NATIONAL INSTITUTE OF TECHNOLOGY RAIPUR

PROPOSED NEW SCHEME OF EXAMINATION FOR

TEN SEMESTER INTEGRATED COURSE OF B. ARCH.(APPLICABLE FROM 2010-11)

EIGHTH SEMESTER

S.No.	Subject Code	Subject	Periods per week			Scheme of Examination			Total Marks	Credit [L+{(T+P)/2}]
			L	**T**	**P**	**ESE**	**FE/ SE**	**TA**		
1	1811	Professional Practice	3	0	0	70	30	30	130	3
2	1812	Elective - III	4	0	4	70	30	50	150	6
3	1813	Thesis Project	8	0	0	0	0	450	450	8
4	1823	Thesis Project Studio	0	0	9	150	0	0	150	5
5	1824	Elective - IV	0	0	5	50	0	50	100	3
6	1825	Discipline						20	20	1
TOTAL			**15**	**0**	**18**	**340**	**60**	**600**	**1000**	**26**

Elective – III: - 1. Sustainable Architecture
2. Environmental Planning
3. Construction Management

Elective – IV: - 1. Modular Coordination and Industrialized Building
2. Intelligent Building
3. Landscape Design
4. Visual Communication

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SYLLABUS FOR FIVE YEARS B.ARCH. DEGREE COURSE
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Subject Code	Subject	Periods per week			Scheme of Examination			Total Marks	Credit [L+{(T+P)/2}]
		L	T	P	ESE	FE / SE	TA		
1811	**Professional Practice**	3	0	0	70	30	30	130	3

Introduction to the professional, vocational and legal aspects of architectural practice.

UNIT 1	• Profession vocation, trade union vis-à-vis professional activities, social obligations of profession, architectural professional association in its role and responsibilities. • Architects Act 1972/87. Council of Architecture, its role and responsibilities.
UNIT 2	• Code of professional conduct. • Condition of engagement and scale of professional fees. • Copyright Act as applicable to architectural work. • Architectural competitions.
UNIT 3	• Concept of Contract. • Duties and liabilities of architects, duties and liabilities of contractors. • Articles of agreement, execution of works and payments. • Arbitration, the Act, its applications, and its scope. • Laws pertaining to property matters like Right of easements, passage, ancient light etc.
UNIT 4	• Tenders types and the process of calling, security and selection system. • Pre- Tender qualifications and registration of contracts. • Office organizations and management, expense, structure, salaries and overheads. • Role of design staff and supporting managerial staff; Personal management and training responsibilities.
UNIT 5	• Introduction to Valuation. • Role of Valuers • Types , methods and importance of valuation

Note:

1. In theory examination there will be a separate question from each unit with choice within the unit/question. All units/questions will be compulsory.
2. Sessional shall be in form of exemplary assignments to be submitted as notes, and collection of cases regarding professional practice in the field.

References:

1. Ar. V.S. Apte, Architectural Practice and Procedure, Padmaja Bhide, Pune, 2008.
2. Architects Act 1972.
3. Dr. B.C. Punmiya and K.K. Khandelwal – Project Planning and Control with PERT / CPM, Laxmi Publications, New Delhi, 1987.
4. Arbitration Act.
5. WTO and GATT guidelines.
6. Architects Act 1972.
7. Publications of Handbook on Professional practice by IIA.
8. Publications of Council of Architecture-Architects (Professional conduct) Regulations 1989, Architectural Competition guidelines
9. Roshan Namavati, Professional practice, Lakhani Book Depot, Mumbai 1984.

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		L	T	P	ESE	FE / SE	TA		
1812	**Elective-III: Sustainable Architecture**	4	0	4	70	30	50	150	6

UNIT 1	**Introduction to sustainability** • Introduction to the ideas, issues and concepts of sustainable Architecture, • Global environment and the built environment, • Principles of environmentally and ecologically supportive architecture.
UNIT 2	**Study of sustainable practices** • Study of sustainable architecture through traditional practices • Use of energy, materials, health and global environment as related to the construction and operation of buildings.
UNIT 3	**Sustainable and conservation practices** • Water conservation, • Sewerage treatment, • Solid waste treatment, • Economics and management.
UNIT 4	**Energy systems** • Low energy design, • Hybrid systems, • Modelling and simulation of energy systems, • Integration of PV and wind systems in the building, wind solar and other renewable energy systems, • Solar thermal applications for heating and cooling • Self Electricity generation in buildings.
UNIT 5	Case studies on specific contemporary sustainable architecture examples in India and abroad.

Note:

1. In theory examination there will be a separate question from each unit with choice within the unit/question. All units/questions will be compulsory.
2. Sessional shall be in form of exemplary assignments to be submitted as notes, and collection of cases regarding professional practice in the field.

