10 YEARS OF UNIVERSITY RECOGNITION
20 YEARS OF ACADEMIC EXCELLENCE

REVA UNIVERSITY
Bengaluru, India

SCHOOL OF ARCHITECTURE

B.ARCH. HANDBOOK

2017 - 2022 BATCH

RUKMINI EDUCATIONAL
Charitable Trust

www.reva.edu.in

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MESSAGE FROM THE HON'BLE CHANCELLOR

Dr. P.Shyama Raju

Chancellor

REVA University

Education during recent years has witnessed a great transformation. Today's society, termed as "Knowledge Society" has brought about unprecedented economic and social growth. This has propelled universities across the world to devise new ways of tapping human potential for different competencies and building a vibrant society with a win-win situation for all.

REVA University has seen the light of the day to imbibe this character of paradigm shift in academic pursuits to contribute to the knowledge society. REVA works hard to bring in you an exciting and rewarding educational experience, to discover new interests and to develop your career prospects. You will benefit from a unique approach to student-centered learning through group work and individual study tackling real world challenges alongside experienced practitioners and researchers.

REVA has excellent learning facilities including custom built teaching facilities designed specifically to emulate working conditions, air-conditioned library opened for your studies from early morning till midnight and facilities for variety of sports and cultural activities.

Our faculties have introduced socially relevant and market driven commerce courses after studying the market situation in detail and consulting entrepreneurs, experts in different areas of commerce and industry and other stake-holders. I am glad that the Choice Based Credit System (CBCS) and Continuous Assessment Grading Pattern (CAGP) being adopted will facilitate learning environment under continuous guidance and monitoring by the faculty and equip you with competent skills to opt for different job prospects across the global.

I hope that the scheme of instructions, continuous periodic progress assessments, course curriculum of **Bachelor of Architecture** and other information provided in this hand book will guide you to choose appropriate courses of study and move ahead in the right direction in your chosen area of study. I hope you will enjoy and experience the curriculum, the student-centered teaching and learning ambience in developing your personality to become successful professionals, entrepreneurs and proud citizens of the country.

I wish you every success in your career.

Dr. P. Shyama RajuChancellor,
REVA University

MESSAGE FROM THE VICE-CHANCELLOR

Higher education across the globe is opening doors of its academic disciplines to the real world experiences. The disciplinary legitimacy is under critical review. Trans-border mobility and practice learning are being fore-grounded as guiding principles. Interactive learning, bridging disciplines and facilitating learners to gain different competencies through judicious management of time is viewed as one of the greatest and fascinating priorities and challenges today.

All the programs in REVA University are designed with a great care and after detailed market survey of present requirements and job opportunities. Experts in respective areas of study from primary institutions, industries, research organizations, business sectors and such others have been involved in designing the curriculum of each program.

The L: T: P structure of teaching and learning under Choice Based Credit System (CBCS) and Continuous Assessment Grading Pattern (CAGP) would certainly help our students learn and build competencies needed in this knowledge based society. It provides students an opportunity to choose subject(s) of interest in other areas of study and learn courses with students of different subjects. It facilitates cross cultural learning. It further facilitates students to move in fast track and earn additional certificates and diploma.

The well qualified, experienced, committed teachers in REVA University will involve students in integrative learning and application environment within and outside the university. They will certainly mould them with knowledge, skill and ethical values and empower them to face the competitive world with courage and confidence.

This handy document containing a brief information about B. Arch, scheme of instruction, course content, CBCS-CAGP regulations and its advantages and calendar of events for the year will serve as a guiding path to students to move forward in a right direction. It is for the students to be disciplined, committed and to work hard and make use of enormous resources and expert faculties in REVA to accomplish all round development of their personalities and succeed with flying colours not only in earning degree but also in their future career as leaders and proud citizens of mother India.

Dr. V.G.Talwar
Vice-Chancellor

MESSAGE FROM THE PRINCIPAL DIRECTOR

The curriculum of an institution of higher learning is a living entity. It evolves with time; it reflects the ever changing needs of the society and keeps pace with the growing talent of the students and the faculty. The curriculum of the B. Arch, B. Tech, M. Tech and other programs of REVA University is no exception.

An experience of a decade in preparing graduates and postgraduates in engineering, architecture, law, commerce and science for a wide variety of industries & research level organizations has led to creation of the new curriculum. I sincerely believe that it will meet the aspirations of all stake holders – students, faculty and the employers of the graduates and postgraduates of REVA University.

The curriculum has been designed in such a way that the teacher enjoys freedom to expand it in any direction he feels appropriate and incorporates the latest knowledge and stimulates the creative minds of the students. There is also provision for new experiments with new contents andnew techniques. This is going to lead to new teaching – learning paradigm with experiential, experimental & industry relevant approaches. The present curriculum is contemporary because it is culmination of efforts of large number of faculty members, experts from industries and research level organizations. An effort of benchmarking this curriculum with curriculum of other institutionsof repute like NITs and IITs has been done.

I am very sure that all students of REVA University enjoy this curriculum and take fullest advantage to expose themselves to fundamentals and applications. Also, imbibe all attributes that are required to term them as Global Engineers. The innovativeness and creativity being introduced should be explored fully by our students.

The flexibility in the curriculum permits staff and students to incorporate changes in terms of addition of new courses and deletion of irrelevant courses keeping the rapid advances in the technology into consideration.

I also record my personal gratitude to Chancellor, Vice chancellor and members of Academic Senate who have lent every bit of their wisdom to make this curriculum truly superior.

Dr. S. Y. Kulkarni
Principal Director

PREFACE

"A great building must begin with the immeasurable, must go through measurable means when it is being designed, and in the end must be unmeasured". – Louis Kahn

"Architecture is bound to situation. In a strange way, architecture is really an unfinished thing, because even though the building is finished, it takes on a new life. It becomes part of a new dynamic: how people will occupy it, use it, think about it." - Daniel Libeskind.

Above two quotes call for greater ability to analyze, synthesize and evaluate building design factors in order to produce efficient and effective architectural design solutions which satisfy performance, production and procurement criteria.

Architecture can be described as the design of the human environment, mostly buildings, groups of buildings and often the spaces between the buildings. The design, the documentation of designs, the inspection of the construction of buildings, their urban context, their gardens, their interiors and sometimes their furniture - all form part of the activities of the architect. Architectural design projects range in size and complexity from small alterations for a single house to large, multi-level commercial, industrial or public buildings and building complexes or even parts of cities.

Architects are expected to develop and practice a wide variety of skills. Apart from design and planning skills, architects should have technical, problem-solving, managerial, communication, co-ordination and entrepreneurial abilities too. Since not every person would possess all these skills, architects will have to work in groups bringing together experts with different skills and thereby the project undertaken gains greater success as each one would concentrate on those aspects in which he/ she is best. However, this requires team spirit, coordination and cooperative work culture.

Persons in the architectural profession serve clients, who might need buildings for themselves, or who couldrepresent users, e.g. hospitals, schools, community centers or private corporations. They assist clients in drawing up a brief plan for their needs with the assistance of quality surveyors, engineers and project managers. They then prepare design schemes and models, cost projections, project documentation, submit sanction plans for approval by the authorities, acquire tenders and then administer the building contract. Besides time spent in office, the architects do site visits and are in constant contact with clients and coordinate with many disciplines active in the building process.

The B. Arch program in REVA is designed keeping in view the current situation highlighted above and possible future developments, both at national and global levels. The Scheme of Instruction and Curriculum is prepared by the Board of Studies consisting of notable architects, designers and scholars in the field and allied fields. Greater emphasis is laid on studio practice, field study and tutorials.

The B Arch program of the university intends to teach students apart from other things, the conceptualization of designs, test assumptions, evaluation of results and refinement of craft. Students will have access to electives drawn from across disciplines in art, digital design, sustainability and urban design.This flexibility is supported by a rigorous core program of core units in studios, history and theory,

Communications, technology and design workshops. Students will be given an exposure to the areas of building materials, photography, painting, sculpture, public art and more. The program aims to improve student's aesthetic judgments and facilitate with exposure to a wide range of techniques and media.

The program is to be under CBCS and CAGP system where students will have opportunity to choose the subjects of their interest from wide era of subjects as soft core & open elective.

The personal and professional interests in architecture are matched by our faculty discipline-leading research, providing manifestation of contemporary issues throughout the degree. Our well qualified, experienced and committed faculty will guide you, monitor your progress, mould you and make your study interesting and fruitful. Exciting opportunities will be available for students to expand studio experience, participate in design and build projects and leverage the knowledge and skills of proficient teachers. The facilities for curricular and co-curricular activities in REVA with dedicated supportive staff provide you conducive ambiance for learning.

As architects must also be aware of the social context in which their designs are created, interpreted and understood, teaching to students will not be limited to architectural practice, instead induces to be responsive and adaptive thinkers who can produce designs that meet clients' needs as well as cater to larger environmental concerns.

The university fully understands that engagement with these professionally relevant aspects of the architectural profession is what will make our graduates highly sought-after and our alumni, industry leaders.

I am sure the students choosing B Arch in REVA University will enjoy the curriculum, teaching and learning environment, the vast infrastructure and the experienced teachers involvement and guidance. We will strive to provide all needed comfort and congenial environment for your studies. I wish all students pleasant stay in REVA and grand success in their career.

Prof B. S Jagadeesha Chandra
Director
School of Architecture

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RUKMINI EDUCATIONAL CHARITABLE TRUST

It was the dream of late Smt. Rukmini Shyama Raju to impart education to millions of underprivileged children as she knew the importance of education in the contemporary society. The dream of Smt. Rukmini Shyama Raju came true with the establishment of Rukmini Educational Charitable Trust (RECT), in the year 2002. **Rukmini Educational Charitable Trust** (RECT) is a Public Charitable Trust, set up in 2002 with the objective of promoting, establishing and conducting academic activities in the fields of Arts, Commerce, Education, Engineering, Environmental Science, Management and Science & Technology, among others. In furtherance of these objectives, the Trust has set up the REVA Group of Educational Institutions comprising of REVA Institute of Technology & Management (RITM), REVA Institute of Science and Management (RISM), REVA Institute of Management Studies (RIMS), REVA Institute of Education (RIE), REVA First Grade College (RFGC), REVA Degree College (Evening), REVA Independent PU College at Kattigenahalli, Ganganagar and Sanjaynagar and now REVA University. Through these institutions, the Trust seeks to fulfill its vision of providing world class education and create abundant opportunities for the youth of this nation to excel in the areas of Architecture, Engineering, Commerce, Management, Education, Arts and Science & Technology.

Every great human enterprise is powered by the vision of one or more extraordinary individuals and is sustained by the people who derive their motivation from the founders. The Chairman of the Trust is Dr. P. Shyama Raju, a developer and builder of repute, a captain of the industry in his own right and the Chairman and Managing Director of the DivyaSree Group of companies. The idea of creating these top notch educational institutions was born of the philanthropic instincts of Dr. P. Shyama Raju to do public good, quite in keeping with his support to other socially relevant charities such as maintaining the Richmond road park, building and donating a police station, gifting assets to organizations providing accident and trauma care, to name a few.

The Rukmini Educational Charitable Trust drives with the main aim to help students who are in pursuit of quality education for life. REVA is today a family of ten institutions providing education from PU to Post Graduation and Research leading to M. Phil and PhD degrees. REVA has well qualified experienced teaching faculty of whom majority are doctorates. The faculty is supported by committed administrative and technical staff. Over 11,000 students study various courses across REVA's three campuses equipped with exemplary state-of-the-art infrastructure and conductive environment for the knowledge driven community.

ABOUT REVA UNIVERSITY

REVA University established under the Government of Karnataka Act 80 of the year 2012 and notified in the Karnataka Gazette dated 7th Feb, 2013, is located 14 kms away from the Bangalore International Airport on the way to Bangalore city. The university has a sprawling lush green campus spread over 42 acres of land equipped with state-of-the-art infrastructure and conductive environment for higher learning.

The REVA campus has well equipped laboratories, custom-built teaching facilities designed specifically to emulate working conditions, fully air-conditioned library and central computer centre kept open from morning 8.00 AM till mid-night for the students and the faculty. The well planned sports facility for variety of sports activities, facilities for cultural programs and friendly campus lifestyle add to the overall personality development of students. The campus also has residential facility for students, faculty and other staff.

Currently, REVA University offers 18 Post Graduate programs and 15 Graduate programs and PG Diploma in Engineering, Science and Technology, Commerce and Management Studies, Arts and Humanities, Architecture, Law in addition to research degrees leading to PhD in different disciplines. The University aimsto offer many more PG and UG programs in various disciplines including Education, medical and Paramedical Sciences.

The programs being offered by the REVA University are well planned and designed after detailed study withemphasis with knowledge assimilation, applications, global job market and their social relevance. Highly qualified, experienced faculty and scholars from reputed universities / institutions, experts from industries and business sectors have contributed in preparing the scheme of instruction and detailed curricula for this program. Greater emphasis on practice in respective areas and skill development to suit to respective job environment has been given while designing the curricula.

The Choice Based Credit System and Continuous Assessment Graded Pattern (CBCS – CAGP) of education has been introduced in all programs to facilitate students to opt for subjects of their choice in addition to the core subjects of the study and prepare them with needed skills. The system also allows students to move forward under the fast track for those who have the capabilities to surpass others. These programs are taught by well experienced qualified faculty supported by the experts from industries, business sectors and such other organizations. REVA University has also initiated many supportive measures such as bridge courses, special coaching, remedial classes, etc., for slow learners so as to give them the needed input and build in them confidence and courage to move forward and accomplish success in their career. The University has also entered into MOUs with many industries, business firms and other institutions seeking their help in imparting quality education through practice, internship and also assisting students' placements.

ABOUT SCHOOL OF ARCHITECTURE

The School of Architecture has highly experienced faculty members specialized in Architecture and is aligned field and supported by well experienced architects as visiting faculty members. The school has the state-of-art class rooms and well equipped laboratories, drawing and seminar halls, museum space and construction yard. Supported by DivyaSree a noted Infrastructure Development Group, there are lot of opportunities for students to visit, to study, to share and experience on site teaching - learning. The school offers B Arch program. The curriculum of graduate degree program has been designed to bridge the gap between industry – academia and hence they are practical oriented. The B. Arch program aims to prepare human resources to playa leading role in the competitive architecture and construction field and excel in their endeavors. The program also focuses on research and design in the core and allied fields like Interior design, architectural design, climatology, etc., to create a sustainable world and to enhance the global quality of life by adopting enhanced techniques of design and application. This is reflected in various core subjects offered in the program.

Vision

To make the School known for highest level academic standards in inculcating necessary skills and national pride in students to address societal issues through technology.

Mission

To create a team of competent young Architects of high caliber committed to their profession with ethics who can contribute to Architecture and allied fields in optimizing the usage of resources globally making the world more eco-friendly to live in.

Programme Education Objectives

The Architecture Graduates from REVA University after 3-5 Years of completion of theprogramme shall:

1. Demonstrate as successful professional architect with moral, ethical values and innovativeideas.
2. Serve as a leader through consultancy, extension activities and adopt lifelong learning philosophy for continuous improvement.
3. Acquire higher degrees to lead in education, research and specialized professionalservice.

Programme Outcomes

On successful completion of the Programme the student shall be able to:

1. Assimilate the fundamental knowledge of history, culture, technical and legal aspects toaddress environmental and social needs.
2. Apply perceptive, aesthetic and creative abilities to design innovative solutions in theglobal context.
3. Identify and formulate a design problem by applying analytical reasoning and criticalthinking.
4. Demonstrate the ability to deliver a project using contemporary techniques and tools.
5. Demonstrate effective visual, written and verbal communication skills.
6. Perform all professional responsibilities independently and as a team member withleadership skills and ethical values.
7. Develop an aptitude towards research and critical evaluation.
8. Develop the ability to choose appropriate online programmes and participate inconferences and seminars to be a life-long learner.

Programme Specific Outcomes

On successful completion of the program the student will be able to:

1. Assimilate the knowledge of Socio cultural, technical, environmental and legal aspectsrelevant to the design of human habitat.
2. Analyse and design sustainable solutions for the built and unbuilt environment.
3. Demonstrate the ability to use contemporary tools and techniques to solve real lifeproblems related to our habitat.

Advisory Board

S. No.	Name	Designation
1	Ar. Dinesh Verma	Managing Director, Ace Group Architects Pvt. Limited, Bangalore
2	Ar. Itty. Zachariah	Managing Director, Zacharia Consultants, Bangalore
3	Ar. Jaisim Krishnarao	Managing Director, Fountainhead, Former Chairman,Indian Institute of Architects
4	Ar. H. C. Thimmaiah	Managing Director, Thimmaiah Associates, Ex-President Indian Institute of Architects, Bangalore
5	Ar. H.S. Anantharaman	Managing Director, Anantharam Associates, Visiting Faculty, MSRIT, Bangalore
6	Ar. Bindumadhav	Former Dean, School of Architecture, Mysore University, Mysore
7	Ar. Vidyadhar Wodeyar	Managing Director, Arch Plan, Former Chairman, Indian Institute of Architects, Bangalore

CBCS (CHOICE BASED CREDIT SYSTEM) AND CAGP (CONTINUOUS ASSESSMENT AND GRADING PATTERN) OF EDUCATION AND ITS ADVANTAGES

CBCS is a proven, advanced mode of learning in higher education. It facilitates students to have freedom in making their own choices for acquiring a Degree / Masters Degree program. It is more focused towards the student's choice in providing a wide range of modules available in a single campus across various disciplines offered by experts in the subjects. It leads to quality education with active teacher-student participation.

Studying under CBCS has following advantages:

- Students may undergo training in cross-disciplinary and multi-disciplinary subjects and acquire more focused and preferred knowledge.
- Students may get more skills from other subject(s) which are required for the career path in addition to their regular subject knowledge.
- Students may get ample opportunities to use the laboratories and gain practical exposure to the much needed modules available in other departments/schools for want of scientific inputs.
- Courses are conducted by subject experts identified on the basis of their experiences. Courses taught by such experts may provide in-depth information and clear understanding of the modules.
- Students may get an opportunity to study courses with other students of different programs and exchange their views and knowledge in a common class room.
- CBCS provides a cross-cultural learning environment.

- Students may benefit much from selecting the right options to successfully face the public service examinations like UPSC, KPSC, IES wherein the knowledge of additional subjects become mandatory for general or optional papers.
- Students are exposed to the culture of universal brotherhood during their campus life.
- Students are allowed to practice various methods of learning a subject.

Summary of REVA University Regulations for Choice Based Credit System (CBCS) and Continuous Assessment Grading Pattern (CAGP) for Engineering Graduate Degree Programs, 2016

1. **Teaching and Learning Process:**
   The teaching &learning process under CBCS – CAGP of education in each course of study will have four components, namely**:**

   (i) L= Lecture (ii) T= Tutorial (iii) P=Practice, (iv) D=Dissertation / Project; where:

   L stands for **Lecture** session consisting of classroom instruction.

   T stands for **Tutorial** session consisting participatory discussion / self study/ desk work/ brief seminar presentations by students and such other novel methods that make a student to absorb and assimilate more effectively the contents delivered in the Lecture classes.

   P stands for **Practice** session and it consists of Hands on Experience / Laboratory Experiments / Field Studies / Case Studies that equip students to acquire the much required skill component.

   D stands for Dissertation / Project to be carried out as a part of the course work.

2. **Courses of Study and Credits**
   a. The study of various subjects in B Tech degree program are grouped under various courses. Each of these course carries credits which are based on the number of hours of teaching and learning.

   b. In terms of credits, every **one hour session of L amounts to 1 credit per Semester.** In terms of credits, every **one hour session of L amounts to 1 credit per Semester** and a minimum of **two hour session of T or P amounts to 1 credit per Semester or a three hour session of T / P / D amounts to 2 credits** over a period of one Semester of 16 weeks for teaching-learning process.

c. **The total duration of a semester is 20 weeks inclusive of semester-end examination.**

d. **A course shall have either or all the four components.** That means a course may have only lecture component, or only practical component or combination of any two or all the three components.

e. The total credits earned by a student at the end of the semester upon successfully completing the course are L + T + P + D. **The credit pattern of the course is indicated as L: T: P: D.**

Different C**ourses of Study** are labeled and defined as follows:

a. Core Course:

A course which should compulsorily be studied by a candidate as a core-requirement is termed as a Core course. The CORE courses of Study are of THREE types, viz – (i) Foundation Course, (ii) Hard Core Course, and (iii) Soft Core Course.

b. Foundation Course (FC):

The foundation Course is a core course which should be completed successfully as a part of graduate degree program irrespective of the branch of study.

c. Hard Core Course (HC):

The **Hard Core Course** is a Core Course in the main branch of study and related branch(es) of study, if any that the candidates have to complete compulsorily.

d. Soft Core Course (SC):

A Core course may be a **Soft Core** if there is a choice or an option for the candidate to choose a course from a pool of courses from the main branch of study or from a sister/related branch of study which supports the main branch of study.

e. Open Elective Course:

An elective course chosen generally from other discipline / subject, with an intention to seek exposure to the basics of subjects other than the main discipline the student is studying is called an O**pen Elective Course.**

f. Project Work / Dissertation:

Project work is a special course involving application of knowledge in solving / analyzing /exploring a real life situation / difficult problem. A project work carrying **FOUR or SIX** credits is called **Minor Project** work / **Dissertation.** A project work of **EIGHT, TEN,TWELVE or SIXTEEN** credits is called **Major Project** work / **Dissertation**. **A Minor Project work may be a hard core or a Soft Core as decided by the BoS / concerned. But the Major Project shall be Hard Core.**

3. **Scheme, Duration and Medium of Instructions:**

1. B Arch degree program is of 10 semesters - 5 years duration. A candidate can avail a maximum of 20semesters - 10 years as per double duration norm, in one stretch to complete B Arch degree, including blank semesters, if any. Whenever a candidate opts for blank semester, he/she has to study the prevailing courses offered by the School when he/she resumes his/her studies.
2. The medium of instruction shall be English

4. **Minimum Credits to be Earned**

4.1 A candidate has to earn 240 credits for successful completion of B Arch degree with the distribution of credits for different courses as prescribed by the university. A candidate can enroll for a maximum of 30 credits and a minimum of 20 credits per Semester. However he / she may not successfully earn a maximum of 30 credits per semester. This maximum of 30 credits does not include the credits of courses carried forward by a candidate.

4.2 Only such full time candidates who register for a minimum prescribed number of credits in each semester from I semester to X semester and complete successfully 240credits in 10 successive semesters shall be considered for declaration of Ranks, Medals, Prizes and are eligible to apply for Student Fellowship, Scholarship, Free ships, and such other rewards / advantages which could be applicable for all full time students and for hostel facilities.

4.3. Add- on Proficiency Certification:

To acquire **Add on Proficiency Certification** a candidate can opt to complete a minimum of 4 extra credits either in the same discipline /subject or in different discipline / subject in excess to 240 credits for the B Arch Degree program.

4.3.1. Add on Proficiency Diploma:

To acquire **Add on Proficiency Diploma,** a candidate can opt to complete a minimum of 18 extra credits either in the same discipline /subject or in different discipline / subject in excess to 240credits for the B Arch Degree program.

The A**dd on Proficiency Certification / Diploma** so issued to the candidate contains the courses studied and grades earned.

5. Continuous Assessment, Earning of Credits and Award of Grades.

5.1. The assessment and evaluation process happen in a continuous mode. However, for reporting purpose, **a semester is divided into 3 components as C1, C2, and C3.**

5.2. The performance of a candidate in a course will be assessed for a maximum of 100 marks as explained below.

a) Continuous assessment (C1 and C2) = 50 marks
b) Semester end (C3) examination = 50 marks

5.2.1 (i) Component C1:

The first Component (C1), of assessment is for 25 marks. This will be based on test, assignment / seminar. During the first half of the semester (i.e. by 8th week), the first 50% of the syllabus (Unit 1&2) will be completed. This shall be consolidated during the first three days of 8th week of the semester. A review test based on C1 will be conducted and completed in the beginning of the 9th week. In case of courses where test cannot be conducted, the form of assessment will be decided by the concerned school and such formalities of assessment will be completed in the beginning of the 9th week. The academic sessions will continue for C2 immediately after completion of process of C1.

The finer split - up for the award of marks in C1 is as follows:

Assignment / Seminar ..... 10 marks for Unit 1&2

Review Test (Mid-Term)..... 15 marks for Unit 1&2

Total..... 25 marks

5.2.2 (ii) Component C2:

The second component (C2), of assessment is for 25marks. This will be based on test, assignment /seminar. The continuous assessment and scores of second half of the semester (9th to 16th week) will be consolidated during 16th week of the semester. During the second half of the semester the remaining units in the course will be completed. A review test based on C2 will be conducted and completed during 16th week of the semester. In case of courses where test cannot be conducted, the form of assessment will be decided by the concerned school and such formalities of assessment will be completed during 16th week.

The 17th week will be for revision of syllabus and preparation for the semester - end examination.

The finer split - up for the award of marks in C2 is as follows:

Assignment / Seminar ..... 10 marks for Unit 3 & 4

Review Test (Mid-Term)..... 15 marks for Unit 3 & 4

Total..... 25marks

5.2.3 The outline for continuous assessment activities for Component-I (C1) and Component-II (C2) will be proposed by the teacher(s) concerned before the commencement of the semester and will be discussed and decided in the respective School Board. The students should be informed about the modalities well in advance. **The evaluated courses/assignments during Component I (C1) and Component II (C2) of assessment are immediately returned to the candidates after obtaining acknowledgement in the register maintained by the concerned teacher for this purpose.**

5.2.4 (iii) Component C3:

The end semester examination of 3 hours duration for each course shall be conducted during the 18th & 19th week. **This forms the third / final component of assessment (C3) and the maximum marks for the final component will be 50.**

Valuation will be undertaken concurrently and results are announced latest by the end of 20th week. This practice will be followed both in odd semester and even semester.

5.3. Evaluation of Practical/Studio Courses

5.3.1 A practical examination shall be assessed on the basis of:

a) Knowledge of relevant processes;

b) Skills and operations involved;

c) Results / products including calculation and reporting.

5.3.2. In case a course is fully of P type (L=0:T=0:P=4), the performance of a candidate shall be assessed for a maximum of 100 marks as explained below:

a. Continuous assessment (C1 and C2) = 50 marks
b. Semester end (C3) practical examination = 50 marks
(Viva voce or Term work)

The 50 marks meant for continuous assessment shall further be allocated as under:

i	C1	Periodic progress and progress reports	25 marks
ii	C2	Periodic progress, final work	25 marks
		Total	**50 marks**

The 50 marks meant for Semester End (C3) Examination, shall be allocated as under:

i	Evaluation of the work – concept etc	20 marks
ii	Drawings, models, presentation, verbal presentation	30 marks
	Total	**50 marks**

5.3.3 The C3 examination for Practical work will be conducted jointly by internal and external examiners. However, if external examiner does not turn up, then both the examiners will be internal examiners.

In case a course is partly P type i.e, (L=3): (T=0) (P=1), then the examination for C3 component will be as decided by the BoS concerned.

5.3.4 The duration for semester-end practical examination shall be decided by the concerned School Board.

5.4. Evaluation of Minor Project / Major Project / Dissertation:

5.4.1. Right from the initial stage of defining the problem, the candidate has to submit the progress reports periodically and also present his/her progress in the form of seminars in addition to the regular discussion with the supervisor. At the end of the semester, the candidate has to submit final report of the project / dissertation, as the case may be, for final evaluation. The components of evaluation are as follows:

Component – I	(C1)	Periodic Progress and Progress Reports (25%)
Component – II	(C2)	Results of Work and Draft Report (25%)
Component– III	(C3)	Final Evaluation and Viva-Voce (50%). Evaluation of the report is for 30% and the Viva-Voce examination is for 20%.

6. Eligibility to Appear C3 (Semester - end) Examination

Only those students who fulfill a minimum of 75% attendance in aggregate of all the courses including practical courses / field visits etc, as part of the course(s), as provided in the succeeding sections, shall be eligible to appear for C3 examination.

7. Requirements to Pass the Semester and Provision for Make-up Examination and to Carry Forward the Failed Subjects / Courses:

7.1 Requirements to Pass a Course

A candidate's performance from all 3 components will be in terms of scores, and the sum of all three scores will be for a maximum of 100 marks (25 + 25 + 50; i .e, C1 + C2 + C3) and have to secure a minimum of 45% to declare pass in the course. However, a candidate has to secure a minimum of 25% (15 marks) in C3 which is compulsory.

