

काठमाण्डौ महानगरपालिका
प्राविधिक सेवा,अधिकृत छैठौँतह, आर्किटेक्टइञ्जिनियर पदको खुला र आन्तरिक प्रतियोगितात्मक लिखित परीक्षाको
पाठ्यक्रम

एवं परीक्षा प्रणाली (योजना)

पाठ्यक्रमको रूपरेखा :- यस पाठ्यक्रमको आधारमा निम्नानुसार दुई चरणमा परीक्षा लिइने छ :

प्रथम चरण :- लिखित परीक्षा पूर्णाङ्क :- २००
द्वितीय चरण :- अन्तर्वार्ता पूर्णाङ्क :- ३०

१. प्रथम चरण: - लिखित परीक्षा योजना(Written Examination Scheme)

पत्र	विषय	पूर्णाङ्क	उतीर्णाङ्क	परीक्षा प्रणाली	प्रश्नसंख्या X अङ्क	समय
प्रथम	आर्किटेक्टइञ्जिनियरिङ्ग	१००	४०	वस्तुगत:बहुवैकल्पिक प्रश्न (MCQ)	१०० प्रश्नX१अङ्क	१ घण्टा १५ मिनेट
द्वितीय	सम्बन्धी विषय	१००	४०	विषयगत	१०प्रश्नX १०अङ्क	३ घण्टा

२. द्वितीय चरण: - अन्तर्वार्ता (Interview)

विषय	पूर्णाङ्क	परीक्षा प्रणाली
अन्तर्वार्ता(Interview)	३०	मौखिक (Oral)

द्रष्टव्य :

- यो पाठ्यक्रम रूपरेखालाईप्रथम चरण (लिखित परीक्षा) र द्वितीय चरण (अन्तर्वार्ता) गरी दुई चरणमा विभाजन गरिएको छ ।
- लिखित परीक्षाको माध्यम भाषा अंग्रेजी वा नेपाली अथवा अंग्रेजी र नेपाली दुवै हुन सक्नेछ ।
- प्रथम र द्वितीय पत्रको विषयवस्तु एउटै हुनेछ ।
- प्रथम र द्वितीय पत्रको लिखित परीक्षा छुट्टाछुट्टै हुनेछ ।
- प्रथम तथा द्वितीय पत्रका एकाईहरुको प्रश्नसंख्यायथासम्भव निम्नानुसार हुनेछ :

खण्ड	A	B	C	D
प्रथम पत्रका एकाई	1	2	3	4
प्रश्न संख्या	20	40	20	20
द्वितीय पत्रका एकाई	1	2	3	4
प्रश्न संख्या	2	4	2	2

- वस्तुगत बहुवैकल्पिक (**Multiple Choice**) प्रश्नहरुको गलत उत्तर दिएमा प्रत्येक गलत उत्तर बापत २० प्रतिशत अङ्क कट्टा गरिनेछ । तर उत्तर नदिएमा त्यस बापत अङ्क दिइने छैन र अङ्क कट्टा पनि गरिने छैन ।
- बहुवैकल्पिक प्रश्नहरु हुने परीक्षामा कुनै प्रकारको क्याल्कुलेटर (**Calculator**)प्रयोग गर्न पाइने छैन ।
- विषयगत प्रश्नका लागि तोकिएका १० अङ्कका प्रश्नहरुको हकमा १० अङ्कको एउटा लामो प्रश्न वा एउटै प्रश्नका दुई वा दुई भन्दा बढी भाग(**Two or more parts of a single question**)वा एउटा प्रश्न अन्तर्गत दुई वा बढी टिप्पणीहरु (**Short notes**) सोध्न सकिने छ ।
- यस पाठ्यक्रम योजना अन्तर्गतकापत्र/विषयका विषयवस्तुमा जेसुकै लेखिएको भए तापनि पाठ्यक्रममा परेका कानून, ऐन, नियमतथा नीतिहरु परीक्षाको मिति भन्दा ३ महिना अगाडि (संशोधन भएका वा संशोधनभई हटाईएका वा थप गरी संशोधनभई) कायम रहेकालाई यस पाठ्यक्रममा परेको सम्झनु पर्दछ ।
- प्रथमचरणको परीक्षाबाट छनौट भएका उम्मेदवारहरुलाई मात्र द्वितीयचरणको परीक्षामा सम्मिलित गराइनेछ ।
- पाठ्यक्रम लागू मिति :- २०७३।२।२४

प्रथम र द्वितीय पत्र :- आर्किटेक्ट इन्जिनियरिङ्ग सम्बन्धी विषय

SECTION 1: ARCHITECTURE, HOUSING AND URBAN PLANNING

1.1 Architecture

- 1.1.1 Definition and History of Architecture
- 1.1.2 Contemporary World and Nepalese Architecture
- 1.1.3 Architecture of the Kathmandu Valley
- 1.1.4 Principles of Architectural Design and its Vocabulary
- 1.1.5 Factors and Standards of Architectural Design
- 1.1.6 Contemporary Nepalese and World Architects and their practices
- 1.1.7 Architectural Ethics; Nepal Engineering Council Act and Regulations

1.2 Housing and Urban Planning

- 1.2.1 Housing typology, Public; Private, group and combined housing: Design, prospects and challenges
- 1.2.2 Rural and Urban planning Characteristics
- 1.2.3 Hierarchy of Planning and Settlements; the increased challenges of squatter and slums
- 1.2.4 Different development Plan and periodic planning
- 1.2.5 Urban Investment and Planning regulations
- 1.2.6 Planning and Building Bye-law; and Building Codes
- 1.2.7 Settlement planning, Risk sensitivity and Resiliency
- 1.2.8 Environmental Issues in Kathmandu Metropolitan area
- 1.2.9 Urban development Programs
- 1.2.10 land development techniques, modes and models

