नेपाली सेना

प्रा.उ.से. आर्किटेक्चर (Architecture) ईन्जिनियर (खुला) पदको लिखित परीक्षाको पाठ्यक्रम

समय : २ घण्टा ३० मिनेट

पुर्णाङ्क : १००
उत्तीर्णाङ्क : ४०

यो पाठ्यक्रम नेपाली सेनाको विभिन्न ईकाईहरुमा रिक्त रहेको **प्रा.उ.से. आर्किटेक्चर (Architecture) ईन्जिनियर (खुला)** पदका उम्मेदवार छनौट परीक्षाको लागि निर्धारण गरिएको हो । लिखित परीक्षामा सरिक हुने उम्मेदवारहरुको पेशा सम्बन्धि विषयलाई आधारमानी प्रश्नहरु सोधिने छ ।

(क) लिखित परीक्षाको माध्यम नेपाली/अंग्रेजी वा दुवै भाषा हुनेछ ।

(ख) लिखित परीक्षाबाट छनौट भएका उम्मेदवारहरुलाई मात्र अर्को चरणको परीक्षामा सम्मिलित गराईने छ ।

(ग) प्रश्न पत्र निर्माण गर्दा पाठ्यक्रममा समावेश भएका सबै विषयहरुलाई समेटिनेछ ।

(घ) नेपाली सेनाको आवश्यकता तथा विविध परिस्थितमा नेपाली सेना अनुकुल हुने गरी उल्लेखित विवरणहरुमा हेरफेर हुन सक्नेछ ।

(ङ) पाठ्यक्रमको रुपरेखा देहायमा उल्लेख गरे अनुसार हुनेछ ।

(च) पाठ्यक्रम लागु मिति २०७३/१/७ गते ।

विषय	पूर्णाङ्क	उत्तीर्णाङ्क	परीक्षा प्रणाली		प्रश्न संख्या x अङ्क	समय
पेशा सम्बन्धी	१००	४०	वस्तुगत (Objective)	बहुवैकल्पिक प्रश्न (MCQs)	४० प्रश्न x १ अङ्क = ४०	२ घण्टा ३० मिनेट
			विषयगत (Subjective)	छोटो उत्तर	६ प्रश्न X ५ अङ्क = ३०	
				लामो उत्तर	३ प्रश्न X १० अङ्क = ३०	

पेशा सम्बन्धी विषयको पाठ्यक्रम

(SYLLABUS FOR ARCHITECT ENGINEER)

1. Basic Design

1.1 Primary elements of a design
1.2 Design standards
1.3 Basic principles of composition in design (Axis, Datum, Balance, Harmony, Rhythm, Scale, Unity, Focal Point, Hierarchy and Proportion)
1.4 Architectural rendering development skill in different mediums

2. Introduction to Architecture

2.1 Brief survey from beginning of architecture to present times
2.2 Profession of architecture of Nepal-its practice both public and private along with career opportunities
2.3 Architecture, built environment and the society
2.4 Socio-culture and religious context of architecture
2.5 Technology and material context of architecture
2.6 Site, city and ecological context of architecture
2.7 Standards to be followed while designing buildings in Nepal
2.8 Interactive relationship with allied professionals such as planners, engineers, landscape architects, interior designers, etc.

3. History of Architecture

3.1 Egyptian architecture, Greek architecture, Roman architecture, Gothic architecture and European Renaissance
3.2 Indian Hindu (Vedic to 15th century) and Indian Buddhist (Mauryan to 9th century AD)
3.3 Muslim architecture emphasis on Mogul period
3.4 Chronology study of different stages of development of Nepalese architecture and their influencing factors
3.5 Development of brick and brick work
3.6 Development of wood work and carving
3.7 Vernacular architecture of Terai, Hill and Mountain regions of Nepal
3.8 Romanticism in architecture and Expressionism in architecture
3.9 Architectural theories of BAUHAUS movement and International Style, Chicago of architecture, ART-NOVEAU Movement, DE STIJL, Amsterdam school
3.10 Russian constructivism
3.11 Modern and post-modern architecture
3.12 Futuristic architecture
3.13 Ideas, theories of architecture and the critical appraisal of concept and practices of great architects of modern period and their works (Walter Gropius, Frank Lloyd Wright, Mies Van der Rohe, Le Corbusier, Zaha Hadid)
3.14 Critical appraisal of concepts and practices of contemporary architects of Nepal and their works