7.2 Provision for Make- up Examination:

a) For those students who have secured less than 45% marks in C1, C2 and C3 (end semester examination) together; the university shall conduct a make-up C3 examination of both odd semester and even semester together, after the end of even semester and before the commencement of next odd semester.

b) There is no make-up examination for C1 and C2.

c) A student who is absent to End Semester Examination (C3) due to medical emergencies or such other exigencies and fulfills the minimum attendance is also eligible to appear for make-up examination.

7.3 Provision to Carry Forward the Failed Subjects / Courses:

The student who has failed in a maximum of 4 courses in odd and even semesters together shall move to next semester of immediate succeeding year of study. And he / she shall appear for C3 examination of failed courses of previous semesters concurrently with odd semester end examinations (C3) and / or even semester end examinations (C3) of current year of study. However, he / she shall have to clear all courses of both odd and even semesters of preceding year to register for next succeeding semester.

Examples:-

a. Student "A" has failed in 1 Course in First Semester and 3 Courses in Second Semester. He / she is eligible to seek admission for Third Semester and appear for C3 examination of 1 failed Course of First Semester concurrently with Third Semester C3 examination. Likewise, he / she is eligible to appear for C3 examination of 3 failed Courses of Second Semester concurrently with Fourth Semester C3 examination. However, he / she has to clear all the failed Courses of First and Second Semesters before seeking admission to Fifth Semester.

b. Student "B" has failed in 2 Courses in Third Semester and 2 Courses in Fourth Semester and has passed in all Courses of First and Second Semesters. He / she is eligible to seek

admission to Fifth Semester and appear for C3 examination of 2 failed Courses of Third Semester concurrently with Fifth Semester C3 examination. Likewise he / she is eligible to appear for C3 examination of 2 failed Courses of Fourth Semester concurrently with Sixth Semester C3 examination. However, he / she is not eligible to seek admission to Seventh Semester unless he / she passes in all the failed courses of Third and Fourth Semesters.

c. Student "C" has failed in 4 Courses in Fifth Semester but has cleared all the courses in Sixth Semester. He / She has also passed all the courses of First to Fourth Semesters. Student "C" is eligible to seek admission for Seventh Semester and appear for C3 examination of 4 failed Courses of Fifth Semester concurrently with Seventh Semester C3 examination. However, he / she has to pass all the failed courses of Fifth Semester along with Seventh and Eighth Semesters courses to earn B Tech Degree.

d. Student "D" passed in 1to 4 semesters, but failed in 3 courses of 5^{th} Semester and in 1 course of 6^{th} Semester. He / She has also passed all the courses of First to Fourth Semesters. Student "D" is also eligible to seek admission for 7^{th} Semester and appear for C3 examination of 3 failed courses of 5^{th} Semester concurrently with 7^{th} Semester C3 examination and one failed course of 6^{th} Semester concurrently with 8^{th} Semester C3 examination. However, he / she has to pass all the 3 failed courses of Fifth Semester and 1 course Sixth Semester along with Seventh and Eighth Semester courses to earn B Tech Degree.

7.4 Re-Registration and Re-Admission:

a) In case a candidate's class attendance in aggregate of all courses in a semester is less than 75% or as stipulated by the University, such a candidate is considered as dropped the semester and is not allowed to appear for end semester examination (C3) and he / she shall have to seek re-admission to that semester during subsequent semester / year within a stipulated period.

b) In case a candidate fails in more than 4 courses in odd and even semesters together in a given academic year (and is detained from moving to higher semester) he / she may opt to re-register either for the entire semester(s) or for such courses wherein, he / she has failed and repeat the semester(s) / courses. (However, such a candidate may also opt to re-appearduring subsequent semester / year within a stipulated period, for C3 (semester end) examination to such of those courses that he /she has failed without re-registering).

c) In such a case where in a candidate drops all the courses in semester due to personal reasons, it is considered that the candidate has dropped the semester and he / she shall seek re-admission to such dropped semester.

8. Attendance Requirement:

8.1 All students must attend every lecture, tutorial and practical classes.

8.2 In case a student is on approved leave of absence (e g:- representing the university in sports, games or athletics, placement activities, NCC, NSS activities and such others) and / or any other such contingencies like medical emergencies, the attendance requirement shall be minimum of 75% of the classes taught.

8.2 Any student with less than 75% of attendance in aggregate of all the courses including practical courses / field visits etc. During a semester shall not be permitted to appear to the end semester (C3) examination and such student shall seek re-admission as provided in 7.8.4.

8.3 Teachers offering the courses will place the above details in the School Board meeting during the last week of the semester, before the commencement of C3, and subsequently a notification pertaining to the above will be brought out by the Director of the School before the commencement of C3 examination. A copy of this notification shall also be sent to the office of the Registrar & Registrar (Evaluation).

9 Absence during Mid Semester Examination:

In case a student has been absent from a mid-semester (C1 and C2) examination due to the illness or other contingencies he / she may give a request along with necessary supporting documents and certification from the concerned class teacher / authorized personnel to the concerned Head of the School, for make-up examination. The Head of the School may consider such request depending on the merit of the case and after consultation with course instructor and class teacher, and permit such student to appear for make-up mid semester (C1 and C2) examination.

9.1 Absence during End Semester Examination:

In case a student is absent for end semester examination on medical grounds or such other exigencies and has fulfilled the minimum 75% attendance requirement, he / she is permitted to appear for make-up examination.

10 Challenge Valuation:

a. A student who desires to apply for challenge valuation shall obtain a photo copy of the answer script by paying the prescribed fee within 10 days after the announcement of the results. He / She can challenge the grade awarded to him/her by surrendering the grade card and by submitting an application along with the prescribed fee to the Registrar (Evaluation) within 10 days after the announcement of the results. This challenge valuation is only for C3 component.

b. The answer scripts for which challenge valuation is sought for shall be evaluated by the external examiner who has not involved in the first evaluation. The higher of two marks from first valuation and challenge valuation shall be the final.

11 Grade Card and Grade Point

11.1 **Provisional Grade Card**: The tentative / provisional grade card will be issued by the Registrar (Evaluation) at the end of every semester indicating the courses completed successfully. The provisional grade card provides **Semester Grade Point Average** (SGPA).

11.2 **Final Grade Card:** Upon successful completion of B Tech Degree a Final Grade card consisting of grades of all courses successfully completed by the candidate will be issued by the Registrar (Evaluation).

11.3 **The Grade and the Grade Point:** The Grade and the Grade Point earned by the candidate in the subject will be as given below.

Marks P	Grade G	Grade Point (GP=V x G)	Letter Grade
90-100	10	v*10	O
80-89	9	v*9	A+
70-79	8	v*8	A
60-69	7	v*7	B+
55-59	6	v*6	B
50-54	5.5	V*5.5	C
45-49	5	v*5	P
0-44	0	v*0	F
ABSENT			AB

O – Outstanding, A+ - Excellent, A- Very good, B+ - Good, B – Above average, C- Average, P – Pass, F-Fail

Here, P is the percentage of marks (P= [(C1+C2)+M] secured by a candidate in a course which is **rounded to nearest integer**. V is the credit value of course. G is the grade and GP is the grade point.

11.3.1 Computation of SGPA and CGPA

The Following procedure to compute the Semester Grade Point Average (SGPA)
The SGPA is the ratio of sum of the product of the number of credits with the grade points scored by a student in all the courses taken by a student and the sum of the number of credits of all the courses undergone by a student in a given semester, i.e: **SGPA (Si) = ∑(Ci x Gi) / ∑Ci**where Ci is the number of credits of the ith course and Gi is the grade point scored by the student in the ith course.

Illustration for Computation of SGPA and CGPA

Illustration No. 1

Course	Credit	Grade Letter	Grade Point	Credit Point (Credit x Grade)
Course 1	**4**	**A+**	**9**	**4X9=36**
Course 2	**4**	**A**	**8**	**4X8=32**
Course 3	**3**	**B+**	**7**	**3X7=21**
Course 4	**3**	**O**	**10**	**3X10=30**
Course 5	**3**	**P**	**5**	**3X5=15**
Course 6	**3**	**B**	**6**	**3X6=18**
Course 7	**2**	**O**	**10**	**2X10=20**
Course 8	**2**	**A**	**8**	**2X8=16**
	24			**188**

Thus, **SGPA = 188 ÷ 24 = 7.83**

Illustration No. 2

Course	Credit	Grade letter	Grade Point	Credit Point (Credit x Grade point)
Course 1	**4**	**A**	**8**	**4X8=32**
Course 2	**4**	**B+**	**7**	**4X7=28**
Course 3	**3**	**A+**	**9**	**3X9=27**
Course 4	**3**	**B+**	**7**	**3X7=21**
Course 5	**3**	**B**	**6**	**3X6=18**
Course 6	**3**	**P**	**5**	**3X5=15**
Course 7	**2**	**B+**	**7**	**2X7=21**
Course 8	**2**	**O**	**10**	**2X10=20**
	24			**175**

Thus, **SGPA = 175 ÷ 24 = 7.29**

Illustration No.3

Course	Credit	Grade Letter	Grade Point	Credit Point (Credit x Grade point)
Course 1	4	O	10	4 x 10 = 40
Course 2	4	A+	9	4 x 9 = 36
Course 3	3	B+	7	3 x 7 = 21
Course 4	3	B	6	3 x 6 = 18
Course 5	3	A+	9	3 x 9 = 27
Course 6	3	B+	7	3 x 7 = 21
Course 7	2	A+	9	2 x 9 = 18
Course 8	2	A+	9	2 x 9 = 18
	24			199

Thus**, SGPA = 199 ÷ 24 = 8.29**

11.4 Cumulative Grade Point Average (CGPA):

11.4.1 Overall Cumulative Grade Point Average (CGPA) of a candidate after successful completion of the required number of credits (242) for B. Arch degree in Architecture is calculated taking into account all the courses undergone by a student over all the semesters of a program, i. e :**CGPA = ∑(Ci x Si) / ∑Ci**

Where *Si* is the SGPA of the ith semester and *Ci* is the total number of credits in that semester.

The SGPA and CGPA shall be rounded off to 2 decimal points and reported in the transcripts.
Illustration:

CGPA after Final Semester

Semester (ith)	No. of Credits (Ci)	SGPA (Si)	Credits x SGPA (Ci X Si)
1	24	6.83	24 x 6.83 = 163.92
2	24	7.29	24 x 7.29 = 174.96
3	24	8.11	24 x 8.11 = 192.64
4	24	7.40	24 x 7.40 = 177.6
5	24	8.29	24 x 8.29 = 198.96
6	24	8.58	24 x 8.58 = 205.92
7	24	9.12	24 x 9.12 = 218.88
8	24	9.25	24 x 9.25 =222.00
9	24	9.35	24x9.35=224.40
10	24	9.50	24x9.50=228.00
Cumulative	240		2007.28

Thus, **CGPA** = 24x6.83+24x7.29+24x8.11+24x7.40+24x8.29+24x8.58+24x9.12+24x9.25 24x9.25 24x9.50 / 240 = 8.36

11.4.2 CONVERSION OF GRADES INTO PERCENTAGE:

Conversion formula for the conversion of CGPA into Percentage is:

Percentage of marks scored = CGPA Earned x 10

Illustration: CGPA Earned 8.36 x 10=83.6

11.5 Classification of Results

The final grade point (FGP) to be awarded to the student is based on CGPA secured by the candidate and is given as follows.

CGPA	Grade (Numerical Index)	Letter Grade	Performance	FGP
	G			Qualitative Index
9 >= CGPA 10	10	O	Outstanding	Distinction
8 >= CGPA < 9	9	A+	Excellent	
7 >= CGPA < 8	8	A	Very Good	First Class
6 >= CGPA < 7	7	B+	Good	
5.5> = CGPA < 6	6	B	Above average	Second Class
>5 CGPA< 5.5	5.5	C	Average	
>4.5 CGPA<5	5	P	Pass	Satisfactory

Overall percentage=10*CGPA

12 Provision for Appeal

If a candidate is not satisfied with the evaluation of C1 and C2 components, he/she can approach the grievance cell with the written submission together with all facts, the assignments, testpapers etc, which were evaluated. He/she can do so before the commencement of semester-end examination. The grievance cell is empowered to revise the marks if the case is genuine and is also empowered to levy penalty as prescribed by the university on the candidate if his/her submission is found to be baseless and unduly motivated. This cell may recommend taking disciplinary/corrective action on an evaluator if he/she is found guilty. The decision taken by the grievance cell is final.

For every program there will be one grievance cell. The composition of the grievance cell is as follows:-

The Registrar (Evaluation) - Ex-officio Chairman / Convener

One Senior Faculty Member (other than those concerned with the evaluation of the course concerned) drawn from the school / department/discipline and/or from the sister schools / departments/sister disciplines – Member.

One Senior Faculty Members / Subject Experts drawn from outside the University school / department – Member.

Course Numbering Scheme

Examples:

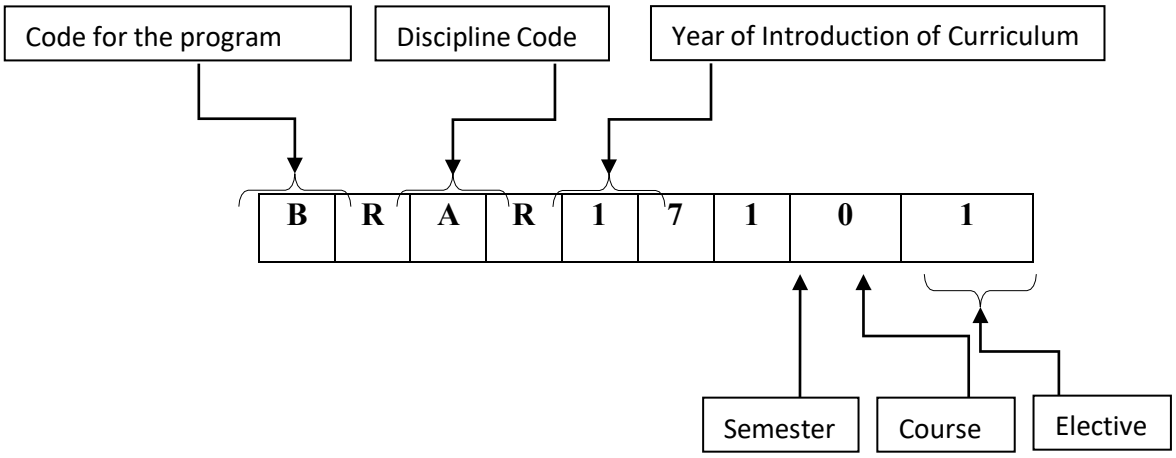
BR17AR101 – Architectural Design I

BR	17	AR	1	01
Program codeB Arch	Year of introduction of curriculum	Discip line Code - Architectur e	1st Semester	Course number

BR17AR3091/92/93 – Hindu, Buddhist & Colonial Architecture – S E Asia

BR	17	AR	3	9	1/2/3
Program code B Arch	Year of introduction of curriculum	Discipline Code - Architec ture	3rd Semester	Course number	Elective number

Course Numbering Scheme



List of Code for Program and Discipline / Branch of Study

Program Code	Title of the Program	DisciplineCode	Name of the Discipline / Branch ofStudy
B R	B. Arch (Bachelor of Architecture)	A R	ARCHITECTURE

TRAINING AND PLACEMENT

Having a degree will open doors to the world of opportunities for you. But Employers are looking for much more than just a degree. They want graduates who stand out from the crowd and exhibit real life skills that can be applied to their organizations. Examples of such popular skills employers look for include:

- Willingness to learn
- Self-motivation
- Team work
- Communication skills and application of these skills to real scenarios
- Requirement of gathering, design and analysis, development and testing skills
- Analytical and Technical skills
- Computer skills
- Internet searching skills
- Information consolidation and presentation skills
- Role play
- Group discussion, and so on

The REVA University therefore, has given utmost importance to develop these skills through variety of training programs and such other activities that induce the said skills among all students. A full-fledged Career Counseling, Training and Placement (CCTP) Centre headed by well experienced dynamic Trainer, Counselor and Placement Officer supported by an efficient team does handle all aspects of Internships and Placement for the students of REVA University. The prime objective of the CCTP Centre is to liaison between REVA graduating students and industries by providing a common platform where the prospective employer companies can identify suitable candidates for placement in their respective organization. The CCTP Centre organizes pre-placement training by professionals and also arranges expert talks to our students. It facilitates students to career guidance and improve their employability. In addition, CCTP Centre forms teams to perform mock interviews. It makes you to enjoy working with such teams and learn many things apart from working together in a team. It also makes you to participate in various student clubs which helps in developing team culture, variety of job skills and overall personality.

The need of the hour in the field of Engineering is efficient leaders of repute, who can deal the real time problems with a flavor of innovation. This kept in focus, the Training and Placement cell has designed the training process, which will commence from second semester along with the curriculum. Special coaching in personality development, career building, English proficiency, reasoning, puzzles, leadership, and strategic management and communication skills to every student of REVA University is given with utmost care. The process involves continuous training and monitoring the students to develop their soft skills including interpersonal skills that will fetch them a job of repute in the area of his/her interest and march forward to make better career.

Skill development is one of the very important activities of the University and Industry relationship.

A skill development center is established to organize skill and certification programs. The students shall compulsorily complete atleast two skill/certification based programs before the completion of the degree.

The University has collaborations with Industries, Corporate training organizations, research institutions and Government agencies like NSDC (National Skill Development Corporation) to conduct certification programs.

The various skill/certification programs identified are as follows.

Big-data and Cloud Computing, Internet of Things (IOT), ORACLE, MYSQL, Advanced Java and Internals of LINUX/UNIX

Red-hat certified programs on LINUX,

Management related programs like SAP,ERP and Business Analytics

Open Source software/hardware, Software Testing

Advanced networking based CISCO / Microsoft technology.

Web designing, System administration

IBM certified programs.

The University has signed MOU's with Multi-National Companies, research institutions, Government agencies like NSDC (National Skill Development Corporation) and universities abroad to facilitate greater opportunities of employability, students' exchange programs for higher learning and for conducting certification programs.

REVA UNIVERSITY SCHOOL OF ARCHITECTURE,

B ARCH DEGREE PROGRAM

SCHEME OF INSTRUCTION FOR FIRST BATCH (2017 to 2022) STUDENTS

FIRST SEMESTER

No	Course Code	Course Title	Type	L/S	T	P	Total Credits	Evaluation
1	BR17AR101	Architectural Design – I	HC	4	0	2	6	SEE VV
2	BR17AR102	Building Construction materials – I	HC	2	-	2	4	SEE
3	BR17AR103	Architectural Graphics - I	HC	3	-	1	4	SEE
4	BR17AR104	History of Architecture - I	HC	1	-	1	2	SEE
5	BR17AR105	Fine Arts/Applied Arts - I	HC	-	-	2	2	SEE TW
6	BR17AR106	Structures – I	HC	2	-	1	3	SEE
7	BR17AR107	Communication Skills	FC	3	-	-	3	SEE
		Total		**15**	**0**	**9**	**24**	

SECOND SEMESTER

No	Course Code	Course Title	Type	L/S	T	P	Total credits	Evaluation
1	BR17AR201	Architectural Design - II	HC	4	0	2	6	SEE VV
2	BR17AR202	Building Construction materials – II	HC	2	-	2	4	SEE
3	BR17AR203	Architectural Graphics- II	HC	3	-	1	4	SEE
4	BR17AR204	History of Architecture - II	HC	1	-	1	2	SEE
5	BR17AR205	Theory of Design - I	HC	3	-	-	3	SEE
6	BR17AR206	Structures – II	HC	2	-	1	3	SEE
7	BR17AR207	Fine Arts/Applied Arts - II	HC	-	-	2	2	SEE VV
8	BR17AR208	Art Appreciation & Photography	HC	2	-	-	2	SEE TW
		Total		**17**	**0**	**10**	**26**	

THIRD SEMESTER

No	Course Code	Course Title	Type	L/S	T	P	Total Credits	Evaluation
1	BR17AR301	Architectural Design – III	HC	4	0	2	6	SEE VV
2	BR17AR302	Building Construction materials – III	HC	2	0	2	4	SEE
3	BR17AR303	Architectural Graphics–III	HC	2	0	1	3	SEE TW

4	BR17AR304	Theory of Design - II	HC	3	0	0	3	SEE
5	BR17AR305	Structures – III	HC	2	0	1	3	SEE VV
6	BR17AR306	Environmental studies	FC	1	1	0	2	SEE TW
7	BR17AR307	Constitution of India	FC	2	0	0	2	SEE
8	BR17AR308	Vacation Assignment:	HC	0	0	2	2	SEE VV
	SOFT CORE	**Anyone to be chosen**	**History of Architecture: Hindu and Islamic**					
9a	BR17AR3091	South India	SC	4	0	0	4	SEE VV
9b	BR17AR3092	North India	SC	4	0	0	4	SEE VV
9c	BR17AR3093	South East Asia	SC	4	0	0	4	SEE VV
		Total		20	1	8	29	

FOURTH SEMESTER

No	Course Code	Course Title	Type	L/S	T	P	Total Credits	Evaluation
1	BR17AR401	Architectural Design – IV	HC	4	0	2	6	SEE VV
2	BR17AR402	Building Construction Materials – IV	HC	2	0	2	4	SEE
3	BR17AR403	Climatology – I	HC	2	0	1	3	SEE TW
4	BR17AR404	Building Services – I	HC	2	0	0	2	SEE
5	BR17AR405	Structures – IV	HC	2	0	1	3	SEE VV
6	BR17AR406	Surveying and Leveling – I	HC	1	0	1	2	SEE
7	BR17AR407	Computers – I	HC	1	0	1	2	SEE TW
	SOFT CORE	**Anyone to be chosen**	**Contemporary Architecture**					
8a	BR17AR4081	India and rest of Asia	SC	4	0	0	4	SEE VV
8b	BR17AR4082	Europe & other countries	SC	4	0	0	4	SEE VV
8c	BR17AR4083	North and South America	SC	4	0	0	4	SEE VV
		Total		**18**	**0**	**8**	**26**	

FIFTH SEMESTER

No	Course Code	Course Title	Type	L :P : D			Total Credits	Contact Hours	Evaluation
1	BR17AR501	Architectural Design – V	HC	0	4	2	6	10	SEE VV
2	BR17AR502	Building Construction materials – V	HC	2	2	0	4	6	SEE
3	BR17AR503	Energy efficiency in Buildings	HC	1	1	0	3	3	SEE TW
4	BR17AR504	Building Services-II	HC	2	0	0	2	2	SEE
5	BR17AR505	Structures – V	HC	2	1	0	3	4	SEE VV
6	BR17AR506	Computers – II	HC	1	1		2	3	SEE TW
7	BR17AR507	Vacation Assignment/Study trip/Summer course	HC	0	0	0	2	0	SEE TW
Soft Core - Any ONE to be Chosen from among the following)									
8A	BR17AR5081	Vernacular Architecture	SC	4	0	0	4	4	SEE VV
8B	BR17AR5082	Conservation	SC	4	0	0	4	4	SEE VV
8C	BR17AR5083	Housing	SC	4	0	0	4	4	SEE VV
Total Credits							26	31	

SIXTH SEMESTER

No	Course Code	Course Title	Type	L :P : D			Total Credits	Contact Hours	Evaluation
1	BR17AR601	Architectural Design – VI	HC	0	4	2	6	10	SEE VV

2	BR17AR602	Building Construction, materials & Working Drawings	HC	2	2	0	4	6	SEE
3	BR17AR603	Estimation ,Costing and Specification	HC	3	0	0	3	3	SEE
4	BR17AR604	Building Services-III (Mechanical)	HC	3	0	0	3	3	SEE
5	BR17AR605	Structures – VI	HC	2	1	0	3	4	SEE VV
6	BR17AR606	Advanced computer aided design	HC	1	1	0	2	3	SEE TW
7	BR17AR607	Landscape Architecture	HC	1	1	0	2	3	SEE
8	BR17AR608	Architectural Research Writing	HC	3	1	0	4	4	SEE VV
Total Credits							**27**	**36**	

SEVENTH SEMESTER

No	Course Code	Course Title	Type	L :P : D			Total Credits	Contact Hours	Evaluation
1	BR17AR701	Architectural Design- VII	HC	4	0	4	10	8	SEE VV
2	BR17AR702	Professional Practice, Values & Ethics	HC	1	1	0	2	3	SEE
3	BR17AR703	Building Services-IV (Acoustics)	HC	3	0	0	3	3	SEE
4	BR17AR704	Interior Design	HC	0	1	1	2	3 (0:2:1)	SEE TW
SOFT CORE(Any ONE to be Chosen from among the following)									
5a	BR17AR7051	Urban planning	SC	3	0	0	3	3	SEE
5b	BR17AR7052	Urban Design	SC	3	0	0	3	3	SEE
Choose ONE Open Elective Course – Swayam – Online Certification Course									

6a	BR17AR7061	System design for sustainability	OE	4	0	0	4	4	Online Certification Course
6b	BR17AR7062	Glass in buildings : Design and applications	OE	4	0	0	4	4	
6c	BR17AR7063	Integrated Waste Management for a Smart City	OE	4	0	0	4	4	
7	BR17AR707	Vacation Assignment /Study Trip/Summer Course	HC	2	0	0	2	0	
Total Credits							26	29	

EIGHTH SEMESTER

No	Course Code	Course Title	Type	L :P : D			Total Credits	Contact Hours	Evaluation
1	BR17AR801	Professional Training – I	HC	0	20	4	16	(16 to 18weeks)	SEE VIVA
Total Credits							**16**		

NINTH SEMESTER

No	Course Code	Course Title	Type	L :P : D			Total Credits	Contact Hours	Evaluation
1	BR17AR901	Professional Training – II	HC	0	20	4	16	16 to 18 weeks	SEE VIVA
Total Credits							**16**		

TENTH SEMESTER

No	Course Code	Course Title	Type	L :P : D			Total Credits	Contact Hours	Evaluation
1	BR17ARX01	Architectural Design Thesis	HC	4	0	12	22	16	SEE VIVA
2	BR17ARX02	Construction Management	HC	1	2	0	2	3	SEE

SOFT CORE(Any ONE to be Chosen from among the following)									
3a	BR17ARX031	Architecture Journalism	SC	1	2	0	2	3	SEE VV
3b	BR17ARX032	Product design	SC	1	2	0	2	3	SEE VIVA
Total Credits							**26**	31	

TOTAL CREDITS OF ALL 10 SEMESTERS = HC = 211; SC = 18; OE = 4; FC = 7; TOTAL= 242

Note-1: Example of Course Numbering Scheme for B. Arch Program

BR17AR3091/92/93 – Hindu, Buddhist & Colonial Architecture – S EAsia

BR	AR	16	F	3	9	30
Program code B Arch	Discipline Code - Architecture	Batch of Students	Full time candidate	3rd Semester	Course number	Elective number

Note-2: Subject Codes with expansion

HC	Hard Core	SC	Soft Core	FC	Foundation Course	OE	Open elective
L	Lecture	S	Studio	T	Tutorial	P	Practical
	Drawing subjects	VV	Viva voce	SEE	Semester End Exam	TW	Term Work

Course Title	ARCHITECTURAL DESIGN I		
Course Code	BR17AR101	IA Marks	25+25
L:T:P	4:0:2 = 6	Exam Hours	SEE (Viva Voce)
Contact Hours per Week	4:0:4 = 8	Exam Marks	50

B ARCH DEGREE PROGRAM

DETAILED SYLLABUS FOR BATCH (2016 to 2021) STUDENTS

COURSE OBJECTIVES:

Explain the meaning and purpose of design.
Describe the grammar of design and visual composition.
Train the students in visual composition using 2D and 3D objects
Train the students in architectural perception, and visualization.
Explain the elements and principles of Basic Design as the building blocks of creative design.
Explain the abstract principles of design and anthropometric studies into architectural solutions.

COURSE CONTENTS:

UNIT-I -

Elements of design: properties, qualities and characteristics of point, line, plane, direction, shape, form, color and texture. Learning importance of line types, characteristics and qualities of line types. Working in layers of each Element until all layers are incorporated into a single composition. Introducing Principles of Design: Balance, proportion, scale, Unity, Variety, Emphasis, contrast, Pattern, Gradation, Dynamism, Positive and Negative. Work in small groups with variety in Materials and mediums choosing between 2D and 3D methods of presenting the idea.

