THE NIGERIAN INSTITUTE OF BUILDING

SCHEDULE OF EXAMINATIONS

S/N	GRADE		SUBJECTS	REMARKS
1	MATURED (MCE)		2	MCE601/MCE602
2	CORPORATE (CE)		3	CE 501/ CE 502/CE 503
3	GRADUATE (GE)		6	GE 401/ GE 402/ GE 403/ GE 404/ GE 405/ GE 406
4	ASSOCIATE (AE)		6	AE 301/ AE 302/ AE 303/ AE 304/ AE 305/ AE 306
5	LICENTIATE (LE)		8	LE 201/ LE 202/ LE 203/ LE 204/ LE 205/LE 206/LE207/LE208
6	TECHNICIAN (TE)		8	TE 101/ TE 102/ TE 103/ TE 104/ TE 105/ TE106/ TE107/TE108

MATURED CANDIDATE EXAMINATIONS (MCE)

GRADE: MATURED CANDIDATE EXAMINATION (MCE)

S/No	COURSE CODE	COURSE TITLE	COURSE CONTENT	EXPECTED OUTCOME
1	MCE 601	PROFESSIONAL PRACTICE, PROCEDURES AND BUILDERS IN THE SOCIETY	- The Builders roles and responsibilities in the Built Environment - Building procurement laws and procedures - Building Contract laws and Arbitration - Building regulations and bye-laws - Codes and Standards in building industry - Entrepreneurship Development - Techniques of generating business ideas and assessing business opportunities and diversification. - Professional Practice and Ethics - Construction Programming and Scheduling - Project Quality Management Plan - Health and Safety Plan - Application of ICT in Building processes - Construction Methodology - Buildability and Maintenability analysis of building projects - Building Production Management - Facility Management - With emphasis on Building maintenance management	To demonstrate good knowledge of a professional builders practice, delivery expectations in the building industry and a thorough knowledge in core building practice areas viz-a-viz practical and theoretical experience
2	MCE 602	STAGES II & III	- Working experience (Log Book) - Technical Report - Oral Interview	To demonstrate competence, proficiency, practical experience of professional skills garnered through years of active professional tutelage in building production process management.

CORPORATE (CE) EXAMINATIONS

GRADE: CORPORATE (CE)

S/No	COURSE CODE	COURSE TITLE	COURSE CONTENT	EXPECTED OUTCOME
1	CE 501	BUILDER IN THE SOCIETY	- The Builders roles and responsibilities in the Built Environment - Building procurement laws and procedures - Building Contract laws and Arbitration - Building regulations and bye-laws - Codes and Standards in building industry	To demonstrate good knowledge of a professional builders practice, delivery expectations in the building industry
2	CE 502	PROFESSIONAL PRACTICE AND PROCEDURES	- Entrepreneurship Development - Techniques of generating business ideas and assessing business opportunities and diversification. - Professional Practice and Ethics - Construction Programming and Scheduling - Project Quality Management Plan - Health and Safety Plan - Application of ICT in Building - Construction Methodology - Buildability and Maintenability analysis of building project - Building Production Management - Facility Management - With emphasis on Building maintenance management	To demonstrate a thorough knowledge in core building practice areas viz-a-viz practical and theoretical experience
3	CE 503	STAGE II AND III	- Working experience (Log Book) - Technical Report - Oral Interview	To demonstrate competence, proficiency, practical experience of professional skills garnered through years of active professional tutelage in building production process management.

GRADUATE (GE) EXAMINATIONS

GRADE: GRADUATE (GE)

S/No	COURSE CODE	COURSE TITLE	COURSE CONTENT	EXPECTED OUTCOME
1	GE 401	CONSTRUCTION TECHNOLOGY II	Structural forms as determinants of Construction Technology. Modular coordination of designs, tolerances and fit in industrialized building production. Dimensional coordination. High rise Building systems in steel and reinforced concrete. Provision for services in industrialized building systems. Utilization and maintenance of construction plant and equipment, construction of sewers, tunnels, drainage systems, airport runways, simple bridges, towers etc. design and construction of formworks and scaffolding	To demonstrate and appreciate the various forms of structures in the built environment. To also demonstrate competence in the interpretation of production information and ability to handle construction of complex building systems and civil engineering works in a mechanized environment.
2	GE 402	STRUCTURAL THEORY AND DESIGN II	Forces and deflections in statically determinate and indeterminate elements. Combined bending and axial loading; combined analogy; stresses and moments in arches, rings and portal frames. Moment distribution and slope deflection method applied to beams, portals and other framed structures. Elementary principles and application of plastic theory The influence of codes and standards in the design of structures. Elastic and ultimate load design theories. Estimation of loads, working stresses factors of safety and load factors. Design of basic structural elements in reinforced concrete, prestressed concrete, steel, brickwork and timber. The use of testing in design. Experimental procedures for testing structural and other properties of materials and building components. Introduction to the analysis of statically indeterminate structures Moment Distribution Method. Concept and procedure. Application and analysis of continuous beams and simple frames.	To demonstrate competence in the analysis and design of building elements and systems, and and show appreciation of relevant standards and codes of practice in structural design.

