponding to total marks (C.A marks+ University Exam mark) and the corresponding grade point in a ten-point scale is described below.

% of Total marks (C.A marks + University Exam mark)	Letter Grade	Grade Point (GP)	Remarks
90 % and above	S	10.0	
85 % and above but less than 90%	A ⁺	9.0	
80 % and above but less than 85%	A	8.5	
75 % and above but less than 80%	B ⁺	8.0	
70 % and above but less than 75%	B	7.5	
65 % and above but less than 70%	C ⁺	7.0	
60 % and above but less than 65%	C	6.5	
55 % and above but less than 60%	D	6.0	
50 % and above but less than 55%	E	5.5	
Below 50% (C.A + U.E) or below 40 % for U.E only	F	0	Failed

9. Grade Point Average (GPA) and Cumulative Grade Point Average (CGPA)

- i) Grade point average is the semester wise average points obtained by the student in a 10-point scale. GPA for a particular semester is calculated as shown below:

$$\text{GPA} = \frac{\sum \text{Credit} \times \text{GP obtained for the subject}}{\sum \text{Credit for subject}}$$

- ii) Cumulative Grade point Average (CGPA) is the average grade points obtained by the student till the end of any particular semester. CGPA is calculated in a 10-point scale as shown below.

$$\text{CGPA} = \frac{\sum \text{Credits for semester} \times \text{GPA obtained for the semester}}{\sum \text{Credits for the semester}}$$

- iii) GPA and CGPA shall be rounded to two decimal points.
- iv) The Grade card issued to the students shall contain subject number and subject name, credits for the subject, absolute marks and letter grades obtained, and GPA for the semester.
- v) For all successful candidates, in the Grade card of VIII semester, in addition to the grade for the semester, the consolidated grade statement for lower semesters and CGPA shall be provided.

10. Minimum for a pass

- i) A candidate shall be declared to have passed a semester examination in full if he/she secures a GPA of 5.5 or above with 'E' grade or above for the all individual subjects in that semester.
- ii) A candidate shall be declared to have passed in an individual subject of a semester examination if he/she secures grade 'E' or above.
- iii) A student who does not secure a full pass in a semester examination as per clause 8.(i) above, will have to pass in the semester examination for all the subjects individually as per clause 8.(ii) above, before he is declared to have passed in that semester examination in full.

9. Improvement of Grades

- i) A candidate shall be allowed to re-appear for a maximum of two subjects of a semester examination excluding Basic Design / Architectural Design, in order to improve the marks and hence the grades already obtained subject to the following conditions:
 - a) The candidate shall be permitted to improve the examination only along with next available chance.
 - b) The candidate shall not be allowed to appear for an improvement examination for the subjects of the VIII and IX semesters.
 - c) The grades obtained by the candidate for each subject in the improvement chance he has appeared for or the already existing grades – whichever is better will be reckoned as the grades secured.
 - d) First & Second semester will be counted as a single chance and they can improve a maximum of three subjects.

- ii) A candidate shall be allowed to repeat the subjects in one or more semesters in order to better the CA marks obtained already, provided:
 - a) The candidate shall not be allowed to improve Basic Design / Architecture Design Jury. But he/she will get a chance to get it re-evaluated if he/she fails to get the minimum marks to get promoted to higher semester as shown in the manual.
 - b) He/she shall repeat all the subjects in a particular semester.
 - c) This provision is allowed only once for a semester and that too at the earliest opportunity offered to him/her, along with the immediate succeeding batch.
 - d) A student enrolled for a higher semester is not permitted to repeat a lower semester.
 - e) He/she shall not be allowed to better the CA marks obtained already in any semester if he has already passed that semester examination in full.
 - f) The CA marks obtained by the repetition of the course work will be considered for all purposes.
- iii) A candidate shall be allowed to withdraw from the whole examination of a semester in accordance with the rules for cancellation of examination of the University of Kerala.

10. Classification of Successful candidates

- i) A candidate who qualifies for the degree passing all the subjects of the eight semesters within five academic years (ten consecutive semesters after the commencement of the course of study) and secures not less than CGPA of 8 up to and including eighth semester shall be declared to have passed the B. Tech degree examination in FIRST CLASS WITH DISTINCTION.
- ii) A candidate who qualifies for the degree passing all the subjects of the ten semesters within six academic years (twelve consecutive semesters after the commencement of his/her course of study) and secures less than CGPA of 8, but not less than CGPA of 6.5 up to and including eighth semester shall be declared to have passed the B. Arch degree examination in FIRST CLASS.
- iii) All other successful candidates shall be declared to have passed the B. Arch Degree examination in SECOND CLASS.
- iv) a) Successful candidates who complete the examination in five academic years (Ten consecutive semesters) after the commencement of the course of study shall be ranked branch-wise on the basis of the CGPA of eight semesters put together.

- b) In the case of a tie in the CGPA, the total absolute marks of the students who have got same CGPA shall be considered for finalising the rank.
- c) Students who pass the examination in supplementary examination are also covered under this clause.

11. Study tour and documentation camp

- 11.1** Students shall undertake study tours in S3 or S4 and S6 or S8 semesters of the course as part of architectural design and shall undertake a documentation camp in **S5** as per the manual attached.
- 11.2** The working days used for educational tour will be considered as working periods of a semester. For students not attending the tour, measures should be taken to record their attendance in college or arrange for alternate industrial visits during the same period.
- 11.3** The tour may be conducted during the vacation / holidays taking not more than 5 working days, combined with the vacation / holidays if required. Total number of Tour days shall not exceed 15 days.

12. Revision of Regulations

The University may from time to time revise, amend or change the regulations, curriculum, scheme of examinations and syllabi. These changes unless specified otherwise will have effect from the beginning of the academic year following the notification by the University.

B.ARCH. DEGREE COURSE

MANUALS-2013

I. BASIC DESIGN AND ARCHITECTURAL DESIGN II TO VI

1. The Evaluation of Basic Design and Architectural Design II to VI is based on continuous Evaluation and by a panel of Jury.
2. The jury may be conducted by a panel of examiners appointed by the university.
3. The marks for the Continuous Assessment will be awarded by the staff member in charge.
4. University shall nominate a Chairman, two external examiners and two internal examiners as panel of Jury. First pair of examiners (consisting of one external examiner and one internal examiner) shall conduct the main Jury Examination (Normal chance) and the second pair of external and internal examiners shall conduct the re-evaluation if required.
5. Internal examiner shall be one member from among the faculty members of teaching institution other than the faculty member who evaluated the work for awarding the internal mark.
6. External Examiner shall be from among the faculty members of other teaching institutions or an Architect registered with the Council of Architecture, incorporated under Architect's Act 1972, with not less than 5 years experience.
7. Students shall submit the portfolio consisting the assignments done for the subject during the course period, with the approval of the staff-in-charge of the subject latest before noon on the previous working day of the commencement of the jury.
8. The staff-in-charge of the subject shall submit a report consisting the details of assignments given and its objectives and weightage given to each work to the Chairman through the Department.
9. The jury members (internal and external examiners together) will evaluate the portfolio on the basis of the report of the staff-in-charge and in consultation with him.
10. Students shall be physically present to explain their work to the Jury members at the time of evaluating their portfolio.
11. The Jury members shall submit the consolidated marks to the Chairman on the last day of Jury.
12. The Chairman should submit the mark sheet to the University and a copy of the same should be given to the Head of the Department for publishing in the notice board.