UNIT-II -

Introduction to Anthropometry and its importance as a tool in designing architectural spaces. Work with life size models and compare Indian adaptations and scale with Standards. Erecting a structure to Human scale to understand volume and its relation to anthropometry. Ideating and executing the design in Groups.

UNIT-III –

Emphasis on transformation of conceptual drawings to the 2D drawing; Basics of preparation of plans, elevations, sections and views with an exercise in Measure drawing. Single function space in the immediate environment like Hostel room and toilet or room and toilet at their residence. Individual work.

UNIT-IV –

Design of an architectural space having form and volume or additions/extensions to a built space; representing the same through Plan, Section, Elevation and Models. Student should learn to develop more than one solution to the design and learn the process of selection /elimination. Thought to be given to materials. Importance to be given to understand basics in the representations. Plinth, levels, Entrance porch, sill, lintels, parapets etc. that is learnt in Building construction.

Rendering techniques learnt in Fine Arts-I to be applied in the presentation. Individual work.

COURSE OUTCOMES:

The students should be able to

- Understand the language of Design.
- Apply anthropometry to design of spaces.

Course Title	BUILDING CONSTRUCTIONS MATERIALS I		
Course Code	BR17AR102	IA Marks	25+25
L:T:P	2:0:2 = 4	Exam Hours	SEE
Contact Hours per Week	2:0:4 = 6	Exam Marks	50

COURSE OBJECT:

Introduce drafting, techniques of graphic representations
Introduce the basic building elements, materials

COURSE CONTENTS:

UNIT-I –

Introduction to drafting and drafting Equipment: Lines, Hatches, Lettering, Scales and basics of sheets composition. Understanding Line weights.
Brick masonry: Basic components of masonry, different types of brick-bonds.
Stone Masonry: Dressing of Stone, application in Building Industry, Types of Stone masonry, methods of Pointing.

UNIT-II –

Arches: Typical arch and its basic components, Ogee arch, semicircular arch, four centered arches
Lintels: R.C.C lintel, Brick lintel, stone lintel.
Piers and Abutments
Understanding support system of Centering, Scaffolding,

Material study: Stone, Bricks, Clay, mud and lime as mortar

UNIT-III –

Foundation: functions of foundations, types of foundations, Simple Stone and Brick foundations for load bearing structures

Material Study: Sand, Fly ash, cement, lime, aggregate. P.C.C, Concrete blocks, Tiles, roof covers

UNIT-IV –

Wooden roofs (flat, sloping): Simple pitched roof, lean to, close collar and couple close roofs with Types of roof trusses, detail study of king post truss and queen post truss.
Super structure: Section through external walls from foundation – showing coping, cornices with different materials. Chajja, parapet, facia, sill, lintel–types, method of construction, purpose etc
Site / field visit: Regular site visits to construction sites and buildings to understand the practical implication of theoretical inputs.
Visits to Brick industry, Stone quarry to study the manufacturing process and related activities.
2 to 4 plates from each unit, sketch book and material portfolio and models to be prepared.

COURSE OUTCOMES:

The students by the end of the course will be able to

- Draft and read architectural drawings using architectural conventions, using appropriate scale, line weights and sheet composition with neat, individualistic lettering styles.
- Identify the basic building components of a building such as brick, mortar, masonry construction, lintels and arches and their construction methods.
- Employ appropriate building materials based on the properties, behavior and applications and identifying the materials for usage in load bearing building.

REFERENCES:

1. Building Construction Hand book, Roy Chudley and Roger Greeno, Routledge, London
2. Building Construction, Sushil Kumar, Standard Publishers Distributors, New Delhi
3. Building Construction, Punmia, Ashok K Jain, &Arun K Jain, Lakxmi Publications (P) Ltd, New Delhi
4. Building Construction Illustrated, Francis D K Ching, John Wiley & Sons, Inc, New York

Building Construction-W.B.McKay, volumes 1 to 4 , Pearson Publication.

Course Title	ARCHITECTURAL GRAPHICS I		
Course Code	BR17AR103	IA Marks	25+25
L:T:P	3:0:1 = 4	Exam Hours	SEE
Contact Hours per Week	3:0:2 = 5	Exam Marks	50

COURSE OBJECTIVES:

- To enhance drawing, visualization and representation skills
- Familiarize with drawing equipment's like scales, set squares, pencils & its application and uses.
- Explain orthographic projections in relation to architectural drawings & details

COURSE CONTENTS:

UNIT-

Introduction to Architectural Drawing: Lines: Using different pencils (H, HB, 2B, 3B….) draw lines to understand the quality of line and other exercises to improve drafting skills Introduction, Drawing Instruments and their uses, BIS conventions, Drawing sheets, Lettering styles, Hierarchy,
Dimensioning, Scales: reading the scale and using it to draw rectangles and squares of various dimensions. (Reduction and enlargement), Architectural scales,

UNIT-II –

Introduction of plane geometry and polyhedral structures, Construction: Regular polygons and its methods, tangents, ellipse, parabola, Oval, hyperbola, Types of arches
Loci, cycloids, trochoids, epi and hypocycloids, spirals and involutes, helix

UNIT-III –

Orthographic Projection: Projection – Orthographic Projection – Planes of Projection – Four quadrants – First-angle projection (to be adopted), Reference line – Conventions employed. Third-angle projection (Only information)
Projection of points: Points in different quadrants.

Projection of Straight Lines: Parallel to one or both planes – Contained by one or both planes – Perpendicular to one plane and parallel to other plane – Inclined to one plane and parallel to the other – Inclined to both planes.

Projection of Planes: Types of Planes – Perpendicular Planes – Oblique Planes – Projection of Planes - Parallel to one Plane – perpendicular to both planes – perpendicular to one inclines to other – Oblique planes (only change of position method).

UNIT-IV -

Orthographic projection of solids; To study simple geometric solids in plan, elevation and section to enhance the 2 dimensional and 3 dimension perceptions, Three dimensional representations of simple solid forms;
Sections of Solids: Section Planes – Sections – True Shape of Section – Sections of Prisms – Sections of Pyramids – Sections of Cylinders – Section of Cones.

COURSE OUTCOMES:

The students shall be able to

- Explore the scales and basic drawing & drafting skills
- Handle techniques of orthographic projection.
- Represent design projects in three dimensional forms.
- Employ graphical presentation skills for effective communication in design.

REFERENCES:

1. N.D.Bhat "Engineering Drawings"
2. I.H.Morris. "Geometrical Drawing for art students"
3. K.R.Gopalkrishna "Engineering Drawings (vol-1&2)"
4. "Architectural Graphics" by C.Leslie Martin
5. "Architectural Graphics" by Francis D K Ching

Course Title	HISTORY OF ARCHITECTURE I		
Course Code	BR17AR104	IA Marks	25+25
L:T:P	1:0:1	Exam Hours	SEE
Contact Hours per Week	1:0:2	Exam Marks	50

COURSE OBJECTIVES:

- Inform about the development of architecture in the Ancient Western World and the cultural and contextual determinants that produced that architecture.
- Describe architecture as evolving within specific cultural contexts including aspects of politics, society, religion and climate.
- Explain the development of architectural form with reference to Technology, Style and Character in the prehistoric world and in Ancient Egypt, West Asia, Greece and Rome.

COURSE CONTENTS:

UNIT- I

PREHISTORIC AGE & ANCIENT RIVER VALLEY CIVILIZATIONS: MESOPOTAMIA

Introducing concepts of culture and civilization – Paleolithic and Neolithic Culture – art forms and evolution of shelter – megaliths – agricultural revolution and its impact on culture and civilization.

West Asian Architecture – Sumerian, Babylonian, Assyrian and Persian culture – evolution of city-states and their character and architecture – evolution of the ziggurat and palaces.

UNIT-II -

EGYPTIAN and INDUSVALLEY CIVILIZATION

Landscape and culture of Ancient Egypt – history – religious and funerary beliefs and practices – monumentality – tomb architecture: evolution of the pyramid, Mastaba, palaces, temple architecture: mortuary temples. Indus valley – Harappa, Mohenjo-Daro, Great bath, Granary& town planning

UNIT-III-

CLASSICAL PERIOD: GREECE

Landscape and culture of Greece – Greek culture – Hellenic and Hellenistic cultures – Greek character – Greek city planning – architecture in classic periods; Public Buildings: Greek temple: evolution and classification. Greek Orders in architecture: Doric, lonic, Corinthian

UNIT-IV-

CLASSICAL PERIOD: ROME

Roman history: Republic and Empire – Roman religion and the Roman temple – Roman character – lifestyle – Roman urban planning – art and architecture as imperial propaganda: forums and basilicas– structural forms, materials and techniques of construction – Roman orders in architecture. Imperial Forums, Enclosure and manipulation of space: Pantheon – Public Structures.

COURSE OUTCOMES:

The students shall be able to

- Describe and analyze historical buildings
- Apply Influences of culture and climate of the period on buildings
- Illustrate construction techniques and architectural characteristics of the period

REFERENCES:

- Sir Banister Fletcher, "A History of Architecture", CBS Publications (Indian Edition), 1999.
- Spiro Kostof, "A History of Architecture: Setting and Rituals, Oxford University Press, London, 1985.
- Leland M Roth; "Understanding Architecture: Its Elements, History and Meaning"; Craftsman House; 1994.
- Pier Luigi Nervi, General Editor, "History of World Architecture – Series", Harry N. Abrams, Inc. Pub., New York, 1972.
- Lloyd S. and Muller H.W., "History of World Architecture – Series", Faber and Faber Ltd., London, 1986.
- Gosta, E. Samdstrp, "Man the Builder", Mc.Graw Hill Book Company, New York, 1970.
- Webb and Schaeffer; "Western Civilisation", Volume I; VNR: NY: 1962.
- Vincent Scully, "Architecture – The Natural and the Manmade", Harper Collins Pub: 1991.

Course Title	**FINE ARTS AND APPLIED ARTS I**		
Course Code	**BR17AR105**	**IA Marks**	**25+25**
L:T:P	**0:0:2 = 2**	**Exam Hours**	**SEE (Term Work)**
Contact Hours per Week	**0:0:4 = 4**	**Exam Marks**	**50**

COURSE OBJECTIVES:

Train the students with free hand movements for sketching. Importance of Strokes and techniques in different mediums.

Teaching rendering techniques to represent built forms, foliage, humans, cars and common objects for enabling in design presentation.

Free and individualistic interpretation without structure.

COURSE CONTENTS:

UNIT-I -

Still life Shading: objects with different tones, like light and dark, shading with different types of material, e.g.: plastic, steel etc.

Sketching in pencil and pastel colors,

UNIT-II

Other mediums- Water colors, acrylics, Oils, mixed media etc.

Outdoor sketching exercises to understand scale, mass and voids, openings and massing. Foreground, middle ground and Background. Exploring imaginative compositions inspired by visual cues in canvas using oils or acrylics.

UNIT- III

Pen and Ink rendering, watercolor washes and other techniques for representing Built forms, Foliage, trees, landscape, and common objects.

Learning the sketches of artists; humans, street sketches, heritage buildings, modern buildings.

Colour pencils, crayons, water colours, oil pastels and mixed media. Colour schemes in rendering.

UNIT-IV

Basics of freehand indoor and outdoor perspective drawings: Interior- One-Point Perspective, Exterior – Two Point Perspective. Rendering the plan, Elevation combining skills of all mediums and techniques.

COURSE OUTCOMES:

The students will be able to

Use the rendering techniques learnt for design presentations.
Use different types of rendering methods.
Visualize the built form three dimensionally

REFERENCES:

1	Gill, Rober W	Rendering with Pen + Ink	Thames & Hudson
2	Ching, Franicis D K	Architectural Graphics	John Wiley
3	Rodgers, Nigel	The Rise & Fall of Ancient Rome	Anness
4	Ching, Franicis D K	A Visual Dictionary of Architecture	Van Nostrand Reinhold
5	Thomary Edith	A History of Fine Arts in India and West	Orient Longman

Course Title	**STRUCTURES - I**		
Course Code	**BR17AR106**	**IA Marks**	**25+25**
L:T:P	**2:0:1 = 3**	**Exam Hours**	**SEE**
Contact Hours per Week	**2:0:2 = 4**	**Exam Marks**	**50**

COURSE OBJECTIVES:

- Explain Basic Structural Elements and understanding of their behavior
- Explain the properties & usage of structural Materials
- Illustrate the various force system
- Describe types of Loads & Supports systems

COURSE CONTENTS:

UNIT-I

Evolution of Structures: Historical perspective and definition of structure as a device for channeling loads that result from the use or presence of the building in relation to ground. Built structure, components, forces,loads, types, different roofing system

Building system: Structural and enclosure system, Building codes, Types of construction, Loads on building (brief), Structural forces, Structural equilibrium, Columns, beams

Structural Materials: Mechanical properties of Structural materials: wood, masonry, steel, concrete, fabric; energy use and rupture length. Advantages and disadvantages of Structural Materials and choice of Structural Material for domestic buildings, Industrial buildings, Tall buildings and Long Span buildings.

Experiment with Structures: Boiled egg, Paper structure to withstand load, Bridge using sticks, simple examples for structural understanding

UNIT-II

Loads on Structures: Dead load (DL), live load (LL), static, dynamic, impact, and thermal loads.
Principle of transmissibility of forces: Understanding load flow by tributary load and load path (slab,beam, and girder) and vertical members (post, wall, and footing); load path. Force and stress
Equilibrium of Forces: Force, Reaction, Moment and Principle of Support conditions and their significance in resistance to forces and to maintain equilibrium.

UNIT-III

Basic principles of mechanics: Tension, compression, shear, bending, torsion; symbols and notations;
Stress/strain relations (Hooke's Law): Modulus of Elasticity, linear and non-linear materials, elastic, plastic, and elastic-plastic materials; Poisson's Ratio; Thermal stress and strain.
Graphic vector analysis: Resultant and equilibrant of coplanar, concurrent and non-concurrent force systems. Parallelogram, force polygon, resultant, equilibrant, components; numeric method

UNIT-IV

Truss: Truss concept of triangulation, common truss configurations.
Truss loads and reactions: For a given configuration of the trusses and center to center spacing, calculations of the dead weight of the truss and the dead weight of the roof cover and support reaction loads.

COURSE OUTCOMES:
The students shall be able to

- Explore the basics of Structural Elements and their behavior
- Identify properties & usage of structural Materials
- Explore the various force system
- Understand and identify Loads & Supports systems

REFERENCES:
1. STRUCTURES - Martin Bechthold, Daniel L Schodek, PHI Learning Private limited
2. Structures in Architecture, the building of buildings, Mario Salvadori
3. Building Construction Hand book, Roy Chudley and Roger Greeno
Structural Engineering for Architects, Dongre A P

Course Title	**COMMUNICATION SKILLS**		
Course Code	**BR17AR107**	**IA Marks**	**25+25**
L:T:P	**3:0:0 = 3**	**Exam Hours**	**SEE**
Contact Hours per Week	**3:0:0 = 3**	**Exam Marks**	**50**

COURSE OBJECTIVES:

- Introduce the basics of communication in English through written and spoken activities
- Explain to the learner to use the language in a proficient way
- Develop the learner's communicative competence in English

COURSE CONTENTS:
UNIT-I
Grammar - Parts of speech, Identifying errors in sentences, Writing- Reading skills – Reading Comprehension, Architecture related articles from various magazines, Job application letter, preparing a resume / curriculum vitae,
UNIT-II
Understanding Communication Process; Introduction to communication and its process, Forms of communication, Levels of communication, Barriers to communication, Nonverbal communication; Basics of letter writing, E-mail letters,

UNIT-III: Writing skills - Paragraph writing, Précis writing, Usage of Phrasal verbs and Idioms using right choice of words in a given context, usage of tenses, Importance of Body Language,

UNIT IV

Grammar - words commonly confused and misused, Expansion of ideas, Technical writing –concept Theme about design, Appreciation of a project, case study conclusion, Literature & Architecture etc, Effective Presentation and Group discussion skills;

COURSE OUTCOMES:

The student would be able to

Exhibit proficiency in the English language,
Communicate effectively and thereby enhance their employability.
Express his ideas effectively through write ups

REFERENCES:

1	Taylor, Grant	English Conversation Practice	TMH
2	Mudambadithaya, G S	Communicative English Made Easy	Sapna
3	Thomson, A J & Martinet, A V	A Practical English Grammer	Oxford

SECOND SEMESTER

Course Title	**ARCHITECTURAL DESIGN - II**		
Course Code	BR17AR201	IA Marks	25+25
L:T:P	4:0:2 = 6	Exam Hours	Viva voce
Contact Hours per Week	4:0:4 = 8	Exam Marks	50

Studio Theme: Form Function Symbiosis

COURSE OBJECTIVES:

- To explore relationship between form and function
- To understand abstraction of form and generation of concept for an architectural design
- To Translate behavioral needs into an architectural program
- To develop sensitivity towards site and surroundings.

COURSE CONTENTS:

UNIT-I

Basics of form and function symbiosis. Studio exercises linked to form exploration in architectural design. Introduction to Design of simple uni-functional spaces. Introduction to the problem, Requirement finalization, concept development.

Exercises relating personal experiences to behavioral needs and translating them into architectural program requirements

UNIT-II

Design development. Double line plans, and 3D visualization along with models.

UNIT-III

Introduction to design of a simple building within immediate observable environment. Basic introduction to the design of human habitat, its components and space standards.
Explore the relationship between human feelings and architectural form – observe aspects of design like aesthetics, light, circulation, form guidelines for design;
Case studies, case study documentation and presentation,
Basics of site analysis and area program generation based on case study analysis
Zoning, bubble diagram, proximity analysis
Concept, Single line plan, study models

UNIT-IV

Double line plans, 3D visualization, Roof plan, roofing, massing, elevations, sections, site plan, application of rendering and presentation technique to all drawings.

COURSE OUTCOMES:

The students are able to

- Explore the relationship between space & Activities.
- Apply different materials in design
- Convert 2 dimensional drawings to 3 dimensional drawings and vice versa
- Improve their visual observation skill and express ideas through study models
- Apply anthropometry in design

REFERENCES:

1. Wucius Wong "Principles of two-dimensional designs"
2. Francis D.K. Ching "Architecture-form space and order".
3. Robertson Howard "The principles of architecture composition"
4. Leon Baptista Alberti "The Ten Books of Architecture"
5. John Hanock "Time Saver Standards for Architectural Design Data"
6. Ramsay and Sleeper "Architectural Graphic Standards"

Course Title	**BUILDING CONSTRUCTION & MATERIALS - II**		
Course Code	**BR17AR202**	**IA Marks**	**25+25**
L:T:P	**2:0:2 = 4**	**Exam Hours**	**SEE**
Contact Hours per Week	**2:0:4 = 6**	**Exam Marks**	**50**

COURSE OBJECTIVES:

- Introduce wood / timber in construction
- Introduce tools used in carpentry, joinery
- Explain principles of construction in wood and its properties; Door, window, roofing using wood

COURSE CONTENTS:

UNIT-I

Doors: Introduction to doors and frames, parts of door, types of doors, detail study of panel doors with glass, flush doors, louvered door, sketch of steel door frames.
Classification of carpentry joints.
Materials- Timber – growth of trees, felling, varieties, defects and decay, seasoning and prevention, fire proofing, properties, strength and uses of manufactured wood products, wood and its products for sound and thermal insulation. Protective measures for timber before usage in building.
Other factors: cost factor, available in Karnataka (locally) visit to the timber yard (Industry), natural form, and manufactured form

UNIT-II
Windows: Introduction to wooden windows – detail study of simple casement windows, wooden shutters, glazed wooden shutters, fanlights, top hung ventilators, fixed window, horizontal and vertical pivot windows, and louvered windows, double glazing, fixed and sash windows. Sketch of steel windows and method of fixing.

UNIT-III – 24 Hrs
Basic Wall Systems II –Different types of Concrete walling, Basics of Partition walls in Timber and aluminum, Glass. To know architectural representation of these walling systems.

UNIT-IV– 24 Hrs
Timber Staircase: Introduction to staircase. Technical terms, requirements of good staircase, types of steps, classification of staircase, design of staircase. Components and fixing details of Timber staircases. Steel staircases
Material Study: Concrete and Glass
Site / field visit: Regular site visits to construction sites and buildings to understand the practical implication of classroom learning.
Visits to Timber yard to understand storage, cutting process etc.
2 to 4 plate from each unit. Sketch books and material portfolio to be prepared

COURSE OUTCOMES:

The students will be able to

- Draft and read architectural drawings using architectural conventions.
- Identify the components of a building such as doors, windows, wall system, staircase and their construction methods.
- Employ appropriate building materials based on the properties, behavior and applications and identifying the finishes for usage in building.

REFERENCES:

1. Building Construction Hand book, Roy Chudley and Roger Greeno, Routledge, London
2. Building Construction, Sushik Kumar, Standard Publishers Distributors, New Delhi
3. Building Construction, Punmia, Ashok K Jain, &Arun K Jain, Lakxmi Publications (P) Ltd, New Delhi
4. Building Construction Illustrated, Francis D K Ching, John Wiley & Sons, Inc, New York

Course Title	**ARCHITECTURAL GRAPHICS - II**		
Course Code	**BR17AR203**	**IA Marks**	**25+25**
L:T:P	**3:0:1 = 4**	**Exam Hours**	**SEE**
Contact Hours per Week	**3:0:2 = 5**	**Exam Marks**	**50**

COURSE OBJECTIVES:

- To develop skills for technical representation of architectural designs
- Demonstrate how to produce 2D and 3D drawings
- Discuss how to comprehend industry specific drawings
- Explain how to produce simple clear and illustrative drawings as per existing standards

COURSE CONTENTS:
UNIT-I
Study of solids and three dimensional representations of simple forms; Isometric, Axonometric, Exploded

Views, Purpose & importance, comparisons

UNIT-II
Developments of Surfaces; Developments of Lateral Surfaces of Solids - Polyhedra (Cube – Tetrahedron - Prisms and Pyramids) – Solids of revolution (Cone and Cylinder) and their Frustums, Models to be prepared for better understanding

UNIT-III
Study of complex forms, 3D composition in Isometric, Axonometric and Exploded Views, Usage in details, built forms etc
Isometric Projection: Isometric axes - Lines and Planes – Isometric Scale – Isometric Projection of Planes – Prisms – Pyramids – Cylinders – Cones – Spheres - Hemi-Spheres - frustums - Combination of Solids (Maximum Three). Conversion of Orthographic Drawing to Isometric View / Pictorial Drawing of a simple built form, 3D composition.

UNIT-IV
Application of graphics in Drawings: Architectural drawing (building plans, elevations, sections), Views of joints, furniture etc (carpentry joint, brick bonds, cabinet, chajjaetc); Details in isometric;

COURSE OUTCOMES:
The students are able to
- Explore their skills in technical representation of architectural designs
- Prepare 2D and 3D drawings & visualize them
- Produce clear architectural drawings as per existing standards

REFERENCES:

1. N.D. Bhat. “Engineering Drawings”
2. I H. Morris “Geometrical Drawing for art students”
3. K.R. Gopalkrishna “Engineering Drawings” (vol- 1&2)
4. Rendering with pen & ink” by Robert Gill.
5. Drawing and Perceiving by Douglas Cooper
6. “Perspective” by S.H.Mullik

Course Title	**HISTORY OF ARCHITECTURE - II**		
Course Code	**BR17AR204**	**IA Marks**	**25+25**
L:T:P	**1:0:1 = 2**	**Exam Hours**	**SEE**
Contact Hours per Week	**1:0:2 = 3**	**Exam Marks**	**50**

COURSE OBJECTIVES:
- Explain evolution of Church architecture within specific cultural contexts including aspects of society, religion, politics and climate
- Introduce the development of architectural form with reference to technology, style and character in the Western World through the evolution of the church from early Christian times up to the Renaissance period.

COURSE CONTENTS:

UNIT-I–EARLY CHRISTIAN &BYZANTINE -
Architectural Character and various influences over Early Christian architecture in Italy
Church planning – Basilican concept: St. Peters Rome (old)

Tombs- tomb of Gala Placidia, Baptisteries – Baptistery of Constantine
Architectural Character and various influences over architecture in Byzantine
Centralized plan concept: S. Hagia Sophia, Constantinople; St. Marks, Venice

UNIT-II–EARLY MEDIEVAL PERIOD -
Introduction to Romanesque architecture, Architectural character, influences etc
Architectural Character & building techniques of Romanesque architecture of
Italian Romanesque churches, development of vaulting, building techniques, Pisa Group
French Romanesque architecture with examples such as Abbey aux Hommes
British Romanesque architecture with examples such as Peterborough cathedral

UNIT-III - LATE MEDIEVAL PERIOD -
Introduction to Gothic Architecture, influences and Architectural Character
Development of Gothic architecture Church plan, structural developments, building techniques with examples –
France – Gothic Character with examples such as Cathedral of Notre Dame
England - Gothic Character with examples such as Salisbury Cathedral
Italy - Gothic Character with examples such as Milan cathedral

UNIT-IV - RENAISSANCE AND BAROQUE –
Introduction to Renaissance architecture, Renaissance architectural character and building technique Italy – Contribution of Brunelleschi, Bramante and Michelangelo with examples; Palazzos; St.Peter's Rome
France –Renaissance architectural character with examples such as Soufflot's Pantheon Paris
England – Renaissance architectural character with examples such as Christopher Wren's St. Paul's Cathedral
Brief Introduction to Baroque & Rococo Architecture

COURSE OUTCOMES:

The students shall be able to
- Describe and analyze historical buildings
- Apply Influences of culture and climate of the period on buildings
- Illustrate construction techniques and architectural characteristics of the period

REFERENCES:

1	Toman, Rolf	History of Architecture From Classic to Contemporary	Parragon
2	Sir Banister Fletcher	A History of Architecture	CBS Publishers
3	Ching, Franicis D K	A Visual Dictionary of Architecture	Van Nostrand Reinhold
3	Rodgers, Nigel	The Rise & Fall of Ancient Rome	Anness
5	Thomary Edith	A History of Fine Arts in India and West	Orient Longman
6	Yatin Pandya	Elements of Space Making	

Course Title	THEORY OF DESIGN - I		
Course Code	BR17AR205	IA Marks	25+25
L:T:P	3:0:0 = 3	Exam Hours	SEE
Contact Hours per Week	3:0:0 = 3	Exam Marks	50

COURSE OBJECTIVES:

- Introduce theory of architecture
- Describe how design compositions are made
- Analyze, criticize and appreciate composition based on principles
- Describe various aspects of aesthetics in design

COURSE CONTENTS:

UNIT-I

Introduction to Theory of Architecture, grammar of design concept of elements such as Point, Line, Plane & Volume, Organizing principles in design – Axis, Symmetry, Asymmetry, Datum, Linear arrangement, Radial arrangement, Concentric Arrangement

UNIT-II

Principles of architectural composition - Unity, Duality, Rhythm, repetition, Scale, Theory of Proportions, Material, Structural and Manufactured Proportions, Proportioning system- Golden Section, Classical Orders, Modular, Anthropometry

UNIT-III

Principles of architectural composition- Contrast, Restraint, Repose, Punctuation/Definition, Strength, Accentuation, Gradation, Hierarchy, Balance, Harmony, Vitality, Dynamism, Ornamentation, Character/Style in architecture

UNIT-IV

Spatial organization –Central, Linear, radial, clustered, Grid organizations
Building Materials: Stone, Brick, concrete, Timber. Iron& steel, Glass
Generation of forms- Pragmatic, analogic, Canonic and Iconic, Properties of form, Transformation of form

COURSE OUTCOMES:

The students are able to

- Explore design compositions
- Apply design principles to analyze, criticize and appreciate composition
- Explore aesthetics in design, application of materials and generation of forms

REFERENCES:

1. Francis D.K. Ching "Architecture Form, Space and order"
2. Yatin Pandya "Elements of Space Making"
3. Aesthetics a text book- Yuri Borev
4. "Design fundamentals in Architecture" by V S Parmar
5. "Details – Architects Art" by Sally Wood bridge
6. "World's greatest Architecture, past and present" by D M Field

Course Title	STRUCTURES-II		
Course Code	BR17AR206	IA Marks	25+25
L:T:P	2:0:1 = 3	Exam Hours	SEE
Contact Hours per Week	2:0:2 = 4	Exam Marks	50

COURSE OBJECTIVES:

- Introduce the principle of loads
- Introduce structural Materials
- Explain the structural behavior of beams & columns

COURSE CONTENTS:

UNIT-I

Geometric properties: Centroid, Centroid axes and Moments of Inertia for regular sections by Parallel Axis Theorem.