References:

1. Sustainable Architecture and Urbanism: Concepts, Technologies and examples by Gauzin- Muller (D) – Birkhauser 2002.
2. Eco-Tech: Sustainable Architecture and High Technology by Slessor© - Thames and Hudson 1997.
3. Ecodesign : A manual for Ecological Design by Yeang(K) – Wiley Academy 2006.
4. Sustainable Architecture: Low tech houses by Mostaedi (A) – Carles Broto 2002.
5. HOK guide book to sustainable design by Mendler (S) & Odell (W) – John willey and sons 2000.
6. Environmental brief: Pathways for green design by Hyder(R) – Taylor and Francis 2007.
7. Green Architecture: Design for a sustainable future by Brenda and Vale (R) – Thames and Hudson 1996.

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Subject Code	Subject	Periods per week			Scheme of Examination			Total Marks	Credit [L+{(T+P)/2}]
		L	T	P	ESE	FE / SE	TA		
1812	**Elective-III: Environmental Planning**	4	0	4	70	30	50	150	6

UNIT 1	**FACTORS AND PARAMETERS** • Elements of environmental planning. • Area of environmental planning assessment. • Sustainable human development. • Main spheres of environmental planning ie bio physical environment, socio economic environment and built environment etc.
UNIT 2	**ENVIRONMENTAL QUALITY** Evaluation of factors, planning measures and legal tools to control: • Air pollution, • Water pollution, • land Pollution • Noise pollution, etc
UNIT 3	**ENVIRONMENTAL POLICIES AND LEGISLATION** • The wild life (protection) act • The air act • The Water act 1974 • The forest conservation act • The environmental protection act • Notification on coastal regulation zone • Worlds summits to safeguard the environment and • Different energy audits like RT2000,basix,leed,griha etc.
UNIT 4	**ENVIRONMENTAL ASSESSMENT TOOLS** • Advanced techniques and tools for predicting environmental constraints. • Importance and methods of Environmental impact assessment.
UNIT 5	**CASE STUDIES** • Various international summits • National and international examples and awareness programs.

Note:

1. In theory examination there will be a separate question from each unit with choice within the unit/question. All units/questions will be compulsory.
2. The sessional assignments will be based on case studies with data collection, surveys and other observations and will be presented in form of seminars.

References:

1. Miller T.G. Jr., Environmental Sciences, Wadsworth Publishing Co. (TB)
2. Cunningham, W.P. Cooper, T.H. Gorhani, E& Hepworth, M.T. 2001, Environmental Encyclopedia, Jaico Publ. House, Mumbai, 1196p.
3. Hawkins.R.E, Encyclopedia of Indian Natural History, Bombay Natural History Sdociety, Bombay (R).
4. Heywood, V.H & Watson, R.T. 1995. Global Biodiversity Assesment. Cambridge Univ. Press 1140p.
5. McKinney, M.L & Schoch, R.M. 1996. Environmental Science System & Solutions, Web enhanced edition. 639p.
6. Trivedi R.K., Handbook of Environmental Laws, Rules, Guidelines, Compliances and Standards, Vol I and II, Enviro Media (R).

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Subject Code	Subject	Periods per week			Scheme of Examination			Total Marks	Credit [L+{(T+P)/2}]
		L	T	P	ESE	FE / SE	TA		
1812	**Elective-III: Construction Management**	4	0	4	70	30	50	150	6

UNIT 1	**Introduction:** • Introduction to project management concepts, objectives, goals anddifferent aspects of management. • Traditional management system. • Gantt'sapproach, bar charts, project programming, time estimates etc.
UNIT 2	• Project programming, • Resource balancing, • Phasing of activities, • Programme scheduling, • Project control, reviewing, updating and monitoring, • Modern management concepts.
UNIT 3	• Project Assessment & project cost jobs size, divisions of responsibilities, liason with owners and their representatives, feasibility study, project report, construction-financing facilities etc.
UNIT 4	**Construction Management:** • Conditions of contract, their application, quality and quantity controls, time and cash contract, recording, checking and certifying with coordination of all building activities.
UNIT 5	**Project monitoring:** • C.P.M. P.E.R.T. & other one-dimensional techniques for project planning scheduling and control.

Note:

1. In theory examination there will be a separate question from each unit with choice within the unit/question. All units/questions will be compulsory.
2. Sessional shall be in form of exemplary assignments to be submitted as notes, and collection of cases regarding professional practice in the field.