13. A separate minimum marks of 40% should be obtained for the jury examination for Basic Design and Architectural Design II to VI. He shall also secure 50% marks in aggregate (C.A marks +Jury) for promotion to higher semester.
14. A student who has appeared for the main Jury and could not get 50 % aggregate mark (C.A marks + Jury) and 40% for the jury shall be provided a chance to get the portfolio of the work re-evaluated by another panel of examiners and if he/she obtains 50% or above in aggregate and 40% or above for jury will be promoted to the higher semester.
15. Main Jury for Basic design and Architectural Design II to VI shall be conducted before the commencement of the University theory examinations of the particular semester and the re-evaluation of the same portfolio shall be conducted after the University Examinations.

II PRACTICAL TRAINING

Practical Training I (Seventh Semester) - Immediately after the sixth semester university examinations

Practical Training II (Tenth Semester) – Immediately after the ninth semester Thesis - Viva-voce examination of B. Arch degree course.

1. Introduction

As per the B. Arch curriculum students shall undergo practical training for two semesters. Practical Training immediately after the completion of the sixth semester B. Arch examinations and Practical Training immediately after the ninth semester thesis project. The training shall be under a registered architect with minimum of five years experience and approved by the Department of Architecture of the teaching institution. The duration of practical training in each semester shall be a minimum of 120 working days. Only those who have completed the practical training I successfully as directed in this manual shall be permitted to register to the 8th semester of B. Arch degree course and only those who have completed the practical Training II successfully will be awarded the B. Arch degree.

2. Selection of Firm for Practical Training.

Candidates shall select a registered architect with good experience and reputation in the field of Architectural practice for practical training and the same should be approved by the Dept of Architecture of the teaching institution in advance before the commencement of the VI semester university examination. The trainer should have valid registration with the Council of Architecture and have a minimum of five years experience in the practicing field. He should not be a faculty of the Dept of Architecture of the teaching Institution or their

immediate relatives or an architect employed in the Public sector. Students can also select internationally recognized Architects practicing outside India, with the approval of the Dept. of Architecture of the teaching Institution.

3. Type of works to be carried out during training period

The students are expected to get exposure in the following aspects:

- i) Site visit and Site Supervision.
- ii) Preparation of drawings for obtaining building permit working drawings, service drawings etc.
- iii) Preparation of estimates, specifications, contract documents, and tender documents.
- iv) Discussion with clients and other consultants.

4. Monthly work report

The students are required to send copies of the monthly report of the work done to the Dept of Architecture, of the teaching institution, immediately after the completion of each month. The report shall be duly signed by the Trainer Architect or an authorized officer supervising the work in the prescribed format.

5. Documents to be submitted after the completion of training

The students are required to submit to the Department of Architecture of the teaching institution

- 1) A report including the details of their work illustrated with sketches, prints and other documents connected with the projects on which he/she has worked both in office and at site.
- 2) A work diary
- 3) Originals of monthly report.
- 4).A certificate regarding their conduct and performance of work done during the training period and regarding the successful completion of the training under the approved Architect /Firm.

Students who fail to produce the above documents will not be permitted to appear for the Jury.

6. Evaluation of practical training

A two member jury from the faculty of Dept. of Architecture appointed by the Head of the Department of the teaching institution shall evaluate the qualitative achievement of the

trainee during practical training period. Head of the Department of the institution shall publish the Jury marks on the next working day after the completion of the jury. Candidates who could not get at least 50% marks have to repeat the Practical Training.

III DISSERTATION

1. Aim of the dissertation

To provide the students an opportunity to undertake research work on a topic of their choice.

2. Allotment of Guide

The head of Department of Architecture of the teaching institution will allot a guide to each student for supervising His/ Her dissertation work.

3. Area of research

Any topic approved by the Department of Architecture of the teaching institution concerned, related to built environment. It shall involve a compilation of secondary data followed by a study at primary level, to achieve the aim and objectives of the research work.

4. Selection of the topic

Students admitted to the 6th semester B.Arch. Degree course shall submit the choices of their topic for dissertation in consultation with the guide within one month after registration to 6th semester. After the approval of the topic by the department of architecture they are required to submit the synopsis and start the literature study in the sixth semester itself.

5. Conduct of work

The students with the approval of the guide may continue their dissertation work during their training period. The Schedule / Mode of presentation of their work at Preliminary, Intermediate and Final stage with the split-up of C.A. marks pertaining to each stage shall be published by the Department of Architecture of the teaching institution immediately after the commencement of the 8th semester. However the work done during the training period will be reviewed evaluated at the beginning of the eighth semester

The students under the guidance of the irrespective guides shall independently carry out their dissertation work during the 8th semester degree course period.

6. Evaluation :

- i) The dissertation will be considered as an individual subject of the VIII semester B.Arch. degree course.

- ii) The entire 200 marks allotted to the dissertation will be awarded in the following manner.
- iii) C.A marks to be awarded by the guide. - 100 marks
 - Stage 1 – Literature Study (25 Marks)
 - Stage 2 – Case Studies and Analysis (25 Marks)
 - Stage 3 – Inference and Conclusion (25 Marks)
 - Stage 4 – Draft Report and Presentation of Slides (25 Marks)
- iv) The Head of Dept. of the teaching institution shall constitute a jury of two members for evaluating the final presentation of the dissertation work.
- v) The jury panel shall be constituted from among the faculty of the Dept. of Architecture of the Teaching institution and/or from among the Architects registered with the council of Architecture, incorporated under the architect's act 1972, with not less than 5 years experience.
- vi) The jury members after consultation among themselves will independently evaluate the final presentation as described below.
- vii) Evaluation of the final report in the form of bound volume - 25 marks.
Evaluation of Presentation of Slides- 75 marks.
- viii) Head of the Department shall publish the marks of the Dissertation on the next working day after the completion of the Jury.
- ix) A candidate has to obtain a separate minimum of 40% for the jury and 50% aggregate marks for dissertation (C.A marks + Jury) for a pass.
- x) A candidate who fails for dissertation has to reappear either in full or for the Final Jury only with any regular batch. He/she is required to register with the Head of the Department for the same.

IV THESIS AND VIVA VOCE

- i) Students of the B.Arch. Degree course are required to prepare an Architectural Design Thesis during the ninth semester of the B.Arch. Degree program.
- ii) The Head of the department of teaching institution shall allot a guide for each student considering the nature of the work and specialization of the faculty member. As far as possible students preference may also be considered before allotting the guide.

