Syllabus of B.Arch 7th and 8th Semester

7th Semester				8th Semester			
Code	**Subject**	**L-T-P**	**Credit**	**Code**	**Subject**	**L-T-P**	**Credit**
ARCH 4101	Urban Design	3-0-0	3	ARCH 4201	Principles of Town Planning	3-0-0	3
ARCH 4102	Housing	3-0-0	3	ARCH 4202	Research Methods In Architecture	3-0-0	3
ARCH 4103	Architectural Conservation	3-0-0	3	ARCH 4203	Tendering and Tender Documents	3-0-0	3
ARCH 4104	Air-conditioning And Ventilation	3-0-0	3	ARCH 4204	Building Bye-Laws	3-0-0	3
	ELECTIVE – III (Any One)	3-0-0	3	ARCH 4205	Seminar	3-0-0	2
ARCH 4105	Barrier Free Environment				ELECTIVE – IV (Any One)	3-0-0	3
ARCH 4106	Building Economics			ARCH 4206	Architectural Journalism		
ARCH 4107	Intelligent Buildings			ARCH 4207	Transportation Planning		
				ARCH 4208	Facility Planning		
Theory Credits			**15**	**Theory Credits**			**17**
Practical/Sessional				**Practical/Sessional**			
ARCH 4108	Architectural Design-V	0-0-9	9	ARCH 4209	Architectural Design-VI	0-0-12	12
ARCH 4109	Building Construction-VI	0-0-3	2				
ARCH 4110	Working Drawing-II	0-0-6	3				
Practical/Sessional Credits			14	Practical/Sessional Credits			12
TOTAL SEMESTER CREDITS			**29**	TOTAL SEMESTER CREDITS			**29**
TOTAL CUMULATIVE CREDITS			**29**	***TOTAL CUMULATIVE CREDITS***			**58**
Total Contact Hours.			**33**	**Total Contact Hours.**			**30**

7th Semester

ARCH 4101 Urban Design (3-0-0)

To highlight the urban design principles and theories and thereby to make the students understand the role of urban design in planning.
Definition of urban design. History of urban design. Urban form and cities.
Urban design principles and criteria, image ability.
Urban design theories, visual survey techniques.
Social aspect of urban design, urban design review process, Comprehensive role of urban design in planning.

References:

1. Design of cities / Bacon, En / 711.4 BAC/D
2. The Architecture of towns and cities / Spreiregen Paul D / 711.4 SPR/U
3. The Image of the city, Kevin Lynch
4. Urban Pattern/ Gallion, ArthurB./711.4 gal/u
5. Urban Design Method in techniques- C.Moughtin

ARCH 4102 Housing (3-0-0)

To enable the students to understand the fundamentals of housing needs, housing finance and housing techniques with relation to social and environmental effect.

Problems due to urbanization, problems of congestion, slums and urban renewal housing demand, qualitative and quantitative housing finance, resource mobilization, institutional finance in developing countries. Housing stock.

Housing standard derivation, and critical appraisal of existing standards.

Housing location aspects and layouts. Site planning techniques, Housing density as related to environmental and climatic aspects. Case study of various type of development, housing techniques, mass housing, prefabrication etc. Rural housing techniques and other countries like Russia, USA, Scandinavian, and United Kingdom. Socio economic aspect, social factors influencing housing design, affordability economic factors and housing concept, slum upgrading ,sites, and services. Self – help housing.

Housing design process, different stage in project development, layout design including utilities and common facilities. Housing design as a result of environmental aspects, development of technology interest. Housing standard- different types of housing standard, methodology of formulating standards relevance of standards in housing development.