Beams and support reactions: Beams and supporting conditions - Types of supports–Implications for computational and structural performance.

Bending and Shear force in beams: Method of balancing moments and free-body diagrams.

UNIT-II

Bending Moment and Shear Force Diagrams: Concept of Shear force and Bending Moment diagrams. BMDand SFD for simple beams subjected to loads.

BMD and SFD for intermediate beams 2span, 3span and 4span beams (bending moment diagrams to be provided).

Bending and Shear Stress in beams: Theory of simple bending - Concept of bending and shear stress distribution at a cross section due to bending moment and shear for Rectangular, I and T sections.

UNIT-III

General formula: Moment of Inertia, Section Modulus, Bending and Shear Stress.

Deflection: Determination of deflection for simply supported, fixed, continuous and Cantilever beams subjected to loads using standard formulas.

UNIT-IV

Columns and Struts: Introduction to Short and long columns.

Theory of Columns: Buckling; effective length, critical load, slenderness ratio; Euler formula; "Kern" and ruleof inner third.

Steel Columns: Axial stress and combined axial and bending stress design and analysis of steel columns.

RCC columns: Definition of short column as per IS 456 and design of short RCC columns (composite action,load taken by steel and load taken by concrete respectively).

Form work: Different types

COURSE OUTCOMES:

The students would have developed an understanding of

- The principle of loads
- Behavior of structural Materials
- The structural behavior of beams & columns

REFERENCES:

1. STRUCTURES - Martin Bechthold, Daniel L Schodek, and PHI Learning Private limited, Sixth Edition
2. Structure in Architecture, the building of buildings, by Mario Salvadori
3. Structure and Design, by G. G. Schierle
4. Strength of Materials – R K Bansal, Laxmi Publications, New Delhi, 3rd ed"
5. Applied Mechanics & Strength of Materials – I B Prasad

Course Title	**FINE ARTS / APPLIED ARTS - II**		
Course Code	**BR17AR207**	**IA Marks**	**25+25**
Lecture: Tutorial: Practical (L:T:P)	**0:0:2 = 2**	**Exam Hours**	**Viva Voce**
Contact Hours per Week	**0:0:4 = 4**	**Exam Marks**	**50**

COURSE OBJECTIVES:

Give training in basic skills and creative use of various materials for model making

Learn to make architectural models to scale.

COURSE CONTENTS:

UNIT-I

Introduction to different materials, Surface development using paper, making basic shapes out of different materials to explore the nature & texture of the material, Choose from Plaster of Paris, cement, wire mesh etc.

UNIT-II

Geometrical shapes in varied materials. Choose from materials such as clay. Pottery and papier Mache etc.

UNIT-III

Exercises involving creating small study models for architectural projects, understanding of scale, material usage for various elements such as building components (walls/ openings /staircase/ roofing), furniture etc. Usage of conventional model making materials such as mount board, paper, foam board, balsa wood etc.

UNIT-IV

Exercises involving creating large scale study models for architectural projects including buildings, site detailing on model, landscape elements, street furniture etc. Color scheme and textures for large scale architectural models. Innovative use of various model making materials to achieve the desired texture and form.

COURSE OUTCOMES:

The students can

- Explore the different types of materials and its feasibility in model making.
- Explore the use of materials
- Prepare large scale models in groups

REFERENCES:

1	Gill, Robert W	Rendering with Pen + Ink	Thames & Hudson
2	Ching, Franicis D K	Architectural Graphics	John Wiley
4	Ching, Franicis D K	A Visual Dictionary of Architecture	Van Nostrand Reinhold

Course Title	ART APPRECIATION AND PHOTOGRAPHY		
Course Code	BR17AR208	IA Marks	25+25
Lecture: Tutorial: Practical (L:T:P)	2:0:0 = 2	Exam Hours	Term Work
Contact Hours per Week	2:0:0 = 2	Exam Marks	50

COURSE OBJECTIVES:

Introduce the various types of art, the role of an art; distinguish between art, craft and architecture.
Describe the importance and relevance of fine arts, commercial arts, industrial arts etc in architecture.

COURSE CONTENTS:

UNIT-I

Introduction to art; Definition of art; Mediums used in Art, purpose and function, understanding 2D, 3D, 4D Art Fundamentals of interpretation of a work of Art: form & content; analysis of painting – line, shape, color, texture, space& mass, composition, scale etc

UNIT-II

Art Criticism: Types, Criticism of works of art. Spatial art: Sculpture, types, different types of Installations & its role in society, Types of art - Commercial arts, abstract art, pop art, Industrial arts, digital art Group exercises: Installation /Sculpture

UNIT-III

Pre-Historic to Baroque – Over view of changes and adaptations in Art.
Movements & isms in art, impact of each over Architecture. Works of European Masters.
Performing / Temporal Arts: Drama, Music, Film, Dance.

UNIT-IV

Visual Arts: Indian Artists – Different schools and their influences, Indian Folk art forms, influence of the vernacular in Modern architectural spaces.
Photography - Techniques, Types, Pictorialism, Straight photography; Practical application
Literature and Architecture.
Group Exercises: Music, Dance, Literature and Architecture coming together as a production.
Photography workshops to understand Indoor and outdoor photography.

COURSE OUTCOMES:

The students can:

- Interpret the role of art, to distinguish between art, craft and architecture.
- Differentiate the different types of art and understand their relevance.
- Develop a sense of criticism.
- State the historical development of art.
- Relate architecture to the allied fields of art.

REFERENCES:

1	Gill, Rober W	Rendering with Pen + Ink	Thames & Hudson
2	Ching, Franicis D K	Architectural Graphics	John Wiley
3	Rodgers, Nigel	The Rise & Fall of Ancient Rome	Anness
4	Ching, Franicis D K	A Visual Dictionary of Architecture	Van Nostrand Reinhold
5	Rao Pratap, M	Architectural Design Theory and design	Standard Publishers
6	Pandya, Yatin	Concepts of Space Traditional Indian Architecture	Mapin
7	Edith Thomory	A History of fine arts in India and the west	Orient Longman
8	http://stuffyoulook.blogspot.in/2013/10/indian-state-paintings-and-painters.html		
9	http://www.slideshare.net/johnricard/introduction-to-art-history		
10	http://www.slideshare.net/sutherlime/art-criticism-2-ppt		
11	http://www.slideshare.net/diojoeyrichard/art-styles-15846607		
12	http://www.slideshare.net/MahetaShivang/types-of-art		

1. ARCHITECTURAL DESIGN-III

Course Code	Course Title	Type	L	P	D	Total	Contact Hrs.
BR17AR301	**Architectural Design III**	HC	0	4	2	6	10

COURSE OBJECTIVES

Describe relation between site, building and user requirements.
Indicate horizontal and vertical circulation patterns.
Demonstrate Role of fenestrations in building design
Emphasize the role of interior volumes, light and movement

Theme of the studio: Design of a simple building for public activity.

COURSE CONTENTS:

UNIT I
Introduction to the problem, Case studies, case study documentation and presentation, Requirement finalization, Site study, site analysis, concept development, zoning and development of floor plans based on function and concept

UNIT II
Development of Double line plans, 3D visualization using study models, Roof plan, roofing, massing, elevations, sections, site plan,

UNIT III
Detailing of any building space with emphasis on openings, structural framework, materials etc.

UNIT IV
Application of rendering and presentation technique to all drawings, 3d models.

COURSE OUTCOMES
Infer the design philosophy for non-personal use spaces.

1. Extend the knowledge gained in Building construction and Structures to Architectural design project.
2. Express graphically manual presentation techniques

REFERENCES:

1. Neufert, Ernst architect's data. Crosby Lock Wood and Sons
2. Time Saver Standards for Architectural Design Data. McGraw Hill.

2. BUILDING CONSTRUCTION & MATERIALS-III

Course Code	Course Title	pe	L	P	D	Total	Contact Hrs.
BR17AR302	**Building Construction Materials III**	HC	2	2	0	4	6

COURSE OBJECTIVES:
• Explain different types of window openings like dormer, bay windows
• Introduce Concrete slabs
• Explain the new types of concrete used in industry
• Introduce the new damp proof techniques used to protect the building from weather

COURSE CONTENTS:

UNIT I
Medium and large size openings: collapsible gate, rolling shutter.
Plastics as a building material, types, properties and uses of plastics such as polycarbonates, acrylics, PVC polymer films, and fiber reinforced plastic. Application and details.

UNIT 2
Doors: Sliding door, folding door, sliding and folding door, sliding window (wooden and aluminum)

Windows: In advanced materials like Aluminium, UPVC, frame sections and beading details,

Plastering: Preparation, types, finishes, tools used, pointing, white washing and color washing
UNIT 3
Floor finishes - Different Types of Roof / Floor: Brick jack arch, madras terrace. Various floors finishes like wooden flooring, stone flooring, tile flooring and skirting- laying, fixing and finishes
Paints: Types, manufacture, use. Paints for interiors and exterior, oil bound distemper, varnishes, plastic emulsion etc., and their uses

UNIT 4:

Skylights: Study and details of different types of skylights.
Weather and water proofing elements: Water and weather proofing of flat terraces, sloping roofs, in different materials, finishes in bathrooms, basics of water proofing, bitumen felts method.
Water proofing compounds: Flexible, Semi-Rigid, Rigid and Grout materials –market survey.

Site / field visit: Regular site visits to construction sites and buildings in order to understand the practical implication of theoretical inputs.

COURSE OUTCOME: Students will be able to

1. Express through drawings the different types of openings in steel, wood and other new materials
2. Describe the different types of floor finishes, laying method.
3. Associate plastics as one of the material in construction industry.
4. Elaborate on different water proofing/damp proofing materials and techniques in construction industry.

REFERENCES

1. Building Construction Hand book, Roy Chudley and Roger Greeno, Routledge, London
2. Building Construction, Sushik Kumar, Standard Publishers Distributors, New Delhi
3. Building Construction, Punmia, Ashok K Jain, &Arun K Jain, Lakxmi Publications (P) Ltd, New Delhi
Building Construction Illustrated, Francis D K Ching, John Wiley & Sons, Inc, New York

3. ARCHITECTURAL GRAPHICS-III

Course Code	Course Title	Type	L	P	D	Total	ContactHrs.
BR17AR303	**ARCHITECTURALGRAPHICS III**	HC	2	1	0	3	4

COURSE OBJECTIVES

- Introduce the fundamental techniques of Perspective drawings
- Enhance the visual skills
- Explain the theory behind Sciography
- Enhance the presentation skills

COURSE CONTENTS:

UNIT I

Perspective: Understanding fundamental techniques of 1- point perspective construction to enhance the student's architectural drawing skills and the visual skills, finally assisting them in appreciating built forms in their design presentations.

UNIT II

Perspective: Understanding fundamental techniques of 2- point perspective construction to enhance thestudent's architectural drawing skills and the visual skills, finally assisting them in appreciating built forms in their design presentation.

UNIT III

Sciography: Learning about light, shade and shadow on built forms and applying the knowledge of sciography on the design presentations to understand the undulations, depths, hierarchy of surfaces and built forms.

UNIT IV

Rendering: Developing an understanding the importance of color schemes in design presentations as well as its application on built forms to create pleasing environments.

COURSE OUTCOMES:

The students will be able to

1. Illustrate 3D visualization through perspective drawings
2. Identify the importance & need of presentation skills for effective communication in design.
3. Identify and indicate building depth in buildings through Sciography

REFERENCES:

1	Gill, Rober W	Rendering withPen&Ink	Thames & Hudson
2	Ching,FranicisD K	Architectural Graphics	John Wiley
4	Ray Smith	AnIntroductionToPerspective	Royal Academy of Arts

THEORY OF DESIGN II

Course Code	Course Title	Type	L	P	D	Total	Contact Hrs.
BR17AR304	**THEORY OF DESIGN II**	HC	3	0	0	3	3

COURSE OBJECTIVES:

- Introduce a broad overview of the evolution of thought and trends in architecture practice, across timeline
- To acquaint the students with architectural theory from antiquity to postmodern movement.
- To identify factors which influenced the architectural design in a particular context &Period.

COURSE CONTENTS

UNIT I

Introduction to Theory in Antiquity: Marcus Vitruvius and his multi-volume Work entitled De Architecture. Mayamata: Indian Treatise on Housing &Architecture.

Introduction to Theory in Renaissance: Choose from the theories of Leon Alberti, Andrea Palladio

French Academic Tradition: Jacques Francous Blondeland Claude Perrault

18th and 19th Century Theory: Choose from the Ideas of Laugier, Boullee, Ledoux, Quatramere de Quincy and Gottfried Semper

UNIT II

Modern movement: Introduction to modern movement, Modern movement masters. Modern architecture- Influence of new material and techniques, demand for new types of building, influence of technology- Chicago school, Eclectism, Art and Crafts movement, Art Nouveau

UNIT III

Modern Movement Theories across the world: Choose from the theories of Alvar Alto, Adolf Loos, EeroSarinen, Erich Mendelsohn, Richard Neutra, Otto Wagner, KenzoTange etc.

UNIT IV

Post Modern Theory: Ideas on Post-Modern Classicism by Robert Venturi and Charles Jencks.
Contribution to architectural thought: Ideas of Kenneth Frampton and Christopher Alexander
Contribution to architectural thought: Ideas of Amos Rapoport, Geoffrey Broadbent

COURSE OUTCOMES

1. Trace the trends and practices followed in architectural design across the time line
2. Explore the architectural theory from antiquity to the present.

REFERENCES:

1 Rao Pratap, M Architectural Design, Theory and design, Standard publishers
2 Pandya, Yatin Concepts of Space Traditional Indian Architecture,Mapin
3 Broadbent, Design in Architecture,
4 Lang Jon, Creating Architectural Theory
5 Ching, Franicis A Visual Dictionary of Architecture, Van Nostrand D K, Reinhold

STRUCTURES – III

Course Code	Course Title	Type	L	P	D	Total	Contact Hrs.
BR17AR305	**STRUCTURES – III**	HC	3	0	0	3	3

COURSE OBJECTIVES:

• Explain the basics of foundation

• Describe the different types of foundations

• Discuss the structural behavior & loads on foundations.

• Explain the necessity of deep foundation

• Explain the simple design of foundation

• Acquaint students with an ability to design and proportion structural concrete members including slabs, beams, and columns.

COURSE CONTENTS:

UNIT I

Mechanics of Reinforced Concrete: Concept of Concrete as a brittle, composite material that is strong in compression and weak in tension. Structural behavior under load and the need for reinforcement.

Structural Analysis and Design to satisfy Building Codes and Standards; Introduction to National Building Code and IS456: Calculation of dead weight and live loads on structure as per IS875 (Part1&2).Determination of the general loads to be considered in the design of the structure based on the type of occupancy specified for each area. And introduction to safety factor and design philosophy.

RCC Materials: Basic Characteristics of Concrete & Reinforcing Steel Materials including specifications and testing. Basics of mix design, water-cement ratio, strength, durability, workability requirements and formwork.

UNIT II

RCC foundation: shallow foundations– Definition, purpose, site exploration, preliminary investigation, methods, trial pits, bore holes, Bearing capacity of soil, plate load method, penetration test method, SBC based on IS code, methods to improve SBC

Types of shallow foundations – shallow foundation, spread foundation, Isolated pad foundation, grillage foundation, column footings, Raft foundation, foundation for black cotton soil, pier foundation, foundation on sloping ground, machine foundation, causes for failure of foundation, timbering of trenches, excavation for water logged sites, concrete used for foundation Design for grillage foundation, Design for foundation for a brick pillar (SK) Structural design for foundation, Design loads, Design for masonry wall foundation – depth of foundation, depth of concrete bed block, width of footing

UNIT III

Deep foundation- Pile foundations. Different types of piles and applications. Types of deep foundations, pile foundations, type of pile foundations, pile driving, structural implications, Caissons, types, Shoring, types of shoring, underpinning and scaffolding, types of scaffoldings, retaining walls

UNIT IV

Concrete Structural System design: Introduction to the Project: Design of two story RCC frame office building using different Concrete Structural Systems including a framing plan, column, beam and slab arrangements and dimensions for all the different Concrete Structural systems already introduced (Indicative) & using SP 16: Design Aids for Reinforced Concrete to IS 456:1978. One way Concrete slab system: One-way concrete slab system and design of single reinforced beams

One way Concrete slab Joist System: One-way Joist System and design of singly reinforced slabs.

Reinforcement Design: Approximate calculation of Column, Beam and Slab reinforcement.

Reinforcement detailing and placement and location of the reinforcement in a concrete structure.

Note: Class work on loading calculation of each Concrete Structural System including structural system elements, slab, beam, column and footing, will be assessed during the Viva examination.

COURSE OUTCOME:

The students shall be able to

1. Explore different types of foundation
2. Explore the fundamental principles and structural behavior of concrete buildings
3. Explore the necessity of deep foundation
4. Apply mechanics of reinforced concrete
5. Design and proportion structural concrete members including slabs, beams, and columns.

REFERENCES:

1. STRUCTURES - Martin Bechthold, Daniel L Schodek, PHI Learning Private limited
2. IS 456-2000 Plain and Reinforced Concrete - Code of Practice

3. Building Construction Hand book, Roy Chudley and Roger Greeno, Routledge, London
4. Building Construction, Sushik Kumar, Standard Publishers Distributors,
5. Building Construction, Punmia, Ashok K Jain, &Arun K Jain, Lakxmi Publications (P) Ltd, New Delhi
6. Building Construction Illustrated, Francis D K Ching, John Wiley & Sons, Inc, New York

ENVIRONMENTAL STUDIES

Course Code	Course Title	Type	L	P	D	Total	Contact Hrs.
BR17AR306	Environmental Studies	HC	1	1	0	2	3

COURSE OBJECTIVES

- To describe the components of environment and importance of environmental studies.
- To outline the various types of energy and natural resources.
- To summarize about environmental pollution-sources, effects and control measures of environmental pollution.
- Explain the different ways for protecting the environment.

COURSE CONTENTS:

UNIT I:

Introduction

Basic definitions, Objectives and Guiding principles of Environmental Studies in relation to architecture, Components of Environment, Structures of atmosphere, Man-Environment relationship, Impact of Technology on the environment , Environmental Protection Acts and policies - Role of Government, Legal aspects, Initiatives by Non - Governmental Organizations (NGO), Community participation and awareness -

Through architectural examples

UNIT II:

Energy & Natural Resources

Energy - Different types of energy- Conventional and Non-Conventional sources of energy, alternative source of Energy used through present day examples, conservation of natural resources.

UNIT III:

Ecology & Ecosystems

Impact of human civilizations on the earth's major Ecosystem, Forests, Oceans & Atmosphere. Assessing the impacts and ways for its mitigation, Energy flow in eco-system, Land use matrix - Consumption, Carbon Footprint, Ecological Footprint

UNIT IV:

Environmental Pollution

Environmental Degradation, Pollution, Sources of Pollution, Types of Environmental Pollution, Current Environmental Global issues, Global Warming & Green Houses, Effects, Understanding of environmental pollution and its impact through case-studies.

COURSE OUTCOMES:
On completion of this course the students will be able to**:**

1. Identify the environmental conditions and protect it.
2. Explore renewable energy resources.
3. Discuss the ecological imbalances and protect it.
4. List the causes of environmental pollution.
5. Examine the implications of pollution from pollutants.

TEXT BOOKS:

1. Benny Joseph (2005), "Environmental Studies", Tata McGraw – Hill Publishing Company Limited
2. Ranjit Daniels R J and Jagdish Krishnaswamy, (2009), "Environmental Studies", Wiley India Private Ltd., New Delhi
3. Rajagopalan R. (2005), "Environmental Studies – From Crisis to Cure", Oxford University Press

REFERENCE BOOKS:

1. Raman Sivakumar, (2005), "Principles of Environmental Science and Engineering", Second Edition, Cengage learning, Singapore
2. Meenakshi P. (2006), "Elements of Environmental Science and Engineering", Prentice Hall of India Private Limited, New Delhi
3. Prakash S.M. (2007), "Environmental Studies", Elite Publishers, Mangalore
4. ErachBharucha (2005), "Text Book of Environmental Studies", for UGC, University Press
5. Tyler Miller Jr. G. (2006), "Environmental Science – Working with the Earth", Eleventh Edition, Thomson Brooks/Cole

6. "Text Book of Environmental and Ecology" by Dr.Pratibha Sing, Dr.Anoop Singh and Dr. Piyush Malaviya.
7. Acme Learning Pvt. Ltd., New Delhi.

7. CONSTITUTION OF INDIA

Course Code	Course Title	Type	L	P	D	Total	Contact Hrs.
BR17AR307	**CONSTITUTION OF INDIA**	HC	2	0	0	2	2

COURSE OBJECTIVES

- Explain the constitution of India and evolution of constitutional law
- Explain the scope and extent of fundamental rights
- Describe the various amendments

COURSE CONTENTS

UNIT I
Preamble to Constitution of India – Evolution of Constitutional Law.
Indian Tri colour Flag: its features and significance.

Scope and Extent of Fundamental Rights under Part III – Details of Exercises of Rights, Limitations and Important Cases.

UNIT II
Relevance of Directive Principles of State Policy under Part IV.
Significance of Fundamental Duties under part IV (a)

UNIT III
Union Executive President, Vice-President, Prime Minister, Council of Ministers, Parliament and Supreme Court of India.

State Executive, Governor, Chief Minister, Council of Ministers, Legislature and High Courts.
Electoral Process and special provisions: Electoral process in India.

UNIT IV
Amendment procedures. 42nd, 44th, 74th, 76th, 86th and 91st Amendments. Constitutional provisions for scheduled castes and tribes. Special provisions for Women and Children and Backward Classes.
Emergency Powers.

COURSE OUTCOMES: The student shall be able to

1. State the constitution of India
2. Experience the scope of fundamental rights
3. Examine and interpret the amendments

REFERENCES:

1 Basu, Durga, Das, Introduction to the V.K Publishers, Constitution of India

2 Pylee, M V., Constitution of India, Vikas Publication, New Delhi, 2007

Vacation
Assignment

Course Code	Course Title	Type	L	P	D	Total	Contact Hrs.
BR17AR308	Vacation Assignment	HC	0	0	0	2	0

COURSE OBJECTIVES

To retrospect, explore and recharge creativity through beyond the classroom learning

COURSE CONTENTS

Students are encouraged to undertake a study tour in India or International pertaining to Architectural Design Studio, History, Climatology or any other course related to the upcoming semester. The trip will include documentation work that shall be intended to enhance and support classroom learning.

Outside classroom learning can also be encouraged in the form of entrepreneurship initiative and / or development of a business model related to Architecture. For eg: Development of a mobile "Application" that can benefit the public.

Summer course conducted by the University may also be taken up by students and Grades given by the faculty handling the course may be considered for the assessment.

COURSE OUTCOMES:

The student shall be able to:

1. Develop practical knowledge of the realms of architecture
2. Gain exposure and experience through travel/ summer courses etc.

9. HINDU, ISLAMIC AND COLONIAL ARCHITECTURE

Course Code	Course Title	Type	L	P	D	Total	Contact Hrs.
BR17AR3091	Hindu, Islamic And Colonial Architecture – South India	SC	4	0	0	4	4

COURSE OBJECTIVES

- Introduce a broad overview of the evolution of Hindu temple architecture, Islamic architecture and colonial architecture in India and surrounding countries
- To acquaint the students with knowledge of impact of religion over architecture
- To identify the factors shaping public building design through study of colonial architecture

COURSE CONTENTS:

UNIT I

INTRODUCTION TO BUDDHIST ARCHITECTURE IN INDIA- Forms ofworship, building typologies, symbolism; Stupas, Viharas, Chaitya halls, stambhas

EVOLUTION OF HINDU TEMPLE ARCHITECTURE

Hindu forms of worship – evolution of temple form - meaning, symbolism, ritual and social importance of temple - categories of temple - elements of temple architecture - Development of the Hindu temple form ; Characteristics and differences between Dravidian and Aryan styles, brief examples of form evolution from Gupta ,Chalukyan, Pallava, Chola periods

UNIT II

INTRODUCTION TO ISLAMIC ARCHITECTURE

Islamic Architecture -Introduction, principal parts of mosque and tomb

Early Islamic: Slave and Khalji Dynasty - Influences & Architectural Character, Study of Qutub complex-QutbMinar ,Quwwat - ul - Islam mosque, Tomb of Iltutmish, Alai Darwaza
Late Islamic: Moghul period- Influences & Architectural Character, Study of Humayun's tomb, Tai Mahal

UNIT III
TEMPLE ARCHITECTURE - SOUTHERN INDIA

Brief history of South India - relation between Bhakti period and temple architecture - of temple towns - Dravidian Order - evolution and form of Gopuram

Rock cut productions under Pallavas: Shore temple, Mahabalipuram and Kailasanatha temple, Kanchipuram - Chola Architecture: Brihadeeswara Temple towns: Madurai, Srirangam and Kanchipuram; Hoysala architecture: BelurHalebidandSomanathpur; Vijayanagar style – monuments at Hampi

UNIT IV

PROVINCIAL STYLES & COLONIAL ARCHITECTURE

Provincial Islamic- Bijapur, Gulbarga, Hyderabad &Bidar - Influences & Architectural Character, examples – Study of Gol Gumbaz, Jami masjid and other;

Colonial architecture of South India; Choose from Bangalore, Chennai etc. Introduction to Indo Saracenic architecture, Choose from Mysore, Hyderabad etc.

COURSE OUTCOMES: The students will be able to

1. Enumerate the trends and practices followed in Hindu & Islamic Architecture of North India
2. Identify and interpret architectural styles of different periods
3. Articulate the architectural character of Colonial buildings of British period and elaborate on the style.

REFERENCES:

1. Toman, Rolf, History of Architecture From Classic to Contemporary, Parragon
2. Bhalla, A S, Royal Tombs of India 13th to 18th Century, Mapin
3. George Michel, Temple Towns of Tamil Nadu, Marg
4. Sir Bannister Fletcher, History of Architecture, Batsford, London
5. Percy Brown, Indian Architecture – Buddhist & Hindu, D B Taraporevala Sons & Co.
6. Percy Brown, Indian Architecture – Islamic period, D B Taraporevala Sons & Co.
7. Satish Grover, Islamic Architecture, CBS Publications

Course Code	Course Title		L	P	D	Total	Contact Hrs.
BR17AR3092	**Hindu, Islamic and Colonial Architecture –North India**	SC	4	0	0	4	4

COURSE OBJECTIVES

- Introduce a broad overview of the evolution of Hindu temple architecture, Islamic architecture and colonial architecture in India and surrounding countries
- To acquaint the students with knowledge of impact of religion over architecture
- To identify the factors shaping public building design through study of colonial architecture

COURSE CONTENTS:

UNIT I

INTRODUCTION TO BUDDHIST ARCHITECTURE IN INDIA- Forms of worship, building typologies, symbolism; Stupas, Viharas, Chaitya halls, Stambhas

EVOLUTION OF HINDU TEMPLE ARCHITECTURE

Hindu forms of worship – evolution of temple form - meaning, symbolism, ritual and social importance of temple - categories of temple - elements of temple architecture - Development of the Hindu temple form; Characteristics and differences between Dravidian and Aryan styles, brief examples form evolution from Gupta ,Chalukyan, Pallava, Chola periods

UNIT II

INTRODUCTION TO ISLAMIC ARCHITECTURE

Islamic Architecture -Introduction, principal parts of mosque and tomb

Early Islamic: Slave and Khalji Dynasty - Influences & Architectural Character, Study of Qutub complex- QutbMinar ,Quwwat - ul - Islam mosque, Tomb of Iltutmish, Alai Darwaza

Late Islamic: Moghul period- Influences & Architectural Character, Study of Humayun's tomb,

Taj Mahal

UNIT III

TEMPLE ARCHITECTURE -NORTHERN INDIA

Temple architecture of Gujarat, Orissa, Madhya Pradesh and Rajasthan - their salient features, Lingaraja Temple, Bhubaneswar - Sun temple, Konarak. - Somnatha temple, Gujarat, Surya kund, Modhera ,Khajuraho, Jain Temple architecture-Planning aspects, Dilwara temple, Mt. Abu , Adinatha temple at Ranakpur

UNIT IV

PROVINCIAL STYLES & COLONIAL ARCHITECTURE

Tughlaq dynasty - Influences & Architectural Character, Tomb of Ghias- ud-din Tughlaq, Khirki Masjid

Sayyed and Lodi dynasties- Influences & Architectural Character
Moghul period- Influences & Architectural Character, Fatehpursikri,
Provincial Styles: Punjab - Influences & Architectural Character, Study of Tomb of Shah Rukn - I -Alam
Bengal- Influences& Architectural Character, Study of Eklakhi tomb and Adina Masjid,
Jaunpur - Influences & Architectural Character, Atala Masjid Sur Dynasty –Tomb of Sher Shah Suri at Sasaram, Introduction to Colonial architecture of North India, choose from Delhi, Mumbai, Calcutta
Introduction to Indo Sarasenic, choose from Jaipur, Jodhpur, Bikaner etc.