- iii) Students admitted to the VIII semester should submit their choices of their thesis project within a month after the commencement of the VIII semester classes in consultation with the guide.
- iv) Students shall obtain approval for the project of Thesis and Viva voce from the Department of the teaching Institution.
- v) The duration of the thesis will be six months from the date of commencement of the IX semester B. Arch Degree Course.
- vi) The project selected shall be an architectural project so that the student gets training in tackling projects similar to what he/she is likely to face in his/her professional career. The project and its programming shall be worked out by the student himself/herself under the guidance of the guide.
- vii) The work should include an intensive study of the topography, climate and problems concerned with design of spaces and structures. The solution of the problem must be with the integrated approach of the architect, engineer, urban designer, planner and landscape architect and this shall be reflected in the preparation of drawings and written report.
- viii) Students are required to maintain a work diary of the thesis work.
- ix) All students are required to schedule their thesis work, get it approved by the guide, at the beginning of the thesis and submit a copy of the same to the thesis coordinator nominated by the Head of the Department.

Internal Evaluation

1. Internal evaluation of each student will be done by a three member jury constituted by the Department. One member of the jury will be the guide. The other jury members are to be constituted either from the faculty of Architecture of the Teaching College and /or from among the Architects registered with the Council of Architecture, incorporated under the architect's act 1972, with not less than five years experience.
2. The progress will be assessed by the jury periodically through a minimum of four stages of reviews the dates of which will be published by the Department before the commencement of the IX semester. Each review shall be graphical (including models) and oral presentation
3. Students have to obtain a total of 40% marks combining the four stages of reviews to become eligible for the external jury.

4. The total 250 marks is awarded as marks for internal assessment through the four reviews, by the jury including the guide, the split up of which is as given below.

Review 1 - Introduction of the Thesis Topic, Feasibility studies, Basic data, Case studies (at least two live case studies) /Primary surveys, Analysis, Arriving at Inferences and Design Program. Site analysis and Conceptual development. Introduction of Special Topic. (75 marks)

Review 2 - Review of Previous stage, Arriving at lay out plan, Sketch design for various building blocks including Floor Plans, Sections, Elevations, Views, Block Models etc. Conformity to Relevant Standards, Bye laws etc. and Achievement of Basic Objectives of Architectural Design. Further studies on Special Topic.(75 marks)

Review 3 - Review of Previous stages, Final Layout, Final Design for various building blocks through relevant Plans, Sections, Elevations, Views etc. Details of Building and Site Services, Landscape schemes, Working Details Application of Special Topic in the design scheme and Preparation of Draft Report. (75 marks)

Review 4 - Review of Final stage of all finalized drawings and schemes, and Final Draft of the Report. (25 marks)

External evaluation

1. External jury consisting Chairman, one external examiners and one internal examiner appointed by the University shall conduct the Thesis and Viva Voce Examination.
2. The Jury members (excluding the chairman) shall submit the consolidated marks to the Chairman on the last day of Viva Voce and the Chairman should submit the mark sheet directly to the University.
3. Students shall secure 40% of marks in the external jury and 50% aggregate (Internal +External) for successfully completing the thesis and Viva voce. Supplementary chances will be given to the students who failed in the final jury.
4. Students who fail in the thesis and Viva- voce can register for the supplementary chance in the same Institution immediately after the declaration of the results.

Suggested Areas for Special Topic

1. Structural drawings supported with detailed calculation
2. Detailed estimates and specifications.
3. Building construction techniques and the details of the use of new materials.

4. Equipment and design of any one building service like air conditioning, Electrification and illumination, sanitation and water supply or acoustics.
5. Furnishings, fittings and finishes.
6. Climatic research and its applications.
7. Or any other topic approved by the teaching institution

Documents to be submitted for the Jury

1. Two copies of the Data Collection in the preliminary design stage (up to the design and including the case studies) shall be compiled and presented along with the final submission in A3 size format.
2. Two copies of the Final Report shall be submitted on the date and time announced by the Dept. of Architecture of the Teaching Institution.
3. The total number of design sheets for final submission shall not exceed 30 (thirty) A1 size sheets
4. Models to be submitted on the date of Viva voce examination at least by 9 A.M
5. The format and other instructions regarding the schedule of reviews, preparation of the bound volumes of Data Collection, Final Report, Final Sheets, Model, etc. will be announced by the Dept. of Architecture of the Teaching College.

V STUDY TOUR / DOCUMENTATION CAMP FOR ARCHITECTURAL DESIGN

1. The study tour / visiting important places of Architectural interest shall be conducted as part of Architectural Design in III/IV and VI/VIII semesters and shall officially be accompanied by the concerned faculty members handling the subject
2. The study tour in S3/S4 shall be important places of Architectural interest within South India and S6/S8 shall be within the country.
3. Study tour in S3/S4 shall be of 7 days duration and S6/S8 shall be of 15 days duration. Students shall submit a tour report within 15 days after the tour period.
India
4. The documentation camp is of 7 days duration and shall be conducted as part of Architectural Design course in V semester. The concerned faculty members handling the subject shall also be present in the camp.

5. The documentation camp consists of preparation of measured drawings of selected buildings / historic places inside and around the state of Kerala.
6. The originals of materials produced as part of the study tour and camp shall be submitted to the Department of the concerned college and such materials submitted shall be the property of the Department.
7. The study tour/documentation camp and materials produced will be treated as an assignment and marks will be awarded accordingly.

B.ARCH DEGREE COURSE (10 SEMESTERS) 2013 SCHEME

COMBINED FIRST AND SECOND SEMESTER (S1S2)

Course No	Course Title	Credits	Hours/ week			Duration of Exam	Marks			Total
			L	T	P		W	J	S	
13AR1101	Architectural Design I	4	0		3	4	100		100	200
13AR1102	Building Materials and Construction - I	4	1		2	4	100		100	200
13AR1103	History of Architecture - I	4	2			3	100		50	150
13AR1104	Basic Design	8			8			250	250	500
13AR1105	Architectural Graphics - I	4			3	4	100		100	200
13AR1106	Theory of Design	4	2			3	100		50	150
13AR1107	Geometrical Drawing	4	1		2	4	100		100	200
13AR1108	Structural Design - I	4	2			3	100		50	150
13AR1109	Mathematics	4	2			3	100		50	150
13AR1110	Surveying and Levelling	2	1			3	100		50	150
Total		42	11	0	18					2050

L - Lecture W - Written

T - Tutorial J - Jury

P - Practical S - Sessional

THIRD SEMESTER (S3)

Course No	Course Title	Credits	Hours/ week			Duration of Exam	Marks			Total
			L	T	P		W	J	S	
13AR1301	Architectural Design II	5			10			250	250	500
13AR1302	Building Materials and Construction - II	4	1		3	4	100		100	200
13AR1303	History of Architecture - II	2	2			3	100		50	150
13AR1304	Building Climatology	2	2			3	100		50	150
13AR1305	Architectural Graphics - II	4			4	4	100		100	200
13AR1306	Humanities	2	2			3	100		50	150
13AR1307	Computer Applications in Architecture	2			2				50	50
13AR1308	Structural Design - II	3	2	1		3	100		50	150
Total		24	9	1	19					1550

FOURTH SEMESTER (S4)