HUDCO. Cost reduction in housing: techniques and related issues, alternative building materials. Residential environment: user's satisfaction and behavioural aspects, evaluation of housing development

References:

1. Charles Abrams. Mans struggle for shelters in an urbanizing world, Vikas Fetter and Simons pvt. ltd, Mumbai
2. Babur Mumtaz and Patweikly. Urban housing strategies, Pitman publishing, London
3. Geoffrev K.Paul, Low income housing in the developing world, John Wiley and sons.
4. John F.C Turner, Housing by people, Marison Bovaros, London, 1976
5. Martin Evans, Housing, Climate and comfort.
6. Lewis Davidson Gotlieb, Environment and design in housing. The Mc.Millan Corp, New York.
7. Housing and building in hot-humid and hot dry climate/ 721.06 Brab/H
8. Low-cost housing in developing countries/ Mathur, GC/363. 509/72Mat/LN93.

ARCH 4103 Architectural Conservation (3-0-0)

This course intends to develop an understanding in Architectural conservation.
Meaning of Architectural Conservation, need and degrees of conservation.
History of conservation in India and West, conservation charters, role of Archaeological survey of India in conservation of India's cultural heritage.
Listing and documentation, its importance and methods.
INTACH. Urban conservation, methodologies to be adopted for conservation management. Case studies in conservation related to Adoptive reuse, Building in context, preservation, Urban conservation.

Reference:
Handbook on Architectural Conservation by Sir Bernard Fielden. INTACH, New Delhi.

ARCH 4104 Air-conditioning and Ventilation (3-0-0)

To enable the students to understand the fundamentals of thermodynamics, building engineering & air-conditioning; issues pertaining to heat exchanges in buildings; techniques for reducing heat infiltration into rooms & ways to minimize air-conditioning load, etc.
Thermodynamics- heat & temperature measurements, transfer, change of state; types of heat- sensible heat, latent heat of fusion. Evaporation, sublimation, saturation temp., superheated vapour, sub cool liquid; pressure apertures relationship for liquids.
Refrigerants, environmental comfort, heat gain & heat loss; principles of cooling & heating. Space conditioning for buildings. Different types of heating equipment, viz., radiators, and converters; embedded panel uni-theatres, elastic radiant panel heaters, etc.
Requirements for comfort conditions; temperature control, humidity control, air filtration rate of air change; mechanical ventilation in buildings, plenum system, exhaust system,
Plenum & exhaust system. Fans exhaust & blower fans; air filters of different types.
Layout indicating above services in design projects. Air-conditioning various systems; protections against fire to be caused by central a.c. systems; duct work & preparation of layout; air-conditioning, a five-star hotel.
AC load calculation for a room.
Reference:
1. William H. Severns and Julian R. Fellows- Air conditioning and refrigeration. John Willey and sons, London
2. Carruer, Hand book of air conditioning system design

ELECTIVE – III (Any One) (3-0-0)

ARCH 4105 Barrier Free Environment

The course is aimed at design standards and construction techniques for barrier free environment.
Types of disability, mobility devices and controls. Construction and maintenance standards, classification of buildings and access provisions.
Design elements within buildings, site planning, parking, approach to plinth levels, corridors, entrance and exit, windows, stairways, lifts, toilets, signage, guiding and warning systems, floor materials.
Provision of accessibility outside the building – kerb at footpath, road crossing, public toilet, bus stop, toilet booth, and signage. Tactile tiles.
Provision in residential building, auditorium, parks, restaurants, railway station. Modern building bye-laws.

References:
1. Building without barriers for the disabled, Harkness, Sarh P/690.554 HAR/B
2. Disability and rehabilitation Handbook/ Goldenson, RM/362.2002 DIS/M

