SCHEME OF EXAMINATION

&

SYLLABII of COURSES

FOR

FIVE YEAR PROGRAM LEADING TO BACHELORS DEGREE IN ARCHITECTURE FOLLOWING THE ANNUAL SYSTEM OF EXAMINATION

(OTHER THAN PROGRAMS FOR WHICH A SEPARATE ORDINANCE IS NOTIFIED)

GURU GOBIND SINGH INDRAPRASTHA UNIVERSITY

SCHEME OF EXAMINATIONS

BACHELOR OF ARCHITECTURE (B.ARCH) PROGRAMME

FIRST YEAR EXAMINATION

Sl. No	Course CODE	COURSE TITLE	Hours/Week		Credit
			L	P/S	
01	ARCH-110	Architectural Design		7	14
02	ARCH-111	Art & Graphics		4	08
03	ARCH-112	Architectural Drawing		4	08
04	ARCH-120	Building Construction		4	08
05	ARCH-121	Model Workshop		3	06
06	ARCH-122	Surveying & Leveling		2	04
07	ARCH-130	History of Architecture	2		04
08	ARCH-140	Theory of Structures	4		08
09	ARCH-141	Climatology	1*		02*
10	ARCH-150	Projects		3	06

Total	**7**	**27**	**68**

BACHELOR OF ARCHITECTURE (B.ARCH) PROGRAMME

SECOND YEAR EXAMINATION

Sl. No	Course CODE	COURSE TITLE	Hours/Week		Credit
			L	P/S	
01	ARCH-210	Architectural Design		9	18
02	ARCH-211	Art & Graphics		3	06
03	ARCH-212	CAD & Software Lab		3	06
04	ARCH-220	Building Construction		4	08
05	ARCH-230	History of Architecture	2		04
06	ARCH-231	Art & Architecture Appreciation	2		04
07	ARCH-232	Sociology & Psychology	2		04
08	ARCH-240	Theory of Structures	4		08
09	ARCH-241	Water Supply & Waste Disposal	1*		02*
10	ARCH-242	Energy Systems	1*		02*
11	ARCH-250	Projects		3	06
Total			**12**	**22**	**68**

BACHELOR OF ARCHITECTURE (B.ARCH) PROGRAMME

THIRD YEAR EXAMINATION

Sl. No	Course CODE	COURSE TITLE	Hours/Week		Credit
			L	P/S	
01	ARCH-310	Architectural Design		9	18
02	ARCH-320	Building Construction		4	08
03	ARCH-330	History of Architecture	2		04
04	ARCH-331	Settlements Design	2		04
05	ARCH-340	Theory of Structures	4		08
06	ARCH-341	Quantities, Specification, Estimation & Contracts	2		04
07	ARCH-342	Lighting & Acoustics	1*		02*
08	ARCH-343	Mechanical Ventilation, Communication, Security & Safety	1*		02*
09	ARCH-350	Projects		5	10
Total			**12**	**18**	**60**

BACHELOR OF ARCHITECTURE (B.ARCH) PROGRAMME

FOURTH YEAR EXAMINATION

Sl. No	Course CODE	COURSE TITLE	Hours/Week		Credit
			L	P/S	
01	ARCH-400	Practical training		15	30
02	ARCH-410	Architectural Design		5.5	11
03	ARCH-420	Building Construction		2.5	5
04	ARCH-430	Town Planning	0.5*		1*
05	ARCH-440	Structural Systems	0.5*		1*
06	ARCH-450	Projects		3	6
07	ARCH-460	Seminar / Dissertation		3	6
Total			**1**	**29**	**60**

BACHELOR OF ARCHITECTURE (B.ARCH) PROGRAMME

FIFTH YEAR EXAMINATION

Sl. No	Course CODE	COURSE TITLE	Hours/Week		Credit
			L	P/S	
01	ARCH-510	Architectural Design		5.5	11
02	ARCH-520	Building Construction		2.5	5
03	ARCH-530	Town Planning	0.5*		1*
04	ARCH-540	Structural Systems	0.5*		1*
05	ARCH-550	Projects		3	6
06	ARCH-560	Seminar / Dissertation		3	6
07	ARCH-570	Professional Practice & Contract Management	2		4
08	ARCH-580	Architectural Thesis		13	26
Total			**3**	**27**	**60**

NOTES:

a. L: Lecture based Courses. P: Practical/Studio/Project based Courses.

b. Practical/ Studio/Project Course Examination (Annual / Re- / Term Examinations) conducted as Portfolio/Report Evaluation & Viva-voce.

c. Lecture Course Examinations to be of 3 hrs. except for the ones marked (*) to be for 2 hrs.

d. The student shall undergo compulsory Practical Architectural Training (ARCH-400) as a full-time employee in an Architect's Office, approved by the placement co-coordinator, for a minimum duration of 18 calendar weeks.

e. Overall Credits for the B. Arch. Program = 316. A student must clear all 316 of the credits to be eligible for the award of Degree.

f. The Course details of Projects (ARC-150 / ARC-250 / ARC-350 / ARC-450) shall be provided by the individual Institutions and informed to the University. Each Institution may offer this Course as Projects / Electives.

g. The significance of the course code as under ;
The first number is indicating the year and the second number is indicating
00 is Practical Training, 1 is Design, 2 is Construction, 3 is Humanity, 4 is Technology, 5 is Project, 6 is Seminar /Dissertation, 7 is Professional Practices and contract management, 8 is Thesis

B.ARCH
GGS INDRAPRASTHA UNIVERSITY

B ARCH-110 : Architectural Design (P)

L-0 P-7 Credits- 14

Objective of Course

Architectural Design is seen as the central discipline of the program. The studio is the arena where the student applies his knowledge and develops design skills while testing out the theories and methods learnt in other courses in the Humanities, Technological and Professional Streams. The students will endeavour to acquire an understanding of the determinants of the built form such as social imperavatives, environmental concern and craft of building. They will review experiences from their own immediate and personal environment as well as the values and perceptions of other involved in the process of design viz.. the user, the client and the public at large. Derivation of concepts and strategies will then lead to deliberate responses in the shape of a specific design proposal with the help of organizational and communicative skills.

The study of Architectural Design is seen as a cumulative process where the experience the previous year is used as a base for increasing the depth and breadth of knowledge and development of skills in the following year. The range of design problems shall include projects of progressively increasing complexity from a simple rural habit to multi use urban mega structures.

Each Architectural Design course shall include both short problems (Time problems or sketch schemes) and major problems (fully developed schemes). At every stage topics concerned with the design problems shall be dealt with in lectures, group discussions and library research so as to provide the necessary philosophical and attitudinal background to a rational design approach. The studio program of various design problems shall be set well in advance of the commencement of the term by the Studio Director in close consultation with the other subject teachers. It would be ensured that exercises in other subjects are directly relevant to the studio problem wherever the scope for such integration exists.

Study tour shall be conducted at least once every year during the stage one of the programme. The report to be submitted by the student shall be assessed as part of the studio work of Architectural Design.

B.ARCH
GGS INDRAPRASTHA UNIVERSITY

B ARCH-111 : Art & Graphics (P)

L-0 P-4 Credits- 08

Objective of Course

Graphic representation of ideas concepts and design principles (two dimensional and three dimensional composition) Co-ordination skills (eye-mind-hand/ Perceptual) drawing and painting, indoor and out door sketching in colour pencil pastels, ink, poster colour and water colour-creative skills-there dimensional perception using liquid transparent, reflective, opaque, flexible and hard materials.

Structure from-space**,** relation, animated graphic-frame/space relation Co-ordination skill (eye-mind-hand/perceptual) photography, multi-media, audiovisual projection. Creative skills: Reprographic technique and printmaking.

B.ARCH
GGS INDRAPRASTHA UNIVERSITY

B ARCH-112: Architectural Drawing (P)

L-0 P-4 Credits- 08

Objective of Course
The course aims at developing the requisite level of proficiency in drawing, which is seen as a primary communication tool in the practice of architecture just like language. Students shall be familiarized with a range of techniques of expression beginning with manual drawing.

B.ARCH
GGS INDRAPRASTHA UNIVERSITY

B ARCH-120: Building Construction (P)

L-0 P-4 Credits- 08

Objective of Course
This course is designed to explore students to the process of building construction, the components of buildings and the materials, skill and equipment used in shaping them. The emphasis is on familiarization by direct observation. Students shall be encouraged to acquire a test for good workmanship and quality.

The course is visualized as having three essential components viz., Theory component materials and methods of construction. Application component principles and practices shall be applied to the production of meaningful working details and drawings. Demonstration component to be conducted either in the construction field in the school premises or at specific venues outside incorporating a first hand experience of important stages of building construction, to complement the studio work.

B.ARCH
GGS INDRAPRASTHA UNIVERSITY

B ARCH-121: Model Workshop (P)

L-0 P-3 Credits- 06

Objective of Course
This course is aimed at imparting basic skills necessary for preparing architectural models and art project while in calculating value for good craftsmanship. To be conducted at the workshop on campus under the supervision the workshop coordinator.

B.ARCH
GGS INDRAPRASTHA UNIVERSITY

B ARCH-122: Surveying & Leveling (P)

L-0 P-2 Credits- 04

Objective of Course
Tools and equipment for land surveying. Interpretation and preparation of contour maps. Site modeling with total station. Exercises in setting out of building works

B.ARCH
GGS INDRAPRASTHA UNIVERSITY

B ARCH-130: History of Architecture (T)

L-2 P-0 Credits- 04

Objective of Course:
The syllabus has been dealt with the premise that all civilisations evolved a central thought, which was shaped by individual beliefs and local factors. This central thought of the civilisation has permeated in various related fields such as religion, arts, science, literature, social and economic setup, which in turn were instrumental to the evolution of architecture specific to the area. The course, covering Prehistoric age and Early Civilisations, attempts at sensitizing the students to view architecture as one of the many products of the civilisation. The emphasis is on the understanding of conceptual basis rather than specific and complex questions about the architecture.

UNIT - I
Prehistoric, Paleolithic and Neolithic Systems; Cave Dwellings in Europe: Lascaux, Chapelle-Aux-Saints; First attempts at Marking Nature: Terra Amata, Skara Brae, the megaliths, obelisks, Compositions such as StoneHenge; Beginnings of Agriculture and Settled Life, First Settlements like Jericho, Catal Huyuk.
River Valley Civilisations in Egypt and Mesopotamia; Growth of Settlements, Religious and Social Architecture. Egypt: Social systems, religious beliefs, science and writing; Evolution of Tomb Architecture: Mastabas, Pyramids at Saqqara, Medun and Giza; Mortuary Temples: Hatseshut; Cult Temples: at Luxor and Karnak. Mesopotamia: the Sumerians, Babylonians, Assyrians and the Persians; their Art, Intellectual Achievements and Developments in Law; the Ziggurats at Ur, Choga Zanbil, etc.; the cities of Ur, Babylon, Khorsabad and Persipolis.