4. Building Materials

4.1 Building materials available in Nepal
4.2 Properties of building materials: physical, chemical, constituents, thermal, etc.
4.3 Stone and stone masonry along with selection and uses of stones for architectural and engineering works
4.4 Brick and brick masonry
4.5 Cement and cement mortar, types and uses along with storage of cement
4.6 Concrete (PCC/RCC) and concrete admixtures and water proofing
4.7 Metals: Steel; types and properties; Alloys
4.8 Timber, seasoning of timber, decay and preservation of timber, use of timber in construction works
4.9 Paints and Varnishes
4.10 Insulators (Thermo and sound)
4.11 Plasters : Wall and Floor Finishing
4.12 Soil properties and its parameters

5. Building Construction

5.1 Site works and setting out
5.2 Foundations and their types
5.3 Damp Protection
5.4 Floor structures
5.5 Masonry Wall
5.6 Temporary works
5.7 Doors and windows
5.8 Timber stairs and timber roofs along with traditional timber construction
5.9 Concrete stairs and concrete floors
5.10 Joints in concrete
5.11 Framed buildings
5.12 Claddings
5.13 False ceiling
5.14 Walls and partitions
5.15 Fire places and chimneys
5.16 Insulation: sound and thermal
5.17 Fire Prevention in Construction
5.18 Sustainable Construction Techniques

6. Urban and Settlement Planning

6.1 Urban/city planning along with planning concepts
6.2 Introduction to theoretical models of planning contribution to planning thoughts
6.3 Development plans (scope, content, planning process and planning guidelines)
6.4 Planning practice in Nepal
6.5 Urban and rural planning along with its essential features and urban rural relations

7. Estimating and Costing with Specifications

7.1 Units of measurement and payments for various items of building
7.2 Types of estimate
7.3 Purpose, principles and methods of valuation/ Analysis of rates

7.4 Detailed estimate
7.5 Types of specifications and its purpose
7.6 Detailed specifications writing for various items of works, i.e., site works, structural works, finishing works, equipment, electrical and mechanical works
7.7 Standard estimate formats of Government of Nepal

8. Structure

8.1 Fundamental characteristics of structure
8.2 Geometrical properties of section, axial stress and strain, shear, flexure, torsion, transverse bending, columns and struts
8.3 Structural elements, energy principles, influence line diagrams, three hinged systems, analysis of indeterminate structures
8.4 Structural materials, timber structures, masonry structures, structural steel, structural concrete
8.5 Lateral load resisting systems
8.6 Earthquake Resistant Design of Buildings
8.7 Approximate analysis and design of building structures

9. Construction Management

9.1 Construction scheduling and planning: network techniques (CPM and PERT)
9.2 Contractual procedure and management: types of contract, tender and tender notice, preparation of bidding (tender) document, contractors pre-qualification, evaluation of tenders and selection of contractor, contract acceptance, condition of contract; quotation and direct order, classifications of contractors; dispute resolution; muster roll
9.3 Material management: procurement procedures and materials handling

10. Architectural Conservation

10.1 Philosophy of conservation, authenticity- materials, form, structure
10.2 Principle of conservation
10.3 Cultural property
10.4 Methodologies of conservation, materials and techniques
10.5 Historic Buildings (rehabilitation, adaptive use)
10.6 Design and planning control

11. Building Services

11.1 Water supply system (distribution system and house water plumbing)
11.2 Estimation method of water quality, assessment of water quality
11.3 Sanitary system, sewage collection and treatment, solid waste management
11.4 Concepts of electric system, safety and protection in electric system, electrical installation
11.5 General principles of lighting; illumination requirements and standards; artificial Lighting system

12. Surveying

12.1 Introduction and basic principles
12.2 Linear measurements: techniques; chain, tape, ranging rods and arrows; representation of measurement and common scales; sources of errors

12.3 Compass and plane table surveying: bearings; types of compass; problems and sources of errors of compass survey; principles and methods of plane tabling