ARCH 4106 Building Economics

To Enable The Students to Understand The Fundamentals of Economics and Building; Engineering Economics; Issues Pertaining To Low Cost Building Techniques; Gov'ts Economic Plans, Etc.
Subject Matter of Economics-Consumption, Production; Distribution &Exchange: Its Relevance to Urban Economy; Market Demand & Supply: determination to Price Changes and Elasticity; Study of Indian Economy Policy.
Factors of Production & Choice of Techniques; Laws of Return.
Study of Cost Concepts & Development-Urbanization and Planning Urban Land Values-Land Utilization; Housing Analysis, Public Housing, Urban Public Utility Services-Problems and Perspective: Urban Problem, Poverty, Migration, Unemployment, and Pollution.
City Planning and Administration Elements of Economics, Production of Goods, Distribution of Wealth, Unemployment Causes and Remedies; Land Distribution and Its Problems. Labour and Its Efficiency .Types of business Enterprises.
Economics of Building Construction ;Capital Return Form Project ; Residential Properties, Offices, Cinemas, Hotels, Etc. Relation Between Initial &Recurring expenditure In Building Cost, Low Cost Housing; Examples Illustrating The Economics of Building Costs; Private and semi- public Organizations; Features of India's Five Year Plans Including Housing.

References:
The Teacher shall develop his References From various Sources.

ARCH 4107 Intelligent Buildings

Intelligent buildings also known as automated buildings or Smart buildings are buildings that integrates technology and process to create a facility that is safer, more comfortable and productive for its occupants, and more operationally efficient for its owners. Advanced technology—combined with improved processes for design, construction and operations—provide a superior indoor environment that improves occupant comfort and productivity while reducing energy consumption and operations staffing.
The following matter has to be covered in this course:
Introduction to intelligent / smart/automated buildings.
The basic requirements of an intelligent building such as the framework for referencing integration, structured cabling systems, wireless, communication protocol, interoperable smart building databases, power over Ethernet. HVAC systems, Lighting Control systems, electric power management systems, access control systems, video surveillance systems, video IPTV, digital signage systems, fire alarm and mass notification systems, voice network and distributed antenna systems, data networks, facility management systems, the economics of intelligent buildings, audio visual systems, network integration, energy and sustainability, case studies.

Reference:
Smart Buildings systems for Architects, Owner, and Builders. By James Sinopoli, Elsevier.

PRACTICAL/SESSIONAL

ARCH 4108 Architectural Design-V (0-0-9)

The design teacher should prepare the design brief for the problem. The student will operate at an advanced stage of design formulation and design preparation.

The students have to work out on case studies, literature study, interviews, site analysis, develop ideas and concepts and finally produce the drawings
1. Recommended building types are 5 star hotels, expos, country clubs, complexes for places of worship, city centre, Management development Centre, shopping mall, multiplexes, Service Apartments, Inter-state or inter-city bus terminal, sports, health and educational complexes, multi-purpose hall, auditorium, community centre, information centre, entertainment centre, museums and art gallery. Housing of different economic groups.

2. A one week workshop on the design of a school, multipurpose hall, or health centre should be done under the supervision of an external architect.

3. A three day design examination should be conducted at the end of the semester.
References:
The Teacher shall develop his References From various Sources.

ARCH 4109 Building Construction-VI (0-0-3)

To enable the students to understand various aspects of structural drawing in a small project including the design of different structural element with the following details:
Detailing of concrete structure- design and detailing of concrete structure studied in previous semester. Beams, columns, stairs, foundations and pile foundations.
Detailing of steel structure: Design and detailing of steel structures studied in previous semester.
Joints: Lap joint, Butt joint.
Connections: riveted connections, welded connection
Design of tension members, compression members, trusses.
Codes of steel structure.

References:
1. Building design, A.S.Arora
2. Design of steel structute, Vol-III, Vazirani&Ratwani
3. Steel structures, Ramachandran.

ARCH 4110 Working Drawing-II (0-0-6)

This course is intended to impart training in the preparation of working drawings for buildings with specific reference to the code of practice for architectural and structural drawings as per IS code no; 962 of 1969. The final evaluation of the design project shall be conducted in the college by inviting external experts from the approved panel of the university.
Building Construction drawing to be prepared as a part of the contract documents with proper labelling and dimensioning techniques.
The drawing shall be based on building design prepared as design studio assignment of frame structure. Drawing shall include: Working Plan; Central line Ground floor plan; foundation plan; Upper floor plans; Terrace or Roof plan including the following detail.
Roof drainage; Site plan , layout plan showing different buildings ,internal roads, water supply , sewerage including area drainage plan. Elevations: Elevations of all sides (front, back and both the sides). Sections: Transverse and longitudinal sections trough staircase, Lift and sanitary units.
Scheduling of different finishes, detailing of doors and windows including hardware fixtures. Plumbing lines scheduling the fixtures in toilets and kitchen etc. Layout of electrical lines fixtures on the plan prepared under working drawing-l**.**
References:
The Teacher shall develop his References From various Sources.