[14 Hours]

UNIT - 2
River Valley Civilisation in China: Dynasties such as the Shang, Chou, Ch'in, Ming, etc.; Political History, philosopy, and scientific achievements; palaces like the Imperial Palace, forbidden city; Altars and Temples; Imperial Tombs. Early Civilisation in South America**:** the Mayas, Aztecs and the Incas; Pyramid Temples at Cuicuilco, Palenque; Pyramid of the Sun, Teotihuacan; Tikal; Tenochtitlan, Chichen Itza and Machu Pichu.
Bronze Age Indus Valley Civilization in India: Town Planning, Trade and Commerce; Mohenjodaro and Harappa.
Early Iron Age Civilisation in India: the coming of the Aryans and Vedic Age; Epic Age; development of Hinduism Religious and Caste systems, Wooden Origins of Indian Architecture: Forest Dwellings, Kutiya and Grama.

[14 Hours]

UNIT - 3
Early Iron Age Civilisations in Greece: Minoan, Myceanean and Classical Greek

Minoan and Mycenean: Palace at Knosos, the Lion Gate, the appearance of the Megaron. Classical Greek: Developments in philosophy: Socrates, Aristotle, Plato; science; litterature; Greek City states;
Evolution of the Temple; the Orders; the Parthenon, Temple of Zeus, Temple of Athena; Polis and Acropolis.
Early Iron Age Civilisations in Rome: Political, social, philosphical and military developments. Structural and Enginnering Acievements: the arch, Vault and the dome; Developments of the orders;
Temples: Pantheon; Arenas: Colloseum; Therma: Caracalla; Aqueducts; the forum and the basillica

[16 Hours]

UNIT - 4

Early Iron Age Civilisations in India: Beginning of Buddhist and Jain Architecture; philosophy and teachings; the Hinayana and Mahayana Sects and their contribution to the development of architecture in India. Ashokan School, Buddhist Rock Cut Architecture: the Chaityas and Viharas at Ajanta and Ellora; the Stupa: Form and Evolution; Buddhist Architecture in Gahdhara.

Early Iron Age Civilisations in India: Beginning of Hindu Temple Architecture under the Guptas and Chalukyas. Appearance and Evolution: Experiments at Badami, Aihole of examples such as Ladh Khan, Durga, Maleguti.

[16 Hours]

Text Books:

1. Arjun Dev, The Story of Civilisation, Vol. I (Old) NCERT History Textbook for Class IX.
2. Kostof Spiro, A History of Architecture – Settings and Rituals. Pub. Oxford University Press, N.Y., 1995.
3. Hiraskar G.K., The Great Ages of World Architecture. Pub. Dhanpat Rai Pub. Ltd., Delhi. 1994.
4. Brown Percy, Indian Architecture- Buddhist and Hindu Periods. Pub. D.B.Taraporevala and Sons Co. Pvt. Ltd., Bombay.

Reference Books:

1. Tadgell Christopher, A History of Architecture in India – From the Dawn of Civilization to the End of the Raj. Pub. Phaidon Press Ltd., London, 1990.
2. Fletcher Sir Banister, A History of Architecture. Pub. Butter-worth Heinemann Ltd. London (UK), Indian collaboration- CBS Pub. Delhi. First Pub. 1896, 19th edition 1987.

Note: In the End Term Annual Examination, Comprising of 75 marks, "Question-1" will be compulsory having short answers covering all the 'Units'. Rest any four questions will be from each 'Unit', as required to be attempted by the candidate. Only internal choice for each 'Unit' will be given

B.ARCH
GGS INDRAPRASTHA UNIVERSITY

B ARCH-140: Theory of Structures (Mathematics & Applied Mechanics) (T)

L-4 P-0 Credits- 08

Objective of Course

This course is to provide the students with basic concept of mathematical principles, leading to primarily an easy understanding of various topics under "STRUCTURE". The course also provides basic clues to mathematical models and research techniques in the field of architecture. Last, but not the least, this course aims at developing an understanding of proportions and 3-dimensional geometry as an aid to design skills.

The objective of the course is to develop a feel for structural principles as they relate to a building design, to enable him to make an informed choice regarding the most appropriate structural system for this building and to develop a reasonable understanding of its operational and economic implications.

UNIT - 1

Differentiation: Maxima & Minima: Concept of Increasing & Decreasing functions, Turning Point, Conditions for a function to be max. or minimum. Point of inflexion

Integration: Area under the curve

Differential Equations: Definition, Order & Degree of differential equation, General & Particular solution, formation of differential equation whose general solution is given, solution of differential equation by method of separation of variables, homogeneous differential equation, linear differential equation of type $dy/dx + p(x)\ y=q(x)$; $q(x)$ & $p(x)$ are functions of x. only.

Partial Differential Equations: An Introduction

Surface Geometry

3-Dimensional Co-ordinate geometry

Proportions: Golden series, Fibonacci series etc.

Mensuration: 2D: Perimeter & Area of plane figs like Polygons, circle & semicircle 3D:Cuboids, Cubes: Surface Area & Volume Surface Area & Volume of Cylinder, Cone and Sphere.

[30 Hours]

UNIT - 2

Center of gravity: Definition, Calculation of CG of plane figures, like I, T,L,C,O, hallow & Box sections

Moment of inertia: Definition, Calculation of CG & MOI of plane figures about the principal axes e.g. rectangle, triangle & circle. Parallel axes theorem, perpendicular axes theorem, MOI of simple plane figs. like I, T,L,C,O, hallow & Box sections.

Introduction to Geometric mapping

Cartography

Introduction to mathematical models

Statistical Techniques: Data, frequency & frequency curve, cumulative frequency table, mean, median, mode. Standard deviation, correlation, regression.

[30 Hours]

UNIT - 3

Introduction to statics: Forces , their definition, characteristics & types, composition & resolution of forces.

Concepts of forces as loads: Dead, live, Horizontal loads like Earth quake & wind load

Laws of Equilibrium of forces: Parallelogram law, Lami's theorem, moment & couple, conditions of equilibrium.

Elementary structural systems & their components: Building forms concept of Load Bearing walls & framed structures, Concept of load distribution on structural components like Slabs , Beams, Columns & Foundations.

Support Reactions: Statically determinate and indeterminate systems, Degree of freedom, free body diagrams, type of supports, loading representations. To determine the support Reactions for a simply supported, Roller supported & Hinged beams for UDL, Concentrated loads ,triangular, & trapezoidal loads : idea only.

Hooke's law, stress & strain: Concept of direct forces (compression & tension), Elasticity, Plasticity etc. Hooke's law, modulus of Elasticity, Elastic limit stress/strain curve for mild steel under constant tension. Problems on Hooke's law & introduction to temperature stresses.

Concept of Euler's load & Buckling: Idea of short & long columns. Effective length for various end conditions. Euler's formula and calculation of Buckling loads. Combined Direct & Bending stresses. Concept of Eccentric loads. Calculation of CG, MOI & Section Modulus for calculating Bending Stresses.

[32 Hours]

UNIT - 4

Introduction to simple determinate frames: Method of Joints. Method of Sections. Graphical Method.

Statically determinate beams: To determine the support reactions for cantilever & beam with overhangs for UDL, Concentrated loads, triangular, & trapezoidal load idea only.

SFD & BMD: Definitions of SFD & BMD, sign conventions for SFD & BMD. Draw SFD & BMD for simply supported, cantilevered & overhanging beams for various loads like UDL and Concentrated Concept of locations for max BM, point of contraflexure. Calculation of combined Direct & Bending stresses and draw Net Stress diagrams.

[32 Hours]

Text books

1. Mechanics of Materials by E.P.Popov, Prentice Hall of India Pvt. Ltd., New Delhi, 1991,ISBN-0-87692-187-10
2. Engineering Mechanics by S. Timoshenko, D.H. Young, Tata Mc Graw Hill Book Company. 1956, ISBN 0-07-085811-X.
3. Advanced Mathematics for Engineers & Scientists by G.S. Sharma, K.L. Ahuja, I.J.S. Sarna, CBS Publishers& Distributors, Delhi, 1984.
4. A Textbook of Engineering Mechanics by R.S. Khurmi. S.Chand and Co., 2004, New Delhi, ISBN: 81-219-0651-2.
5. Strength of Materials (SI units) by R.S. Khurmi. S.Chand and Co., 2002, New Delhi, ISBN: 81-219-0533-8

Note: In the End Term Annual Examination, Comprising of 75 marks, "Question-1" will be compulsory having short answers covering all the 'Units'. Rest any four questions will be from each 'Unit', as required to be attempted by the candidate. Only internal choice for each 'Unit' will be given

B.ARCH
GGS INDRAPRASTHA UNIVERSITY

B ARCH-141: Climatology (T)

L-1 P-0 Credits- 02

Objective of Course
Introducing, the Modern Science of Climatology in the context of climate and weather as determinants of Design and Form of Habitat and Landscape throughout the ages at the Macro and Micro levels. Emphasis on application of knowledge to building design

UNIT - 1
Introduction to Climatology, Relation to Architecture, Macro Climate, Role of the Designer, Climatic Zones, Architectural Responses Around the Globe for Different Climatic Zones, Introduction to Concepts of Design. Global Climatic Factors - Earth's Thermal Balance, Thermal Forces, Seasonal Changes, Winds. The Changing Climate, Factors Responsible for Change, Global Warming, Ozone Depletion, etc.

[8 Hours]

UNIT - 2
Thermal Comfort Factors and Balance, Body's Mechanism of Heat Production and Loss, Methods of Heat Transfer, Comfort Scale, Effective Temperature, CET, Heat Exchange of Buildings, Internal Heat Gain/ Loss,
Sol Air Temperature, Solar Gain Factor, Thermal Quantities: Temperature, Heat, Heat Flow Rate Specific Heat, Conductance, Resistance, Surface Conductance, U value, Periodic Heat Flow, Time Lag & decrement factor, Effect of Different Materials, Effect of Multilayered Bodies - Insulation/Cavity.

[8 Hours]

UNIT - 3
Architectural Design as a Response to Climate: Tool for Design in All climatic Conditions of India Microclimatic Factors, Landform, topography, Vegetation type and Pattern, Water Bodies, Street Widths and Orientation, Ground Character, Plan Form and Elements, Building Orientation, Roof Form, Fenestration Pattern, Orientation and Configuration, Controls like Shading Devices, Design of Shading Devices: Solar Azimuth and Altitude, Angle of Incidence, Wall Azimuth, Shadow Angles, Overheated Period, Sun Path Diagrams

[6 Hours]

UNIT - 4
Architectural Design as a Response to Climate: Tool for Design in all Climatic Conditions of India Walls, Choice of Materials, roof Materials, External Colous and Textures, Layouts and Internal Finishes. Solar Passive Heating and Cooling Systems, Roof Pond, Trombe Wall, Green House, Ventilation. Principles of Ventilation of Buildings, Air Flow, Stack effect, Wind Tower.