Course No	Course Title	Credits	Hours/ week			Duration of Exam	Marks			Total
			L	T	P		W	J	S	
13AR1401	Architectural Design III	5			10			250	250	500
13AR1402	Building Materials and Construction III	4	1		3	4	100		100	200
13AR1403	History of Architecture -III	2	2			3	100		50	150
13AR1404	Landscape Architecture	4	1		3	4	100		100	200
13AR1405	Architectural Acoustics	3	2	1		3	100		50	150
13AR1406	Estimation and Specification	2	2			3	100		50	150
13AR1407	Building Services I Plumbing and Sanitation	2	2			3	100		50	150
13AR1408	Structural Design -III	2	2			3	100		50	150
Total		24	12	1	16					1650

FIFTH SEMESTER (S5)

Course No	Course Title	Credits	Hours/ week			Duration of Exam	Marks			Total
			L	T	P		W	J	S	
13AR1501	Architectural Design IV	5			10			250	250	500
13AR1502	Building Materials and Construction -IV	4	1		3	4	100		100	200
13AR1503	History of Architecture - IV	2	2			3	100		50	150
13AR1504	Sustainable Development	2	2			4	100		50	150
13AR1505	Interior Design	4	1		3	3	100		100	200
13AR1506	Building Services II Electrification	2	2			3	100		50	150
13AR1507	Building Services III HVAC	2	2			3	100		50	150
13AR1508	Structural Design - IV	3	2	1		3	100		50	150
Total		24	12	1	16					1650

SIXTH SEMESTER (S6)

Course No	Course Title	Credits	Hours/ week			Duration of Exam	Marks			Total
			L	T	P		W	J	S	
13AR1601	Architectural Design V	5			10			250	250	500
13AR1602	Building Materials and Construction - V	4	1		3	4	100		100	200
13AR1603	History of Architecture -V	2	2			3	100		50	150
13AR1604	Town Planning	2	2			3	100		50	150
13AR1605	Housing	2	2			3	100		50	150
13AR1606	Elective I	2	2			3	100		50	150
13AR1607	Elective II	2	2			3	100		50	150
13AR1608	Structural Design V - Advanced Structural Systems	3	2	1		3	100		50	150
13AR1609	Building Science Lab	2			2				50	50
Total		24	13	1	15					1650

SEVENTH SEMESTER (S7)

Course No	Course Title	Credits	Hours/ week			Duration of Exam	Marks			Total
			L	T	P		W	J	S	
13AR1701	Practical Training I	5					200		200	
	Dissertation Preliminary									
Total		5							200	

EIGHTH SEMESTER (S8)

Course No	Course Title	Credits	Hours/ week			Duration of Exam	Marks			Total
			L	T	P		W	J	S	
13AR1801	Architectural Design VI	5			10		250	250	500	
13AR1802	Professional Practice	3	2	1		3	100	50	150	
13AR1803	Urban Design	3	2	1		3	100	50	150	
13AR1804	Disaster Preparedness and Management	3	2	1		3	100	50	150	
13AR1805	Elective III	3	2	1		3	100	50	150	
13AR1806	Elective IV	3	2	1		3	100	50	150	
13AR1807	Construction Management	3	2	1			100	50	150	
13AR1808	Dissertation	4		1			100	100	200	
Total		27	12	7	10				1600	

NINTH SEMESTER (S9)

Course No	Course Title	Credits	Hours/ week			Duration of Exam	Marks			Total
			L	T	P		W	J	S	
13AR1901	Architectural Thesis	12		29			250	250	500	
Total		12	0	29	0				500	

TENTH SEMESTER (S10)

Course No	Course Title	Credits	Hours/ week			Duration of Exam	Marks			Total
			L	T	P		W	J	S	
13AR2000	Practical Training II	5			29		200		200	
Total		5	0	0	29				200	

Elective I

13AR1606.1	Ecology and Environmental Studies
13AR1606.2	Traditional Architecture
13AR1606.3	Cost Effective Technology
13AR1606.4	Digital Architecture

Elective II

13AR1607.1	Research Methodology
13AR1607.2	Architectural Criticism
13AR1607.3	Architectural Journalism and Photography
13AR1607.4	Product Design

Elective III

13AR1805.1	Urban and Regional Planning
13AR1805.2	Transportation Planning
13AR1805.3	Advanced structural systems
13AR1805.4	Services in High-rise Buildings

Elective IV

13AR1806.1	Architectural Conservation
13AR1806.2	Environment Behaviour studies
13AR1806.3	Energy Efficient Buildings
13AR1806.4	Building Information Systems

13AR1101 ARCHITECTURAL DESIGN -I

Teaching Scheme: 0(L) - 0(T) - 3(P)

Credits: 4

Course Objective:

- *To introduce the architectural design language and design process.*
- *To understand the nature of built environment and its determinants.*

Module – I

LETTERING: Architectural lettering exercises - drafted and free hand, rendering and presentation techniques with pencil and ink

Module – II

TECHNICAL DRAFTING: Demonstration of drawing instruments and their use, architectural representation of materials on drawings, use of scales, Scaling and measuring of 3D forms and representing them in 2D form.

Module – III

ANTHROPOMETRIC STUDIES : Average measurements of human body in different postures, its proportion and graphic representation, application in design of simple household and street furniture.

Module – IV

SPACE STUDY: Basic human functions and their implications for space requirements. Minimum and optimum areas for various functions such as living, dining, sleeping, cooking, study, storage, toilet etc. including furniture layout, circulation spaces

Course Outcome:

Upon completion of the course, the student shall have achieved a comprehensive understanding of technical drawing techniques and architectural presentation.

The course shall prepare students to gain an understanding into the fundamental issues in architectural design and develop skills to create architectural solutions for simple problems.

References:

1. Francis D. K. Ching, 'Architecture: Form, Space and Order', John Wiley & Sons, 2007.

2. Geoffrey Broadbent `Design in Architecture' John Wiley and Sons, 1973.
3. Arthur L. Guptill and Susan E. Meyer, 'Rendering in Pen and Ink' , Watson-Guption, 1997
4. Neuferts' Architect's Data
5. Francis D. K. Ching, 'Architectural Graphics', Wiley, 2009.

Internal Continuous Assessment (*Maximum Marks-100*) (*Group1 Subject*)

20% - Tests (minimum 2)

70% - Class work.

10% - Regularity in the class

University Examination Pattern:

Examination duration: 4 hours

Maximum Total Marks: 100

The question paper shall consist of 2 questions of 100 marks each. Candidates have to answer one full question out of the two.

13AR1102 BUILDING MATERIALS AND CONSTRUCTION I

Teaching Scheme: 1(L) - 0(T) - 2(P)

Credits: 4

Course Objective:

- *To introduce the elementary building materials, their applications and construction methods.*
- *To familiarize the students with building components and their role.*
- *To understand vernacular/ traditional building materials and practices.*
- *To understand prevailing BIS specifications.*

Methodology:

- *Introducing materials and methods of construction through lectures and studio exercises.*
- *Site visits to gain knowledge about construction details.*
- *Documentation and demonstration to some basic construction methods and elements.*
- *Collecting material samples and literature.*

Module – I

Introduction to building materials and construction- components of buildings-how to make drawings.