8th Semester

ARCH 4201 Principles of Town Planning (3-0-0)

To make the students understand the philosophies and basic components of town planning, and to enable them to develop concepts on preparation of town plan.
Definition of a town, level of planning and steps for preparation of a town plan.
Planning concept related to Garden city, Satellite town, Radburn development and neighbourhood planning.
Concepts, function, components and preparation of a development plan, master plan, structure plan and perspective plan.
Planning philosophies of pioneers such as, Geddes, Howard, Abercrombie, Le Corbusier, and other eminent planners. Historical background with special emphasis on basic concepts of planning and urban spaces. Egyptian, Greek, Roman, Medieval, Early Indian town planning.
Introduction to analytical technique in town planning, concepts in regional and metropolitan planning, land subdivision regulation and zoning.

References:

1. Urban pattern-Gallion
2. Town planning –G.K.Hiraskar
3. City planning – Bandopadhya.
4. Ekistics: An introduction to the science of human settlements /
5. Doxiadis. C.A/720 Doxie
6. Town and country planning in India
7. Town planning in ancient India/ DUTT, Binode Behari/ 711.40934 DUTT

ARCH 4202 Research Methods in Architecture (3-0-0)

The orient the students towards research applications in Architecture by making them familiar with various research methods available for design programming, behavioural studies and environmental mapping.
Introduction to research Methodology (types of research) Identification of area of interest, Types of dissertations, Appropriate Methodology for respective thesis (Time
factor) Pre – thesis studies
Building upon a hypothesis, Criteria for selecting thesis guide, Formulating synopsis, Identifying the research component in thesis, Case selection / situation studies,
Checklist – questionnaire, Behavioural mapping, semantics, differential scales, Methods of survey: Literature, Visual, sampling, interviewing, Design program/ranking scale/ priority chart Methods of analysis Report summary Bibliography.
Exercise – writing a book review

References:

1. Architectural research methods; Linda Groat& David Wang, John Wiley and sons,
New York
2. Visual research methods in Design; Henry Sanoff, Van Nostrnad Reinhold, New York
3. Architectural research; Snyder James C; Van Nostrnad Reinhold

ARCH 4203 Tendering and Tender Documents (3-0-0)

Definitions and general principles of Indian Contract Act and building contract documents, Types of tenders, invitation of tender and conditions of tender documents, Condition of contact, Execution of contact, various certifications.

References:

1. Estimating and Costing in civil engineering. By B.N.Dutta.
2. Professional Practice by Dr. Roshan Namavati.

ARCH 4204 Building Bye-Laws (3-0-0)

Study of the development control regulations, municipal acts, building bye-laws, Indian Standard Codes of Practice related to Design, Drawing and procedure for submission to concerned bodies. Fire prevention, safety and security measures and regulations. , Municipal Acts, Building Bye-laws, National Building Codes.
Study of building regulations relative to submission drawings for concern bodies.
Real Estate Regulations Act (RERA)

Reference:
Professional Practice by Dr. Roshan Namavati.

ARCH 4205 Seminar (3-0-0)

In this program the students have to review a book of their choice which they are to read/study.
Alternatively, the student may take up a relevant architectural issue, refer to material in the library/ internet and prepare a paper on the same. This paper may be presented in the seminar. It may be also published in the college journal or any local magazine.
An abstract must be circulated to the other members present in the seminar.
An Audience response session shall follow the presentation where the presenter shall discuss and clarify the salient points of the presentation over a cup of coffee.
Mark distribution shall be 50% for Presentation and 50% for attendance. This will ensure that the students attend regular and the class does not empty out towards the last.