GRADE: GRADUATE (GE)

S/No	COURSE CODE	COURSE TITLE	COURSE CONTENT	EXPECTED OUTCOME
			Force Methods: Application to continuous beams and frames. Treatment of frame subject to sway. Slope and Deflection Method Precise Moment Distribution Method. Application to continuous beams. **DESIGN** Structural Steel Work; Analysis and Design of Beams, Columns, Truss, Portal Frame, Stability of frames. Resistance to wind forces, Limit State Design of Steel Structures Introduction to Codes and Standards in Reinforced Concrete, Structural Steel Work, Timber and masonry, Computer Aided Design of Building Structures in Steel and Concrete	
3	GE 403	PROJECT MANAGEMENT I	Fundamental ideas of management theories and pioneering efforts of various contributors of management thought. Organization theory including structure, relationships, accountability, authority and leadership concepts. Management processes including executing, forecasting and planning functions. The conduct of site meetings. Strategic management principles applied to corporate planning and marketing strategies of construction firms. Management of risks. Productivity improvement strategies: operations research techniques, method study, time measurement, activity sampling and incentive schemes. Project Quality, Cost and Time Control procedures. Pre-tender and project planning, Construction Contracts.	To demonstrate thorough knowledge of management principles and apply same to solve problems in the planning, execution of building projects and apply management tools to improve construction productivity.
4	GE 404	BUILDING MAINTENANCE MANAGEMENT II	Planning of maintenance activities. Analysis of defects in buildings. Repairs and alteration works covering renewal, rectification, modification or improvement, demolition works, retrofitting service installations, underpinning of foundations etc. Building condition survey and structural appraisal reports. Maintenance of service installations (Heating systems, Air-conditioning, Plumbing, Electrical). Use of maintenance checklist for various work sections.	To demonstrate the proficiency in the identification, analysis and management of maintenance needs of buildings and services installations.

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S/No	COURSE CODE	COURSE TITLE	COURSE CONTENT	EXPECTED OUTCOME
5	GE 405	COMPUTER APPLICATIONS IN BUILDING	Computer Appreciation. Application softwares (office management, budgeting and financial control, project scheduling, statistic analyses techniques for research etc). Introduction to Builders and Estimation Softwares	To exhibit requisite computing skills in a global ICT context and particular applications to solving industry-based specific problems
6	GE 406	ENTREPRENEURSHIP DEVELOPMENT	- Techniques of generating business ideas and assessing business opportunities - Forms of Business Partnerships, Corporate/Registration requirements with various statutory bodies, Types of construction businesses, Feasibility and Viability Analysis - Method of product/service selection - Role of banks in Small and Medium Scale industries development - Various existing industries and support agencies in Nigeria	To understand the concept of business relationships and preliminary analysis required in the building industry

ASSOCIATE (AE) EXAMINATIONS

GRADE: ASSOCIATE (AE)

S/No	COURSE CODE	COURSE TITLE	COURSE CONTENT	EXPECTED OUTCOME
1	AE 301	CONSTRUCTION TECHNOLOGY	1.0 Industrial Practice 1.1 Organizing the building process 1.2 Types of design and practicing firms/organizations 1.3 Organizational structure and function of production Firms/organizations 2.0 Preliminary site operation and organization 2.1 Site conditions 2.2 Location of plants and choice of equipments 2.3 Temporary Service;- Drainage, water and electrical supply for site works Means of Access; - Temporary installation and layout of offices, stores Welfare, security, health and safety Problems related to site and surface cleanings. Methods of excavation and transportation including bulk excavation and rocks. 3.0 Construction Techniques	Candidate should demonstrate a clear understanding of the organizational structure of building firms and the production of building components.