References:

1. R. Chudley, Construction Technology, Longman Group Limited, England, 1985
2. R. Barry, The Construction of Buildings, The English Language Book Society and Crosby Lockwood, Staples, London, 1976
3. National Building Code of India, 1983
4. Frank R. Dagostino, Materials of Construction – Details given Reston Publishing Company, nc.Virginia, 1976.
5. M. Mohsin, Project Planning and Control, Vikas Publishers, New Delhi, 1983

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		L	T	P	ESE	FE / SE	TA		
1813	**Thesis Project**	8	0	0	0	0	450	450	8

OBJECTIVES

All the four years of learning architectural design and allied subjects culminate in design thesis project to motivate a student in investigative attitude individual methodology. Thus to train in handling projects independently.

PROJECT

Each student will select a subject of an architectural interest in consultation with the committee appointed by the Head / Principal of the Dept. / Institution. The subject will have to be approved at the beginning of the eighth semester. The evolution of the thesis project will be continuous and the student will have to give at least three seminars / submission. The thesis project shall be submitted in the form of bound report, drawings, models etc. in a manner as stipulated in THESIS MANUAL on the date prescribed by the University.

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		L	T	P	ESE	FE / SE	TA		
1823	**Thesis Project Studio**	0	0	9	150	0	0	150	5

The subject is a lab (studio) oriented subject and hence, the syllabus as specified in Thesis Project (1813) will be the same. The works done as sessionals will be evaluated by internal and external examiners at the end semester examination. For conduction of the practical (viva-voce) examination one external and one internal examiner may be appointed for a group of 15-20 students.

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		L	T	P	ESE	FE / SE	TA		
1824	**Elective-IV: Modular Co-ordination and Industrialized building**	0	0	5	50	0	50	100	3

UNIT 1	**Development of Modular Architecture:** • Development of theories of modular architecture. • Advantages, scope and limitations of modular architecture.
UNIT 2	**Introduction to Modular Systems:** • Various elements of buildings that could be modular walls, roofs, doors and windows, partitions, etc. • Various materials used in modular architecture. • Pre-stressed and post-tensioned modular systems.
UNIT 3	**Modular Architecture and Co-ordination:** • Basic management policies in modular co-ordination. • Prefabricated structures: their uses with examples and techniques of constructions.
UNIT 4	**Introduction & origins of the Industrialised Concept:** • Definition of Industrialisation. • Study of historical background of industrializedbuilding in other countries. • The Indian experience. • Study of CBRI and SERC works. • Use of latest construction techniques like Tunnel form system, Triple S System, etc.
UNIT 5	**Aspects of industrialisation:** • Case Studies of Industrialised Buildings in India and abroad. • Scope & limitations on applicability in industrial housing etc. • Socio-economic situations, spatial requirements. • Application of Industrialisation in Mass Housing.

Note:

Submission of the sessionals shall be prepared in the form of notes and sketches, schematic and scale drawings etc. on above topics.

References:

1. W. Minich, J. Pekała, Modular Coordination in Industrial Building: Standard Regulations; Preliminary Scheme; ISO/TC 59
2. National Building Code of India, 1983

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		L	T	P	ESE	FE / SE	TA		
1824	**Elective-IV: Intelligent Building**	0	0	5	50	0	50	100	3

UNIT 1	**Introduction** • Introduction & Origins of the Intelligent Buildings Concept. • Definition and characteristics of Intelligent Buildings with brief history and contemporary concept. • Automated buildings, • Responsive buildings.
UNIT 2	**Facility Management** • Study of Concepts of Management of facilities, • Importance and study of planning and operational techniques for facility management. • various models of Building Intelligence.
UNIT 3	**Services** • Demands on building and services, • Control systems, • Study of development of Computer Integrated Building from single function systems to integrated solutions. • Use of building intelligence in energy management.
UNIT 4	**Key Issues for Intelligent Buildings** • Multiple activity settings, • Generic analysis of space utilization. • Models for shared space use. • The development of briefing process including design activity and building elements, life cycles, Coordination between life cycle, building technologies. • Study of issues related to site, shell, skin, services and technology.
UNIT 5	**Intelligent design and construction** • Effective Space utilisation, • Expectations of user, effectivecommunication of architectural concepts to user, Locating people and information, • Introduction to building efficiency with respect to life cycle costs.

Note:

The Sessional assignment will include collection of information from varioussources including treatises in vernacular languages, case studies of important buildings and proposals in light of above study. The same will be presented inreports and seminars.