[8 Hours]

Text Books:

1 *Koenigsberger, Ingersoll, Mayhew, Szokolay,* Manual of Tropical Housing and Building, Climatic Design, Orient Longman Pvt. Ltd, 1973.
2 *Arvind Krishan, Climate* Responsive Architecture, Tata McGraw- Hill Publishing Company Limited New Delhi, 2001.
3 *Markus, Morris,* Buildings, Climate and Energy, Pitman Publishing Ltd. 1980.

Note: In the End Term Annual Examination, Comprising of 75 marks, "Question-1" will be compulsory having short answers covering all the 'Units'. Rest any four questions will be from each 'Unit', as required to be attempted by the candidate. Only internal choice for each 'Unit' will be given

B.ARCH
GGS INDRAPRASTHA UNIVERSITY

B ARCH-150: Projects (P)

L-0 P-3 Credits- 06

Objective of Course
Projects offer a chance to students for specialized or advanced learning in their own areas of interest. Courses shall be offered on the basis of availability of expertise in new and emerging areas of concern to architects. The endeavour shall be to offer a wide choice to students, which will vary depending on the resources of each school. An updated list of approve project courses shall be notified from time to time

B.ARCH
GGS INDRAPRASTHA UNIVERSITY

B ARCH-210: Architectural Design (P)

L-0 P-9 Credits- 18

Objective of Course

Architectural Design is seen as the central discipline of the program. The studio is the arena where the student applies his knowledge and develops design skills while testing out the theories and methods learnt in other courses in the Humanities, Technological and Professional Streams. The students will endeavour to acquire an understanding of the determinants of the built form such as social imperavatives, environmental concern and craft of building. They will review experiences from their own immediate and personal environment as well as the values and perceptions of other involved in the process of design viz.. the user, the client and the public at large. Derivation of concepts and strategies will then lead to deliberate responses in the shape of a specific design proposal with the help of organizational and communicative skills.

The study of Architectural Design is seen as a cumulative process where the experience the previous year is used as a base for increasing the depth and breadth of knowledge and development of skills in the following year. The range of design problems shall include projects of progressively increasing complexity from a simple rural habit to multi use urban mega structures.

Each Architectural Design course shall include both short problems (Time problems or sketch schemes) and major problems (fully developed schemes). At every stage topics concerned with the design problems shall be dealt with in lectures, group discussions and library research so as to provide the necessary philosophical and attitudinal background to a rational design approach. The studio program of various design problems shall be set well in advance of the commencement of the term by the Studio Director in close consultation with the other subject teachers. It would be ensured that exercises in other subjects are directly relevant to the studio problem wherever the scope for such integration exists.

Study tour shall be conducted at least once every year during the stage one of the programme. The report to be submitted by the student shall be assessed as part of the studio work of Architectural Design.

B.ARCH
GGS INDRAPRASTHA UNIVERSITY

B ARCH-211: Art & Graphics (P)

L-0 P-3 Credits- 06

Objective of Course

Graphic representation of ideas concepts and design principles (two dimensional and three dimensional composition) Co-ordination skills (eye-mind-hand/ Perceptual) drawing and painting, indoor and out door sketching in colour pencil pastels, ink, poster colour and water colour-creative skills-there dimensional perception using liquid transparent, reflective, opaque, flexible and hard materials.

Structure from-space**,** relation, animated graphic-frame/space relation Co-ordination skill (eye-mind-hand/perceptual) photography, multi-media, audio visual projection. Creative skills: Reprographic technique and printmaking.

B.ARCH
GGS INDRAPRASTHA UNIVERSITY

B ARCH-212 : Cad & Software Lab (P)

L-0 P-3 Credits- 06

Objective of Course

Introduction to computer**,** Hardware and software component computer generation, computer terminology, Introduction to windows and its application. Computer Aided Drafting Introduction to Auto CAD, Basic drawing and editing commands for 2D drawings, simple drawing exercises for application of Auto CAD commands. Advanced 2D drafting using Auto CAD, Use of layers and blocks exercise on simple working drawings. Introduction to 3d drafting simple exercises on 3rd drafting walk through exercises.

B.ARCH
GGS INDRAPRASTHA UNIVERSITY

B ARCH-220: Building Construction (P)

L-0 P-4 Credits- 06

Objective of Course
This course is designed to explore students to the process of building construction, the components of buildings and the materials, skill and equipment used in shaping them. The emphasis is on familiarization by direct observation. Students shall be encouraged to acquire a test for good workmanship and quality.

The course is visualized as having three essential components viz.., Theory component materials and methods of construction. Application component principles and practices shall be applied to the production of meaningful working details and drawings. Demonstration component to be conducted either in the construction field in the school premises or at specific venues outside incorporating a first hand experience of important stages of building construction, to complement the studio work.
Computer aided architectural design**,** use of application software 3D modeling project on walk through.

B.ARCH
GGS INDRAPRASTHA UNIVERSITY

B ARCH-230: History of Architecture (T)

L-2 P-0 Credits- 04

Objective of Course:
The course focuses on architectural products of various times and places within a broad chronological band. The emphasis of the discussions is on the nature and essence of the architectural product, related as far as possible to history of the process of their conceptualization, and process of construction. Use of the concepts of Style/ Typology/ Morphology in histories of architecture.

UNIT- I
Architecture of Buddhist origin and associations in India
Sri Lanka Far Eastern Countries Tibbet China Japan Viharas Chaityas and Stupas and Monasteries
North Indian Temple architecture (circa 6^{th} –12^{th} C), Important temples in North and Central India. Orissa. Khajuraho etc.
South Indian temple architecture under the Chalukyas, Pallavas, Cholas, Pandyas and important temples like Meenakshi Brihadishwara etc.

[15 Hours]

UNIT- 2
Early Islamic architecture in the Middle East, Architecture in Mediterranean region, North Africa, South Spain.
Orthodox Christian, Byzantine &, Venice, Constantinople Romanesque
Ecclesiastical Gothic Architecture in Continental Europe and England.
Great Cathedrals - Notre Dam, Canterbury, etc.

[16 Hours]

UNIT- 3
Islamic architecture in India. Brief Chronological introduction to dynasties in North India, Slaves Khaljis, Tughlaqs, Lodhis ani Mughals. History written in terms of "Styles" indicating dynastic and regional variations
Morphologies / Functional Typologies, Mosque Tomb and Garden Pavilion Forts Palaces with examplesThe Quwwat-ul-Islam Mosque/Qutab-Minar Tughlaq - Alai Darwaza/Tomb of Ghias-ud-din Tughlaq. Gujarat – Jami Masjid in Champaner, Bijapur - Gol Gumbad & Ibrahim Rauza
The Mughal Period Babur and Humayun – Tomb gardens/pleasure gardens, Akbar – Fatehpur Sikri, Shahjahan – Taj Mahal (Agra), Jami Masjid (Delhi)

Exchanges between Islamic Traditions and Local building practices like Rajasthan and other Regions including the Ganga Yamuna Doab. The Riparian Ghat structures of North and Central India

[16 Hours]

UNIT- 4

Advent Renaissance in Europe and impact on Architecture.
Late Mughal, Lucknow Nawabi and Early European/Colonial period Architecture in India.
Early to High Renaissance, St. Maria Del Fiore, (Florence), Late Renaissance, Baroque Michelangelo, Palladio, St. Peters (Rome). St. Paul's (London).
Neo-Classical Architecture. Renaissance to Revival in England as background to British Colonial Architecture in India

[16 Hours]

Text Books:

1. Percy Brown, INDIAN ARCHITECURE (Islamic Period)
   Pub. D.B.Taraporevala and Sons Co. Pvt. Ltd., Bombay.

2. Satish Grover, ISLAMIC ARCHITECTURE IN INDIA.
   Pub. Galgotia Pub.Co., New Delhi, 1996.

3 Tadgell Christopher, A History of Architecture in India – From the Dawn of Civilization to the End of the Raj. Pub. Phaidon Press Ltd., London, 1990.

4. Fletcher Sir Banister, A History of Architecture.Pub. Butter-worth Heinemann Ltd. London (UK), Indian collaboration- CBS Pub. Delhi. First Pub. 1896, 19th edition 1987.

Referene Books:

1 Nadar Ardelan and Laleh Bakhtier, THE SENSE OF UNITY.
  Pub. University of Chicago Press, Chicago, 1973.

2 David Watkin, A HISTORY OF WESTERN ARCHITECTURE.
  Pub. Barrie and Jenkins, London, 1986.

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B.ARCH

GGS INDRAPRASTHA UNIVERSITY

B ARCH-231: Art & Architectural Appreciation (T)

L-2 P-0 Credits- 04

Objective of Course

The course aims to equip the students to develop analytical and critical skills for looking at art and architecture. The specific objectives are: A. to develop a *way of seeing*, to contextualize art and understanding it as an expression of human faith, creativity and of complex social, economic, political, religious influences; to develop skills for determining the meaning/ value of an art work in terms of external (aesthetic relationships) and internal links (structure) as well as its social functioning or social judgement. B. To introduce students to fundamental principles of architecture and architectural design, basic ideas of theoretical and historical approaches to architecture for analysis and design; to develop an understanding of Ideas, Concept, Form, Function and Meaning with respect to architecture; to introduce the students to the aspects of Production, Representation and Categorisation of architectural objects and processes.

UNIT - I

Fundamentals of Art:

Form: Line, Colour, Texture, spatial qualities and composition.

Ordering Principles: Balance, Contrast, Scale, Movement, Symmetry, Asymmetry, Centrifocal, Bifocal etc.

Content: The idea concerned with the work of art. On one hand relates to Symbolism, Iconography, Magic, Myths and allegories and Religion and rituals. On the other with representation of the social and secular life on the other

Functions of Art: as a social phenomenon, as information, as a concept ora suggestion, as education or as enjoyment.

Techniques: Includes the various applications of materials for various kinds of art forms.

Concepts of Art:

Aesthetics: Discuss theoretical models of the Aesthetic. Dwell on the paradigms of theoretical perception of Beauty.

Perception: Understanding Art as the object of Perception.

Communication: Artistic text as language. Art as the crystallized experience of communication

[16 Hours]

UNIT - 2

Nature / Issues Of Art:

Values: Deals with artistic thinking in its context leading to a set of codes determining the value of an art work.

Styles: as the structure of art, like Realism, Naturalism, Expressionistic or Abstraction and so on.

Modes of Art: Existence of diverse branches of Art- from two dimensional art like painting to three dimensional art like sculpture to mixed media art like installations and further on to more ephemeral forms like video or digital art.