Stone: Classification stones suitable for construction-properties-available sizes-use.

Clay: Brick [country bricks & factory made]-properties-available sizes-use. Terracotta-available forms suitable for construction-sizes- properties-uses.

Mortar: Ingredients of mortar-water, mud, lime, cement and sand- proportions- properties-applications.

Concrete: Ingredients of plain cement concrete-grades-properties-applications and uses. Cement concrete blocks used for construction.

Module – II

Masonry: Stone masonry for foundations and super structure-various types-with and without mortar-methods of construction. Brick masonry for foundations and superstructure-brick bonds-different types-for varying thickness-other structural systems using bricks-arches and vaults-methods of construction.

Drawings: *Stone masonry for foundations and super structure. Brick bonds, arches and vaults.*

Module – III

Timber: Classification of timber according to position of hard core-available types of timber-areas of application-properties of timber-specification. Seasoning of timber-need for seasoning-methods-defects in timber.

Bamboo: Bamboo as a building material-types-properties-application.Comparison bamboo v/s wood.

Module – IV

Working with timber: Various steps involved-required sizes of members-joining wooden members for various applications like structural systems, doors, windows and furniture. Traditional knowledge in carpentry.

Working with bamboo: Various steps involved-required sizes of members-methods of joining bamboo for various applications.

Drawings: *Joints in wooden joinery. Illustrations- details of bamboo constructions.*

Course Outcome:

Upon completion of the course, the student shall have acquired a basic awareness of the primary building materials used in construction, their properties, types and common usage. This will enable students to equip themselves with the knowledge of materials and their judicious usage in their future design projects.

References:

1. Harry Parker, *'Materials and Methods of Architectural Construction'*, John Wiley & Sons. Canada, limited, 1958.
2. W B McKay, *'Building Construction'*, Orient Longman 21.
3. Robin Barry, *'The Construction of buildings (Vol.I-V)'*, Blackwell publishing, 2000.
4. Olin, Harold & Schmidt, *'Building Construction – Principles, Material & Methods'*, American Savings and Loan Institute Press, 1970.
5. Francis Ching, *'Building Construction Illustrated'*, John Wiley, 1991.
6. Relevant BIS codes.

Internal Continuous Assessment (Maximum Marks-100) (Group1 Subject)

20% - Tests (minimum 2)

70% - Class work.

10% - Regularity in the class

University Examination Pattern:

Examination duration: 4 hours

Maximum Total Marks: 100

The question paper shall consist of 2 parts.

Part A : Question 1. (40 marks) - Eight Short answer questions of 5 marks each. All questions are compulsory. There should be two questions from each module.

Question 2. (10 marks) –Questions for 10 marks from module I and II. Candidates have to answer any one out of the two.

Question 3. (10 marks) –Questions for 10 marks from module III and IV. Candidates have to answer any one out of the two.

Part B (40 Marks) – Drawing: Candidates have to answer any one full question out of the two each from modules II and III. Each question carries 20 marks.

13AR1103 HISTORY OF ARCHITECTURE I

Teaching Scheme: 2(L) - 0(T) - 0(P)

Credits: 4

Course Objective:

To appreciate the importance of history of architecture and its relationship to the development of any region. To create awareness of the precious architectural past and how to interpret the future development based on that tradition, wisdom and technical knowledge.

Module – I

Factors influencing the architectural character of any place; Geographic, Climatic, Socio-cultural, Religious, Economic, etc.

Prehistoric architecture of the West, Middle East and East: General characteristics of the earliest Human Settlements: Gobekli Tepe, Catal Huyuk, Jericho, Jomon culture; Shoji walls, Pagoda, etc.

Early Settlements in India: Mehrgarh, Early Harappan.

Module – II

Ancient Mesopotamia: History, evolution and characteristics. Example: Ziggurat (Sumerian), Palace of Sargon (Assyrian), Ishtar Gate (Babylonian).

Ancient Egypt: History, evolution and characteristics. Example: Mastabas, Pyramid of Giza and Temple of Amon at Karnak.

Indus Valley Civilisation: City Planning. Domestic Architecture. Building materials and construction techniques. Example: Great Bath, Mohenjo-daro.

Ancient Greece: History, evolution and characteristics. Example: Classical Orders, Optical corrections, Parthenon, Acropolis, Agora, Theatre.

Ancient Rome: History, evolution and characteristics. Example: Roman engineering skills- Pantheon, Colosseum, Basilica.

Module – III

Vedic Period: Vedic Village. City Planning in later Vedic period. Building materials and construction techniques.

Buddhist & Jain: History, evolution and characteristics. Major typologies; Stupa, Chaitya hall, Vihara. Example: Lomas Rishi, The Great Stupa at Sanchi, Chaitya Hall at Karli, Vihara 1 at Ajanta.

North Indian: Evolution of architectural style, major influences on the development of form and other architectural elements. Gupta Period. Example: Tigawa & Dasavatara Temples.

Central & South Indian: Chalukya & Pallava Architecture. Example: Ladkhan and Durga temples at Aihole (Chalukya), Rathas & Shore temple (Pallava).

Dravidian temple architecture: Principles of Design and Construction

Module – IV

Introduction to Kerala Architecture: Evolution of architectural style, Factors that influenced the development of architecture: Materials, Climate & Socio-economic factors.

Residential architecture: Residential Typologies and Palaces Example: Padmanabhapuram palace.

Religious architecture: Early Hindu Temples, Churches and Mosques. Evolution of religious architectural forms. Koothambalam, etc Examples: Hindu: Vadakkumnathan temple at Thrissur. Christian: St. Mary's Church at Kalloppara, Muslim: Miskal Masjid at Kozhikode.

Course Outcome:

Knowledge about the history of a culture, its building art and construction techniques helps an architecture student to develop designs that are rooted in the country. Upon completion of the course, the student will be able to develop a keen appreciation of our heritage buildings leading to the understanding that architecture is the product of a particular culture, time and place.

References:

1. Percy Brown, 'Indian Architecture: Buddhist and Hindu Periods', D. B. Taraporevala, 1965.
2. Satish Grover, 'The Architecture of India: Buddhist and Hindu', Vikas, 1980.
3. Christopher Tadgell, 'The History of Architecture in India', Phaidon, 1994.
4. Satish Chandra, 'History of Architecture and Ancient Building Materials in India', Tech Books International, 2003.
5. James C. Harle, 'The Art and Architecture of the Indian Subcontinent:' Second Edition, Yale University Press, 1994.
6. Banister Fletcher, 'Dan Cruickshank Sir, Banister Fletcher's a history of architecture: A History of Architecture', Architectural Press, 1996.
7. Dora P. Crouch, June G. Johnson, 'Traditions in Architecture: Africa, America, Asia, and Oceania', Oxford University, 2000.
8. Michael Raeburn, 'Architecture of the Western World', Rizzoli, 1982.
9. Ilay Cooper, 'Barry Dawson, Traditional Buildings of India', Thames and Hudson, 1998.
10. Balagopal T S Prabhu, A Achyuthan, 'Text Book of Vastu Vidya', Vastuvidya-pratishtanam Academic Centre, 2001
11. Ronald.M.Bernier, 'Temple Arts of Kerala', S.Chand, 1982.
12. Susan Visvanathan, 'Christians of Kerala', Oxford University Press, 1993.