References:

1. Building Automation Systems – A Practical Guide to selection and implementation – Author :Maurice Eyke
2. National Building Code of India 1983 (SP 7:1983 Part IV) – Published by Bureau of Indian Standards
3. IS 2189 – Selection, Installation and Maintenance of Automatic fire Detection and Alarm System – Code of Practice (3rd Revision) – Published by Bureau of Indian Standards.
4. The Principles and Practice of Closed Circuit Television – Author: Mike Constant and Peter Turnbull
5. Rules of Automatic Sprinkler Installation – 2nd Edition – Published by Tariff Advisory Committee.
6. Fire Suppression Detection System – Author : John L. Bryan
7. Design and Application of Security/Fire Alarm system – Author: John E. Traister.
8. CCTV Surveillance – Author: Herman Kruegle
9. Security Systems and Intruder Alarm Systems – Author: Vivian Capel

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		L	T	P	ESE	FE / SE	TA		
1824	**Elective-IV: Landscape Design**	0	0	5	50	0	50	100	3

The objective of this subject is to introduce students about landscape architecture thereby enhancing the outdoor environmental quality in architectural design.

UNIT 1	• Definition of landscape its scope and importance in architecture • Planning levels of landscape planning (micro to macro level). • Role of Landscape Architecture in Sustainable Development
UNIT 2	• Landscape design process, information needed for landscape survey. • Land, water & plants as landscape elements, their functional & aesthetical considerations in landscape design. • Man made elements in landscape design-lamp posts, sign boards, garbage bins, fences etc.
UNIT 3	• Plantation – Understanding plant material as a design tool. • Design characteristics of plants, selection of plant materials for roof gardens, atriums, avenues, road side plantation, court yards, parking areas, near water bodies, indoor areas, etc. gardening notes including study of soil, fertilizers etc.
UNIT 4	Principles and design philosophy of history of landscape architecture • Mughal • Japanese gardens • Renaissance • 18^{th} century – Brownian • 19^{th} century – Botanical gardens. • Dutch Landscape • English Landscape. • Contemporary Landscape Architecture.
UNIT 5	• Complete landscape design schemes for situations ranging from residential landscape to settlements considering all the above aspects along with land grading, grading process & methods of estimating earth volumes, slopes for various outdoor functional activities, surface runoff calculations & design of surface drainage system, treatment of ground surfaces, kinds of paving materials, etc.

Note:

Submission of the sessionals shall be prepared in the form of notes and sketches, schematic and scale drawings etc. on above topics.

References:

1. Michael Laurie, An Introduction to Landscape Architecture, Elsevier, 1986.
2. Geoffrey And Susan Jellico, The Landscape of Man, Thames And Hudson, 1987.
3. T S S for Landscape Architecture, McGraw Hill, Inc, 1995
4. Grant W Reid, From Concept to Form in Landscape Design, Van Nostrand ReinholdCompany , 1993.
5. Brian Hacket, Planting Design, McGraw Hill, Inc, 1976
6. Handbook of urban landscape, Cliff Tandy, Architectural press, 1973
7. T.K. Bose and Chowdhury, Tropical Garden Plants in Colour, Horticulture And Allied Publishers, Calcutta, 1991.

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		L	T	P	ESE	FE / SE	TA		
1824	**Elective-IV: Visual Communication**	0	0	5	50	0	50	100	3

This is a lecture/seminar based course for developing conceptual skills and design processing in the context of communication. To provide the students to gain broad-based visual communication design skills with an emphasis on ideas, that prepares them for better representation of architecture, built form and built environment as a visual communication medium. The course is to develop visual communication skills through photography, videography,videocologyand sketches with documentation of historical and modern architectural examples. The course is to cover the following:

- Study of Visual Language - critical study of visual elements, features and principles.
- Relationship between syntactic, semantics and pragmatics.
- Viewpoints, point of reference and framing.
- Relationship of colour, form and meaning.
- Principles of visual dynamics and its analysis in 2D and 3D
- Spatial relationship, grids, compositions and layout in 2 and 3 dimensional spaces, built form, and built environment.
- Analysis of Aesthetics- the structure of Appearance. Form in nature, Exploration of visual images with analogies from nature and relating those to architectural forms.
- Study on Indian thought and philosophy and its relation to visual communications.
- Meaning of our festivals, mythology, the nature of religious ceremonies and other cultural diversities, various Indian symbols and the process by which they are represented in Architecture through visual communication.

Note:

Submission of the sessionals shall be prepared in the form of notes and sketches, schematic and scale drawings etc. on above topics.

References:

1. Photoshop 7 Bible Professional Edition, Wiley John & Son INC, New York, Deke Mc Clelland,
2. Flash Web Design, The Art of Motion Graph, Curtis Hillman, New Riders Publishing, Indianapolis, IN. U.S.A, 2000
3. M.E. Morris, and R.J. Hinrichs, Web Page Design, Prentice Hall, 1996.
4. Mark Von Wodtke, Mind over Media : Creative Thinking Skills for Electronic Media, McGraw-hill, New York, 1993

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		L	T	P	ESE	FE / SE	TA		
1825	**Discipline**	–	–	–	–	–	20	20	1

The marks of this subject are based on the yearly performance, behaviour, conduct, active participation, discipline and attendance of the students.