Understanding Art:

Understanding the Meaning of Art through the ages- decoding various layers in artwork:

Pre-Modern

Modern

Post-Modern

[16 Hours]

UNIT - 3

Central problem of Design Theory
How is the Idea Generate?
What Influences its shape?
From what it is derived?
Theories of Form: Form follows Functions/Creative imagination/Spirit of the age/Social and Economic Conditions/Timeless principles
Notes on Element/ Thing/ Relation/ Representation/ Concept/Notion/ Idea/ Principle/ Doctrine
Interpretations of Vitruvian Triad: Firmness/Commodity/Delight
Primary and Secondary Categories in Architecture
Form
Function
Meaning
Context
Construction
Will

[16 Hours]

UNIT - 4

Form and Formalism
Elements: Line, Plane, Volume
Structure: Axes/Grid, regularity/Repetition, proportion
Aesthetics: Beauty, Formal Order (Unity/Variety/Harmony), and Esthetic Theories.
Minimalism, Mannerism
Function and Functionalism
Systems: Planning, Services Value and Economics
Functions: Towns and Cities, Building Types Human Activities
Human Values) Psychology and moralty: Sociology, Psychology, Morality (In terms of form Function Meaning)
Brutalism, Rationalism (in Architecture)
Meaning and Historicism (Ref.1,2,3)
Associations: Resemblance, Classification and Typology, Taste Fashion and style
Signs and symbols: Symbolism, Semiology, Semantics and language.
Discourse: Criticism, Theory, History
Academism (Beaux-Arts, Bauhaus), Post-Modernism

[14 Hours]

Text Books:

1. Architectural Theory, Vol 2, Principles of Twentieth Century Architectural Theory arranged by Category, David Smith Capon, John Wiley & Sons, Chichester, England 2000, (pp.i-xii, 1-140)
2. Architecture - Form, Space and Order , Francis D K Ching, Van Notstrand Reinhold, New York. 1996 (For Graphics)

Reference Books:

1. Paul Alan Johnson, Theory of Architecture pp. 272-276, 288-292, 399-417
2. Roger Scruton, Aesthetics of Architecture (On Style Taste Fashion essence etc)
3. Alan Colquhon, Modernity & Classical Tradition pp. 1-21

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B.ARCH
GGS INDRAPRASTHA UNIVERSITY

B ARCH-232: Sociology and Psychology (T)

L-2 P-0 Credits- 04

Objective of Course:
This course aims to expose the students to the relationship between man and his larger environment, with special emphasis on aspects that are likely to affect intervention in or creation of, the built environment. The objectives of the course are to familiarize the students with basic concepts/ theories of sociology/ psychology as relevant to architecture, to introduce students to key issues in historical and contemporary global and urban sociology/ psychology and to develop a language and vocabulary for discussions/ analysis on the sociological/ psychological dimensions of architecture.

UNIT - 1
Origin of Man and Society
Unique characteristics of Man: Symbol using animal, Tool making animal
Theory of Evolution
Evolution of man: Apes to man
Biological foundation of Human Behaviour
Man as a Social Animal: Instincts versus Drives.
Organic Basis of Man's Capacity for culture
Human nature and process of Socialisation
Culture and Society
Concept of Culture
Cultural Identity, Cultural Diversity, Cultural relativism.
Ethnocentrism , Cultural universals
Elements of culture
Folkways, Norms, Mores, Values, Laws, Social Institutions
Material products of cultural objects or artifacts
Human Nature and Process of Socialisation**:** Types of Society;
Pre-Modern: Hunter's and gathers, Pastoral agrarians and Traditional states
Modern
Third world/Traditional Society
Social & Cultural Change
Factors of Social Change, discovery and invention, culture diffusions, ideas & ideologies, collective action, technology
Resistance to Social Change, Theory of Cultural lag, Technology & Social change
Interaction of Technology, Geography & Culture
Meaning of Environment, natural and cultural, Ecological Balance, Cultural Environments, natural aspects of Culture, Man made geographic patterns.
Geography & natural environments: Mountains, plains, rivers & oceans, natural resources.
Relations of Natural Environment to culture extent of influence natural environment, cultural choice, similar habitat different response, different habitat and common response.

Natural barriers & human differences, Natural environment and transportation, natural resources and limits of growth, Pollution and conservation.

[16 Hours]

UNIT - 2

Population and Demography

Population growth, population subsistence & natural resources, Malthusian doctrine, optimal population, Birth rates, death rates and economic growth/development.

Social Interaction and every day life:

Non-verbal communication, social rules, conversation and talk, face body and speech in interaction. Encounters contexts and locations personal space interaction in time and space. Every day life in cultural and historical perspective.

Social Institutions, groups and organization

The concept of institution. Forms of association-primary and secondary groups, formal organization. Bureaucracy and bureaucratic organization . Non-bureaucratic organization. Influences on organizations in the modern world.

Social Stratification:

Concept of social Stratification. Types of social stratification estates, caste and social classes. Social mobility, poverty & inequity. Class consciousness and class conflict. Racial and cultural stratification. Race and culture, Racial prejudice and discrimination , regional age and gender stratification . regional differences communities and neighborhood and geographic conflicts. Sexual stratification, women in the workforces. Age stratification.

Globalization of Social life:

Third world societies: economic consequence of colonialism, divergence between rich and poor continues. Theoretical perspectives imperialism, dependency. Inter natural economic integration, globalization of media.

Modern urbanization :

The traditional city, feature of modern urbanism, theory of urbanism, Chicago School, Urban Ecology, urbanism as way of life, urbanism as created environment, Harvey- the restructuring castle: urbanism of space. Western urban development, Third world urbanization.

[16 Hours]

UNIT - 3

Introductory: Nature of relationship between psychology and spatial behaviour with special reference to Architecture, Urban Design and Physical Planning.

Territoriality: Concepts ethnological Basis, Function. Territorial organization among Humans, Three Major Types of territorial space: Micro Space, Meso-Space and Macro-space.

Personal Space: (Micro-Space) Meaning variation in personal space behaviour due to social Psychological Environmental and Cultural facto4rs; Personal space and environment with special reference to Interior Design of Public Places.

Home Base (Meso Space)Psychological Functions of Home; Determinates of Housing preference; Concept of Neighbouhood as unit of Physical Panning, Subjective definition of Neighbourhood and the related Hierarchy in terms of Interpersonal relationships; Critique of Planners Ideological construction of the meaning and purpose of neighbourhood.

Home Range (Macro Space) Hierarchy of Social Spaces: Home Base and range; Spatial pattern of activity System- Time Budgets. Origin and Destination Survey, Orbits of activity and social factors of Class and Sender.

Cognitive Patterns Mental Maps and orientation Lunch's Theory of Cognitive Mapping; Social and cultural variations in the description cognitive Mapping techniques, Impact of activity on mapping by individuals capsule Images of the whole city.

Environment: Meaning, Nature of relationship between Environment, Organism and Behavior Theories of relationship between Environment and Behavior.

Hierarchy of Environments: Behavioral Perceptual Operational and Geographical Operational environment and its sub-division; phenomenal, personal and contextual.

[16 Hours]

UNIT - 4

Perception: Meaning of Perception, Appreciation cognition, Attitude, and Behaviour.

Phenomenal Environment: Human Sensory Deprivation and overload; Deviance and pathology in cities; Crowding in Human population, Density and behavior as mediated by culture and society.

Phenomenal Environment: Physical Various types of environment and related patterns of behavior : Street Home, Work Place, School, Prison, Residence conditions for positive interaction thorough Architectural Designing Behavior- setting and behavior – nature of relationship.

Personal Environment: Behavioral and Experiential: Nature of relationship behavior Phenomenal Environment and Personal environment in determining Perception and Attitude, Role of values in formation of attitudes, attitudes and preferences, perception of preference with reference to simplicity complexity dimension of Design.

Contextual Environment 1: Dwelling and Habitual Selection on the basis of stages in life – cycle and socio-economic status.

Contextual Environment 2: Poverty and Ghettoization, with special reference to slums and JJ Colonies, Public Housing and behavior of relocated tenants, with special reference to resettlement colonies.

[16 Hours]

Text Books:

1. 1. Social Science - An introduction to the Study of Society, Elgin F. Hunt, David C. Colander, Pub. Macmillan Publishing Company, New York 1984
2. Sociology, Anthony Giddens, Pub. Polity Press in association with Blackwell Publishers, 1989
3 Environment and Behaviour - Planning and Everyday Urban Life, J. Douglas Porteous, Pub. Addison Wesley Publishing Co, Branding, Massachussets, 1977

Reference Books:

1. Advanced Reading Suggested (Reference), Rapoport, Amos (1977): Human Aspects of Urban Form, Oxford, Pergamon Press

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B.ARCH
GGS INDRAPRASTHA UNIVERSITY

B ARCH-240: Theory of Structures (T)

L-4 P-0 Credits- 08

Objective of Course:
The objective of the course is to develop a feel for structural principles as they relate to a building design, to enable him to make an informed choice regarding the most appropriate structural system for this building and to develop a reasonable understanding of its operational and economic implications.

UNIT - 1
Masonry Structures: Introduction, Structural property and allowable stresses
Design of simple load bearing masonry building: brick, mortars.
Slenderness ratio, load transfer from walls & slabs to supporting walls.
Simple House: Load calculation & design of walls. Foundation spread concept of arches, vaults & domes.
Timber Structure: Structural timber available in India, Structural properties and their allowable stresses, Design of Beams.
Simple M/Z application & shear check for forces along the grains(no slopes)
Design of timber posts & trusses for simple cases.

[32 Hours]

UNIT - 2
Steel: structural properties and allowable stresses
Connections in steel
Introduction to welding
Merits & Demerits, types of welding.
Design of welds.
Sizes, length.
Bolting: Introduction
Types & types of failures.
Design of simple joints.
Axial Members = Tension & Compression.
Steel Trusses = Types, spans
Terminology of trusses. Design of members(No Analysis)
Vertical Members : Design of Columns.
Slenderness concept idea of assembled (No design of Lacing)
Simple design of Bending of members using M/Z eqn.

[32 Hours]

UNIT - 3
Concrete technology: Structural properties and allowable stresses
Cement manufacturing & properties

Concrete: Structural properties, variation of strength with age
Factors affecting strength of concrete.
Cube strength, slump + compaction factor test, standard strength , Grades ofConcrete. Concept of w/c ratio & its effect on strength of concrete, curing, Nominal mixes & Design mixes Structural properties of Reinforcement, role of Reinforcement in RCC.
RCC Design: behavior of heterogeneous materials in Direct Force & Bending.
Allowable stresses in Concrete & Reinforcement.
Concept of Elastic, ultimate & unit state theory of RCC design
Idea of N,j,R, modular ratio & their values for different Grades of Concrete mix & Steel reinforcement.
Concept of limit state design & working stress design using SP-16.
Design & Detailing of RCC beams SS, Singly & Doubly Reinforced.
Introduction to L,T, rectangular Beams . Preliminary sizing of structural Elements.
(Slabs & Beam system)

[30 Hours]

UNIT - 4

Design & Detailing of RCC Slabs SS, One way & Two way.
Design & Detailing of Axially loaded RCC Columns.
Design for moment & Detailing of Isolated column footing.