References:
The Teacher shall develop his References From various Sources.

ELECTIVE – IV (Any One) (3-0-0)

ARCH 4206 Architectural Journalism

Objectives: This course is intended to help those, who have inclination for writing to develop their skills to enable then to record, analyse and evaluate architecture both in its theoretical and practical forms.
The following forms of architectural journalism should be studied and developed.
Paraphrasing and summarizing given reports, Editing given materials. Writing or original reports on design projects / buildings/complexes.
Writing editorials for magazines and journals. Reporting activities like seminar, panel discussions, and conferences.
Writing captions for pictures, programmers and events. Organizing materials for publication in newspapers, magazines etc.
Thesis or research report writing.
NB: The students should be exposed to the work of professional art and architecture.
Various forms of architecture Review/record, progressive architecture, Japan architecture etc. and journals of RIBA, American Institute of Architects, IIA, etc. Report writing should be presented to a panel to be chaired by the teachers for discussions.
Criticism and consequential changes. Students other than the author should be asked to write a report/review of the discussions.

References:
The teacher shall develop his reference from various sources.

ARCH 4207 Transportation Planning

Objectives: To enable the students to understand the operation, need and management of transportation systems.
Study of the movement of human and goods at the intercity and inter-city levels. The need for various kinds of transportation system with their qualitative analysis.
Intercity transport system and the problems on countered in trafficking it with special reference to road transport.

A study of methods used for resolving traffic problems such as decentralization of work centre, various traffic controls over the over passes etc.

References:
The teacher shall develop his reference from various sources.

ARCH 4208 Facility Planning

Exposing the students the basic of planning and management of the special service oriented spaces in relation to types of spaces, services, standards and management systems.
Health Care:
Introduction to hospital planning and types of hospitals. Aesthetic and emotional needs of patients, spaces norms and requirements of a hospital.
Introduction to spaces like:
1. Public entrance, lobby area, reception and information lounge, waiting space.
2. Vertical and horizontal transportation system.
3. Various departments of a hospital- OPD, IPD, Emergency, CSSD, Wards etc.
4. Hospital crowd management during extreme condition.
5. Hospital waste management.
6. Signal and signage.
7. Hospital management systems.
Commercial Spaces:
Introduction to the spaces like theatre, multiplex, mall, super market, hyper market and office spaces. Circulation and crowd management. External and internal traffic management. Vertical and horizontal transportation system.
Hotels:
Introduction to spaces like –restaurant, dining hall, coffee shops and bars, conference spaces, meeting room, auditorium, gymnasium, healthcare, swimming pools, dance floors, discotheques, shopping, emporia, kitchens and toilet, recreation, Party lawns, gardens, terrace garden, open air dining area etc.
Hotel types, size, location criteria, administration. Integrated services planning incorporated all the above.
High Rise Buildings:
Introduction, location criteria, land and building bye-laws.
Horizontal and vertical spaces distribution and transportation, parking systems, Communication and control system.

References:
1. The teacher shall develop his reference from various sources

PRACTICAL/SESSIONAL

ARCH 4209 Architectural Design-VI (0-0-12)

The design teacher should prepare the design brief for the problem. The student will operate at an advanced stage of design formulation and design preparation.

The students have to work out on case studies, literature study, interviews, site analysis, develop ideas and concepts and finally produce the drawings.
1.The recommended building types are Institutional or educational campuses(with relevant infrastructure and facilities), such as Medical college campus, engineering college campus, Housing, Hospital, complexes for sports, cultural centres, city centre, transportation facilities ,complex office buildings like court, secretariat, Software Technological park, Centre for Renewable energy, Trade Centre, Planetarium, Science city etc.
2. A one week workshop on the design of a school, multipurpose hall, or health centre should be done under the supervision of an external architect.
3. A three day design examination should be conducted at the end of the semester.