13. Ashalatha Thampuran, '*Traditional Architectural Forms of Malabar Coast*', Vastuvidya-pratishthanam Academic Centre, 2001
14. Ching, Francis, Vikramadithya Prakash, Mark M Jarzombek, '*A Global History of Architecture*', John Wiley & Sons, 2011

Internal Continuous Assessment (Maximum Marks-50) (Group 2 Subject)

50% - Tests (minimum 2)

30% - Assignments (minimum 2) such as home work, problem solving, quiz, seminar, term-project, etc.

20% - Regularity in the class

University Examination Pattern:

Examination duration: 3 hours

Maximum Total Marks: 100

The question paper shall consist of Two Parts

Part A (40 marks) - Eight Short answer questions of 5 marks each. All questions are compulsory. There should be two questions from each module.

Part B (60 Marks) – Two Questions from each module. Candidates have to answer any one full question out of the two from each module. Each question carries 15 marks.

13AR1104 BASIC DESIGN

Teaching Scheme: 0(L) - 0(T) - 8(P)

Credits: 8

Course Objective:

- To understand the relationship of basic design to architectural design and design field.
- To develop comprehension and visualization of geometric forms.
- To observe, express, record and analyze the environment as a basic creative instinct.

Module – I

Fundamental elements of design and their definitions – point, line, shape, form, structure, space, texture, value Introduction to the principles of design – unity, balance, symmetry, proportion, scale, hierarchy, rhythm, contrast, harmony, focus, figure and ground etc.

Perception of colour and light

Module – II

Exploration of pattern with 2D compositions, Exploration of forms through 3D compositions
Utility models

Module – III

Study of simple structural systems and behavior under load. Working model of structures (Like post and lintel, cantilever, trusses, arches, space frame, suspension etc), Development of basic skill in design expression, Visual analysis of built forms, sculptural and spatial qualities, analysis of solid and void relationship, Three dimensional projects developed through models and sketches.

Module – IV

Design Introduction: Short exercises in design and layouts of personal spaces and rooms. Integration of form and function in the design of single room spaces(bus shelter, phone kiosk, snack corner, ATM Center, milk booth, security cabin, flower kiosk, temporary shelter, viewing gallery etc.) stressing on concept generation and development of rich design process. Site visits, experimental exploration of built environment.

Course Outcome:

- *Upon completion of the course, the students shall have become familiar with visual and verbal vocabularies of architecture; and have developed analytical thinking and an understanding of spatial order and design field.*
- *They shall also appreciate the constraints in the Architectural design of a small building with reference to function, form and anthropometry.*

References:

1. Krome Barratt, '*Logic and Design in Art, Science and Mathematics*',Globe Pequot Press,The,2005.
2. Francis D. K. Ching, '*Architecture: Form, Space and Order*', John Wiley & Sons, Incorporated,2007.
3. Simon Unwin, '*Analyzing Architecture*', Routledge, 2003.
4. Geoffrey Broadbent '*Design in Architecture*,' John Wiley and Sons, 1973.

Internal Continuous Assessment (Maximum Marks-250) (Group 1 Subject)

20% - Tests (minimum 2)

70% - Class work.

10% - Regularity in the class

University Examination Pattern:

Course work will be assessed by a panel of Jury.

13AR1105 ARCHITECTURAL GRAPHICS - I

Teaching Scheme: 0(L) - 0(T) - 3(P)

Credits: 4

Course Objective:

- *To provide a comprehensive introduction to technical and free-hand drawing techniques in architectural representation*
- *To provide an awareness in Visual arts*

Module – I

INTRODUCTION TO ART AND ARTMOVEMENTS: Exposure to the life and works of famous artists of Kerala, India; important movements in art.

Renaissance- Michelangelo, Da Vinci, Alberti; Baroque – Rembrandt, Bernini

Impressionism, Cubism; Influence of art on 20th C Modern architecture – Kandinsky, Maholynagy

Module – II

FREE HAND DRAWING: Introduction to Architectural drawings using different mediums such as pencil, ink, crayons, pastels, water colors, types of papers etc. Introduction to drawing fundamentals- Drawing lines, curves and shapes- and form- Rendering in 3D form- Shading and shadow

Drawing of simple objects, parts of built forms, and natural elements such as plants, trees, and graphic human figures etc.

Outdoor sketching: study parts of built form, play of shade and shadows, streetscapes and landscapes with human figures

Module – III

USE OF COLOUR : Form in nature, Generation of visual images with analogies from nature. Use of colours, composition with colour. Colour theory -Colour Principles, Colour scheme, Colour combination. Drawing still life.

Module – IV

INTRODUCTION TO VISUAL ARTS: Its relation to architecture – study of fundamentals of visual arts- - line, shape, form, space, colour, value, and texture - three dimensional composition of spaces and their graphic expression- exercises given to meet the requirements of elements of art.

Principles of visual art – balance – unity – pattern - emphasis, movement, rhythm, contrast are introduced - exercises to explain the conditions.

Course Outcome:

Students shall acquire the necessary skills to translate their concepts into rendered drawings effectively capturing all dimensions of visual arts

References:

7. Cooper Douglas, '*Drawing and Perceiving*', Van Nostrand Reinhold, 1992
8. H.W. Janson – '*History of Arts*, Prentice Hall' (Higher Education Division), Pearson Education, 2002
9. Philip Meggs, '*A History of Graphic Design*' John Wiley & Sons; 3 edition (September 9, 1998)
10. Alexander W. White, '*The Elements of Graphic Design*, Allworth Press; 1 edition (Nov 1, 2002)
11. Mark A, Thomas, Poppy Evans, '*Exploring Elements of Design*' 2 edition (August 15, 2007)
12. Victor Perard, '*Anatomy and Drawing*'

Internal Continuous Assessment (Maximum Marks-250) (Group 1 Subject)

- 20% - Tests (minimum 2)
- 70% - Class work.
- 10% - Regularity in the class

University Examination Pattern:

Examination duration: 4 hours

Maximum Total Marks: 100

The question paper shall consist of 2 parts.

Part A (40 marks) - Eight Short answer questions of 5 marks each. All questions are compulsory. There should be two questions from each module.

Part B (60 Marks) – Drawing: Candidates have to answer one full question out of the two. Each question carries 60 marks.

13AR1106 THEORY OF DESIGN

Teaching Scheme: 2(L) - 0(T) - 0(P)

Credits: 4

Course Objective:

- *To introduce the principles and values that guide and influence architectural decisions and design process*
- *To introduce the works that best illustrate the said principles and values to help students develop an understanding of how to bring the theory into practice*

Module – I

INTRODUCTION TO ARCHITECTURE :

Definition of architecture, Primary elements – Point, Line, Plane, Volume.