[30 Hours]

Text Books:

1 Arya, A.S. and Ajmani, J.L., Design of Steel Structures, Nem Chand & Bros, Roorkee, 1989, ISBN: 81-85240-34-5
2 Mallick, S.K., Gupta, A.P., Reinforced Concrete, Oxford and IBH Publishing Co. Pvt. Ltd., 1989, ISBN: 81-204-0047-
3 Krishna Jai and Jain, O.P., Plain and Reinforced Concrete (Vol.I), Nem Chand & Bros, Roorkee, 1985.
4 Krishna Jai and Jain, O.P., Plain and Reinforced Concrete (Vol.II), Nem Chand & Bros, Roorkee, 1993.

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B.ARCH
GGS INDRAPRASTHA UNIVERSITY

B ARCH-241: Water Supply & Waste Disposal (T)

L-1 P-0 Credits- 02

Objective of Course:
The objective of the course is to provide a wide introductory exposure to environmental support systems as they apply to human habitat, with special reference to understanding & management of various forms of water and solid waste.

UNIT - 1
Terminology used in Water supply. Introduction to domestic plumbing fixtures. Sources of Water. Distribution of Water at urban level, systems of water supply to buildings, hot water supply systems.
Quantity of Water: Requirements of various uses. Quality of Water (No Lab. Tests to be taught).
Primary Treatment of Water: Collection Coagulation, Sedimentation.
Secondary Treatment of Water: Filtration. Various types of filters: Slow Sand, Rapid Sand and, Pressure filters, Clarifiers.
Supply of Water: Materials, Joints: Advantages & Disadvantages.

[8 Hours]

UNIT - 2
Terminology used in sanitation and drainages. Collection & Conveyance of Refuse. Sewage Disposal at Urban level. Sewage characteristics.
Conventional & Non-conventional methods of sewage disposal. Primary treatment of sewage.
Secondary Treatment of Sewage using trickling. Filters, Activated Sludge Process.
Domestic Sanitary fixtures and accessories: Traps, Gully Traps, Grease & Silt Traps, Floor/Nahini Traps, Intercepting Traps, etc.,
Sewers: Construction & Materials,. Manholes: Construction, materials, Types, invert levels, spacing etc.,

[8 Hours]

UNIT -3
Introduction to design of layout plan of drains, traps, & fixtures for sanitation & drainage of a simple residential situation.

[6 Hours]

UNIT - 4
Storm Water: Factors affecting storm water drainage: basic formulas for calculating the storm water with given storm timing and impermeability factor. [No Numerical or exercises for engineering Design of drains/storm water calculation].
Solid Waster Management: Definitions. /Garbage/ Refuse Collection. Outline of Disposal of solid Waste: Methods of Disposal; their relative merit-demerits; Choice of disposal for Indian conditions.
Sewage disposal through Septic Tanks & Soak Pits: System, Viability conditions, Advantages & Disadvantages.

[8 Hours]

Text Books:

1. Rangwala S.C. Water Supply & Sanitary Engineering [Environmental Engineering]. Charotar publishing House Anand, India. (2000)
2. Raju B.S.N., Water Supply & Wastewater Engineer, Tata McGraw-Hill Publishing Company Ltd., New Delhi.
3. S.G. Deolalikar, Plumbing Design & Practice, Tata McGrew Hill Publishing Company Ltd., New Delhi (1994).
4. Panchdhari, A.C., Water Supply And Sanitary Installations, Design Construction And Maintenance, Wiley Eastern Limited 1993.

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B.ARCH
GGS INDRAPRASTHA UNIVERSITY

B ARCH-242: Energy Systems (T)

L-1 P-0 Credits- 02

Objective of Course:
Energy Systems and Installations: To Introduce the concepts, techniques and technologies related to use of electrical energy in habitation, elementary ideas of demand generation, distribution, and costs of electrical energy, alternative energy sources like solar, wind, waves, photovoltaic. Learning numerical calculations do not form the major objective of the course. The student is expected to learn basics of the subject and how to interact with a specialist intelligently and knowledgeably.

UNIT - 1 Sources of Energy
AC& DC
Protection
Transformer
Wiring system (Batten /Conduit) **[8 Hours]**

UNIT - 2
Conventional sources of Energy
Non-Conventional sources of Energy
Transmission of Electric Energy
Star/Delta connection
Concept of Power factor. **[8 Hours]**

UNIT - 3
Distribution system (LT) and (HT)
Grid Stations
Earthing
Planning Electric Sub-Station in residential building etc.
Safety Devices (Fuses,MCBS,ELCBS) **[8 Hours]**

UNIT - 4
Legislation and code of practice I.E. rules, National Electric code.
Captive power generation (DG set) , UPS, Inverter.
Lightning protection,
Grid Stations
Polyphase Circuit. **[8 Hours]**

Text Books:
1. Basic Electric Engineering by M.L. Anwani, Dhanpat Rai and Co.(P)Ltd, 1682, NaiSarak, Delhi, Yr of Publication -1972, Edition 2002
2. Electricity for Architects, Consultants, Builders by B. Raja Rao, 162/1Avvai Shanmugam Salai, Chennai, Yr of Publication 1996, Edition 2000

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B.ARCH
GGS INDRAPRASTHA UNIVERSITY

B ARCH-250: Projects (P)

L-0 P-3 Credits- 06

OBJECTIVE OF COURSE

Projects offer a chance to students for specialized or advanced learning in their own areas of interest. Courses shall be offered on the basis of availability of expertise in new and emerging areas of concern to architects. The endeavour shall be to offer a wide choice to students, which will vary depending on the resources of each school. An updated list of approve project courses shall be notified from time to time

B.ARCH
GGS INDRAPRASTHA UNIVERSITY

B ARCH-310: Architectural Design (P)

L-0 P-9 Credits- 18

Objective of Course
Architectural Design is seen as the central discipline of the program. The studio is the arena where the student applies his knowledge and develops design skills while testing out the theories and methods learnt in other courses in the Humanities, Technological and Professional Streams. The students will endeavour to acquire an understanding of the determinants of the built form such as social imperavatives, environmental concern and craft of building. They will review experiences from their own immediate and personal environment as well as the values and perceptions of other involved in the process of design viz.. the user, the client and the public at large. Derivation of concepts and strategies will then lead to deliberate responses in the shape of a specific design proposal with the help of organizational and communicative skills.

The study of Architectural Design is seen as a cumulative process where the experience the previous year is used as a base for increasing the depth and breadth of knowledge and development of skills in the following year. The range of design problems shall include projects of progressively increasing complexity from a simple rural habit to multi use urban mega structures.

Each Architectural Design course shall include both short problems (Time problems or sketch schemes) and major problems (fully developed schemes). At every stage topics concerned with the design problems shall be dealt with in lectures, group discussions and library research so as to provide the necessary philosophical and attitudinal background to a rational design approach. The studio program of various design problems shall be set well in advance of the commencement of the term by the Studio Director in close consultation with the other subject teachers. It would be ensured that exercises in other subjects are directly relevant to the studio problem wherever the scope for such integration exists.

Study tour shall be conducted at least once every year during the stage one of the programme. The report to be submitted by the student shall be assessed as part of the studio work of Architectural Design.

B.ARCH
GGS INDRAPRASTHA UNIVERSITY

B ARCH-320: Building Construction (P)

L-0 P-4 Credits- 8

Objective of Course
This course is designed to explore students to the process of building construction, the components of buildings and the materials, skill and equipment used in shaping them. The emphasis is on familiarization by direct observation. Students shall be encouraged to acquire a test for good workmanship and quality.

The course is visualized as having three essential components viz.., Theory component materials and methods of construction. Application component principles and practices shall be applied to the production of meaningful working details and drawings. Demonstration component to be conducted either in the construction field in the school premises or at specific venues outside incorporating a first hand experience of important stages of building construction, to complement the studio work.

B.ARCH
GGS INDRAPRASTHA UNIVERSITY

B ARCH-330: History of Architecture (T)

L-2 P-0 Credits- 4

Objective of Course:
To understand the background of present day practice of architecture with respect to significant developments in recent history- Development and diffusion of concepts and practice of Modern Architecture. Contemporary trends of architecture in India in relation to other parts of the world.

UNIT - 1

Introduction to "Modernity" "Modernization" "Modernism", Culture, Territorial & Technical transformations that let to Advent of Modern Architecture Cultural Transformation Revolutionary Visionary Architects Ledoux & Boullee.

Technical Transformation, Industrial Revolution New Materials, Concrete, Iron & Steel and Glass. Engineers, Eiffels, Hennebique Auguste Perret, Malliart, Chicago School, Birth of Sky Skraper Architects, Adler & Sullivan

- Frank Lloyd Wright Organic Architecture, Prairie House
  Usonian House
- Art & Crafts in England, Willium Morris, Structure Rationalism & influence of Viollet Le duc
  Art Nouveu –Victor Horta, Hector Guimmard Antonio Gaudi Responses to Mechanisation
  Otto Wagner, H.P. Berlage
- Le-Corbusier & Esprit Nouveau
- Bauhaus – Walter Gropius
  Cubism De Stijl & New Conception of Space
  Mies Van Der Rohe
- Spatial Compositions & Abstract Masses
  Aalvar Aalto
  Louis Kahn
  Pluralism in the 1970s

[16 Hours]

UNIT - 2

- Late careers of Frank Lloyd Wright and Le Corbusier
- Territorial Transformations in Europe and the West Birth of New Cities and Urban Growth of cities in Europe and America. Demand for New Architecture
  Sant'Elia's –Futurism
- Intensification of Colonial Development & Architecture world wide
  Effect of Colonialism on Indian Art, Architecture & Urbanism

[15 Hours]

UNIT - 3

- Beginning of Modern Institutionalization of Architecture in India (Academic & Professional)J.J. School of Architecture, Indian Institute of Ardhitecture, Nationalist Architecture (Sirish Chatterjee etc.) Developments
- Post Independence influence of Modern Masters, Corbusier, and Kahn in India and Indian Modern Architects.
- Habib Rehman, A.P. Kanvinde, Joseph Allen Stein, Charles Correa (Early Works), Balkrishna Doshi (Early Works) PWD's early works
- Regionalism / Search for Indian Ness. Raj Rewal, Late works of Doshi, Late works of Correa also Geffry Bawa,
- Regionalism / Appropriate Technology and Sustainability Laurie Baker, Hudco and Building Centres, Lok Jumbish, Primary Education Programmes

[16 Hours]

UNIT - 4

- Globalization and its impact on India, Rise of Indian and Multi-National corporations and their architecture, Advent of new building types – offices, malls, Cineplex, Super Deluxe Hotels, Satellite towns Gurgaon, New Bombay, NOIDA etc. (Architecture only). DLF and Hafeez Contractor, The Contemporary Individual Urban Residence in Delhi..
- Elementary Reference to Post- Modernism in the west, Works of Venturi, Rossi, Michel Graves Eisenman Tschumi etc Contemporary works in the west

[16 Hours]

Text Books:

1. Lang, Jon, Madhavi Desai & Mili Desai (1997) Architecture and Independence; The Search for Identity – India 1880 to 1980, Oxford University Press (Selected Portions only)

Reference Books:

2. Correa, Charles M (1985) The New Landscape. Bombay Strand Books.
3. Bagha, Sarabjit, Surinder Bagha and Yashinder Bagha (1993) Modern Architecture in India, New Delhi: Galgotia Publishing company.
4. Bhatia, Gautam (1994) Punjabi Baroque and other Memories of Architecture, New Delhi, Penguin Books.
5. Bhatia, Gautam (1994) silent Spaces and other Stories of Architecture, New Delhi, Penguin Books.
6. Architecture of India, Electra Montier Publication on Festival of India in France.
7. Bhatt, Vikram and Peter Seriver (1990) Comtemporary Indian Architecture: After the Masters, Ahmedabad.