COURSE OUTCOMES: The students will be able to

1. Enumerate on the trends and practices followed in Hindu & Islamic Architecture of North India
2. Identify and interpret architectural styles of different periods
3. Articulate the architectural character of Colonial buildings of British period and elaborate on the style

REFERENCES:

1. Toman, Rolf, History of Architecture From Classic to Contemporary, Parragon
2. Bhalla, A S, Royal Tombs of India 13th to 18th Century, Mapin
3. George Michel, Temple Towns of Tamil Nadu, Marg
4. Sir Bannister Fletcher, History of Architecture, Batsford, London
5. Percy Brown, Indian Architecture – Buddhist & Hindu, D B Taraporevala Sons & Co.
6. Percy Brown, Indian Architecture – Islamic period, D B Taraporevala Sons & Co.
7. Satish Grover, Islamic Architecture, CBS Publications

Course Code	Course Title	Type	L	P	D	Total	Contact Hrs.
BR17AR3093	**BUDDHIST, COLONIALARCHITECTURE –S. E. ASIA**	SC	4	0	0	4	4

COURSE OBJECTIVES

- Introduce a broad overview of the evolution of Hindu temple architecture, Islamic architecture and colonial architecture in India and surrounding countries
- To acquaint the students with knowledge of impact of religion over architecture
- To identify the factors shaping public building design through study of colonial architecture

COURSE CONTENTS:

UNIT I

INTRODUCTION TO BUDDHIST ARCHITECTURE IN INDIA- Forms of workship, building typologies, symbolism; Stupas, Viharas, Chaitya halls, stambhas

EVOLUTION OF HINDU TEMPLE ARCHITECTURE

Hindu forms of worship – evolution of temple form - meaning, symbolism, ritual and social importance of temple - categories of temple - elements of temple architecture - Development of the Hindu temple form; Characteristics and differences between Dravidian and Aryan styles, brief examples form evolution from Gupta, Chalukyan, Pallava, Chola periods

UNIT II

INTRODUCTION TO ISLAMIC ARCHITECTURE

Islamic Architecture -Introduction, principal parts of mosque and tomb

Early Islamic: Slave and Khalji Dynasty - Influences & Architectural Character, Study of Qutub complex-QutbMinar ,Quwwat - ul - Islam mosque, Tomb of Iltutmish, Alai Darwaza

Late Islamic: Moghul period- Influences & Architectural Character, Study of Humayun's tomb,

Taj Mahal

UNIT III

BUDDHIST & HINDU ARCHITECTURE SRILANKA, INDONASIA, COMBODIA & BALI

Buddhist & Hindu architecture in Southeast Asia, influences, architectural character, features with suitable examples

UNIT IV

COLONIAL ARCHITECTURE OF SOUTH EAST ASIA

Colonial architecture of Jakarta, Kuala Lumpur, Bangkok, Colombo & Singapore with suitable examples

COURSE OUTCOMES: The students will be able to

1. Enumerate on the trends and practices followed in Hindu & Islamic Architecture of North India
2. Identify and interpret architectural styles of different periods
3. Articulate the architectural character of Colonial buildings of British period and elaborate on the style

References:

1. The Architectural Heritage of Srilanka, David Robson.
2. The Spirit of Indian Architecture, D.K. Bulbar
3. A Concise history of Modern Architecture in India-Jon Lang.
4. Modern architecture since 1990, William IR Cu

DETAILED SYLLABUS FOR IV SEMESTER

1. ARCHITECTURAL DESIGN-IV

Course Code	Course Title	Type	L	P	D		Total	Contact Hrs.
BR17AR401	**Architectural Design IV**	HC	0	4	2		6	10

COURSE OBJECTIVES

- To introduce the students to importance of vernacular architecture in India
- To explore form development based on site, climate and context.
- To explain how architectural design can foster better interaction and activity in the public realm.

COURSE CONTENTS
Studio Theme: Site and context

UNIT I:

Documentation study of vernacular architecture; Formulation of Design proposals based on documentation study

UNIT II:

Design of a building for commercial/retail use, Introduction to urban regulatory controls and barrier free design, Case studies, case study
Documentation and presentation, Requirement finalization, Site study, site analysis, concept Development,zoning.

UNIT III:

Design development, relating the system of horizontal and vertical circulation, Resolution of structural system, open spaces and parking design.

UNIT IV:

Double line plans, 3D visualization, Roof plan, roofing, massing, elevations, sections, site plan, application of rendering and presentation technique in 2D and 3-D format.

COURSE OUTCOMES: The students will be able to

1. Acquire knowledge on Local vernacular techniques and holistic view on rural settlements.
2. Associate the Impact of Climate, Culture, Occupation and affordability on Vernacular Architecture.
3. Explore design solutions for an urban context
4. Distinguish between designing for a rural and Urban context

REFERENCES:

1. Neufert, Ernst architect's data. Crosby Lock Wood and Sons

2. Time Saver Standards for Architectural Design Data. McGraw Hill.

3. BUILDING CONSTRUCTION & MATERIALS-IV

Course Code	Course Title	Type	L	P	D	Total Credits	Contact hours
BR17AR402	**Building Construction & Materials- IV**	HC	2	2	0	4	6

COURSE OBJECTIVES:

- Introduce the various metals and alloys used in building construction such as steel, stainless steel
- Introduction to various types of trusses.
- Introduce the construction of staircase with steel folded plate

COURSE CONTENTS:

UNIT I:

Steel trusses: Introduction to steel sections, welding and riveting. Buildings with small, medium span trusses, placing of trusses in key plan, typical sectional elevation of truss (tube and angle), details at ridge, eave, purlin fixing etc. Roof covering with GI sheets and other materials.

Material study: Metals and Alloys:

Properties, sustainable design character Architectural usage or application in construction industry. Galvanizing and chromium plating process.

UNIT II

Structural behavior of Large Span Steel trusses, lattice girder, tubular trusses and north light glazing.

UNIT III
Pre Engineered Buildings, Assembling process of Pre Engineered Structures, Advantages & disadvantages of PEB's castellated beams. Different types its applications, advantages & disadvantages.

UNIT IV
Composite staircases: Pre-cast wooden with steel folded plate, Fixing of Handrails in different materials like glass, aluminum, brass and fixing details of balusters and hand rails.

Material study: Materials used for composite staircase

COURSE OUTCOMES:
• Identify the various metals used in building construction such as steel, stainless steel etc.
• Elaborate on the new trends in staircase construction

REFERENCES:

1. Building Construction Hand book, Roy Chudley and Roger Greeno, Routledge, London
2. Building Construction, Sushik Kumar, Standard Publishers Distributors, New Delhi
3. Building Construction, Punmia, Ashok K Jain, &Arun K Jain, Lakxmi Publications (P) Ltd, New Delhi
4. Building Construction Illustrated, Francis D K Ching, John Wiley & Sons, Inc, New York

CLIMATOLOGY-I

Course Code	Course Title		L	P	D	Total	Contact Hrs.
BR17AR403	**CLIMATOLOGY - I**	HC	2	1	0	3	4

COURSE OBJECTIVES:

Explain the influences of climate on architecture.
Explain the different types of climate and their influence on building materials, construction techniques.
Explain the application of Climatology in Building design

COURSE CONTENTS:

UNIT I:
Introduction to Climate: The Climate-built form interaction; some examples.
Elements of climate, measurement and representations of climatic data. Classifications and Characteristics of tropical climates, major climatic zones of India. Site Climate: Effect of landscape elements onsite/micro climate.

Thermal comfort: Thermal balance of the human body, Thermal Comfort Indices (Effective Temperature, corrected effective temperature, bioclimatic chart, tropical summer index by CBRI Rorkee). Measuring indoor air movement: Kata-thermometer, and measuring indoor radiation: Globe thermometer.

Calculation of overheated and under heated period (based on air temperature only) for locations in Climatic zones and their optimization in terms of solar heating and Passive cooling desired.

UNIT II:
Sun-path diagram: Solar geometry & design for orientation and use of solar charts in climatic design.

Thermal performance of building elements: Effect of thermo-physical properties of building materials and elements on indoor thermal environment. Convection, Radiation, concept of Sol-air temperature and Solar Gain factor.

Thermal Heat gain or loss: Steady state and periodic heat flow concepts, conductivity, resistivity, diffusivity, thermal capacity time lag and 'U' value. Calculation of U value for multi-layered walls and Roof, Temperature Gradient, Inferring time lags from Graphs for walls and Roof. Construction techniques for improving thermal performance of walls and roofs. (Effect of density, Insulation and Cavity).

UNIT III:
Shading devices: Optimizing Design of Shading devices effective for overheated periods while allowing solar radiation for under heated periods for different wall orientations.

Solar control: orientation, window sizes, internal blinds and curtains, Special glasses

Natural ventilation: Functions of natural ventilation, Stack effect due to thermal force and wind velocity. Air movements around buildings, Design considerations and effects of openings and external features on internal air flow and Wind shadows.

Day Lighting: Nature of natural light, its transmission, reflection, diffusion, glare. Advantages and limitations in different climatic zones, North light, Day light factor, components of Day light devices.

UNIT IV:

Climatic Design considerations-1: Literature study of relevant traditional and contemporary building examples.
Climatic Design considerations-2: Two Indian case studies and one international for each climatic zone.

COURSE OUTCOMES: The students are able to

1. Apply knowledge of climatology in different types of climates.
2. Explore the various shading devices
3. Identify passive cooling techniques for building design
4. Customize through design, buildings for different type of climates

REFERENCES:

1 Koenigs berger, O H Others & Manual of Tropical Housing & Building Climatic Design
2 Shah M G Kale M &Patki, S Y. Building Drawing With an Integrated Approach to Build Environment
3 Kumara Swamy N, Building Planning & Drawing

5. BUILDING SERVICES

Course Code	Course Title	Type	L	P	D	Total	ContactHrs.
BR17AR404	**Building services-I(water supply, plumbing& sanitation)**	HC	1	1	0	2	2

COURSE OBJECTIVES:

- Explain the basic aspects in environment and health.
- Acquire knowledge in water supply and sewerage system, storm water and solid waste management
- Explain how the plumbing, sanitation and sewerage systems can be used in architectural design

COURSE CONTENTS:

UNIT I:

Introduction to Environment and Health Aspects: History of Sanitation with respect to human civilization, Importance of Health, Hygiene Cleanliness, Water borne, Water related, Water based, Epidemic diseases, Conservancy to water carriage system, Urban and Rural sanitation.

Water Supply: Source of Water supply–Municipal, bore well, river, etc, Quantity of water for different usages like Domestic, Hot water, Flushing, Gardening, Commercial, Industrial Applications, Assessment of requirement for different users, Quality of supply for different users as per national and international standards, Treatment of water for different uses, filtration, softening, disinfection, Storage and pumping – gravity system, hydro-pneumatic system, Distribution of water to fixture and fittings, schematic diagrams, Swimming pool, water bodies, Efficient usage of water, water for fire fighting

UNIT II:

Sewerage System: Assessment of sewage generated, Collection of sewage /wastewater from all sources, schematic diagram, Conveyance of sewage – gully trap, chamber, manhole, intercepting trap, grease traps, backflow preventer, Materials of construction of sewerage network – PVC, uPVC, HDPE, corrugated

PP pipes, Objective of Sewage treatment, type of treatment, aerobic, anaerobic, Ventilation of STP, Space requirements

Storm water Management: Assessment, quantification rainfall, flood controlmeasures, Drainage system–piped drains, open drains, Recharging of storm water, Harvesting of roof top water, first flush, pre-treatment, Drainage of basements, podium, paved areas, Collection, Reuse of water with in the project, reduction of the load on municipal system, landscape drainages and Rainwater harvesting, Recharging ground water table

Terrace plan with Rain water down take pipes, Sump and OHT calculation design.

UNIT III:

Plumbing: Water supply piping–hot, cold, flushing water, Piping in sunken areas, false ceiling areas, shaft sizes, Drainage – floor traps, drains, P-trap, bottle traps, Single stack, two stack, cross venting, fixture venting, Material of construction like GI, PPR, PB, CPVC, Composite pipes, Copper, Flow control Valves – Gate valve, Globe valves, butterfly valves, Pressure Reducing valves & station, Pipe supports, hangers, fixing, plumbing of small houses.

Lay out of Water supply and Sanitation with all fixtures in Kitchen, Bath and Utility for a small Residence with Plan and Section

Special requirements: Solar Hot Water Generation, Central LPG Supply System, Medical Gases Supply, Storage of High Speed Diesel, Central Vacuum and Waste Collection.

UNIT IV:

Sanitary Fixtures, Fittings & Wellness: Soil appliances–Water closets, Bidet, urinals, Cisterns, Flush valve, Waste appliances – wash basin, sink, dishwasher, washing machine, Hot water system – Geysers, boilers, heat pump, Bath & water fixtures – Taps, mixers, single lever, quarter turn, bathtub, multi-jet bath, rain showers, health faucets, Wellness products : Sauna bath, steam bath, Jacuzzi, single and double stack system.

Solid Waste Management: Assessment of waste, Waste to wealth concept,

Municipal waste, garden waste, organic & inorganic, commercial waste,

Medical waste & Industrial waste, Collection, segregation, treatment, disposal,

Organic waste – Bio-methanation, Vermi-composting, Organic waste converter.

Portfolio on Solid waste management

Site Visits: Water Treatment Plants, Sewage Treatment Plants, LPG & HSD yards. High Rise Residential Building – Plumbing (water supply, drainage) Commercial Buildings like IT Campus, Hotel & Hospital for acquaintance of installation & space requirements.

COURSE OUTCOMES:

1. Elaborate on the plumbing systems used in the buildings
2. Indicate different techniques of water supply and sewerage system
3. Demonstrate knowledge of storm water and solid waste management
4. Integrate the acquired knowledge into architectural design

REFERENCES:

1. Rangwala, WaterSupply & Sanitary Engineering

2 McGhee, Terence Water Supply & Sewerage

3 Husain, S K, Text book of Water Supply & Sanitary Engineering

4 Deolalikar, S G, Plumbing Desing& Practice

5 Gahlot P S & Sharma, Building Repair and Maintenance, Management

6. Mohan, C.R& Sanjay, Design and Practical hand Book on Plumbing

8 Special IS Code: SP- 35 – 1996

9 Uniform Plumbing Code India 2012

10 Pollution Control Board Norms

STRUCTURES - IV

Course Code	Course Title		L	P	D	Total	Contact Hrs.
BR17AR405	**STRUCTURES - IV**	HC	2	1	0	3	4

COURSE OBJECTIVES

- To give students an understanding on designing of slabs and footings
- To acquaint with various types of slabs like filler slab, waffle slab, rib slab
- To Impart Knowledge on Design of RCC Staircases, Portal frames

COURSE CONTENTS:

UNIT I:

General framing arrangement of beams, columns and slabs for a building, Design Aids for Reinforced Concrete to IS 456:1978.

Two way Concrete Floor and Roof Systems: Two-way Slab-Beam, and design of short columns

Two way Concrete Flat Plate System: Two way solid Flat Plate design, and design of isolated footings

Two way Concrete Flat Slab System: solid Flat slab design, and formwork design and detailing.

Design Review: Review of design of Column, Beam and Slab, total concrete volume, reinforcement tonnage and costing.

UNIT II

Filler slab, various materials used in filler slab. Detailing of filler slab with various materials for a particular span. Applications of filler slabs, advantages and disadvantages of filler slabs. Waffel slabs- Detailing of waffle slab, applications, advantages and disadvantages.

UNIT III

Flat slab- Detailing of waffle slab, applications, advantages and disadvantages.

Different types of Joints in a building like construction joints, expansion joints

RCC Portal frames-single bay, 2 bay, 3 pinned, 2 pinned

UNIT IV

Structural principle behind staircase, Types of RCC staircases, reinforcements and details.

COURSE OUTCOMES: The students would be able to:

1. Elaborate on Filler slab, Waffle and Flat slabs. Compute and design RCC 2 way Slab and footings for certain spans.
2. Differentiate between different techniques for staircase construction
3. Attain Knowledge of Portal frame

REFERENCES:

1. STRUCTURES - Martin Bechthold, Daniel L Schodek, PHI Learning Private limited
2. Building Construction Hand book, Roy Chudley and Roger Greeno, Routledge, London
3. Building Construction, Sushik Kumar, Standard Publishers Distributors, New Delhi
4. Building Construction, Punmia, Ashok K Jain, &Arun K Jain, Lakxmi Publications (P) Ltd, New Delhi
5. Building Construction Illustrated, Francis D K Ching, John Wiley & Sons, Inc, New York

SURVEYING & LEVELING

Course Code	Course Title		L	P	D	Total	Contact Hrs.
BR17AR406	**SURVEYING & LEVELING**	HC	1	1	0	2	3

COURSE OBJECTIVES:

- Describe the principles related to surveying and leveling.
- Explain methods of survey for land of medium complexity
- Explain survey plans and how to adopt for design

COURSE CONTENTS:

UNIT I:

Introduction to Surveying–Importance of surveying to engineers. Types and classification of survey. Principles of surveying character of work,shrunk scale. Definition of maps and understanding topographical maps of survey of India. Shrunk scale problems.

Chain Survey: Instruments used, Types of chain, Instruments for ranging,Setting out angles, erecting perpendiculars.

Plane table survey: Accessories, Advantages and disadvantages of plane table survey, basic definitions, principles of plane tabling, setting up and orientation, methods of plane tabling: radiation and intersection, plane table traversing.

UNIT II:

Leveling –basic definitions, classification of leveling methods, types of levels-dumpy level, temporary adjustments of dumpy level, reduction of levels, plane of collimation method, problems, profile leveling-methods and application, fly leveling

Contouring: Characteristics of contours, direct and indirect methods of contouring, interpolation, and uses of contours.

UNIT III:

Theodolite- study of transit Theodolite and function of parts- temporary adjustments, measurement of horizontal angles- repetition and reiteration, measurement of vertical angles, contouring-definition, uses of contours, characteristics of contours,

Observations of a Site (Up to 1 acre): Survey without instruments using geometry and one's own body. To learn to read the terrain by intuition and by measure, including photography as a surveying method.

Analysis of a Site (Up to 1 acre): On site factors; Analysis of natural factors, topography, hydrology, soils, landforms, vegetation, climate, microclimate. Influence of water bodies

UNIT IV:

Total station: electronic Theodolite integrated with an electronic distancemeasurement to measure slope distances. GIS and its application

Studying survey drawings: Learning to read a land survey drawing; type of land survey drawing, Scale and North direction in drawing, legend or list of the symbols used on drawings, counter indications on a drawing, grid references for measurements etc.

Field Work-1: Setting out works such as center lines of a building (workingdrawings of a small residence to be provided)

COURSE OUTCOMES:

1. Acquire the skills related to surveying and leveling.
2. Conduct the surveys of land of medium complexity
3. Interpret survey plans.

REFERENCES:

1 Punmia, B C, Jain, Ashok K & Jain, Arun K Surveying Vol I Laxmi Publications

2 Punmia, B C, Jain, Ashok K & Jain, Arun K, Surveying Vol IILaxmi Publications

3 Roy, S K,Fundamentals of Surveying & PHI Learning Pvt Ltd

4 Bhavikatti, S S Surveying, Thoery&Practice,I K International

8. COMPUTER I

Course Code	Course Title		L	P	D	Total	Contact Hrs.
BR17AR407	**COMPUTER I**	HC	1	1	0	2	3

COURSE OBJECTIVES:

- To train students to use computers and digital media as tools
- Equip the student with a range of digital tools and techniques in drafting, 3D modeling

COURSE CONTENTS:

UNIT I:

Introduction to drafting software such as CAD etc.

CAD: 2D commands, viewports, dimensions, annotations. Time problem introduction; Classroom exercises such as measured drawing of studio (windows, doors and staircases included), architecture department (windows, doors and staircases included) etc.

Understanding layers, paper space Vs model space, line weights, print set up and Modeling of Wall, Doors, Windows, Stairs etc. Single line plan of building

UNIT II:

2D drafting: Presentation of time problem; plan, sections, elevations of a building, of single storeyed building, of previous semester architectural design studio project.

2D drafting: Presentation of time problem; floor plan with furniture layout, enlarged construction details.

UNIT III:

Isometric views: Presentation of time problem; drawing quickly with basic shapes, isometric view, Adding detail to view in 3D space, use of cameras, material applications. Presenting models - to juryor clients.

Preparation of drawings and details drafted in Building construction studio in to Autocad.

UNIT IV:

Introduction to 3d modeling software's such as Google sketch up etc. Google Sketch Up or relevant 3D modeling software–Introduction to 3Dmodelling software interface, demonstration of 3D modeling commands required to convert 2D project into 3D.

3D massing of built forms studied in History of Architecture and Theory of Architecture

COURSE OUTCOMES: The students will be able to

1. Acquire Knowledge in CAD and digital media as tools
2. Represent architectural ideas through these tools
3. Employ digital tools and techniques in drafting, 3D modeling

REFERENCES:

1 Jayaram, M A & Rajendra Sapna Prasad, D S, CAD in Civil Engineering A Laboratory

2 Online documentation, http://www.sketchup.com/learn/videos

3 Adobe creativesuite, Adobe products: www.adobe.com

CONTEMPORARY ARCHITECTURE (ASIA)

Course Code	Course Title		L	P	D	Total	Contact Hrs.
BR17AR4081	Contemporary Architecture (Asia)	SC	4	0	0	4	4

COURSE OBJECTIVES:

- An overview of Architecture in India and rest of Asia, Post- Independence up to current trend post 2000
- Understand the need for different building typologies that were necessitated by changing economies and policies.
- The creation of New City capitols.
- Study the ideologies of architects based on materials, Geographies and other factors through their design.

UNIT I:

Post Independent India:

Understand the changes in Architectural building typologies with the creation of Institutions, Industry and Urbanization due to "Nehruvian" ideology. Influence and concepts of well-known architects in India, Bangladesh and Sri Lanka from 1940 to 1970

UNIT II:

Creation of new Capital cities:

Chandigarh, Gandhi Nagar and other cities.

UNIT III:

Influence and concepts of well-known architects in India, Bangladesh and Sri Lanka from 1970 to 1990's. Parallel trends in Indian architecture like Revivalist- monumental, Religious, Experimental buildings and the influence of alternative Building technologies.

UNIT IV:

Current trends in India and Asia due to changing economies. The rapid urbanization of Mumbai, Chennai, Bangalore, Delhi and Kolkatta adding a new dimension to City scapes. Changing trends in working styles influencing Architecture; creation of "Tech"cities.

Students shall take up works of Architects for research and self- study culminating in seminar presentations.

For each Unit, the Faculty member handling the course shall include the works of Architects as appropriate.

COURSE OUTCOMES: The student will be able to

1. Explore contemporary Architecture trends and issues
2. Associate the ideologies of architects and their design to present day context

REFERENCES:

1 Jon lang, A concise History of Modern architecture in India, Permanent Black

3 Slessor, Catherine Contemporary Architecture, The Images
4 Baborsky, Matteo Architecture, Wiley Siro.
5 Bahga and Bahga, Modern Architecture in India
6. Anupama Kundoo, Architecture of Auroville and PoppoPingel

Contemporary Architecture of Europe &other countries

Course Code	Course Title		L	P	D	Total	Contact Hrs.
BR17AR4082	Contemporary Architecture of Europe & other countries	SC	4	0	0	4	4

COURSE OBJECTIVES:

- An overview of contemporary Architecture in Europe post World War II up to current trends.
- The process of re-building cities and need for new building typologies.
- Understand changing trends due to urbanization and sub-urbanization of European cities.
- Works of current Architects and their ideologies influencing the design.

UNIT I:

Influence and concepts of well-known architects of Europe and Japan from 1940 to 1970. Architectural style of a continent emerging Post World War. Early works of the European master Architects.

UNIT II:

Process of Re-building of cities and new emerging style, City centers, Expositions, Religious buildings etc. Later works of European masters and Influence of Japanese Architects on the rest ofthe world.

UNIT III:

Creation of Iconic Architecture like stadiums, Museums and other building typologies post 1990's upto the current era post 2000's.

UNIT IV:

Students shall take up the works of Current architects and study their style and ideologies influencing the design in detail, presenting the work through seminars.
For each unit, the Faculty member to prepare the list of architects and buildings while preparing the course plan.

COURSE OUTCOMES:

The student will be able to

1. Explore contemporary Architecture trends and issues
2. Associate ideologies of architects and their design to present day context

REFERENCES:

1 Rodgers, Nigel, The Rise & Fall of Ancient Rome, Anness

2 Slessor, Catherine, Contemporary Architecture, The Images

3 VVLN Murthy, Modern, postmodern architecture & Standard, Pioneer architects Publishers

4 Fletcher, A History of Architecture, Bannister, Bannister Fletcher

5 Frampton Modern Architecture by Kenneth ,Kenneth, Frampton – A Critical history

11. CONTEMPORARY ARCHITECTURE (NORTH & SOUTH AMERICA)

Course Code	Course Title		L	P	D	Total	Contact Hrs.
BR17AR4083	**Contemporary Architecture of North and South America**	SC	4	0	0	4	4

COURSE OBJECTIVES:

- An overview of contemporary Architecture in Americas post World War II up to current trends.
- The process of creating metropolitan cities and need for new building typologies, post the Great Depression.
- Understand changing trends due to urbanization and sub-urbanization of cities.
- Works of current Architects and their ideologies influencing the design.

UNIT I:

- Influence and concepts of well-known architects of United States of America from 1940 to 1970
- Need to create a positive identity Post the great depression. Creating New Capital cities.

UNIT II:

Process of creating "Downtowns" establishing the Architectural style. Works of European Architects who migrated to the United States post World War II. Later works of American master Architects.

Decentralization of Cities and creating Sub-urbs. Emergence of styles based on Alternative building technologies, new age religions and Institution towns.

UNIT III:

Influence and concepts of well-known architects of North and South America from 1970's to 1990's.Silicon Valley and creation of a new identity.

UNIT IV:

Students shall take up the works of Current architects of the Americas and study their style and ideologies influencing the design in detail, presenting the work through seminars.
For each Unit, the Faculty member to prepare the list of architects and buildings while preparing the course plan.

COURSE OUTCOMES:

1. Explore contemporary Architecture trends and issues
2. Associate ideologies of architects and their design to present day context

REFERENCES:

1 Jeong, Kwang, The Leader of Architecture, Top Jeong, Kwang Young Young Architects USA

2 Slessor, Catherine Contemporary Architecture, The Images

3 Baborsky,Matteo Architecture ,Wiley Siro

4 VVLN Murthy, Modern, postmodern architecture &Standard Publishers, Pioneer architects

5 Bannister Fletcher,A History of Architecture,

6. Frampton, Modern Architecture – A Critical Kenneth History

FIFTH SEMESTER

Course Code	Course Title		L	T	P	Total	Contact Hrs
BR17AR501	**Architecture Design-V**	HC	4	0	2	6	8

Studio Theme: Community living

Students shall get an understanding of increasing complexities from single dwelling to multiple dwelling units.

- To illustrate agglomerations of multiple building units (eg Multi storied Apartments with club house, play areas etc. or Campus Housing)
- To demonstrate and develop different Habitation types in an urban setting, implementing Building bye laws pertaining to Set backs and Parking norms.
- To integrate building services like water supply, drainage, rainwater harvesting, power back up into the design.