Exploration of the basic principles of composition such as Proportion, Scale, Balance, Rhythm, Unity, Contrast, Character, with building examples.

Module – II

ORGANISATION OF FORM AND SPACE:

Properties of form, transformation of forms - dimensional transformation, subtractive, additive forms, organization of forms - Articulation of forms. Space defining elements- Spatial relationship, Spatial organization-solids and voids. Ordering Principles such as Axis, Symmetry, Hierarchy, Datum, and Rhythm & Repetition. Aesthetics and Visual Perception.

Module – III

ARCHITECTURAL DESIGN PROCESS:

Different ways of generating architectural design-Pragmatic, Iconic, analogic, canonic.

Design programme- Data, Site Study, Analysis & Synthesis- Design Brief- Concept and Design.

Module – IV

WORKS OF MASTER ARCHITECTS:

Analysis with respect to process of design, principles and philosophies of works of Master architects — Louis Sullivan, Frank Lloyd Wright, Le Corbusier, Mies Vander Rohe, Antonio Gaudi, Walter Gropius, Achyut P. Kanvinde , Laurie Baker, Charles Correa, B.V. Doshi.

Course Outcome:

Upon completion of the course, the student of architecture shall have acquired the concept of forms, spatial aspects, compositions and their analysis and application in Architectural Design and an intelligent vocabulary of design concepts.

References:

1. Unwin Simon, *Analyzing Architecture*, Routledge Publishers, 2003.
2. Francis D. K. Ching, *Architecture - Form, Space and Order*, Van Nostrand Reinhold Company, 1979.
3. K.W.Smithies, *Principles of Design in Architecture*, Van Nostrand Reinhold Company, 1981.
4. Leland M. Roth, *Understanding Architecture*, Craftsman house company, 1994.
5. Geoffrey Broadbent *Design in Architecture* John Wiley and Sons, 1973.

Internal Continuous Assessment (Maximum Marks-50) (Group 2 Subject)

50% - Tests (minimum 2)

30% - Assignments (minimum 2) such as home work, problem solving, quiz, literature survey, seminar, term-project, etc.

20% - Regularity in the class

University Examination Pattern:

Examination duration: 3 hours

Maximum Total Marks: 100

The question paper shall consist of Two Parts

Part A (40 marks) - Eight Short answer questions of 5 marks each. All questions are compulsory. There should be two questions from each module.

Part B (60 Marks) – Two Questions from each module. Candidates have to answer any one full question out of the two from each module. Each question carries 15 marks.

13AR1107 GEOMETRICAL DRAWING

Teaching Scheme: 1(L) - 0(T) - 2(P)

Credits: 4

Course Objective:

- *To introduce students to the fundamental techniques of technical drawing.*
- *To develop the appropriate manual skills for visualization and technical representation of built forms in different types of drawings.*

Module – I

Scales : Construction of plain scale and diagonal scale

Conic Sections : Construction of conic sections given the distance of focus from the directrix and eccentricity. Construction of ellipse – concentric circle method, rectangular method and intersecting arc method. Construction of parabola by rectangular method and by tangent method. Construction of hyperbola – given the asymptotes and a point on the curve

Spirals : Construction of Archimedean spiral and Logarithmic spiral

Helix : Construction of cylindrical helix ,conical helix

Module – II

First angle projection

Points and Lines : Orthographic projection of lines for any given condition, determination of true length ,traces and inclinations to the planes of projection of any given line

Planes : Traces of planes , plane figure inclined to one or both the reference planes

Solids : Simple solids in simple position , prisms, regular pyramids, tetrahedron, cone, spheres and their combinations placed in different positions. **Auxiliary projections** of simple solids and their combinations. Change of position and auxiliary plane method.

Module – III

Intersection of surfaces : Line of intersection of two prisms , two cylinders and cone

Section of solids : Section of simple solids by planes inclined. True shape of sections.

Development of surfaces : Development of surfaces of simple solids, prisms, cylinders, pyramids, cones , spheres and truncated solids.

Module – IV

Isometric Projection : Isometric scale, isometric view of planes, simple solids, combination of objects

Perspective projection : Perspective projection of simple solids and their combinations by visual ray method and vanishing point method.

Course Outcome:

Upon completion of the course, the student shall have developed the necessary skills to analyze and solve basic problems involving graphics and spatial manipulations for architectural applications.

References:

1. Bhatt N.D., 'Elementary Engineering', Charotar, 1991.
2. Carl Lars Svensen and William E Street, 'Engineering Graphics', Van Nostrand, 1963.
3. Venugopal K., 'Engineering Drawing and Graphics', New Age Publishers, 2004.
4. Rajaraman S., 'Practical Solid Geometry'

5. Varghese P I, 'Engineering Graphics'

Internal Continuous Assessment (*Maximum Marks-100*)

40% - Tests (minimum 2)

40% - Class Work

20% - Regularity in the class

University Examination Pattern:

Examination duration: 4 hours

Maximum Total Marks: 100

The question paper shall consist of Two Parts

Part A (40 marks) - Eight Short answer questions of 5 marks each. All questions are compulsory. There should be two questions from each module.

Part B (60 Marks) – Two Questions from each module. Candidates have to answer any one full question out of the two from each module. Each question carries 15 marks.

13AR1108 STRUCTURAL DESIGN – I

Teaching Scheme: 2(L) - 0(T) - 0(P)

Credits: 4

Course Objective:

- *To understand the basic principles of structural mechanics that would be pertinent to simple design elements.*
- *To understand the structural behaviour of building elements.*

Module – I

Forces: Force and Moment Concepts – Force system acting on a body and their resultant – equilibrium concept and free body diagram, frictional force Center of gravity of planes and solid bodies – simple practical problems and modelling and drafting of simple practical cases related to the above cases.(not for examination purpose)

Module – II

Moment of inertia concept – theorem of parallel axis and perpendicular axis – moment of inertia of composite section - principal axis and principal moment of inertia – simple plane trusses – different types of trusses – analysis by method of joints, method of section and

graphical methods - modelling and drafting of simple practical cases.(not for examination purpose)

Module – III

Beams – Different types of Beams – Support conditions - Different types of loads Analysis of simply supported, cantilever and over hanging beams subjected to point load, uniformly distributed load uniformly varying loads and moments– shear force and bending moment diagrams – analytical and graphical method -modelling and drafting of simple practical cases.(not for examination purpose)

Module – IV

Stresses and strains – General concepts – Stress – Strain relation-factor of safety – discussion on elastic constants - principle of super position – stresses in composite bars – stresses due to change in temperature, Concepts of shear stress and bending stress with simple problems. - modelling and drafting of simple practical cases.(not for examination purpose)

Course Outcome:

Upon completion of the course, the student shall have developed the necessary skills to analyze and solve basic problems involving graphics and spatial manipulations for architectural applications.