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B.ARCH
GGS INDRAPRASTHA UNIVERSITY

B ARCH-331: Settlements Design (T)

L-2 P-0 Credits- 4

Objective of Course:
To understand the city as a large system composed of physical components such as circulation networks, districts, open spaces and its delimiting legal edge. How these components have emerged, transformed and sustained their character in settlements under varying conditions in the course of history. With the understanding of city and its components, the modern planning process as applied to a settlement is studied. The course culminates in case study of master plan and its objectives as applied to a settlement.

UNIT - 1

- City as an architectural form. Tools to Understand city form-street system, land use pattern, the building fabric. Early City form. Factors influencing the formation of cities topography religion, politics, Social and political needs.
- Early Greek cities. Principles of planning set up by Hippodamus. Case Examples of Priene and Miletus. Planning concepts of Hellenistic Greek cities. Early Roman City. Planning concepts followed in roman military camp towns. Terms-Decumanus, Cardo, Lugera. Roman Cities of Timgad and Pompeii

Vedic city diagrammes. Town planning concepts for Indian cities with case examples

Medieval towns of Europe. Influence of Castle, Church and Guilds on town. Medieval Towns of India. Study of planning principles with case examples of Madurai, Srirangam and Jaisalmer.

[16 Hours]

UNIT - 2

Renaissance cities of Europe. Understanding city planning principles with case examples of Versailles, karlsruhe etc. Influence of Renaissance and Baroque city Planning concepts on contemporary cities of the world with examples of Washington and New Delhi.

Modern Planning theories of early 19th century of Patrick Geddes Ebenezer Howard Radburn and Henri Wright

Neighbouhood Planning Concept

[16 Hours]

UNIT – 3

Introduction to City as a Physical system & Components of City.

- Contemporary City and its Physical Components. City as a large system. Image structure of city of Kevin Lynch , with examples from India and abroad.
- Circulation network as structuring element in a settlement. Street types- waterways covered streets, bridge streets, boulevards etc. relation of built mass vs. street, street as a seam, elements of street- porticoes, gateways, fountains, etc. street as a public space**.**

Modernist street, street as a divider, visual variety & spatial enclosure, building line, hierarchy of roads in Delhi Master Plan.

- Central Elements of City- The Administrative District, The Religious District, The District of Business and Commerce, Residential component- traditional *mohallas* and modern neighborhoods.
- The City Edge- Legal limits of a city, its need and role throughout history –ritualistic boundary, customs boundary, etc. Types of city edges – walled, water front, multiple edge, open city industrial extensions, suburbs, green belts. Controls at city edge.
- Open spaces within a city- green/parks& gardens and paved/ plazas/ *maidaans*. Modern space hierarchy within a city.

[16 Hours]

UNIT – 4

- Site planning, analysis and design; Off-site and One-site factors; Site plan process; Typical street layout in residential planning; General street classification (reference to Delhi Master Plan).
- Traffic and circulation: objective and purpose.
- Architectural Controls, Urban Renewal, Re-development, Revitalization.

[15 Hours]

Text Books:

1. Kostof Spiro, The City Assembled- The Elements of Urban Form Through History, A Bulfinch Press Book Little, Brown and Company, Boston, New York, London , 1992.
2. Kostof Spiro, The City Shaped, A Bulfinch Press Book Little, Brown and Company, Boston, New York, London.
3. Gallion Arthur B., Eisner S., The Urban Pattern: City Planning and Design, CBS Pub. And Distributors, Delhi, 1984.
4. Bandopadhyay Abir, The Text Book of Town Planning, Books and Allied (P) Ltd, Kolkata, 2000.

Reference Books:

1. Rossi Aldo, The Architecture of the City, The MIT Press , Camridge , 1982.
2. Jacobs Jane, The Death and Life of Great American Cities, Vintage Books, A Division of Random House, New York, 1961.

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B.ARCH
GGS INDRAPRASTHA UNIVERSITY

B ARCH-340: Theory of Structures (T)

L-4 P-0 Credits- 8

Objective of Course:
The objective of the course is to develop a feel for structural principles as they relate to a building design, to enable him to make an informed choice regarding the most appropriate structural system for this building and to develop a reasonable understanding of its operational and economic implications.

UNIT - 1
Deflections
Demerits, Nature, Causes, Limits.
Formulas for determinate structures for concentrated & uniformly distributed loads.
Fixed , SS beams & continuous beams. Degree of indeterminacy, deflected shapes . Nature f SFD & BMD
Fixed End Moments .: Due to sinking of supports.
Introduction to stiffness, Relative stiffness.
Carry over factors, Distribution factor , Moment distibution method.
Analysis of continuous beams by MDM for vertical loads only.
Portal frame Analysis by MDM for vertical loads only.

[32 Hours]

UNIT - 2
Soil Mechanics: Introduction, classification of soils & their characteristics.
Soil Investigation
Concept, need , testing is of two types standard penetration & plateload .
Foundation Systems
Types & feasibility criteria.
Permissible values, differential settlement.
Isolated, Combined, Raft & Pile foundation.
SBC of soil.
Retaining walls: Introduction, expression for finding earth pressure RCC & Masonry Retaining walls

[32 Hours]

UNIT - 3
Loading assessment
Design load codes applicable in India & Introduction to Horizontal Loads.
Preview of Dead loads & Live loads.
Calculation of DL+LL in a BLDG.
Earth quake loads.
IS-1893-1984
Bhuj Earth Quake
Calculation of Earth Quake

Load on a BLDG
Introduction to wind loads
IS 875-III
Calculation of wind loads for simple building.
Analysis of structure
Using MDM, Method for simple portal & cont Beam.
Approximate method of Analysis for simple portal under lateral loads.

[32 Hours]

UNIT - 4

Introduction to computer Analysis of simple strs using STAAD

Input file generation & output file interpretation of results.
Floor systems Beam –Slabs, Flat slabs, Flat plates
Floor systems waffle slabs
Grid floors
Sizing of strl systems
Framing systems RCC frames
Shear walls & Frames
Along with Shear walls
Concept of moment design and detailing of continuous beams
using SP-16 & SP-34
Introduction to concept of Ductility & Ductile Detailing of Strs for seismic effects.

[30 Hours]

Text Books:

1 Jain,A.K., Elementary Structural Analysis, Nem Chand Bros. Roorkee.
2 Jain, O.P. and Jain B.K., Theory of Structures, Vol. 1, Nem Chand Bros. Roorkee

Reference Books:

Note: In the End Term Annual Examination, Comprising of 75 marks, "Question-1" will be compulsory having short answers covering all the 'Units'. Rest any four questions will be from each 'Unit', as required to be attempted by the candidate. Only internal choice for each 'Unit' will be given

B.ARCH

GGS INDRAPRASTHA UNIVERSITY

B ARCH-341: Quantities, Specification, Estimation & Contracts (T)

L-2 P-0 Credits- 4

Objective of Course

Teaching basic concepts of preparation of quantities and estimates measurement of building works, writing of specifications and preparation of Contract documents for small works.

UNIT - 1

- Area calculations: Types of areas taken for estimation plinth areas, plot area, built up area, covered area etc.
- Different types of estimates to be prepared. Preliminary estimates, detailed estimates etc.
- Methods of taking out quantities, width, length and depth calculations by long wall & center line methods. Units of different items, for quantity estimations.
- Modes of measurement of works on site. Measurements methods of various items, deductions for opening etc. Addition of wastages to the measured quantities.

[16 Hours]

UNIT - 2

- Specifications: Definitions, importance, composition of speces, Broad classification of speces, role in a contract document.
- Open, restricted specification. Advance & disadvantages of each Standard, special master specification.
- Nature, advantages & disadvantages of each.
- Streamlined specification – Nature, advantages & disadvantages of each. Types of Technical Specification and provision of each. General provision of specification- Definitions abbreviations.
- Legal + public relations, prosecuting progress, measurement + payment. Specification writing – format style, principles of good specification, merits and demerits.
- Scheduled and non-scheduled items, CPWD specification for carriage of materials, CPWD specification for mortars, CPWD specification for brick work, CPWD specification for concrete, CPWD specification for flush doors, CPWD specification for whitewash, distemper, CPWD specification for synthetic paint.

[16 Hours]

UNIT - 3

- Preparation of preliminary and detailed estimates working out estimates for buildings whose plans, section and elevations are given.
- Working out cost of construction based upon the plinth area rates, covered area rates etc.
- Rate analysis of various items concrete, RCC brickwork etc. using the market rates CPWD (97) of materials and labor.
- CPWD schedule of rates latest edition of 1997. Rates as given in schedule to be used as guidelines for making estimates.

- Use of computers for generating Bill of Quantities
- Calculates the cost of the building based on the market rates and working out the rat per sq.mtr. area of the building.

[16 Hours]

UNIT - 4

- Contract: Contractor – definition, essential's types of contracts: Types of contracts: Item rate, percentage rate, Advantage & disadvantages of each.
- Types of contracts: Lump sum, labour, materials supply-nature advantages and disadvantages. Types of contractor- cost+ percentage, Cost + fixed fee, other types. Advantage & disadvantages.
- Tender, forum, N.I.T, examples, Global tender, sale, opening, Corporative statement, informal tenders.
- Conditions of agreement and contract: Acceptance of tender, contract DOX, Earnest Money, Security Money Retention Amount, other important conditions.
- Duties of owner, Contractor & liabilities of each.
- Duties of the Architect/ Engineer and his liabilities w.e.f. the contract.
- Case studies of recent Arbitration in the Industry, Duties of Contractor & liabilities.