COURSE OUTCOMES: On completion of the course, the student shall be able to

1. Characterize Residential planning principles and Elaborate on details of bye laws
2. Demonstrate Space Planning principles for multiple buildings on a single site, including open space planning, Incorporate basic services in design
3. Communicate the design using architectural tools such as AUTOCAD

Course Contents:

UNIT – I

Case study and literature study of selected Design type. Site selection and Site study in urban location

UNIT - II

Drawing up specific design requirements that are site specific. Development of Form and splitting of units with Vehicular and Pedestrian circulation resolved.

Continuous emphasis on controls, codes and bye-laws.

UNIT – III

Development of drawings for detailed units (Habitation and others). Adopting norms, structural aspects (grid planning) and incorporating building services.

UNIT -IV

Detailed Design and Models using computer aided software or Manual drawings.

STUDIO PROJECTS:

Major Project:

Apartment housing with added infrastructure like clubhouse, shopping, Interactive open spaces etc OR Resort Type Hotels with multiple units and landscaped areas for public interaction, OR Serviced apartment complexes in City Centers with added infrastructure like club, shopping, offices etc.

Time bound problems: They are the effective ways to learn to give quick solutions that can be implemented. It tests the logical ability and presentation skills that are very much required in the real world.

Detailing of a unit within the larger design can be taken up for this.

For eg: Adapting new techniques of roof cover to be applied to a public interactive space, thereby understanding relation between Built and Un-built spaces.

Reference books:

1. Time savers standards for architectural design data – by John Callender (Editor)
2. Architectural design data – by Ernst Neufert.
3. Hotel and Resort Design- Anne M Schmid and Mar Scoviak – Lerner

Course Code	Course Title		L	T	P	Total	Contact Hrs
BR17AR502	**Building Materials & Construction Technology –V**	HC	2	0	2	4	6

Course Objectives:

Students are introduced to

Introduce the constructional systems of partitions in advanced and latest materials.
Comprehend and apply knowledge of advanced roofing technologies for large span and complex buildings.
Plastics in Building industry as a material
Protective treatments in buildings.

Course Outcome:

the student will be able to:

1. Identify varied materials and techniques used in Partition construction.
2. Extend knowledge gained to design large span roofing systems.
3. Explore various methods and materials of cladding and glazing .

Course Contents:

UNIT I:

Partitions (dry walls) and Ceiling Treatments: Construction of partitions in various materials, timber and metal, fixing methods, design glazed partitions, sound proof partitions etc with doors, partitions of Different heights, cabin construction (materials used –wood, glass, particle boards, Pre-laminated boards etc). Double glazed partitions, aluminum/ steel sections.

UNIT II

Cladding and Structural Glazing (Curtainwalls), Different types of framing systems, spider connections

UNIT III:

Introduction to advanced roof forms: Introduction to Tensile and Pneumatic structures, advantages and disadvantages, fixing details, construction details. Properties and usage of Synthetic material (sketches). Shell roofs, folded plates, domes, geodesic dome. (PEB Buildings)

UNIT IV

Material study: Protective measures for foundation, Masonry walls and wood work.
Plastics as a building material, types, properties and uses of plastics such as polycarbonates, acrylics, PVC polymer films, and fiber reinforced plastic. Application and details

Properties and usage of Insulation material like glass wool, rubber.

Reference Books:

1. "Construction Technology" By Chudley
2. "Construction of Buildings" By Barry
3. "Building Construction, Principles, Practice and Materials" By Hardie Glen
4. "Text Book of Building Construction" By Arora &Bhindra
5. "Tensile Fabric structures: Design, Analysis and construction", By Craig G. Huntington
6. "Building Construction Illustrated" By Francis D K Ching

Course Code	Course Title		L	T	P	Total	Contact Hrs
BR17AR503	**Energy Efficient Buildings**	HC	2	0	1	3	4

Course objective:

• To inform the need of energy management and conservation in building design and construction

• To familiarize the students with passive design considerations and strategies

• To inform about the various rating systems for Green building design

Course outcome:

On completion of the course, the student shall be able to

1. Outline the principles of sustainable and energy efficient building design
2. Attain an ability to apply passive design strategies in design.
3. Describe green building rating systems and their significance.
4. Apply the techniques learnt through software into design.

Course Contents:

UNIT I

Introduction to Energy Efficiency in the contemporary context, Concept of embodied energy of material, Ecological footprint of a building, Concept of carbon neutrality, Green buildings.Direct Gain Thermal Storage of Wall and Roof - Roof Radiation Trap - Solarium - Isolated Gain-Evaporative Cooling - Nocturnal Radiation cooling - Passive Desiccant Cooling – InducedVentilation - Earth Sheltering - Wind Tower - Earth Air Tunnels

UNIT II

Energy management and rating systems

Introduction to Energy Management of Buildings and Energy Audit of Buildings; Energy Conservation Building Code (ECBC). Rating systems for green building- LEED, IGBC, GRIHA etc. Case study of LEED rated buildings.

Areas for innovation in improving energy efficiency such as Photo Voltaic Cells, Battery

Technology, Thermal Energy Storage, Recycled and Reusable Building materials,

Nanotechnology, smart materials and the future of built environment

UNIT III

Case study:

Case study of an energy efficient building. Analyzing different techniques adopted in a building. Formulating strategies of energy efficiency.

Different software's available to analyze the energy efficiency (in design, eco-tech etc).

UNIT IV:

Application criteria's:

Applying different strategies to their design projects done in previous semesters, demonstrating with different software's learnt.

References:

1. "Housing climate comfort" by Martin Evans.
2. "Green Architecture"-Design for a sustainable future by Brende and Robert vale.
3. "Green Architecture"-A guide for sustainable design by Michael J Crosbie.

Course Code	Course Title		L	T	P	Total	Contact Hrs
BR17AR504	**BUILDING SERVICES -II**	HC	1	0	1	2	3

Course Objectives:

Elaborate on application of electrical services in design & construction.
Outline the current and prospective materials used in electrical services for buildings.
Impart practical knowledge of electricity and illumination applications used in current architectural practice.
Train the students to comprehensively plan and design the electrical and illumination requirements of building design.

Course outcomes: On completion of the course the student will be able to:

1. Acquire knowledge on Planning and design of electrical services for simple spaces.
2. Compute required illumination levels for different tasks.

Identify materials and techniques used in electrical services in Buildings

Course Contents:

UNIT – I

Electricity

Introduction to electrical services. Transmission and Distribution of electricity to different categories of buildings, various devices and processes involved in it. Different types of service connections.

Protection systems against electrical threats to buildings.
Different types of distribution systems in buildings. Various materials involved in it. Power requirement for different categories of buildings. Preparation of electrical drawing using correct graphical representation for a residence plan.

UNIT – II

Illumination

Quality and quantity of light; Factors influencing quality of light. Methods of lighting – Ambient, task and accent lighting. Lighting aspects for various categories like street lighting, factory lighting.

Systems of luminaries, direct, indirect, etc.

Various types of electrical lamps for different usages – incandescent, fluorescent/CFL, HID's, neon, LED lamps and their lighting characteristics, application criteria's; Design considerations for different types of occupancies and tasks and calculation of lighting requirement

UNIT – III

Safety Measures against Fire

Role of architect in providing fire safety to buildings, Fire resisting materials. Passive fire protection in different categories of buildings. Fire hazards, Fire loads. Fire precaution, Fire prevention. Provision of smoke detectors, fire alarms. Difference between **Firefighting** and **Fire prevention**

UNIT IV

Active fire protection-Extinguishers, Sprinklers, firefighting lobby etc; Systems adopted in various buildings against fire.

Case studies: Case studies of some Fire disasters and their reasons: Fire Norms by NBC, Calculation of Occupant load and min doorway width Calculation of Fire exits, Concept of Pressurization, Fire liftsand Fire Staircases regulations etc as per bye-law.

References:

1) H Cotton, Electrical Technology
2) L. Uppal, Electrical wiring, Estimating & Costing
3) Anwari., ElectricalEngg.
4) M.S.N. Swamy, Lighting, MSN Marketing, Bangalore.
5) TorquilBarker,Concepts in Practice lighting, 1997, B.T. Batsford Ltd, 583,fullham Road, London.
6) Dr. FrithAbnwos and others. Electrical Engineering handbook.

Course Code	Course Title		L	T	P	Total	Contact Hrs
BR17AR505	**Structures – V**	HC	1	0	2	3	3

COURSE OBJECTIVES:

- To give students an understanding of singly reinforced beams, doubly reinforced beams.
- To acquaint with various issues relating cantilever beams, lintels and chajja.
- Introduce principles of Tensile structures & pneumatic structures.
- Explain the theory of pre- stressed and pre-cast concrete.

COURSE OUT1COMES: On successful completion of the course students shall be able to

1. Differentiate between principles& types of reinforced beams.
2. Draw fixing details of Tensile structures & pneumatic structures
3. Describe the structural behavior of pre- stressed and pre-cast concrete
4. Elaborate on types of advanced concrete.

COURSE CONTENTS:

UNIT I:

Analysis and structural behavior of singly reinforced beams and doubly reinforced beams, Cantilevered beams, lintels and slabs. Situations where doubly reinforced beams are used.

UNIT II

Structural behavior of Tensile structures & pneumatic structures (No problems to be solved for these)

UNIT III

Basic concepts of Pre-stressed concrete, pre-stressing materials.

Behavior of pre-stressed concrete beams, columns, footings, slabs, Introduction to pre-cast and assembling of pre- cast members. Adopting of precast members in bridges and modular building units.

UNIT IV

Advanced concrete, Ferro cement concrete, Ferro Crete, Fiber reinforced concrete, Castacrete, mega-crete, thermocrete.

REFERENCES:

1. Krishna Raju N " structural design and drawing" (RCC & steel).

2. Krishna Raju N " Prestressed concrete".

3. Sushil Kumar " Building construction".

4. Bhavikatti S S " strength of materials".

5. Dongre A P " Structural engineering for architects".

Course Code	Course Title		L	T	P	Total	Contact Hrs
BR17AR506	**Computers In Architecture – II**	HC	1	0	1	2	3

Course Objectives

- To deliver the working knowledge of advanced software
- To demonstrate building of 3D models and conceptual architectural masses
- To Illustrate rendering of photo-realistic images
- To develop their skills in editing and rendering of architectural drawings

Course Outcomes:

On completion of the course the student will be able to:

1. Explore any advanced software as a 3D modeling tool
2. Convert 2D drawings into 3D drawings using advanced software.
3. Visualize the Materials & Lighting aspects of Design & create realistic renderings.
4. Explore Photoshop as a rendering tool
5. Develop good design presentations & Compositions with the help of advanced software.

Course Contents:

UNIT 1

3D modeling: Use of Sketch up or any 3D software. Conversion of previous semester AD project(2D) into 3D model, adding detail to Models in 3D space, use of cameras, material applications.

UNIT 2

Rendering & Visualization: Introduction to concepts of visualization using rendering engines such as VRay.

UNIT 3

Introduction to graphics editing tools: Adobe Photoshop. Concepts of image editing, image scanning, effects, filters.

UNIT 4

Graphics editing software: – Classroom exercise to demonstrate use of Adobe Photoshop in simple projects. For e.g., rendering of 2D drawings, adding nature to 3D visualizations of architecture design project.

REFERENCES

1. Modeling with SketchUp for 3D Printing by Bonnie Roskes
2. Modeling with SketchUp for Interior Design by Bonnie Roskes
3. SketchUp Pro 2013 step by step by Joao Gaspar
4. An introduction Adobe Photoshop by Steve Bark
5. Adobe Photoshop 7.0 for photographers: A professional image editor's guide by Martin Evening

Course Code	Course Title		L	T	P	Total	Contact Hrs
BR17AR507	**Vacation Assignment/ Study Tour /Summer Course**	HC	0	0	2	2	-

Course Objectives:

To encourage independent learning without supervision

To nurture creativity and innovative thinking through workshops and experiential learning.

To engage with Architecture in a positive way through outside classroom experiences.

During Vacationsthe students are expected to do some retrospection, exploration and recharge their creativity to combat the pressure of the upcoming semester.

Students are encouraged to undertake a study tour in India or International pertaining to Architectural Design Studio, History, Climatology or any other course related to the upcoming semester. The trip will include documentation work that shall be intended to enhance and support classroom learning.

Outside classroom learning can also be encouraged in the form of entrepreneurship initiative and / or development of a business model related to Architecture. For eg: Development of a mobile "Application" that can benefit the public.

Summer course conducted by the University may also be taken up by students and Grades given by the faculty handling the course may be considered for the assessment.

Course Outcomes:

1. Acquire independent learning
2. Achieving creative output with the help of workshops/hands on experience

SOFT CORE COURSES

Course Code	Course Title		L	T	P	Total	Contact Hrs
BR17AR5081	**VERNACULAR ARCHITECTURE**	SC	4	0	0	4	4

COURSE OBJECTIVES:

- To outline the various approaches and concepts to the study of vernacular architecture.
- To classify and categorize vernacular architecture forms based on different regions of thecountry.
- To Determine the Impact of the Colonial rule on the Vernacular architecture in India.

COURSE OUTCOMES: On completion of the course the student shall be able to

1. Define the term 'Vernacular' and outline the importance of studying domestic buildings of the past.
2. Acquire knowledge on the classification of prototypes in different regions and learn some of the finer details in terms of Plans and sections.
3. Associate the planning principles in Vernacular architecture to Climate, Geography, Geology, Socio- cultural factors.
4. Compare and correlate differences and similarities between vernacular styles in different regions.

COURSE CONTENTS:

UNIT-I

INTRODUCTION

Definition and classification of Vernacular architecture – Vernacular architecture as a

process – Survey and study of vernacular architecture: methodology- Cultural and contextual

Responsiveness of vernacular architecture: an overview. Different approaches and concepts to the study of vernacular architecture: an over view – Aesthetic, Architectural and anthropological studies in

detail.

UNIT-II

VERNACULAR ARCHITECTURE OF THE WESTERN AND NORTHERN

REGIONS OF INDIA

Forms spatial planning, cultural aspects, symbolism, color, art, materials of construction and construction technique of the vernacular architecture of the following:

Deserts of Kutch and Rajasthan; Havelis of Rajasthan

Rural and urban Gujarat; wooden mansions (havelis); Havelis

Geographical regions of Kashmir; house boats

UNIT-III

VERNACULAR ARCHITECTURE OF SOUTH INDIA

Forms, spatial planning, cultural aspects, symbolism, art, color, materials of construction and construction technique, proportioning systems, religious beliefs and practices in the vernacular architecture of the following:

Kerala: Typologies: Koothambalam, Nallukettu and other traditional forms.

Tamil Nadu: Houses and palaces of the Chettinad region and Temple towns.

UNIT IV

COLONIAL INFLUENCES ON VERNACULAR ARCHITECTURE OF INDIA

Colonial influences on the Tradition Goan house - Evolution of the Bungalow from the traditional Bangla, Victoria Villas – Planning principles and materials and methods of construction.

Settlement pattern and house typologies in Pondicherry and Cochin.

REFERENCES:

1. Paul Oliver, Encyclopedia of Vernacular Architecture of the World. Cambridge University Press, 1997
2. Amos Rapoport, House, Form & Culture. Prentice Hall Inc.1969
3. R W Brunskill: Illustrated Handbook on Vernacular Architecture. 1987
4. V.S. Pramar, Haveli: Wooden Houses and Mansions of Gujarat.Mapin Publishing Pvt. Ltd., Ahmedabad, 1989
5. Kulbushanshan Jain and Minakshi Jain: Mud Architecture of the Indian Desert. Aadi Centre, Ahmedabad, 1992

6. G.H.R. Tillotsum: The tradition of Indian Architecture Continuity, Controversy – Change since 1850. Oxford University Press, Delhi, 1989
7. Carmen Kagal: VISTARA – The Architecture of India.The Festival of India, 1986
8. S. Muthiah and others: The Chettiar Heritage; Chettiar Heritage 2000

Course Code	Course Title		L	T	P	Total	Contact Hrs
BR17AR5082	**Conservation**	SC	4	0	0	4	4

Course Objectives:

- To introduce students to conservation processes of historical precincts.
- To define the Stages of conservation, different agencies involved in conservation process.

COURSE OUTCOMES:

1. Explore the different types of conservation process
2. Assess the condition and value of a heritage building.
3. Explore the different levels of intervention in a heritage building.

Describe the principles of conservation

Course Contents:

UNIT –I

Introduction: Definition, types, need; principles, ethics & value; tangible & intangible components, Degree of Intervention; Evaluation & assessment; Documentation; Procedures & techniques; Concepts & prevailing practices in conservation, restoration, retrofitting, rehabilitation, consolidation, protection, adaptive reuse. Architectural Conservation: Preservation & conservation philosophies; Pioneers & societies in field of conservation; International Charters; International approaches from UNESCO, ICCROM, GETTY foundation, etc.; National approaches: A.S.I., State Archeology, INTACH, Urban Art Commission, Heritage Commissions, local bodies, etc.; Techno legal provisions, codes & byelaws for interventions.

UNIT II

Assessment of Building Condition: Understanding of original building conditions; Documentation of current conditions- non-destructive survey methods, environmental monitoring, simple & sophisticated analytical methods; Types & causes of damages; Damage to building components & structural systems - super structure & substructure; Location & degree of damages - defect monitoring methods, their impact - diagnosis of failure & damages.

UNIT III

Preservation Techniques In Architectural Conservation: Analysis of problem; Types , Degrees & Limitations for intervention; Levels of intervention- Structure, building complex, precinct & heritage zone; Provision of solutions for repair & replacement of components; Restoration (in case of living monuments), preservation, reconstruction & maintenance. Sequence & phasing; Materials & methods; Detailing & finishing.

UNIT IV

Case Studies in Architectural Conservation: Examples of iconic conservation projects; Heritage zones; Conservation strategies- documentation, analysis, techniques, interventions & outcomes; Models of preservation, reconstruction & adaptive reuse. Influences & benefits - Physical, contextual, political, social, cultural, economic, ecological, tourism, technological, material, spatial & visual.

Course Code	Course Title		L	T	P	Total	Contact Hrs
BR17AR5083	**Housing**	SC	4	0	0	4	4

Course Objectives:

- Introducing the basic concepts and issues related to housing.
- Trace the evolution of Housing
- Elaborate on housing policies, methods and innovative solutions

COURSE OUTCOMES

1. Demonstrate a firm grasp of housing related issues in the global context.
2. Acquire knowledge of modern concepts and innovative ideas to address housing issues.
3. Employ concepts learnt to arrive at innovative design solutions in Housing

Course Contents:

Unit – I

Basic concepts in housing- density, dwelling units size, household size, housing quality
Importance of housing, Stakeholders in housing- users, housing agencies, policy makers
Brief review of the historical development of housing in various contexts.
Housing standards for rural and urban areas
Housing stock, Housing need and Demand, housing shortage

Unit – II

Evolution of Housing policy and perspective at the national level from 1950s to present.
Brief introduction to the problem of slums in urban areas and strategies for slum up gradation

Concepts of Social housing, housing affordability, inclusiveness
Case studies of social housing from India and abroad

Unit – III

Housing design-Traditional pattern of housing design Row Housing, Cluster Housing layout of concepts, low rise verses high rise housing with examples

Relevance of Residents' Satisfaction in housing, Factors that affect residents' satisfaction in housing, psychosocial considerations, preparation of questionnaire and mock survey in different housing typologies

Unit – IV

Case studies of innovative housing projects from around the world covering concepts such as flexible/modular housing, Disaster resilient housing, innovative usage of materials, Climate sensitive housing, participatory housing etc.

Reference books:

1. ChattopadhyaySubrata, New Essays on Inclusive housing. Macmillan Publications.
2. Chiara, De Joseph, and Others. Timesavers standard for Housing and Residential development.2" ed. McGraw Hill, Inc, New York.
3. Desai, A.R. and Pillai, Devadas. Slums and Urbanization. Popular Prakashan Pvt. Ltd.
4. HUDCO. Housing for the Low Income. HUDCO.
5. Poulose, K. Thomas. Reading Material on Housing. Institute of Town Planners. New Delhi.

SIXTH SEMESTER

Course Code	Course Title		L	T	P	Total	Contact Hrs
BR17AR601	**Architecture Design-VI**	HC	4	0	2	6	8

Course Objectives

- To outline the design principles of large scale projects (in site with contours-hilly terrain).
- To Illustrate that designs must respond to climate, environment and ecological factors.
- To integrate master plan with landscape details, circulation and services.

Course Outcomes:

On completion of the course the student shall be able to:

1. Outline the Site planning principles
2. Elaborate on Landscape details
3. Extrapolate Contour Analysis into the campus design
4. Demonstrate an ability for Space Planning.
5. Extend the knowledge of all the services to be incorporated in design.

Course Contents:

UNIT -I

Theme and Focus of Design: Climate responsive architecture:

Projects shall be of larger scale with multiple functions. Design emphasis shall be on response to climate, environment and ecological factors. Understanding, exploration & development of design programme concept & detailed design with focus on climate, environment and ecological factors. The literature study and case studies are part of above study.

UNIT -II

The design issues to be addressed for the design project pertaining to larger projects are

- Issues in Preparation of Master Plan for the project undertaken.
- Phases of development and scope for expansion.
- Comfortable Vehicular and pedestrian movement.
- Landscaping and Services.
- Details pertaining to the disabled.

UNIT –III

Identity hierarchy of spaces, public and private scales of space. The design has to respond to climate, environment, and ecology. Detailing of a common major block or a public space of larger project. The usage of materials, construction techniques must respond to environment.

UNIT –IV

Exploration, analysis, detailingofany 2 blocks of the larger project in response to environmental aspects. The design shall be sensitive to the needs of disabled, aged people and children.

Design Exercise: Large scale Institutional Design (Campus Planning) / Commercial / Industrial / Housing / Public use project of diversified activities with focus on horizontal & / or vertical circulation & grid planning. Typology: Campus, Housing and Institutions, Government complexes/offices Site extent: Upto 20000 m2.

References:

1. Time Saver Standards for building Types- Joseph De Chiara & John Callender
2. Time Saver Standards for Architectural Design Data-John Hancock Callender
3. Neuferts's Standards
4. Hotel and Resort Design- Anne M Schmid and Mar Scoviak– Lerner

Students may be required to develop a brief, translate it in to requirements and Design.

At least one major exercise and one minor design/ time problem should be given. The topics not covered as design problems will have to be covered by the studio faculty members through lecture/slide show session and site visits.

The evaluation shall be through periodic internal reviews.

The students must present the entire semester work for assessment along with Model.

Course Code	Course Title		L	T	P	Total	Contact Hrs
BR17AR602	Building Construction, materials& Working Drawings	HC	2	0	2	4	6

Course Objectives: Students are introduced to

- Working drawing of a project.
- Preparation of detail drawings of floor plans, sections, elevations.
- Preparation of detail drawings of all services.

Course Outcome:

On completion of the course the student will be able to:

- Produce detailed working drawings of a project.

Course contents:

UNIT I

Introduction and importance of detailed working drawings in architectural practice. Creating working details for a residential / commercial project starting with foundation/footing and wall details

UNIT II

Introduction to creation of working details of doors, windows, staircase and floors. Showing working details of interiors, bathrooms, W.C. electrical, plumbing and fittings.

UNIT III

Sections, Elevations; Wall sections; Section through stairs & toilet is mandatory

UNIT IV

Roof Plan including roof drainage, Stair room plan.

All Units to include drawings & details; estimation & specifications. Final outcome will be reviewed in the form of a VIVA where the working drawings produced in each unit using software will be presented.

References:

- "Construction Technology" By Chudley
- "Construction Of Buildings" By Barry
- "Building Construction, Principles, Practice And Materials" By Hardie Glen
- "Text Book Of Building Construction" By Arora &Bhindra
- "Building Construction Illustrated" By Francis D K Ching

Course Code	Course Title		L	T	P	Total	Contact Hrs
BR17AR603	Estimation, Costing and Specification	HC	3	0	0	3	3

Course Objectives:

- To provide the student sufficient knowledge of estimation in order that he can advise prospective clients on project viability and monitor/ control project cost.
- To provide the student adequate knowledge to write the specifications for a given item of work, to work out the unit cost of individual items based on their specifications and arrive at the overall cost of the project.
- To enable the student to write specifications for diverse items of civil works with a view of controlling quality of work executed at site.

COURSE OUTCOME

The student shall be able to

1. Enumerate the detailed list of items for preparation of an estimate for a simple building.
2. Derive detailed specifications for items enumerated for construction.
3. Compute the rate analysis for simple residential buildings.

Course Contents:

UNIT I

Introduction to specification

Specification- Definition, purpose, procedure for writing specifications for the purpose of calling tenders, types of specification. General specifications for 1st, 2nd, 3rd and 4th class buildings.

Specification for different items

Specifications for the following items – Bricks; sand; cement; coarse aggregate; water; reinforcement; storing and handling of materials; Earth work in foundation; PCC; RCC; First class brick work in cement mortar; half brick thick partition in cement mortar; reinforced brick work; DPC; glazed tiles in skirting and dado, cement plaster; joinery in wood, steel & aluminum; painting to walls – cement paint, oil bound distemper, acrylic emulsion, enamel paint ; painting to joinery ; varnishing ; French polishing ;

UNIT II

Introduction to estimation

Estimation– definition; purpose; types of estimate; various methods of approximate estimate of buildings study of various drawing with estimate, abstract method of taking out quantities and cost-center line method, long wall and short method or crossing method.

UNIT III

Rate analysis

Rate analysis– definition; method of preparation; quantity and labor estimate for unit work; task or outturn work; rate analysis for: earth work, concrete works, first class brick work, reinforced brick work, cement plastering, DPC with cement mortar/ concrete, finishing (cement paint, distemper, acrylic emulsion, enamel paint) to walls & ceiling.

UNIT IV

Detailed estimate

Detailed estimate– data required, factors to be considered, methodology of preparation, abstract of estimate, contingencies, work-charged establishment, bill of quantities, different methods for estimating building works, methods of measurement of works.

References:

1. M. Chakraborti: Estimation, Costing, Specification and Valuation in Civil engineering.
2. Dutta:Estimating and Costing, S. Dutta and Co., Lucknow 1983
3. PWD Specifications of Karnataka State Government,
4. CPWD Specifications of Government of India

Course Code	Course Title		L	T	P	Total	Contact Hrs
BR17AR604	Building Services – III	HC	3	0	0	3	3

Course Objectives:

To enable students to:

- Study mechanical services in a building
- Integrate & coordinate the services knowledge in architectural Design Study
- To analyze latest trend, materials in HVAC and Vertical Transportation.

COURSE OUTCOME:

The students are able to

- Incorporate mechanical services in a building
- Explore new techniques & latest materials in air conditioning like energy efficient chillers,
- energy conservation techniques.
- Integrate & coordinate the services knowledge in architectural design

Course Contents:

UNIT – I

Mechanical ventilation, ventilation for a cinema hall, Air-conditioning for human comfort & definitions, Dust control and filters, Air cycle, Refrigeration cycle, components, Air distribution - ducts, grilles etc, Classification and application air-conditioning, Heat load estimation & thumb rules

UNIT – II

Window unit, Split units without ducts, Spit unit with duct, Package unit with ducts, Direct expansion system, Chilled water system, Humidifiers& dehumidifiers

UNIT – III

Introduction to vertical circulation, Lift well, pit, doors, car, machine room etc. Typical section through lift, quality & quantity of service, Types of lifts Lift bank, lobby and lift interiors, Hydraulic & traction lift, Escalator & travellator, Lift act, architect's role, Double Decker lift, sky lobby, current scenario.

UNIT –IV

Graphical representation of advanced services for a particular project carried out in previous semester may be of public or commercial building, like air conditioning details, fire escape routes, fire fighting facilities like portable and non-portable systems.