12.4 Leveling and contouring: principle of leveling; temporary and permanent adjustment of level; bench marks; booking methods and their reductions; longitudinal and cross sectioning; reciprocal leveling; trigonometric leveling; contour interval and characteristics of contours; methods of contouring

12.5 Theodolite traversing

12.6 Total Station and its uses

13. Building Science

13.1 Climatology

13.2 Thermal aspects

13.3 Different shelters for different climates

13.4 Shelters for different conditions

13.5 Architectural lighting

13.6 Architectural acoustics

13.7 Energy-renewable and non-renewable

14. Design Theory

14.1 Theories of Architecture -thematic, normative and procedural

14.2 I'Art Nouveau and language of form, functionalism

14.3 Norberg-Schulz's theory of architecture

14.4 Design Thinking

14.5 Concept of Territory

14.6 Space and Place

14.7 Legal rights of space, ownership and Tenure, Zoning ordinances and building regulations, Public good

14.8 Measurable and Non measurable aspects

14.9 Site analysis and its relations with ecology and surrounding environment

15. Professional Practice

15.1 Professional ethics

15.2 Role of architects

15.3 Hiring A/E consultants

15.4 Contracts and agreements

15.5 Regulatory controls

16. Auto CAD

16.1 Introduction to CAD concepts, drawing tools, display tools (pan and zoom), scale, limits, units snap, patterns, text, line weight, grid, color, and layer

16.2 Duplication (single and arrays), polygon reshaping, complex polygon generation, object accuracy (join, trim, chamfer, fillet), object transformations, groups, object layers

16.3 CAD rendering techniques using computer graphics application, plotting and printing files, introduction to rendering algorithms

यस पेशा सम्बन्धी विषयको पाठ्यक्रमका एकाईहरुबाट सोधिने प्रश्नहरुको संख्या निम्नानुसार हुनेछ ।

एकाइ नं. (Unit No.)	अङ्कभार (Weightage)	बहुवैकल्पिक प्रश्न (MCQs) को संख्या	छोटो उत्तर प्रश्नको संख्या	लामो उत्तर प्रश्नको संख्या
१	२५	१०	६ प्रश्न X ५ अङ्क	३ प्रश्न X १० अङ्क
२				
३				
४	२५	१०		
५				
६				
७				
८	१५	५		
९				
१०				
११	२०	१०		
१२				
१३				
१४	१५	५		
१५				
१६				
जम्मा	**१००**	४० प्रश्न x १ अङ्क = ४० अङ्क	६ प्रश्न X ५ अङ्क = ३० अङ्क	३ प्रश्न X १० अङ्क = ३० अङ्क

Syllabus for Practical Examination

Time: - 1 hr. 15 minutes (Part A- 1 hr. and Part B - 15 minutes) **Marks:** - 50 marks

Part A - (Paper and Pencil work) = 35 Marks

1. Drafting

1.1 Preliminary drawing skills
- 1.1.1 Texture of different materials
- 1.1.2 Symbols and conventions

1.2 Sciography
- 1.2.1 Shadow of different elements

2. Art and Graphics

2.1 Interpenetration of geometrical forms
- 2.1.1 Prismatic forms
- 2.1.2 Pyramid forms

2.2 Others (Cylindrical, Sphere)
- 2.2.1 Architectural presentation techniques
- 2.2.2 Architectural rendering

3. Free Hand Sketching

3.1 Free hand sketching in studio condition
- 3.1.1 Simple
- 3.1.2 Complex solid figures in studio condition

Part B - (Computer Work) = 15 Marks

4. Auto CAD

4.1 Introduction to CAD concepts. Drawing tools, display tools (Pan and Zoom), scale, limits, units snap, Patterns, text, line weight, grid, color, and layer

4.2 Introduction to CAD concepts. Duplication (Single and Arrays), Polygon reshaping, complex polygon generation, object accuracy (join, trim, chamfer, fillet), object transformations, groups, object layers

4.3 CAD rendering techniques using computer graphics application, plotting and printing files, introduction to rendering algorithms

4.4 Introduction to three dimensional modeling, orthographic and non orthographic construction, the right hand rule, transformations