[15 Hours]

Text Books:

1. Dutta B.N., Estimating and Costing in Civil Engineering, UBS Publishers Distributors Ltd, New Delhi, 1992.

Note: In the End Term Annual Examination, Comprising of 75 marks, "Question-1" will be compulsory having short answers covering all the 'Units'. Rest any four questions will be from each 'Unit', as required to be attempted by the candidate. Only internal choice for each 'Unit' will be given

B.ARCH
GGS INDRAPRASTHA UNIVERSITY

B ARCH-342: Lighting & Acoustics (T)

L-1 P-0 Credits- 02

Objective of Course:
To acquaint the students about light and sound theory and their application to building design.

UNIT - 1

- Day lighting : Physical parameters of day lighting Day light penetration: Day light factor
- Integrating day lighting with artificial lighting; automatic control of artificial lighting in relation to day lighting calculation of requirements of artificial lighting in relation to availability of day lighting.
- Type of lamps: In incandescent lamp: Reflector lamp, Blown bulb lamps, Tungsten Halogen lamp, Tubular fluorescent lamps, Mercury vapour lamps Sodium vapour lamp, Compact Fluorescent lamp.

[8 Hours]

UNIT - 2

- Vocabulary of artificial lighting: Lumens; lux; M.F; R.I.R. lighting level requirement for various areas.
- Type of luminaries – Decorative commercial, Industrial, outdoor- Working out of Room Index Ratio and Coefficient of utilization.
- Design of artificial lighting for various types of buildings.
- External lighting: lighting for various types of buildings.

[8 Hours]

UNIT - 3

- Acoustical concepts- wave theory, sound power, sound intensity, decibels, sound power level, sound intensity level, sound pressure level, frequency bands concept of reflection, absorption, transmission.
- Absorption coefficient, NRC, sound absorbing materials,-fibrous, membrane, resonators, perforated facing, application techniques.
- Noise control by absorption, sound transmission, transmission loss, composite barriers, noise reduction between rooms, light construction.

[8 Hours]

UNIT - 4

- Reverberation time (RT), calculation of RT, sample problems, RT and noise criteria for spaces for speech and music.
- Acoustical design of enclosed spaces for speech and music, reflection analysis reflection/diffusion, echoes, flutter echo, foci.
- Acoustical design consideration in interior design and sound amplification system.

[8 Hours]

Text Books:

1. Peter Grveneisen, *Sound Scapes- Architecture for Sound & Vision* published by Birkhavser.

2. Kaorv Mende, *Designing with Light & Shadows* published by Images.
3. Joseph De Chiara, *Time Savers Standards for Interior Design & Space Planning* published by Mcgraw Hill

Reference Books:

Note: In the End Term Annual Examination, Comprising of 75 marks, "Question-1" will be compulsory having short answers covering all the 'Units'. Rest any four questions will be from each 'Unit', as required to be attempted by the candidate. Only internal choice for each 'Unit' will be given

B.ARCH
GGS INDRAPRASTHA UNIVERSITY

B ARCH-343: Mechanical Ventilation Communication, Security & Safety (T)

L-1 P-0 Credits- 2

Objective of Course:
The course aims at exposing the architecture students to the areas of air conditioning, general utilities in buildings, present trends of fire protection in security systems.

UNIT - 1

- Introduction to Air Conditioning, Sensible heat, Latent heat, Specific Humidity, Relative Humidity, Ton (TR)
- Refrigeration Cycle, Understanding Principles of Air-conditioning.
- Heat Load Estimation, Understanding constituents of heat load calculations like wall, glass, roof, partition equipment, fresh air, lighting & occupants (Mathematical calculations are excluded).
- Non-Ducted System (Window Units & Split Units), Construction details, installation practices & application.
- Ducted systems (splite units & package units), Construction details, installation practices & application.

[8 Hours]

UNIT - 2

- Direct expansion and chilled water systems. Types of compressors air-cooled & water cooled condensers, introduction to cooling tower air handling unit, fan coil unit, pumps, Hot water generator and chilled/ condenser water piping.
- Brief introduction to variable air volume water volume and vapor absorption system.
- Fresh Air, Sick building syndrome, Indoor air quality and importance of fresh air.

[8 Hours]

UNIT - 3

- Application, Brief introduction to air conditioning system design in hotels, Hospital and commercial buildings.
- Ventilation Systems, Basement ventilation, Car park ventilation, Toilet/pantry ventilation, Introduction to air-cooling system.
- Building Automation Systems, Introduction: System architecture, sensors, controllers, energy management functions, (duty cycling, night cooling, time scheduling, optimum start/ stop, maximum demand limiting etc., Application, future trends.
- Elevators, Introduction, passenger lift, goods lift, service lift, hospital lift, waiting time analysis and introduction of IS codes

[8 Hours]

UNIT – 4

- Triangle of fire, Materials to be used in construction, Staircases, Fire escape distances for different buildings, Fire spread in Buildings, Fire doors, Basements, Lifts, Electrical Sub-station, AHU Shut off, NBC Rules for fire.
- Fire safety standards and requirements for various types of Buildings.
- Fire alarm system and components, Hydrant System and Components, Pump house and location.
- Wet riser system, Down comer system and Sprinkler Systems for fire Fighting services.
- Security System, Access Control System, Intruder detection and CCTV systems.

[8 Hours]

Text Books:

1. Carrer and Pitam, G. Modern Air-conditioning, Healing and Ventilation
2. Servems and fellows, Air-conditioning and ventilation, John Wiley

Note: In the End Term Annual Examination, Comprising of 75 marks, "Question-1" will be compulsory having short answers covering all the 'Units'. Rest any four questions will be from each 'Unit', as required to be attempted by the candidate. Only internal choice for each 'Unit' will be given

B.ARCH
GGS INDRAPRASTHA UNIVERSITY

B ARCH-350: Projects (P)

L-0 P-5 Credits- 10

Objective of Course

Projects offer a chance to students for specialized or advanced learning in their own areas of interest. Courses shall be offered on the basis of availability of expertise in new and emerging areas of concern to architects. The endeavour shall be to offer a wide choice to students, which will vary depending on the resources of each school. An updated list of approve project courses shall be notified from time to time

B.ARCH
GGS INDRAPRASTHA UNIVERSITY

B ARCH-400: Practical Training (P)

L-0 P-15 Credits- 30

Objective of Course
This training will be conducted in the period as given in scheme of examination. It shall be of minimum of 18 weeks duration.

B.ARCH
GGS INDRAPRASTHA UNIVERSITY

B ARCH-410: Architectural Design (P)

L-0 P-5.5 Credits- 11

Objective of Course

Architectural Design is seen as the central discipline of the program. The studio is the arena where the student applies his knowledge and develops design skills while testing out the theories and methods learnt in other courses in the Humanities, Technological and Professional Streams. The students will endeavour to acquire an understanding of the determinants of the built form such as social imperavatives, environmental concern and craft of building. They will review experiences from their own immediate and personal environment as well as the values and perceptions of other involved in the process of design viz.. the user, the client and the public at large. Derivation of concepts and strategies will then lead to deliberate responses in the shape of a specific design proposal with the help of organizational and communicative skills.

The study of Architectural Design is seen as a cumulative process where the experience the previous year is used as a base for increasing the depth and breadth of knowledge and development of skills in the following year. The range of design problems shall include projects of progressively increasing complexity from a simple rural habit to multi use urban mega structures.

Each Architectural Design course shall include both short problems (Time problems or sketch schemes) and major problems (fully developed schemes). At every stage topics concerned with the design problems shall be dealt with in lectures, group discussions and library research so as to provide the necessary philosophical and attitudinal background to a rational design approach. The studio program of various design problems shall be set well in advance of the commencement of the term by the Studio Director in close consultation with the other subject teachers. It would be ensured that exercises in other subjects are directly relevant to the studio problem wherever the scope for such integration exists.

Study tour shall be conducted at least once every year during the stage one of the programme. The report to be submitted by the student shall be assessed as part of the studio work of Architectural Design.

B.ARCH
GGS INDRAPRASTHA UNIVERSITY

B ARCH-420: Building Construction (P)

L-0 P-2.5 Credits- 5

Objective of Course
This course is designed to explore students to the process of building construction, the components of buildings and the materials, skill and equipment used in shaping them. The emphasis is on familiarization by direct observation. Students shall be encouraged to acquire a test for good workmanship and quality.

The course is visualized as having three essential components viz.., Theory component materials and methods of construction. Application component principles and practices shall be applied to the production of meaningful working details and drawings. Demonstration component to be conducted either in the construction field in the school premises or at specific venues outside incorporating a first hand experience of important stages of building construction, to complement the studio work.

B.ARCH
GGS INDRAPRASTHA UNIVERSITY

B ARCH-430: Town Planning (T)

L-0.5 P-0 Credits- 01

Objective of Course:
The intention is to make architecture students aware of the problems of cities and how to address these various problems. The course focus is on the physical and spatial aspects of planning of cities. In doing so, a number of city spaces, their form and structure are annualized. How have these being affected because of out-population, housing shortage, infrastructure and related problem

UNIT - 1
Planning Problems: Identification of planning problems of land-use distribution and change, communication system, over crowding, slums, sporadic growth and conurbation.
PLANNING THEORY

[8 Hours]

UNIT - 2
Planning Standards: Formulation of planning standards for land-use, density, road and various community facilities at the local and town level.

[8 Hours]

UNIT - 3
Development Plan: Planning process, concept of master plan, its elements, preparation and implementation.

[8 Hours]

UNIT - 4
Detailed planning proposals for residential neighbourhoods
Urban traffic and transportation.

[8 Hours]

Text Books:

1. Gallion Arthur B., Eisner S., The Urban Pattern: City Planning and Design, CBS Pub. And Distributors, Delhi, 1984.
2. Bandopadhyay Abir, The Text Book of Town Planning, Books and Allied (P) Ltd, Kolkata, 2000.
3. Modak &Ambdekar, Town and Country Planning & Housing, Orient Longman Ltd 1971

Note: In the End Term Annual Examination, Comprising of 75 marks, "Question-1" will be compulsory having short answers covering all the 'Units'. Rest any four questions will be from each 'Unit', as required to be attempted by the candidate. Only internal choice for each 'Unit' will be given

B.ARCH
GGS INDRAPRASTHA UNIVERSITY

B ARCH-440: Structural Systems (T)

L-0.5 P-0 Credits- 01

Objective of Course:
To understand concepts and application scopes and limitations. No detail designs but overall understanding of systems and factors.

UNIT - 1
Shells: General understanding of shell behaviour Historical perspective Modern day use, thick shell thin sell, membrane stresses in thin shell, geometry of shells, of and Meridian stress.
[8 Hours]

UNIT - 2

Plates and Grids: General understanding of structural behaviour of plates and grids, one and two way action, grid floor, rectangular and skew grids, T-beam action, filler slabs, Examples of modern day use.
[8 Hours]

UNIT - 3

Folded Plate: General understanding of folded plate, Folded plate as a form-active system, Design of cross-sectional dimensions of folded plate, ferrocement as a material for folded plate construction, examples modern day use.
[8 Hours]

UNIT - 4

Vierendeel Girder: General understanding of vierended girder as an architectural and structural element Design of cross-sectional dimension of vierendeel girder, examples of modern day use.
[8 Hours]

Text Books:
1. Heller Robert and Salvadori Mario, Structures In Architecture: The Building Of Buildings, Prentice Hall Inc., 1963.