GRADE: ASSOCIATE (AE)

S/No	COURSE CODE	COURSE TITLE	COURSE CONTENT	EXPECTED OUTCOME
			3.1 Choice of construction methods - Foundations and substructure - Excavation and means of support - Design of support systems - Foundation types and methods of construction for new Work - Work associated with alterations and repairs - Settlement of structure and its limitations - Single and multi-storey basement and construction and retaining walls **4.0 SUPERSTRUCTURE** - Load bearing and non load-bearing bended unit forms of Construction - Framed buildings and construction in timber, steel and concrete - Double and framed floors for large spans - Principles of large span reinforced concrete floors - Economic consideration in floor thickness - Use of beams; framing in steel and reinforced concrete - Formation of opening - Pitched roof construction - Flat and pitched roof covering and drainage - Concrete production, controls and testing	

GRADE: ASSOCIATE (AE)

S/No	COURSE CODE	COURSE TITLE	COURSE CONTENT	EXPECTED OUTCOME
			- Reinforced concrete and prestressed forms of construction - Formwork including design and erection - Offsite and onsite production line in process - Scaffolding and safety of structure during erection - Vertical and horizontal ducts. **5.0 FINISHINGS** 5.1 Treatment of openings: windows, doors, roof lights - staircase including stair construction and finishes - dry partitioning and walling systems - wall and element claddings and covering - dry and wet wall finishes - construction problems and techniques associated with the components and finishing of buildings. - Floor finishes in wood, block, tiles, plastics and flat roof	
2	AE 302	STRUCTURAL THEORY AND DESIGN I	1) **INTRODUCTION OF STATISTICALLY INDETERMINATE STRUCTURE:** External and internal redundancy (indeterminacy); General methods of evaluating redundancy, stability as methods of Structural Analysis. 2. **BUILT- IN AND CONTINUOUS BEAMS:** moment area methods of Analysis of built-in Beam and theorem of three moments	To demonstrate competence in the analysis and design of building elements and systems, and an appreciation of

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S/No	COURSE CODE	COURSE TITLE	COURSE CONTENT	EXPECTED OUTCOME
			3) 4) (Clapeyron equations) 5) 6) INFLUENCE LINES Statistically determinate conditions; beams, reactions, shearing force, Bending moments, Pin joined frames, axial forces. **7) REINFORCED CONCRETE:** Load factor method for reinforced concrete: introduction to limit state design; ultimate and serviceability; simply and doubly reinforced beams. Solid slab, flat slab and ribber hollow block slab. Shear reinforcement, local and anchorage bond, staircases-types **Design of concrete columns:** short and slendered columns. Combined Axial and Bending; Biaxial bending. **Foundation:** Types of foundation Analysis and design of reinforced concrete Design footing; stripped, pad footing; combine footing, strip foundation; raft foundation and pile foundation.	structural designs.
3	AE 303	BUILDING SERVICES I	**1.0 ELECTRICAL** - Electrical installations for water heating, lighting and power systems. Layout including safety devices - I.E.E Regulations - Switch gear - Use of terms - Telephones and other communication systems **2.0 GAS** - Gas installations; ventilation and provision of gas fines in accordance with regulations. External and internal supply and distribution of gas. - Gas supply, testing Gas control and safety features	Candidates are expected to show a clear understanding of services installations in building and application of relevant codes.

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S/No	COURSE CODE	COURSE TITLE	COURSE CONTENT	EXPECTED OUTCOME
			- Ventilation requirements - Gas connections - Pipes, pipe sizing, values - Gas meters and installations **3.0 LIGHTING** 3.1 Natural and artificial lighting requirements for buildings - Proportion and characteristics of windows in proportions to lightings required - Principles of artificial lighting including lamp and reflector characteristics. - Luminosity, glare, brightness and disposition of units. - Wiring and cable sizes **4.0 MECHANICAL INSTALLATIONS FOR MOVEMENT IN BUILDINGS** - Design procedures for the selection of lifts - Escalators - Travalators - Use of transporters relative to speeds, loading, number and costs - Refuse disposal systems. Refuse chutes **5.0 FIRE FIGHTING** Principles of fire fighting and prevention in buildings - Types and classes of fire - Fire fighting equipments including rising wet and dry mains, sprinklers, extinguishers, hose reels and alarm systems - Fire resistant doors and windows and access for fire fighting. - Fire hydrants, fire points - Provision for fire escapes	

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S/No	COURSE CODE	COURSE TITLE	COURSE CONTENT	EXPECTED OUTCOME
			6.0 AIR CONDITIONING PROCESS - Indoor and outdoor design - Principles of humid air - Dusted air system - Central plant including refrigeration and cooling towers - Split and unitary systems - Control; techniques - Control dumpers - Fans - Installations, commissioning - Operations and maintenance	
4	AE 304	PRINCIPLES OF CONTRACT LAW AND ARBITRATION I	**1.0 PUBLIC LAW:** Government department and local authorities. Acts of parliament public health, town and country planning, road traffic act, building regulations and other acts affecting buildings. **2.0 OBLIGATIONS:** Contracts-nature and essentials of a valid contract, parties to building contracts, offer and acceptance, tenders, expressed and implied contract; contracts under seal, voidable and unenforceable contracts, contractual capacity, mistake misrepresentation, estoppels, unin corporated associations and corporations, ultra vires, principles in common law, performance and discharge. **3.0 BREACH OF CONTRACT:** Principles of breach, remedies for breach. Damaged and quantum merit, arbitration. **4.0 TORTS:** Nature of torts, principles of liability, classification of torts, negligence, nuisance, trespass, breach of statutory duty, Rylands v. Fletcher; liability for spread of fire, infringement of patents and copy-rights, disturbance of easements, restrictive covenants. **5.0 LAW OF PROPERTY:** Classes of interest and title to land; freehold and leasehold; rights and duties of owners and occupiers of land; fixtures, dilapidations, mortgages, easements, chattels, ownership and possession; bailment, pledge; hire, negotiation instruments; debts, bankruptcy, voluntary and compulsory liquidation.	Candidates are expected t understand the principles of la related to litigation obligatio which may arise durin construction operations.