SECTION 2: ARCHITECTURE OF THE CITY IN DEVELOPMENT

2.1 Traditional architecture: Feature; Evolution and Impacts

- 2.1.1 Definition of traditional architecture
- 2.1.2 Vernacular settings
- 2.1.3 Evolution of Structural system
- 2.1.4 Social and cultural impacts of Architectural development

2.2 Conservation of Traditional Art, Lifestyle and Architecture

- 2.2.1 Theory and practice of Tangible urban heritage and its conservation
- 2.2.2 Theory and practice of intangible urban heritage and its conservation
- 2.2.3 Conservation of architectural elements; system; and methods

2.3 Architecture and Urbanism

- 2.3.1 Urban Design
- 2.3.2 Urban Form evolution and maintenance
- 2.3.3 Strategic Approaches
- 2.3.4 Urban Conglomerate – its formation, approach and direction;
- 2.3.5 Transportation – modes, implication on urban form and economic exploration
- 2.3.6 Urban Renewal: Urban Regeneration; and Gentrification: Basic Concepts, practices and possibilities
- 2.3.7 Architecture and Identity; Economy; Philosophy and relation to art and 'ism'

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2.4 City Competitiveness

- 2.4.1 Equity in urban; Architecture and Society; Gender
- 2.4.2 Architecture and Environment; Status of the City

2.5 Urban Environmental Issues

- 2.5.1 Pressing environmental challenges
- 2.5.2 Urban poverty and implication
- 2.5.3 Urban redevelopment and clearance
- 2.5.4 Urban social and economic infrastructure

2.6 Innovative approaches

- 2.6.1 Green Building Technology
- 2.6.2 Green Economy
- 2.6.3 Sustainable architecture
- 2.6.4 Low Cost Technology; Appropriate Technology; Lifecycle costing
- 2.6.5 Building science and innovations

SECTION 3: STRUCTURE FOR ARCHITECTS

3.1 Reinforced Cement Concrete

- 3.1.1 Design of RCC footings, columns, slabs, beams..
- 3.1.2 Analysis of structural system in a building.
- 3.1.3 Design of steel structure.
- 3.1.4 Common structural problems in RCC buildings in Nepal.

3.2 Timber Structure

- 3.2.1 Design of timber structure.

3.3 Masonry Construction

- 3.3.1 Design of masonry structure.

3.4 Resistant Building Construction and use of Building Codes in architectural practice

- 3.4.1 Requirements of earthquake resistant building construction, Severity from Earthquake in Nepal, Records of damages and losses from past earthquakes, National Building codes and Application status, Requirement on improvement of NBC. Preventative and curative measures for Earthquake induced disaster.
- 3.4.2 Mandatory Rule of Thumb in building design
- 3.4.3 Non Engineered Earthquake resistant Building Design
- 3.4.4 State - of the Arts Design

3.5 Design Software in Building Structure

- 3.5.1 Computer aided design Analysis

SECTION 4: BUILDING MATERIAL AND CONSTRUCTION

4.1 Stone:

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- 4.1.1 Stone masonry: Types of stone used in stone masonry, specifications of stone masonry.
- 4.2 Brick**
 - 4.2.1 Brick masonry: Classification of bricks, specifications of different types of bricks, testing of bricks, different shapes of bricks.
- 4.3 Hollow Concrete Block**
 - 4.3.1 Hollow Concrete Blocks: Various types of concrete blocks, use of concrete blocks in buildings.
- 4.4 Construction material (Raw)**
 - 4.4.1 Sand: Requirement of good quality sand, sieve analysis, fineness modules.
 - 4.4.2 Lime: Different types of lime and their uses test of freshness.
 - 4.4.3 Mortar: Types of mortar, specifications, proportion of mortar for various types of masonry works.
 - 4.4.4 Paintings: Types of paints, specification for various types of painting Works.
 - 4.4.5 Water proofing: Water proofing at basement, ground floor and roofs, common water proofing problems in Nepal.
- 4.5 Roofing, walling and opening System**
 - 4.5.1 Roofing Systems: Different types of roofing system.
 - 4.5.2 Doors and windows: Different types of doors and windows, door and window details, merits and demerits of metal door and windows.
 - 4.5.3 Walls: Different types of wall system, Load bearing walls, partition walls and curtain walls.
- 4.6 Prefab construction**
 - 4.6.1 Pre-fabrication: Principles of pre-fabrication, advantages and disadvantages of a pre-fabricated building.
- 4.7 Other**
 - 4.7.1 Flooring: Different types of flooring, specification of floorings.
 - 4.7.2 Plastering: Different types of plasters and coating materials.
 - 4.7.3 Formworks: Shoring, underpinning, scaffolding and formworks.
 - 4.7.4 Building Elements: Foundation, super structure, lintel, floors, roofs, sun control devices, parapet, staircase, emergency stairs, elevators and escalators
 - 4.7.5 Building services: water supply and sanitation, electrification, heating and ventilation and air-conditioning.
 - 4.7.6 Development Control System in municipalities in Nepal
 - 4.7.7 Maintenance and repair of buildings.
 - 4.7.8 Principles of low cost construction techniques.
 - 4.7.9 Current building norms for estimating and costing.
 - 4.7.10 Prevailing Act, Rules, Regulation and Directives guiding to the Municipality of Nepal