References:

1. Tayal, “*Engineering Mechanics*”, Umesh Publications , 13/e, 2006.
2. Bansal R. K., “*Engineering Mechanics*”, Lakshmi Publications Pvt Ltd, 3/e,1996.
3. Vazarani, “*Mechanics of structures*”, 16/e, 1995
4. Chakraborti M., “*Strength of Materials*”, SK Kataria & Sons, New Delhi, 2010.
5. Abdul Mubeen, “*Mechanics of Solids*”, Dorling Kindersley (India) Pvt Ltd, 2/e, 2011.
6. Kumar D.S., *Textbook of Engineering Mechanics*, S K Kataria & Sons, 3/e, 2009.
7. Rajput R.K., *Textbook of Engineering Mechanics*, Danpat Rai & Sons, New Delhi, 2002
8. Prasad I.B., *Textbook of Applied Mechanics*, Khanna Publications, 12/e, 1998.

Internal Continuous Assessment (Maximum Marks-50)

50% - Tests (minimum 2)

30% - Assignments (minimum 2) such as home work, problem solving, quiz, term-project, etc. Weightage shall be given to modeling and drafting projects while considering mark-distribution for assignments.

20% - Regularity in the class

University Examination Pattern:

Examination duration: 3 hours

Maximum Total Marks: 100

The question paper shall consist of Two Parts

Part A (40 marks) - Eight Short answer questions of 5 marks each. All questions are compulsory. There should be two questions from each module.

Part B (60 Marks) – Two Questions from each module. Candidates have to answer any one full question out of the two from each module. Each question carries 15 marks.

13AR1109 MATHEMATICS

Teaching Scheme: 2(L) - 0(T) - 0(P)

Credits: 4

Course Objective:

- *To develop basic Mathematical skills for Architecture students to understand structural concepts complex form and geometry.*
- *To inculcate understanding of the application of matrices, differential calculus, & analytical geometry in the study of architecture*

Module – I

Types of matrices, Operation in matrices, determinants, rank of matrices, Elementary Transforms, Inverse of a matrix by Gauss Jordan method, Linear independence, consistency of system of equations, Characteristic equations, Eigen values, Eigen vectors, Cayley Hamilton Theorem (no proof)

Module – II

Curvature, Radius of curvature, Centre and circle of curvature, Partial differentiation, homogeneous function, Euler's function, Errors and approximation

Module – III

Direction cosines and ratios, Angle between two lines, Equations of a straight line, coplanar lines, Shortest distance between skew lines

Module – IV

Probability, Independent events, Probability Distribution, Expectation, Mean and Variance of a random variable, Binomial distribution, Poisson distribution

Course Outcome:

Upon completion of this course, students will be able to understand and apply the concepts of geometry and differential calculus to solve problems in different areas of architecture.

References:

1. Kreyszig E., *Advanced Engineering Mathematics*, 9/e , Wiley India,2013.
2. Veerarajan Y, *Engineering Mathematics for first year*, 2/e, Tata McGraw Hill, 2002.
3. Chandra Mohan and Varghese Philip, *Engineering Mathematics I&II*
4. Babu Ram, *Engineering Mathematics –II*, 2/e, Pearson.
5. Grewal B.S., *Higher Engineering Mathematics*, Khanna Publisher
6. Bali N.P. and Manish Goel, *A Text Book of Engineering Mathematics*, Lekshmi Publications

Internal Continuous Assessment (Maximum Marks-50) (Group 2 Subject)

50% - Tests (minimum 2)

30% - Assignments (minimum 2) such as home work, problem solving, quiz, literature survey, seminar, term-project, software exercises, etc.

20% - Regularity in the class

University Examination Pattern:

Examination duration: 3 hours

Maximum Total Marks: 100

The question paper shall consist of Two Parts

Part A (40 marks) - Eight Short answer questions of 5 marks each. All questions are compulsory. There should be two questions from each module.

Part B (60 Marks) – Two Questions from each module. Candidates have to answer any one full question out of the two from each module. Each question carries 15 marks.

13AR1110 SURVEYING AND LEVELLING

Teaching Scheme: 1(L) - 0(T) - 0(P)

Credits: 2

Course Objective:

- To bring about awareness of the role of surveying and levelling in architectural and planning projects.
- To familiarize the student with the techniques of surveying and levelling.

Module – I

Introduction: Introduction to surveying, understanding land topography and its relevance in Architecture. Types of surveys in practice

Chain Surveying: Principles of survey, equipment required, selection of station, methods of taking offsets. Booking the field notes, obstacles in chaining, errors in chaining, chaining on sloping ground and reciprocal ranging.

Plane Table Surveying: Equipment and methods. Two points and three points problems. Demonstration classes shall conduct for chain and plain table surveying.

Module – II

Theodolite Surveying : Theodolite, its temporary and permanent adjustment measuring of magnetic bearings, horizontal & vertical angles. Theodolite traverse and balancing the closing error. Demonstration classes shall be conducted for theodolite surveying.

Module – III

Introduction to modern surveying equipments: Total Station, GPS, Use of Distomat and Theomat, Aerial Photography, Digital Levels and Auto-Levels. (Preliminary information and use). Demonstration classes shall be conducted using the above methods.

Module – IV

Levelling: Principles of leveling; Study of instruments – Dumpy level and leveling staff, Temporary and permanent adjustments of level, Booking and reduction of levels – ‘ line of collimation method’ and ‘ rise and fall method’, Difficulties in leveling, Reciprocal leveling, Sources of error in leveling, Basic ideas on plotting of longitudinal and cross sections, Contouring, Contour interval, Contour Maps characteristics, use and interpretation.

Note:

The students should be given a practical session of minimum 3 hours duration wherein they prepare a drawing of the surveyed area.

Course Outcome:

Upon completion of the course, the student shall have developed a basic awareness of the general principles of surveying and levelling in context of Architecture and Planning, and shall have developed the necessary the knowledge and skills required to transfer information from the ground n to the drawings, and vice-versa for their future projects.

References:

1. Kanetkar and Kulkarni, 'Surveying and Levelling', Vol I, Pune Vidyarthi Griha, 2008.
2. Punmia B.C., 'Surveying and Levelling', Vol I and Vol II, Laxmi Publications Pvt Ltd, 2011.
3. Shahani P.B., 'Surveying and Levelling', Vol I and Vol II, Oxford and IBH Publishing Company, 1971.
4. Agor R., 'Surveying and Levelling', Khanna Publishers, 1984.
5. Duggal S.K., 'Surveying', Vol. I, Tata Mc Graw Hill Ltd, 1996.
6. David Clerk, 'Surveying', Constable, 1969.

Internal Continuous Assessment (Maximum Marks-50) (Group 2 Subject)

50% - Tests (minimum 2)

30% - Assignments (minimum 2) such as home work, problem solving, quiz, term-project, etc.

20% - Regularity in the class

University Examination Pattern:

Examination duration: 3 hours

Maximum Total Marks: 100

The question paper shall consist of Two Parts

Part A (40 marks) - Eight Short answer questions of 5 marks each. All questions are compulsory. There should be two questions from each module.

Part B (60 Marks) – Two Questions from each module. Candidates have to answer any one full question out of the two from each module. Each question carries 15 marks.