Note: In the End Term Annual Examination, Comprising of 75 marks, "Question-1" will be compulsory having short answers covering all the 'Units'. Rest any four questions will be from each 'Unit', as required to be attempted by the candidate. Only internal choice for each 'Unit' will be given

B.ARCH
GGS INDRAPRASTHA UNIVERSITY

B ARCH-450: Projects (P)

L-0 P-3 Credits- 06

Objective of Course
Projects offer a chance to students for specialized or advanced learning in their own areas of interest. Courses shall be offered on the basis of availability of expertise in new and emerging areas of concern to architects. The endeavour shall be to offer a wide choice to students, which will vary depending on the resources of each school. An updated list of approve project courses shall be notified from time to time

B.ARCH
GGS INDRAPRASTHA UNIVERSITY

B ARCH-460: Seminar / Dissertation (P)

L-0 P-3 Credits- 06

Objective of Course

The Seminar shall be a research paper on a subject of theoretical nature on any aspect of architecture. The overall supervision shall be by a Seminar coordinator to be appointed from within the faculty and individual guidance shall be provided by experts in the subject. The thrust of the seminar shall be on achieving a thorough understanding of the topic of study and on the ability to present it to an intelligent and critical audience.

Dissertation is intended to enlighten students on the fundamentals of research methods. The students are expected to choose topics, which are of special interest to them and prepare a report after research. It is possible that in keeping with the School's commitments from time to time certain themes may be permitted and students encouraged choosing their subject matter for study or research accordingly.

B.ARCH
GGS INDRAPRASTHA UNIVERSITY

B ARCH-510: Architectural Design (P)

L-0 P-5.5 Credits- 11

Objective of Course
Architectural Design is seen as the central discipline of the program. The studio is the arena where the student applies his knowledge and develops design skills while testing out the theories and methods learnt in other courses in the Humanities, Technological and Professional Streams. The students will endeavour to acquire an understanding of the determinants of the built form such as social imperavatives, environmental concern and craft of building. They will review experiences from their own immediate and personal environment as well as the values and perceptions of other involved in the process of design viz.. the user, the client and the public at large. Derivation of concepts and strategies will then lead to deliberate responses in the shape of a specific design proposal with the help of organizational and communicative skills.

The study of Architectural Design is seen as a cumulative process where the experience the previous year is used as a base for increasing the depth and breadth of knowledge and development of skills in the following year. The range of design problems shall include projects of progressively increasing complexity from a simple rural habit to multi use urban mega structures.

Each Architectural Design course shall include both short problems (Time problems or sketch schemes) and major problems (fully developed schemes). At every stage topics concerned with the design problems shall be dealt with in lectures, group discussions and library research so as to provide the necessary philosophical and attitudinal background to a rational design approach. The studio program of various design problems shall be set well in advance of the commencement of the term by the Studio Director in close consultation with the other subject teachers. It would be ensured that exercises in other subjects are directly relevant to the studio problem wherever the scope for such integration exists.

Study tour shall be conducted at least once every year during the stage one of the programme. The report to be submitted by the student shall be assessed as part of the studio work of Architectural Design.

B.ARCH
GGS INDRAPRASTHA UNIVERSITY

B ARCH-520: Building Construction (P)

L-0 P-2.5 Credits- 05

Objective of Course
This course is designed to explore students to the process of building construction, the components of buildings and the materials, skill and equipment used in shaping them. The emphasis is on familiarization by direct observation. Students shall be encouraged to acquire a test for good workmanship and quality.

The course is visualized as having three essential components viz.., Theory component materials and methods of construction. Application component principles and practices shall be applied to the production of meaningful working details and drawings. Demonstration component to be conducted either in the construction field in the school premises or at specific venues outside incorporating a first hand experience of important stages of building construction, to complement the studio work.

B.ARCH
GGS INDRAPRASTHA UNIVERSITY

B ARCH-530: Town Planning (T)

L-0.5 P-0 Credits- 01

Objective of Course:
This course is especially designed for architecture students. It is viewed and taught from an architect's view point rather than from a planner's viewpoint. The intention is to make architecture students ware of the problems of cities and how to address these various problems. The course focus is on the physical and spatial aspects of planning of cities. In doing so, a number of city spaces, their form and structure and annualized. How have these being affected because of out population, housing shortage, infrastructure and related problem
The objective of this course is to study socio-economic and demographic characteristic of town and cities, their present growth trends and future needs.

UNIT - 1
Regional Planning: Concept of regional planning, types of regions, locational factors of settlements etc.
A critical review of regional theories.

[8 Hours]

UNIT - 2
Planning Legislation: Review of the development of planning legislation in India and UK.
Detailed understanding of the latest planning of housing acts.

[8 Hours]

UNIT - 3
Housing as basic fabric of Town Plan. Housing Policy elements and their integration in town plan. Introduction to concept of housing shortages and supply systems and role of Architects with focus on needs of non-formal and weaker sections of population.

[12Hours]

UNIT – 4
Survey methods and programme analysis techniques.

[4 Hours]

Text Books:

1 Gallion Arthur B., Eisner S., The Urban Pattern: City Planning and Design, CBS Pub. And Distributors, Delhi, 1984.
2 Bandopadhyay Abir, The Text Book of Town Planning, Books and Allied (P) Ltd, Kolkata, 2000.
3 Modak &Ambdekar, Town and Country Planning & Housing, Orient Longman Ltd 1971

Note: In the End Term Annual Examination, Comprising of 75 marks, "Question-1" will be compulsory having short answers covering all the 'Units'. Rest any four questions will be from each 'Unit', as required to be attempted by the candidate. Only internal choice for each 'Unit' will be given

B.ARCH
GGS INDRAPRASTHA UNIVERSITY

B ARCH-540: Structural Systems (T)

L-0.5 P-0 Credits-01

Objective of Course
To understand concepts and application scopes and limitations. No detail designs but overall understanding of systems and factors.

UNIT - 1
Space Frame: General understanding of structure of space frame, space structures against plane structures, examples of modern day use.

[8 Hours]

UNIT - 2

High Rise: Principles of high rise structures, different structural systems for high rise buildings, advantages and disadvantages of each, analysis of multistory frame for wind had, examples of modern day use.

[8 Hours]

UNIT - 3
Tensile Structures: Principles of tensile structures, understanding general structural behaviour of tension systems, calculating sag and cross sectional area of cables, cable suspended and cabled-stayed structure, examples of modern day use.

[8 Hours]

UNIT - 4

Introduction to Pre-stressing: Principles of pre-stressing, p and pot tensioning, approximate calculations of pre-stressing force, examples of modern day use
PreFab and Industrial structures.

[8 Hours]

Text Books:
1. Heller Robert and Salvadori Mario, Structures In Architecture: The Building Of Buildings, Prentice Hall Inc., 1963.

Note: In the End Term Annual Examination, Comprising of 75 marks, "Question-1" will be compulsory having short answers covering all the 'Units'. Rest any four questions will be from each 'Unit', as required to be attempted by the candidate. Only internal choice for each 'Unit' will be given

B.ARCH
GGS INDRAPRASTHA UNIVERSITY

B ARCH-550: Projects (P)

L-0 P-3 Credits- 06

Objective of Course
Projects offer a chance to students for specialized or advanced learning in their own areas of interest. Courses shall be offered on the basis of availability of expertise in new and emerging areas of concern to architects. The endeavour shall be to offer a wide choice to students, which will vary depending on the resources of each school. An updated list of approve project courses shall be notified from time to time

B.ARCH
GGS INDRAPRASTHA UNIVERSITY

B ARCH-560: Seminar / Dissertation (P)

L-0 P-3 Credits- 06

Objective of Course

The Seminar shall be a research paper on a subject of theoretical nature on any aspect of architecture. The overall supervision shall be by a Seminar coordinator to be appointed from within the faculty and individual guidance shall be provided by experts in the subject. The thrust of the seminar shall be on achieving a thorough understanding of the topic of study and on the ability to present it to an intelligent and critical audience.

Dissertation is intended to enlighten students on the fundamentals of research methods. The students are expected to choose topics, which are of special interest to them and prepare a report after research. It is possible that in keeping with the School's commitments from time to time certain themes may be permitted and students encouraged choosing their subject matter for study or research accordingly.

B.ARCH

GGS INDRAPRASTHA UNIVERSITY

B ARCH-570: Professional Practice & Contract Management (T)

L-2 P-0 Credits- 04

Objective of Course:

Familiarise students with the legal, economic and social issues related to professional practice. Focus will be on the role of the architect in a developing society and the emerging influence of economic liberalisation. Emphasis will be on the ethical dimension governing professional conduct in serving the client/society.

The architect and his office, job organization, presentations, business management, sales promotion, human relations and personnel management. Design Audit procedures, Efficiency studies and performance appraisal, billing, accounting, business correspondence, information storage and retrieval.

UNIT - 1

- Architect & His Office, Responsibilities, Office Management, Project Co-ordination Clients, Consultant and Project Managers, Office Accounts and Billing.

[16 Hours]

UNIT - 2

- Design Audit & Efficiency Studies, Analysis for Special Efficiency of Buildings.
- Office Automation Information Storage and Retrieval.

[16 Hours]

UNIT - 3

Understanding who is a professional and why architecture is considered a profession.

- Relation ship with clients consultants, clients.
- The architects Act 1972. Process of Registration.
- Rules, Regulations and guidelines of council of Architecture. Code of professional practice, Fees, Agreements and contracts.
- Role of professional bodies and institutions.
- Indian Institute of Architecture.
- Influence of WTO and GKTTS
- Economic reality of practicing the profession in India.

[16 Hours]

UNIT - 4

Conditions of Engagements and Professional liability and indemnity.

- Architect – The leader of the Team.
- Architecture competitions and getting work.
- Negotiation and Arbitration. Indian Arbitration Act.
- Contemning Education and Research.
- Architectural Education and the Profession.
- Group discussion on case studies-1.
- Group discussion on case studies-2.

[16 Hours]

Text Books:

1. Handbook of professional Documents published by the Council of Architecture.
2. Professional practice by Roshan Nanavati, Lakhani Book Depot, 1993.

Note: In the End Term Annual Examination, Comprising of 75 marks, "Question-1" will be compulsory having short answers covering all the 'Units'. Rest any four questions will be from each 'Unit', as required to be attempted by the candidate. Only internal choice for each 'Unit' will be given

B.ARCH
GGS INDRAPRASTHA UNIVERSITY

B ARCH-580: Architecture Thesis (P)

L-0 P-13 Credits- 26

Objective of Course

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 on the student's 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.