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S/No	COURSE CODE	COURSE TITLE	COURSE CONTENT	EXPECTED OUTCOME
			6.0 LAW RELATING TO BUILDING: building contracts and Sub-contracts, industrial law, contracts of employment, trade unions, negotiating machinery, factors Acts:H.P.F Acts, Construction Regulations, joint industrial agreements, employers liability insurance , damage to third parties and property, carriage and sale of goods, highways, nuisance, obstructions, demolitions, rights of the public and adjacent owners, scaffolding and hoardings, building lines, improvement lines. **7.0 ARBITRATION:** The Acts of parliament providing for arbitration. Appointment and duties of the arbitrators, umpires and referees, preparation of a case for arbitration, procedure, methods, awards, evidence and valuations. Amendments, enforcement and revocation of arbitration agreements. Procedure before the hearing, points of claim and defense. Procedure at and during the hearing. Conditions and procedure for examining witnesses and evidence, special cases. Proceedings subsequent to awards, irregularities and waivers: cost and fees. Proofs of evidence in disputes over building matters. 8.0 CONCILIATIONS: Conciliation is simply a process of settlement of a dispute by a third person outside the courts and without prior agreement by the parties to do so, the only agreement to reconcile having being reached after a dispute has arisen.	
5	AE 305	MEASUREMENT OF BUILDING WORKS AND ESTIMATING I	1.0 Measurement of building works in the following areas; site preparation and temporary works- underpinning basements, foundation and substructures in level and slopy sites- External andinternal walling, partitions. Floors in timbers and concrete-stairs and ramps in timber, concrete and metal. -Roofs of timber, concrete and metal construction. - Roofing, roof lining, roof lighting. -Framed and unframed structural steel-work and casing - In-situ concrete frames. Precast concrete components. -Timber construction and cladding - windows and doors in timber and metal and their openings - window and doors in timber and metal and their openings - joinery including fittings and furniture. Metal work- Internal and external finishes and decoration. -External works and below ground drainages. Services installations, sanitary fittings, hot and cold water, gas, water heating, above ground drainage and rainwater disposal, domestic electrical.	Candidates should exhibit basic principles and method of measurement of building works To demonstrate a good understanding of building procurement procedures

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			- Measuring and preparing variation accounts from drawings, bills of quantities and dimensions for all actions of the work including sub-contractors works. Settlement of sub-contractors accounts compilation of schedule of cost fluctuation of labor and materials. Day works procedures. 2.0 Methods of approximate estimating; tendering policies and methods. -sources of cost information, considerations affecting the build-up of unit rates, constituents of rates in all trades, analysis and synthesis of rates. Economic considerations of the use of mechanical plant. -Preliminary, general items and overhead, pricing methods. 3.0 Analytical economics and valuation: preparation of estimates, selection of quotations, method of pricing bills of quantities-pricing of materials, labour and plant. Methods of assessment and charging over-head costs and profit. Preparation of tenders. Estimating for fixed price and variable price contracts. Prime cost, provisional sum, nominated suppliers and sub-contractors. –General considerations in estimating; factors affecting cost, user requirements, legislation, limitation due to nature of soil variations. -Valuation of work done at interim and final account stages. -Use of schedule of prices. -Compilation of unit rates - Prime cost and provisional sum. -Estimating the cost of special scaffolding and other exceptional items of attendance	
6	E 306	CONSTRUCTION ECONOMICS AND MANAGEMENT	**Structure, function and importance of construction industry:** The manager's relationship with client/client's agents and representative of external authorities. Labor management, selection and economic principles of mechanical and equipment utilization on site.	To demonstrate thorough knowledge and understanding of the structure and importance of the construction industry, economic

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			Economic factors of building production. Laws of supply and demand, derivation of labor, localization of industry, lands, housing and urban development policy. National construction policies.	factors of building production and the relevant institutional frameworks.