References:

1. Principles of Air-conditioning by Paul Lang, D B Taraporevala Sons & company Limited
2. Building Service Engineering – by David V Chadderton, E & FN SPON – an Imprint of Chapman & Hall
3. Building Construction illustrated by Frnacis D K ching, CBS Publishers & Distributors
4. Building Environment – By Dr. AjithaSimha, Tata Mc-Graw Hill Publisher Co Ltd, ND
5. Mechanical System for Architects by Aly S Dadras, Mc-Graw Hill, Inc.
6. Lifts – company manuals / Brochures

Course Code	Course Title		L	T	P	Total	Contact Hrs
BR17AR605	Structures VI	HC	2	0	1	3	3

COURSE OBJECTIVES:

- To give an understanding of special structural forms.
- Explain the theory behind tall structures, earthquake resistant structures.
- Introduce the concepts of floating, suspended structures and bridges

COURSE OUTCOMES: On successful completion of the course the student shall be able to

1. Explain about various earthquake resistant structures
2. Elaborate on tall buildings- loads and forces calculation
3. Define floating structures

Describe Suspended Structures

COURSE CONTENTS:

UNIT I:

Introduction to earthquake resistant structures, types of waves, earthquake zones according to IS code. Causes of earthquakes, seismic waves, magnitude, intensity, characteristics of strong earthquake ground motions.

UNIT II:

Introduction to tall buildings, development & uses.
Loads & forces on buildings. Vertical forces, Horizontal forces, internal forces

UNIT III:

Introduction to Floating structures, different types, and techniques used.
Case studies through literature, appropriate website.

UNIT IV:

Introduction to Suspended structures and Bridges

VIVA will be comprising of a combination of Design & Portfolio sheets.

4.

References:

1. Krishna Raju N " structural design and drawing" (RCC & steel).
2. Krishna Raju N " Prestressed concrete".
3. Dongre A P " Structural engineering for architects".
4. Pankaj Agarwal, Manish shrikhande" Earthquake resistant structures".
5. David J dowrick" Earthquake resistant design"

Course Code	Course Title		L	T	P	Total	Contact Hrs
BR17AR606	**Advanced Computer Aided Design**	HC	1	0	1	2	3

Course Objectives:

- To develop skills required in using computers as a tool for architectural design representation
- To develop techniques for visualization & to create outputs using advanced software.

Course Outcomes:

On completion of the course the student will be able to:

1. Use advanced software for Building visualization & Design representation.
2. Visualize the Materials & Lighting aspects of Design & create realistic renderings.
3. Design and document all design details using this software.

Course Contents:

UNIT I

Introduction to 3D modeling: – Introduction to concepts of BIM (Building Information Modeling). Introduction to appropriate techniques to model walls, insert fenestration, staircases.

UNIT II

Classroom exercises to convert time problem or works of 2D works of previous semester into 3D project, relationship to other file types (dwg for AutoCAD, .3ds for Sketch up).

UNIT I

Understanding the How, Why and What of Research writing: Choosing a topic, Literature review, conceptualizing the framework, forming the research question, research methods and problem solving. Writing the findings in the form of a report or paper.

UNIT II

Introduction to DE constructivism and 21st Century Architecture: Study the works and philosophies of Architects who defined the style.

UNIT III

UNIT III

Introduction to material library, architectural components such as furniture, joineries, landscape-application of these techniques into 3D project.

UNIT IV

Classroom exercises to convert time problem/works of previous semester into 3D project. Introduction to rendering and visualization-Generating 3d Model and introduction to concepts of visualization using rendering engines.

References:

1. http://designbuildacademy.com/wp-content/uploads/2015/10/REVIT_Walkthrough_getting-Started.pdf
2. http://bimscape.com/beginners-guide-to-revit-architecture/
3. https://www.sdcpublications.com/pdfsample/978-1-58503-812-1-2.pdf
4. http://images.autodesk.com/adsk/files/revit_architecture_2011_user_guide_en.pdf
5. https://www.ace-hellas.gr/wp-content/uploads/2014/10/978-1-58503-973-9-7.pdf

Course Code	Course Title		L	T	P	Total	Contact Hrs
BR17AR607	Landscape Architecture	HC	1	0	1	2	3

Course Objectives:

- To introduce students to the discipline of landscape architecture.
- To develop basic skills required in handling landscape design project.
- To enlighten the students to open space design as an extension of architecture.

COURSE OUTCOMES

1. Outline the importance and significance of landscape and its extent
2. Classify the types of landscape features and varieties.
3. Demonstrate an ability to introduce landscape architecture alongside, as an extension of architecture of the built.
4. Ascertain the pros and cons of proposed or existing landscape of any location.

Course Contents:

UNIT I:

Introduction to landscape architecture and role of Landscape design in built environment. Evolution of concepts in landscape design in integrating built spaces to open spaces

UNIT II:

Landscape elements- Land forms, water and vegetation. Principles of landscape design, and built environment. Selection and management of plant material in relation to built environment, taxonomy and classification of plants. Study and analysis of existing landscaped areas Introduction to study of plant materials in relation to landscape architecture and design. Appearance, functional and visual effects of plants in landscape design Selection and management of plant material in relation to built environment, taxonomy and classification of plants, trees, shrubs

UNIT III:

Site planning and site analysis with reference to different characteristics like topography, vegetation, hydrology, access, surroundings etc. Philosophical and design issues related to site development-spatial and contextual relationships of built and outdoor space and circulation, site and its relationship to surroundings, importance of climate and social factors in development of site.

UNIT IV:

Natural and manmade landscape in urban and rural landscape. Contemporary attitude to development and design of open spaces-like urban spaces, courtyards, gardens, parks, Streetscape, street furniture, pavements and other architectural elements in relation to Landscape design

Studio exercises emphasizing relationship between built form and outdoor areas and site planning issues.

Reference Books:

1) .Blane Alan, Landscape Construction and detailing B T Batsford Ltd, London 1996.
2) Colise Brenda, Land and Landscape.
3) G. Eckbe “Landscape for Living”
4) Trivedi, P. Pratibha, Beautiful Shrubs. Indian Council of Agricultural Research, New Delhi, 1990.
5) Lynch, Kevin, Site Planning, IT Press, Massachusetts, 1962.
6) Laurie, Michael, An introduction to Landscape, II Ed, Prentice Hall, New Jersey, 1986
7).Santapau. H. Common Trees, National Book Trust, NewDelhi, 1981.
8) J.O. Simmonds, “Landscape Architecture”

Course Code	Course Title		L	T	P	Total	Contact Hrs
BR17AR608	Architectural research writing	HC	4	0	0	4	4

Course Objectives:

1. To expose the students to basic research methods in architecture
2. To facilitate the selection, formulation and conduct of a small research exercise related to architecture
3. To familiarize students with basics of academic writing and referencing
4. To cultivate communication skills required to communicate the research outcomes in form of research paper, audio visual/verbal presentations.

Course Outcomes:

On completion of the course, learners will be able to:

1. Demonstrate an understanding of research methods in architecture
2. Explore the realms of their selected topics using primary and secondary research techniques.
3. Acquire skills in academic writing and referencing

Cultivate effective skills to communicate the outcome of the research study

Architectural Research writing:

Students are introduced to the idea of writing research papers in Architecture through self- study.

The course on Architectural criticism attempts to give students an understanding of methods employed in architecture criticism and examine the leading architecture discourses that drives the practice & production of architecture. To learn how to present architecture criticism.

Course Contents:

UNIT I

Understanding the How, Why and What of Research writing: Choosing a topic, Literature review, conceptualizing the framework, forming the research question, research methods and problem solving. Writing the findings in the form of a report or paper.

UNIT II

Introduction to the Architectural Criticism: The need for critical thinking and reasoning in Architecture. The theoretical basis for architecture criticism. Critical discourses in Architecture. The interdisciplinary nature of Architecture theory- power to draw from arts and science. Modes of architectural criticism- Descriptive, Analytical, the influence of different ideologies and power structures on architecture – how architecture influence power structure.

UNIT III

Modes of architectural criticism- Descriptive, Analytical, the influence of different ideologies and power structures on architecture – how architecture influence power structure. Communicating the architectural criticism. Analysis of critical writings in Architecture. The power of rhetorical in criticism. One to one interaction with the Faculty on choosing one specific case study. Defining the abstract and preliminary draft of the paper.

UNIT IV

Presenting a Seminar Paper on any one Critical theory or Architect.

VIVA will be comprising of a combination of Portfolio sheets, sketch book or journal, Paper presentation in the form of a seminar.

All research papers will be published in the form of a book by the School, for documentation purpose.

SEVENTH SEMESTER

Course Code	Course Title		L	P	D	Total	Contact Hrs
BR17AR701	**Architecture Design-VII**	HC	5	0	5	10	10

Studio Theme: Infrastructural Development

Course Objectives:

Students shall get an understanding of increasing demands for functioning sustainable cities.

To involve students in designing larger projects of higher complexities. An integration of knowledge gained in Construction, Structures, Landscape, Services, Bye laws and codes etc. is required.

Student to define the design approach at the start of the project, for e.g. sustainable design, Energy Efficient Design, Structural, or any other.

Designing the un-built environment of Landscape, and applying knowledge of Place making in planning the Public spaces is required.

Projects can be of the complexity level of Multi- Specialty Hospitals, Transportation Hubs – Bus Terminus, Airports, Metro stations, 5 Star Hotels or resorts.

Course Outcome:

Explore the possibilities in contextual design
Relate the materials for functional needs and aesthetics.
Elaborate Space Planning and Integrated Material usage

Course Contents:

UNIT – I

Literature Study and Case Study

Identifying a suitable case study in the City which fits the project brief and doing the study. May be broken up into different components to facilitate group work. Individual Literature studies from available Internet sources and Books to be done.

Site Selection, analysis and Concept development.

UNIT – II

Development of Design

Design developments through study Models, Plans, Sections, area analysis, Mapping with City Bye law's and Zoning. Resolving Vertical services, Firefighting, HVAC and structural systems.

Continuous emphasis on controls, codes and bye-laws.

UNIT – III

Delivery of the Design

Detailed double line Plans, elevations, Sections and models using computer aided software or Manual drawings.

UNIT -IV

Time Problem - Detailed Design of taking one component for ancillary block - e.g. Restaurant / Office/ Hospital Room/ Laboratory.

STUDIO PROJECTS:

Major Project:

Airport design with added infrastructure like shopping, Interactive open spaces etc OR Resort Type Hotels with multiple units and landscaped areas for public interaction, OR Serviced apartment complexes in City Centers with added infrastructure like club, shopping, offices etc.

Time bound problems: They are the effective ways to learn to give quick solutions that can be implemented. It tests the logical ability and presentation skills that are very much required in the real world.

Detailing of a unit within the larger design can be taken up for this.

For eg: Adapting new techniques of roof cover to be applied to a public interactive space, thereby understanding relation between Built and Un-built spaces.

Reference books:

4. Time savers standards for architectural design data – by John Callender (Editor)
5. Architectural design data – by Ernst Neufert.

Course Code	Course Title		L	P	D	Total	Contact Hrs
BR17AR702	**Professional Practice, Values & Ethics**	HC	1	1	0	2	3

Course Objectives: Students are introduced to

- Outline the Professional responsibilities within the ambit of the laws of the land,building codes, contract documents and ethics.
- Orient to the legal aspects, legislations having a direct impact on Architecturalpractice.
- Read about tender and contracts.

Course Outcome:

On completion of the course the student will be able to:

- Describe the various aspects of Architectural Practice such as the types of services offered,the scale of fees and stages of payment, types of Architectural firms, types of tenders etc.
- Outline the guiding principles of Professional Practice, including Professional ethics.
- Apply the knowledge learnt through the course into everyday use

Course Contents:

UNIT I:

Introduction to Profession Practice-Idea of profession and essential differences among profession, trade and business. Profession of Architecture-Types and extent of services offered by architects, scale of fees, stages of payment, and contract between client and architect. Code of Professional Conduct-Council of Architecture's guidelines on competitions, types and classifications of competitions. Building Industry-Overview of the industry, Finance, statutory controls, construction procedures and enforcement issues related to building industry and the role of architect, employer, and contractor.

UNIT II:

Architectural Practice1- Types of Architectural firms, proprietorship, partnership, associate ship. Architectural Practice-2: Various means of building client base and gaining projects.

Tender1& 2 - Procedure of calling for tender, documents necessary, Types of tenders, process of selection and award. Architect's role in tender process, Earnest Money Deposit, Security Deposit, Retention Amount, Mobilization Amount and Bonus & Penalty Clauses.

UNIT III:

Introduction to Contract Administration & Issues of Contract- Bill checking, quality auditing, handover procedures and final certification. Termination of contract, Certificates of value and quality, Defects liability period, Liquidated and un-liquidated damages, Extension of time, delays and penalty, Non tendered items, additional works, variations, rate analysis and architect's role in certification of variations, Types of insurance necessary during contract including fire insurance for safeguarding client's interest. Project formulation - BOT, DBOT, BOLT, BOO.Understand the process - Expression of Interest, Request for proposal, Mode of evaluation, evaluation of Bid, Award of work. Site Supervision, meeting, co-ordination, instructions etc.

UNIT IV

Byelaws, Architect's liability, Legislations and current Trends- Building byelaws, National Building Code, Liabilities - Safeguards in construction industry such as performance bonds, insurance warranties, retention, indemnities, and estoppels and liquidated damages. Legislations - DCR, Factories acts, Heritage Act, TDR, Barrier free environment, CRZ and others

Reference Books:

7. "Professional Practice for Architects & Engineers" By Roshan Namavathi
8. "Legal and Contractual Procedures for Architects" By Bob Greenstreet
9. "Professional Practice" by KG Krishnamurthy and SV Ravindra
10. "Handbook on Professional Practice"By Indian Institute of Architects.

Course Code	Course Title		L	P	D	Total	Contact Hrs
BR17AR703	**Building Services-IV (Acoustics)**	HC	3	0	0	3	3

Course objective:

- To know the properties and characteristics of Sound.
- Outline the science of Acoustics.
- To explore how Open Air Theatres and auditoriums in ancient Rome used the principles ofAcoustics in design.
- Calculations and formulae required in Acoustical Design.
- Methods of Achieving Noise control – Natural and Manmade.
- Methods and Materials in Acoustical Insulation.

Course Outcome:

On completion of the course the student will be able to:

- Diagnose the properties and characteristics of Sound.

- Explore the science of Acoustics.
- Figure-out the working principles of open air theatres and auditoriums of ancient period, which worked without the use of modern technology.
- Identify the need of acoustical treatment at various places for absorption, reflection and diffusion
- Acquire the formulae and calculations required in Acoustical Design.
- Adapt the methods of Achieving Noise control by using both Natural and Manmade.
- Acquire the Methods and Materials with different NRC in Acoustical Insulation.

Course Contents:

UNIT I

Introduction to architectural Acoustics - Characteristics and measurements of sound, frequency, intensity, decibel scale, effect of sound on man - design criteria of sound for various architectural spaces, acoustical problems. History behind Theatres and amphitheaters.

UNIT II

Acoustics in built environment - Behavior of sound in enclosed spaces, reverberation and reverberation time, Sabine's formula and its interpretation, dead and live rooms, sound field of classrooms, offices and studios.

Auditorium acoustics - design criteria

UNIT III

Noise Control - Classification of Noise, Environmental impact of noise and acceptable noiselevels. Principles of noise control - noise sources, airborne and structure borne sound.

Vibration isolation - damping of noise, noise barriers, noise transmission through ducts, Design criteria for industrial noise control, planning considerations, use of unit absorbers, treatment of floor & wall

UNIT IV

Acoustic materials and applications

General description on properties of acoustical materials – tile, boards, fibers, carpets, resonator absorbers, unit absorbers, composite materials and acoustic plaster, panel absorbers.

Construction details of acoustic treatment on walls, ceiling and floors, floating floor construction acoustic panels and screens, maintenance of acoustic treatment.

References:

4. "Architectural Acoustics Principles and Design"By David R. Johnson and Madan L. Mehta.
5. "Auditorium Acoustics and Architectural Design"By Michael Barron.

6. “McDavid Egan (1988)-Architectural Acoustics” McGraw hill book co., NY.
7. Parich, Peter (1979) Acoustics: Noise and Buildings, Faber and Faber, London

Course Code	Course Title		L	P	D	Total	Contact Hrs
BR17AR704	**Interior Design**	HC	0	1	1	2	3

Course Objectives:

- To familiarize the students with an overview of interior and furniture design anddesign movements through history.
- To inform the various components of interior space and treatment and finishes forthe same.
- To enable students to design an interior project applying all knowledge gained.

Course outcomes:

On completion of the course the student will be able to:

1. Characterize the guiding principles of Interior Design.
2. Enumerate the different components of Interior Design
3. Articulate the integration of lighting, services and landscaping into Interior Design
4. Enumerate the latest finishes and products available in the field of Interior Design and integrate all the above into the final outcome in the form of drawings.

Course Contents:

UNIT – I

History and Introduction - Definition and process of interior design - vocabulary of interior design in terms of principles and elements. Understanding interior spaces using activity analysis and anthropometrics. Effect of enclosure, fenestration, color, lighting on perception of interior space. Psychological effects of space.

Designing for Comfort- natural and artificial lighting, air conditioning and acoustics.

UNIT – II

Components of Interior Spaces

Interior Treatment and Finishes: floors, ceilings, walls, partitions, window treatments, accessories

Furniture Design: Importance of furniture, Ergonomics, Materials, matching Furniture to Themes.

Furniture for specific types of interiors: office furniture, children’s furniture, residential furniture.

UNIT – III

Integration into Design - Interior lighting - types of lighting fixtures, Interior landscaping elements: rocks, plants, water, flowers, fountains, paving, artefacts, etc., their physical properties and effects on spaces

Integrating Services into Interior Design: Water supply and drainage, Electrical, Air-conditioning.

UNIT IV

Design of Interiors (Office, Restaurant, Hotel etc.,) - Drawing Plan, Sections, Elevations specifying Materials, methods of construction, detailing showing furniture Layout etc. Should be represented using Manual or Digital software.

References:

1. "Construction and Detailing for Interior Design" By Drew Plunket
2. " Interior Architecture From Brief to Build" By Jennifer Hudson
3. " Key Interiors Since 1900" By Graeme Brooker
4. "Time Saver's Standards for Interior Design", Joseph DeChiara, Julius Panero, Martin Zelnik, McGraw-Hill Professional 2001
5. "Interior Design", John F.Pile, John Wiley and Sons 2004
6. "The Impulse to adorn - Studies in traditional Indian Architecture", Dr.Saranya Doshi, Editor, Marg Publications 1982
7. "Introduction to Interior Design", Steport - De - Van Kness, Logan and Szebely, Macmillan Publishing Co NY 1980.
8. " Human Dimensions and Interior space", Julius Penero and Martin Zelnik, Whitney Library of Design NY 1979

SOFT CORE COURSES

Course Code	Course Title		L	P	D	Total	Contact Hrs
BR17AR7051	**Urban Planning**	SC	3	0	0	3	3

Course Objectives:

To give an understanding on ancient planning methodologies adopted by the ancient civilizations until the concept of New Towns.

To impart the importance of planning at a City level.

To describe various aspects in planning like Land use, Infrastructure, Transportation, Housing, and integrating them at a Town or City level.

To give an overview of Process of Planning and the implementation mechanism.

Course Outcomes: Students would have developed an understanding of

Different planning methodologies.
Planning process and its implementation with respect to the present context.

Course Contents:

UNIT I:
History of Town Planning - Ancient town patterns, Impact of industrialization and technology, Evolution of modern town planning concepts their Characteristics and classification. Model towns, garden cities, satellite towns, suburbia, green belts.Case studies of New Towns.

UNIT II
Planning Principles- National planning, regional planning, and town planning
Principles of land use planning, Principles of environmental planning control of land, water and air pollution.
Planning for Environmental conservation- Ekistics units and grids.

UNIT III
Planning Process and Implementation - Process of preparation of Master plans and developments and development plans - structure plans.Causes for urban blight-remedial planning measures. Housing-concept of L.I.G/ H.I.G and slum clearance boards.

UNIT IV
Planning For Future - Urban Renewal, Re- Planning, Urban Conservation, Concept of Decentralization and Recentralization.
CASE STUDIES- Modern Towns in India /Abroad.

References:

1. "The urban pattern" Arthur Gallion
2. "Garden cities of Tomorrow" Ebenezer Howard
3. "Design of cities" Edmund Bacon
4. "An Introduction to Town and Country Planning", John Ratcliffe, Hutchinson 1981
5. Urban Planning- theory and practice, Pratap Rao, CBS Publishers.
6. Urban Planning- Anthony J. Catanese, James C. Snyder. McGraw Hill.

Course Code	Course Title		L	P	D	Total	Contact Hrs
BR17AR7052	**Urban Design**	SC	3	0	0	3	3

Course Objectives

- To impart the knowledge about various developments in the field of urban Design.
- To give an overview of urban design as an interface between the fields ofarchitecture and urban planning.
- To describe changing trends due to urbanization and sub-urbanization of cities.

Course Outcomes:

On completion of the course the student will be able to:

- Demonstrate an ability to comprehend the nature of urban design their related problem and create a brief which sets the frame work for design.
- Analyze urban form, size, qualitative and quantitative techniques of assessing requirements and planning amenities.

Course Contents:

UNIT 1

Introduction to Urban design - Discussion on Architecture, Urban Design, and Nature of urban design projects in public and private developments. Urban design guidelines followed during various periods. Characteristics of towns built by Hindu and Muslim Rulers in India.

UNIT 2

Structure of cities- sectors, blocks, streets, squares buildings and open spaces. Elements of Urban Spaces: squares and streets. Role of planning agencies such as development authorities, Urban Arts Commission in the development of cities. Influence of city development policies namely Master plans, zoning regulations on urban Design.

UNIT 3

Urban Design process - Field Study, Identification of area for study.

UNIT 4

Design Proposals, Developments, and urban design guidelines.

References:

6. **Bacon N. Edmund**. Design of cities. Penguin Books, New York 1976.
7. **Krier Rob**, Urban Space 3rdEd, Academy Editions, London 1984.
8. **Mumford Lewis** City in History, Its origin transformation and itsprospects.
9. **Paul Sprelregen Urban Design**: The architecture of Towns and cities
10. **Morris, Anthony, J.E.** History of Urban Form.
11. **Kostof, Spiro,** City Shaped: Urban Patterns and MeaningsThrough History.

VII SEM	ONLINE_OPEN_ELECTIVE	BR17AR7061
DURATION	12 WEEKS	
WEEKLY	2 CLASSES	
NAME OF THE SBJECT	System Design for sustainability	
STARTING OF SESSION	14 SEP 2020	
END OF SESSION	04 Dec 2020	
EXAM DATE	19 DEC 2020	

COURSE NAME: System design for sustainability

COURSE LAYOUT

Week 1: Basics - What is sustainability, sustainable development and why do we need it?
Week 2: Basics - Evolution of sustainability within Design
Week 3: Product Life Cycle Design – Methods & Strategies
Week 4: Product Life Cycle Design – Software Tools
Week 5: Sustainable Product-Service System Design – Definition, Types & Examples
Week 6: Sustainable Product-Service System – Transition Path and Challenges
Week 7: Designing for Sustainable Product-Service System – Methods and Tools
Week 8: Designing for Sustainable Product-Service System – Methods and Tools
Week 9: Designing for Sustainable Product-Service System – Methods and Tools
Week 10: Other Design for Sustainability Tools and approaches
Week 11: Design for Sustainability – Engineering Design Criteria and Guidelines
Week 12: Summary - Connecting the threads

BOOKS AND REFERENCES

Vezzoli, C., Kohtala, C., Srinivasan, A., Xin, L., Fusakul, M., Sateesh, D. and Diehl, J.C.,2017.Product-service system design for sustainability. Routledge. [this is a copy-left bookavailable online] http://www.lens-india.org, http://www.lens-international.org [a copy-left bank of learning resources created by the International Learning Network in Sustainability]

INSTRUCTOR BIO

Prof. Sharmistha Banerjee

IIT Guwahati

harmistha Banerjee is working as Assistant Professor at Department of Design at IIT Guwahati. She did her bachelor in Industrial Design from IIT Guwahati and a master in Integrated Product Design from Technical University of Delft, Netherlands. Her PhD is under progress at IIT Guwahati in the domain of Design for Sustainability applied to agricultural machinery design. She is focused in the area of sustainable product & system development in a collaborative work

environment. She has established the Sustainability and Social Innovation Lab alongwith her colleagues at Department of Design which is also part of the International Learning Network on Sustainability, a consortium of more that 150 global universities working in this domain.

SUMMARY

Course Status :	Upcoming
Course Type :	core
Duration :	12 weeks
Start Date :	14 Sep 2020
End Date :	04 Dec 2020
Exam Date :	19 Dec 2020
Enrollment Ends :	21 Sep 2020
Category :	Design Engineering, Product Design
Level :	Postgraduate

This is an AICTE approved FDP course

Course Link: https://swayam.gov.in/nd1_noc20_de07/preview

VII SEM	ONLINE_OPEN_ELECTIVE	BR17AR7062
DURATION	12 WEEKS	
WEEKLY	2 CLASSES	
NAME OF THE SBJECT	Glass in buildings : Design and applications	
STARTING OF SESSION	14 SEP 2020	
END OF SESSION	04 Dec 2020	
EXAM DATE	19 DEC 2020	

COURSE NAME: Glass in buildings: Design and applications

COURSE LAYOUT

Modern Architectural Requirements

- Requirements as per Standards – NBC – Fire & Structural

How to design a Sustainable Building

- Building Physics
- Green Buildings Requirements
- Codal Recommendations – ECBC/IS
- Segment Based Design

Manufacturing of glass

- Types of Glass
- Coating Technology – High Performance Glass
- Innovative Applications – Electrochromic & Digital Printing

Processing

- Tempering/ Double glazing/ Lamination
- Printing on Glass

Glass as Building Envelope Material

- Glass Parameters
- Façade Fundamentals
- Façade Design & Testing
- How to Design Façade for Daylighting & Energy efficiency – Modeling
- Design Tools & Simulation Software's used for Design
- How to understand high performance glass
- Glass for Acoustics, Fire & Interior applications
- Glass for Safety & Security

Case Studies

- On Design & Detailing
- Application Impact
- Building Measurements & its Impact

BOOKS AND REFERENCES

- Structural Glass Facades and Enclosures
- Mic Patterson; Glass in Architecture
- Michael Wigginton; Envelope Design for Buildings
- William Allen; JosephSAmstock's Glass in Construction;

INSTRUCTOR BIO

Prof. K N Satyanarayana

IIT Madras

Prof. E. Rajasekar

IIT Roorkee

Dr. E. Rajasekar is an assistant professor at the Department of Architecture and Planning ,IIT Roorkee, India. He is an Architect with post-graduation in Building Technology and Construction Management and PhD on Thermal comfort and building performance from IIT Madras. He is a Shastri Indo - Canadian Institute Doctoral Fellow.He specializes in the field of building performance assessment focused on the thermal,acoustics and lighting parameters.He carries a rich research and industry experience in this field and has published more than 20 technical papers in peer-reviewed journals and conferences. He is a USGBC LEED accredited professional and a GRIHA certified professional.

SUMMARY

Course Status :	Upcoming
Course Type :	core
Duration :	12 weeks
Start Date :	14 Sep 2020
End Date :	04 Dec 2020

Exam Date :	19 Dec 2020
Enrollment Ends :	21 Sep 2020
Category :	Civil Engineering
Level :	Undergraduate

This is an AICTE approved FDP course

Course link: https://swayam.gov.in/nd1_noc20_ce47/preview

VII SEM	ONLINE_OPEN_ELECTIVE	BR17AR7063
DURATION	12 WEEKS	
WEEKLY	2 CLASSES	
NAME OF THE SBJECT	Integrated Waste Management for a Smart City	
STARTING OF SESSION	14 SEP 2020	
END OF SESSION	04 Dec 2020	
EXAM DATE	20 DEC 2020	

COURSE NAME: Integrated Waste Management for a Smart City

COURSE LAYOUT

Week 1: Introduction to Solid Waste Management
Week 2: Municipal Solid Waste Characteristics and Quantities
Week 3: MSW Rules 2016, Swachh Bharat Mission and Smart Cities Program
Week 4: Municipal Solid Waste Collection, Transportation, Segregation and Processing
Week 5: Disposal of Municipal Solid Waste: Landfill
Week 6: Biochemical Processes and Composting
Week 7: Energy Recovery from Municipal Solid Waste
Week 8: Current Issues in Solid Waste Management and Review of MSW Management Status in First List of 20 Smart Cities in the Country
Week 9: Construction and Demolition (C&D) Waste Management - Overview
Week 10: C&D Waste – Regulation, Beneficial Reuse of C&D Waste Materials
Week 11: Electronic Waste (E-Waste) Management – Issues and Status in India and Globally
Week 12: E-Waste Management Rules 2016 and Management Challenges

BOOKS AND REFERENCES

1) William A Worrell and P. AarneVeslind Solid Waste Engineering, 2nd Edition (SI Edition) Cengage Learning, 2012 (ISBN-13: 978-1-4390-6217-3)
2) George Tchobanoglous, Hilary Theisen and Samuel A Vigil, Integrated Solid Waste management, Tata McGraw Hill
3) Manual on Solid Waste Management, prepared by The Central Public Health and Environmental Engineering Organization(CPHEEO), India
4) MSW Management Rules 2016, Govt. of India, available online at CPCB website.
5) Electronic Waste Management Rules 2016, Govt. of India, available online at CPCB website

INSTRUCTOR BIO

Prof. Brajesh Kumar Dubey

IIT Kharagpur

Professor Brajesh Kr. Dubey has his bachelors degree in Civil Engineering (Hons) from Indian Institute of Technology (IIT) Kharagpur, India and PhD in Environmental Engineering Sciences, University of Florida, Gainesville, Florida, USA. He is presently Associate Professor (Integrated Waste Management and Sustainable Engineering) in the Division of Environmental Engineering and Management at Indian Institute of Technology (IIT), Kharagpur, India. Dr. Dubey has more than 17 years of research, teaching, training and industrial outreach experience in the areas of Integrated Solidand Hazardous Waste Management, and Sustainable Engineering and Application of Life Cycle Assessment techniques. He also works in the area of Life Cycle Analysis and Sustainable Engineering. He has been teaching courses in the area of Solid Waste Management, Hazardous Waste Management, Life Cycle Analysis and Environmental Risk Assessment among other courses for nearly a decade. He has taught at several universities in USA, Canada, New Zealand, China andIndia. He has also conducted training programs in the Integrated Waste Management areas including that for Electronics Waste. Dr. Dubey has authored/co- authored more than 200 publications in his area of expertise and have presented at several national and international conferences. He has worked as Waste Management Expert for UN agencies and World Bank.

SUMMARY

Course Status :	Upcoming
Course Type :	Core
Duration :	12 weeks
Start Date :	14 Sep 2020
End Date :	04 Dec 2020
Exam Date :	Dec 2020
Enrollment Ends :	21 Sep 2020

Category :	Civil Engineering, Environment
Level :	Postgraduate

This is an AICTE approved FDP course

Course Link: https://swayam.gov.in/nd1_noc20_ce43/preview

Course Code	Course Title		L	P	D	Total	Contact Hrs
BR17AR707	**Vacation Assignment/ Study Tour /Summer Course**	HC	0	4	0	2	Vacation time

Course Objectives:

During Vacationsthe students are expected to do retrospection, exploration and recharge their creativity to combat the pressure of the upcoming semester.

Students are encouraged to undertake a study tour in India or International pertaining to Architectural Design Studio, History, Climatology or any other course related to the upcoming semester. The trip will include documentation work that shall be intended to enhance and support classroom learning.

Outside classroom learning can also be encouraged in the form of entrepreneurship initiative and / or development of a business model related to Architecture. For eg: Development of a mobile "Application" that can benefit the public.

Summer course conducted by the University may also be taken up by students and Grades given by the faculty handling the course may be considered for the assessment.

EIGHTH SEMESTER

Course Code	Course Title		L	P	D	Credits	Contact Hrs
BR17AR801	**Professional Training - I**	HC	0	20	4	16	(16 to 18 weeks)

Course objectives:

Practical training under an Architect registered with Council of architecture envisages the following:

Applying theoretical knowledge in Design problems under the supervision of the Architect in Larger projects
Preparing working details for actual projects.
Site Visits to Project sites.

Course Requirements:

The students of architecture are to undertake a practical training for a period of two semesters under a registered Architect or in the architectural wing/department of an organization with senior Architects in its roll. The organization may be governmental, Private or non- governmental voluntary organizations namely CPED State PWD Department or Board for Urban Planning, and NGO's involved in Housing, Urban development planning, or Environmental Planning under a senior Architect. Training may also be in allied areas namely interior design, Landscape Architecture, Visual design, etc. where a senior architect offers support and training.

The School shall scrutinize the Credentials of the training organization before permitting any student to take up the internship / practica1 training under that organization.

All Training organizations are requested to furnish the attendance and progress report every month to the School. A minimum of 80% of attendance at the Office for 20 calendar weeks is required for the students to qualify to register for the next semester.

After internship and practical training students are to submit the details of work or project in which they have involved. Report shall be submitted in written forms to the School along with a certificate from the employment along with copies of Drawings prepared.

The School at the end of the semester shall conduct the evaluation of the student's performance and achievement in the form of Viva Voce.

NINTH SEMESTER

No	Course Code	Course Title	Type	L :P : D			Total Credits	Contact Hours	Evaluation
1	BR17AR901	Professional Training – II	HC	0	20	4	16	16 to 18 calendar weeks	SEE VIVA
Total Credits							**16**		

OBJECTIVES

Practical training under an Architect registered with Council of architecture envisages the following:

- To know the general working of an office of an Architect.
- Applying theoretical knowledge in Design problems under the supervision of theArchitect.
- Preparing working details for actual projects.
- Training in project management.
- Site Visits to Project sites.

Course Outcomes:

1. Students should come up with process of working of an architect's office.
2. Students must deliver design solutions based on their theoretical knowledge.
3. Able to produce working drawings of projects
4. Capable of handling the projects and managing the same.

REQUIREMENTS

- The students of architecture are to undertake a practical training for a period of two semesters under a registered Architect or in the architectural wing/department of an organization with senior Architects in its roll. The organization may be governmental, Private or non- governmental voluntary organizations namely CPWD State PWD Department or Board for Urban Planning, and NGO's involved in Housing, Urban development planning, or Environmental Planning under a senior Architect. Training may also be in allied areas namely interior design, Landscape Architecture, Visual design, etc. where a senior architect offers support and training.

- The School shall scrutinize the Credentials of the training organization before permitting any student to take up the internship / practica1 training under that organization.
- All Training organizations are requested to furnish the attendance and progress report every month to the School. A minimum of 80% of attendance at the Office for a period of 20 Calendar weeks is required for the students to qualify to register for the next semester.
- After internship and practical training students are to submit the details of work or project

in which they have involved. Report shall be submitted in written forms to the School along with a certificate from the employment along with copies of Drawings prepared.

- The School at the end of the semester shall conduct the evaluation of the student's performance and achievement in the form of Viva Voce.

Distribution of Credits shall be as follows: Method of evaluation VIVA in presence of external Jury

S.no	Description	Duration/No of visits	No of credits
1	Training report- to include daily log and weekly reports signed by Office authority	16 to 18 working weeks	10
2	Site learnings and material study report with sketchbook	No of visits	02
3	Hard copy of drawings produced at work	No of drawings	02
4	Materials study/ Office management		02

TENTH SEMESTER

COURSE CODE	COURSE TITLE	L	P	D	TOTAL
BR17ARX01	ARCHITECTURAL DESIGN THESIS	4	0	12	22

Objective:

The Architectural Thesis is the culmination of the development of the student's knowledge, attitudes and skills over the course of studies in architecture. It is an occasion for exercising conscious choices in the field base done the students' personal abilities and inclinations, and for testing out his commitment. The student, in consultation with the faculty, is expected to demonstrate through an imaginative approach, his expertise in effecting positive changes in our built environment.

Contents:

1. The Thesis shall deal with large built environment project. Work shall be conducted and presented by the individual student in the form of technical report and design drawings. Work shall be comprehensive in nature involving primary data collection, feasibility studies and architectural programming. Large buildings, urban design projects may be taken for the final project/thesis in consultation with faculty.
2. Students are encouraged to pick up live projects.
3. The thesis shall include an area of special interest of relevance, and shall detail its application and design solution. Eg. Interior designs, Services, Socio-economic studies, Structural design, Computer software or images etc.
4. The process for Thesis Project will include – Description, Case Study, Site Study- Analysis & Inferences, Development of specific Design Guidelines; Design Program & Area Requirements, Conceptual Development, Design Development, Final Design, Presentation.

Rules and Regulations – Thesis Submission

- Each individual student in consultation with the guide appointed shall prepare initial synopsis and project plan. The project shall be submitted to the School and the thesis committee appointed by the
- School views the viability of the project. The approved topic shall be taken up by the student for the thesis work.
- Role of the guide is not only to provide academic support and facilitate but also to monitor progress of the work. The guide shall maintain the attendance of his / her student.
- The media of presentation may be unconventional drawing sheets or in digital format with appropriate signature of the school.
- A jury appointed by the School shall evaluate.
- The student has to complete the stage requirements including attending and presenting all the interim reviews in sequence with endorsement of the guide and such will only be allowed to present for the final evaluation by the School appointed jury.

Unit 1

Literature study, case study presentation through drawings and presentations. Site location finalization. The media could be digital or handmade drawings.

Unit 2:

Concept drawings

Unit 3

Design development, arriving at detail built form, site plan

Unit 4

Preparation of report of the project, Final drawings with detailed plans, elevation, sections, 3d views, details of any special aspects like sustainability, acoustics, structural integrity, Landscaping many more associated with architecture.

COURSE CODE	COURSE TITLE	L	P	D	TOTAL
BR17ARX02	CONSTRUCTION MANAGEMENT	1	2	0	3

Objective:

1. To introduce the students to the concept of construction management in the profession.
2. To introduce the students to various techniques of construction project management.
3. To familiarize students with basic computer applications for construction management.
4. To familiarize students with digital media

Ootcomes:

On completion of the course, learners will be able to:

1. Assimilate fundamental knowledge on the theory of construction management and understand the responsibility of the architect as a team player
2. Identify and resolve problems using critical thinking related to project scheduling through case studies
3. Acquire problem solving abilities pertaining to management of projects using different techniques and tools

4. Develop an insight into the application of the required software forconstruction management

UNIT-1

Concept of Construction Management: Objectives of Construction Management, Historical Background, Relevance and importance of management skills in the present day profession, Players and relationships between them in the building construction industry, Role of Architect in Construction Management, Project life cycle analysis

UNIT-2

Current management system: Scheduling of construction, planning of construction site. Advantages of network Management, network analysis, elements of network, network rules, constraints, errors in network, construction of networks (a simple Building)

UNIT-3

CPM & PERT: CPM: Critical path analysis, Project duration, Construction of CPM Calendar, Activity times and FLOATS, Optimization through CPM Techniques, PERT Technology: PERT AND Three time estimates, beta distribution curve, Slack in PERT, Critical Path Analysis of a PERT network, Central Limit Theorem, Probability of completion of projects, CPM / PERT: Difference between CPM & PERT, Bar chart versus network, resource allocation and resource leveling, Controlling and monitoring, Updating. Project time, cost and finance management.

UNIT-4

Computer applications of project management: Computer applications of project scheduling and management. Introduction to new trends and research in construction management.

Case studies- Application of knowledge & Understanding of project management tools.

Reference Books:

1. Construction Planning and Management by Dr U.K.Srivastava, Galgotia Publication Pvt Ltd, New Delhi

SOFT CORE COURSES:

Architecture Journalism

COURSE CODE	COURSE TITLE	Type	L	P	D	Total Credits	Contact Hrs.
BR17ARX031	Architecture Journalism	SC	1	2	0	2	3

Course objectives

1.To introduce to the basic structure and principles of architectural journalism
2.To explain the techniques and procedure for conducting architect and client interviews as well as video coverage
3.To illustrate the writing techniques required for architectural journalism and also explain the ethics, laws and legislation
4.To explain the techniques and legal aspects related to editing and publishing

Course outcomes

On completion of the course, learners will be able to:
1.Explore the structure, principles, processes and different mediums of architectural journalism
2.Conduct interviews, shoot videos to create walkthrough of buildings and interview of architects and client
3.Explore the different techniques adhering to the laws and legislations related to design
4. Explore the editing and publishing techniques to create a good layout for the articles related to architecture.

UNIT I

Overview – Definition, Significance, scope, purpose, structure, principles, techniques, processes, mediums, study of potential readers, contemporary architectural journalism.

UNIT II

Environment ,Social Change, Persuasion- Interviewing techniques, Argument and debate as a technique in the investigation of social problems; evidence, proof, refutation, persuasion; training in

Argumentative speaking. Theories of journalism, Introduction to architectural software's needed in journalism and photography, Video coverage, walkthrough of buildings, production of contemporary architectural journalism. Understanding the individual demands in the context of newspapers, radio, film, and television.

UNIT III

Writing techniques – Styles, format, purpose, medium, frequency, clear structure, coherent & distinctive look, visual appearance, graphic design, genres, image, descriptive & analytical reports.

Ethics, laws & legislations – Plagiarism, Intellectual property rights, Disclaimers, copyright, author's rights, patents & royalties, trade mark, legal boundaries, libel & invasions of privacy, permissions, references & credits

UNIT IV

Editing & Publishing – Proof reading, Editing techniques, Page make up, Layout, color scheme, Font, Abstract, Pictures, Ads ,News, Photo editing - Book previews, Publishing – Print & Electronic.

COURSE OUTCOMES:

On successful completion of this course, students shall be able to

PRODUCT DESIGN

COURSE CODE	COURSE TITLE	Type	L	P	D	Total Credits	Contact Hrs.
BR17ARX032	PRODUCT DESIGN	SC	1	2	0	2	3

COURSE OBJECTIVES:

- To highlight the Origin, Process and Purpose of Product design.
- To discuss human factors – the influence of ergonomics on product ideation and development.
- To explain the various aspects of product design, emphasizing effective generation and
- development of ideas to new products
- To illustrate the difference between craft based products and mass produced products.

COURSE OUTCOMES:

On successful completion of this course, students shall be able to:

1. Obtain basic skills required in handling simple product design projects.

. Analyze the process of creating a new product to be sold by a business to its customers.

3. Handle different stages of product design from concept development, detailing, materiality, technicality and imagebility.

Outline the various aspects, from idea generation to commercialization

COURSE CONTENTS:

Unit 1

Introduction to Product Design:

Various elements – History of Product Design – Definition of Product Design, understanding of Product Design - Purpose of Product Design – Role of Product Designers.

Human factors and Ergonomics:

Definition of human factors, Application of human factors data. Man-machine system and physical environment - Applied anthropometry – User centric Design – Inclusive (Universal) Design – Interaction Design (UI and UX Design)

Unit 2

Aspects of Product Design:

Visual, Auditory, Tactual, Olfactory human mechanisms, Physical space and arrangement. Visual display, process of seeing, visual discrimination, quantitative and qualitative visual display, Alphanumeric and related displays, Visual codes and symbols.

Form, Color, Symbols, User specific criteria, Material, Technology and recyclability, Packaging. Multiple Utility oriented approach to Product Design.cd

Unit 3

Design Thinking Process:

Design philosophies of famous Designers and Brands:

Brands: Alessi, Flos, Dyson, Vitorinox, Olivetti, IKEA, Freitag, Herman Miller, Angle poise, Life straw, Gufram, Driade, Droog.

Designers: Dieter Rams, Philippe Stark, Naoto Fukasawa, Achille Castiglioni, Ettore Sottsass, Fabio Novembre, konstantingrcic.

Unit 4

Empathize, Define, and Ideate, Prototype & Test.

Develop skills to conceptualize, create & market the product based on customer needs.

Exercise: Design of Household elements, tools and devices, Design of furniture, Design of Industrial Products. Element design for the physically and mentally disabled people.

REFERENCES:

1. The Design of Everyday Things by Don Norman
2. Universal Principles of Design by William Lidwell, Kritina Holden and Jill Butler.
3. Cradle to Cradle: Remaking the way we make things by William McDonough and Michael Braungart.

FACULTY PROFILE

Prof B.S Jagadeesha Chandra, Director of School of Architecture has B Arch degree from University Visvesvaraya College of Engineering, Bangalore University and M Arch (Landscape Architecture) from SPA, New Delhi. Before joining REVA University, Prof. B S Jagadeesha Chandra has served for over 23 years at School of Architecture M S Ramaiah Institute of Technology since its inception. He also served 11 years as Architect at ISRO, Department of Space, Govt. of India. His vision as Head of the School of Architecture has seen its steady growth over the years and today it is one of the most sought after School for studying Architecture.

His total experience of experience, both industrial and academic will definitely benefit the school for its growth and the vision is to make the School a centre of excellence for training the undergraduate students. He has presented papers at National & international conferences. His flair for writing is seen in the articles relating to Architecture & Landscape Architecture in various journals, news papers and magazines. Prof. Jagadeesha Chandra is aregistered architect from Council of Architecture.

Prof N.S. Nalini has B Arch degree from BMS College of Engineering, Bangalore and M Tech degree in Geo-informatics from Visvesvaraya Technological University, Belagavi. Currently she is pursuing research leading to PhD degree in urban planning. She has been inthe teaching field since 17 years and has an industrial experience of 10 years. She has taught both undergraduate and post graduate students in various colleges. She has published research and news paper articles and has presented several papers in national and international conferences. She is a registered architect from Council of Architecture.

Dr. Vimala Swamy

Professor

Dr. Vimala Swamy, has experience in numerous facets of Architecture, urban planning, landscape and interior design. She has balanced Academics, Practice and Research work in her career with over 20 publications in various International and National conferences and journals in topics of Modified Landuse Patterns, Solar Passive Architecture and Sustainability. Her Doctoral thesis focuses on Eco-Friendly Cities, which is the current worldwideissue. Dr. Vimala is a registered guide with VTU and has fourPh.D. Scholars pursuing their research under her guidance. She is also on the Board of studies for the School of Planning & Architecture, University of Mysore. She received the 'Best Teacher' award from A3 Foundation, Chandigarh in 2016. Her vast experience and vision will undoubtedly take this young school towards success and growth.

Ar. Rajesh Malik Professor

- Design Chair

Architect Rajesh Malik is an Architect and academician with a passion for sustainable design, well recognized as the need of the hour. In the course of his career spanning more than two decades, he has handled a diverse range of projects, ranging from prestigious residential developments to I.T buildings and Hotels through different stages of Design and Execution. His area of research is Sustainable construction and materials and has published and presented at National and International conferences. Architect Rajesh heads the design consultation cell at the School and contributes immensely to the advanced Design studio and related courses.

Ar. Paul George Puthoor

Professor

Ar. Paul Puthoor has a Bachelor's degree from Bangalore University in 1979. He has an established practice in Bangalore, 'Spaces' since four decades. An unconventional thinker, his domain of work has been towards Industrial Architecture and Residential design. Having designed hundreds of residences all over South India, he was chosen for the Best Residential Project award in 2014 in Kerala.Young students of Architecture benefit immensely from his vast knowledge and command over the Profession in courses like Building Construction and Materials and the Design Studio.

Ar. Vidya Srikanth
Associate Professor

Ar. Vidya Srikanth has an architectural degree from National Institute of Technology, Tiruchirappalli and a Masters in Town and Country Planning from School of Architecture and Planning, Anna University. She has over 16 years of combined experience in teaching and practice. She is widely travelled and brings with her rich experiences of living and working in Europe and North America. She is closely associated with the Curriculum design of the B. Arch program and is member coordinator of the Board of Studies for the School.She is passionate about Vernacular Architecture and is involved with documenting and researching the local Vernacular techniques in Karnataka. With a deep interest in Architectural Pedagogy, Vidya initiates and practices several innovations in course delivery and evaluation methods and her publications are rooted in the same themes.

Ar. Shubhi Sonal
Associate Professor

Ar. Shubhi Sonal is an Urban Planner-Architect with varied research interests in the field of urban planning and housing. She is registered as a doctoral candidate with JNAFAU, Hyderabad. Shubhi graduated from School of Planning and Architecture, New Delhi and completed Master's Degree in City Planning at Indian Institute of Technology, Kharagpur. In a career spanning over 8 years, she has worked with both Multi-National firms and public agencies dealing with architecture and urban planning projects. She has published and presented papers at many conferences in India and abroad. At the School Shubhi is associated with the Research and Training wing and teaches courses in History, Housing and Design, while bringing in fresh approaches in the Pedagogy.

Ar. Kokila Mohan
Associate Professor

Ar. Kokila Mohan is an Architect & Urban Designer, graduating from Visveswaraya Technological University, India with over 8 years of professional and academic experience in transportation infrastructural projects which includes Inception to execution for Bangalore metro rail, Kolkata metro station depot, Doha road infrastructure, Landscape and urban design project a vision for Doha's 2020 master plan. She has been actively involved in the heritage walk programs conducted for Indian National Trust for Art and Cultural Heritage (INTACH) and is recognized as a walk leader for India Foundation for Arts (IFA) to explore the relationship betweenart and lived spaces of the neighborhood. Kokila is actively involved with the Schools' social media presence and website and has helped release 'Incipere', the first ever Publication from the School in 2018.

Ar. Neeraja Jayan

Assistant Professor

Ar. Neeraja Jayan, has B Arch degree with 4th Rank from Satyabhama University and **M Arch** degree in Architectural Conservation from **School of Planning and Architecture, NewDelhi**. She has been in the teaching field since 3 years and has an industrial experience of 1 year. She has taught undergraduate students in various colleges. She has received the best paper presentation award for her paper in Architectural Journalism. She is a registered architect from Council of Architecture.

Ar. Raghu Teja Vemana

Assistant Professor

Ar. Raghu Teja Vemanahas a Bachelor of Architecture degree from JNAFAU, Hyderabad. He has four years of experience in the field of construction having worked at renowned firms in Chandigarh and Hyderabad. He completed his Master's degree in Urban Planning from university of Mysore with distinction. He has over four years of teaching experience as a full-time faculty and is currently pursuing his Doctorate in the field of Urban and Regional planning from University of Mysore. Raghuteja has published and presented at many National conferences in his area of research on Urban issues.

Ar. Deepa Rajesh Negali

Assistant Professor

Ar. Deepa Rajesh Negali has a Bachelor's degree from Karnataka University, Dharwad (BVB college of Engineering & Technology, Hubli). She has been in academics for over 4 years and has an industrial experience of one year. The best teacher award shereceived in 2015 shows her passion towards Academics and her ability to connect with students. Her area of interest is Building Construction and Building services and Deepa keeps herself updated by attending conferences and Faculty development programs in this domain.

Ar. Sneha Murthy

Assistant Professor

Ar. Sneha Murthy has a Bachelor's degree from MSRIT, Bangalore with a merit rank from VTU. She has been in practice and has an industrial experience of over 8 years. Her passion towards sharing her knowledge in the field and interacting with students led her towards academics in 2016. With a deep interest in Energy efficient Design, she is an Indian Green Building Council (IGBC) Accredited Professional. At the University, she is associated with

the Entrepreneurship and skill development cell and won the award for 'best entrepreneur trainer' in 2018. She is keenly involved with guiding students in Design Competitions. Sneha teaches courses in Climate Responsive Architecture, Design, Building Construction & Building Services.

Ar. Anupama Ajit

Assistant Professor

Anupama Ajit has completed her Bachelor of Architecture from RV College of Architecture, Bangalore. She has over 6 years ofexperience working in Bangalore and in Tokyo, Japan. She has a deep interest in travel and finds that it enriches the course delivery in courses like Theory of Design, History and Contemporary architecture. She has worked on Infrastructure projects for BMRCL and BBMP in Bangalore.

Ar. RuhiDixit has B Arch degree from Bangalore University (UVCE) and **M S**(Master of Construction and Project management) degree from**University of Edinborough, England**. She has a rich industrial experience as Architect at DivyaSree Developers. She has involved in the design of many major projects of DivyaSree. She is a registered architect from Council of Architecture.

Ar. Jayaram K has B Arch degree from Bangalore University in 1976 and is currently practicing as Architect in Bangalore. He has been in the teaching field since 20 years and has an industrial experience of 39 years. He has taught undergraduate students at MSRIT and UVCE. He has the honour of building a mobile house and it was shifted from Rajajinagar to Chandra Layout. He is also very active in Architectural Journalism and regularly and writes for Times of India, Deccan Herald, Prajavani, Udayavani and others. He is a registered architect from Council of Architecture.

Ramesh Katti is a reputed artist. He has his graduation from Karnataka Arts and Visual Academy (KAVA), Mysore in 1999 and Post Graduation from M.D. Shantiniketan, Calcutta in 2006. **Ramesh Katti** is a practicing Artist. He has been in the teaching field since 10 years. He has taught undergraduate students at various colleges and conducted many workshops for students of architecture and art.

Eashwar Reddy, possesses Degree in Civil Engineering from S J C Institute of Technology, Chickaballapur and M.E in Earthquake Engineering from University Visvesvaraya College of Engineering, Bangalore. He has served at MNC Gammon India Limited, Rathangiri as Assistant Engineer, and Assistant Professor at Nagarjuna College of Engineering, Bangalore and Acharya Institute of Technology.

Dr. RajashekarPatil BE, M Tech and Ph.D. in Mechanical Engineering. He also possesses PGDBM and PGDNBT. He has published 25 research papers in refereed national and international journals and 07 books in the area of Engineering Drawing & Machine Drawing. He has been honoured with the GLOBAL ENGINEERING EDUCATION LEADERSHIP AWARD from SIEMENS, 2010, Platinum Jubilee Award by Institute of Engineers, Bangalore, on the occasion of 150th Birthday of Sir M. Visvesvaraya and Received Margadarshan Awardfor Innovation and Excellence in Training, 2013 by IIT, Delhi. Dr. RajashekarPatilserved 05 years in Visvesvaraya Technological University as a Special Officer at VTU, wherein he initiated computer aided engineering drawing and computer aided machine drawing and served as key resource person in training the faculty. He also contributed for establishing Design and Development Lab (Rapid Prototyping Lab) at VTU. His areas of specialization and research are CAD & CAM, Robotics, Rapid Prototyping, CAED, CAMD and Collaborative and Digital Manufacturing. He has successfully guided 26 researchers for M. Tech degrees. He has been trained by Bosch-Rexroth, at Lohr, Germany on Hydraulics and Pneumatics & is an Accredited Trainer. At present he is guiding 05 PhD scholars.

Dr. C. Chamundeshwari, School of Arts & Humanities, holds a Ph.D. in 'English Language Teaching' from Anna University, Chennai. Her doctoral thesis focused on 'A Study on Computer Assisted Language Learning', M.Phil. in Sociology (Bharathidasan University),
M.A. Degree in English Literature (Annamalai University), and M.A. Degree in Sociology (Mysore University). She has 14 years of teaching experience and One year of Industrial Experience. She has published 4 papers in international journals and presented 6 papers in International Conference/ Seminar/ Proceedings and one paper in the National Conference. Her areas of interest include: English Language Teaching (ELT) and Computer Assisted Language Learning (CALL).

DO'S AND DON'TS

DO'S

1. Maintain discipline and respect the rules and regulations of the university
2. Be regular and punctual to classes
3. Study regularly and submit assignments on time
4. Be respectful to your Teaches/friends and hostel staff/management.
5. Read the notice board (both at your college and the hostel) regularly.
6. Utilize your Personal Computer for educational purpose only.
7. Follow the code of conduct.
8. Visit Health Center on the campus whenever you are unwell.
9. Be security conscious and take care of your valuables especially Cash, Mobile Phones, Laptop and other valuables.
10. Carry your valuables along with you whenever you proceed on leave/vacation.
11. Use electric appliances, lights and water optimally.
12. Keep the campus clean and hygienic.
13. Use decent dressing.

DON'TS

1. Ragging inside / outside the campus.
2. Possession of Fire arms and daggers etc.
3. Use of Alcohols, Toxic drugs, sheesha, gutkha and hashish/heroin etc.
4. Use of Crackers, explosives and ammunition etc.
5. Smoking and keeping any kind of such items.
6. Misusing college & hostel premises/facilities for activities other than studies.
7. Playing loud music in the room which may disturb studies of colleagues / neighbours.
8. Making noise and raising slogans.
9. Keeping electrical appliances, other than authorized ones.
10. Involvement in politics, ethnic, sectarian and other undesirable activities.
11. Proxy in any manner.
12. Use of mobiles in the academic areas.

Note: 1. Rules are revised / reviewed as and when required.

2. Healthy suggestions are welcome for betterment of Institution

REVA
UNIVERSITY
Bengaluru, India

Rukmini Knowledge Park, Kattigenahalli
Yelahanka, Bengaluru - 560 064
Karnataka, India.

Ph: +91- 90211 90211, +91 80 4696 6966
E-mail: admissions@reva.edu.in

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www.reva.edu.in